NATO Architecture Framework v4.1 ArchiMate Implementation Guide

Architecture Capability Team
Digital Policy Committee 2026.06

Contents

1 INTRODUCTION

1.1 About this Document

1.1.1 This document refers to Chapter 4, Section 2.2, of the NATO Architecture Framework (NAF) version 4.1. It provides guidance on how to develop NAFv4.1 compliant architectures based on the ArchiMate 3.2 specification.

1.1.2 The NATO Architecture Framework document concerns all nations or organizations using the NAF. It is provided and maintained by the NATO Architecture Capability Team (ACaT). The ArchiMate implementation guide (i.e. this document) concern all nations or organizations using the ArchiMate modelling language for their architecture development. Because tools and specific extensions of framework and language may differ between nations or organizations, these aspects are not considered in this document. Nations or organizations need to provide and maintain additional guidelines in order to cover these aspects themselves.

1.2 Design Principles

1.2.1 This document provides an ArchiMate-based implementation of the NAFv4.1 Information Model (NAF IM). The following design principles guided its development:

- Conciseness - Only ArchiMate elements and relationships necessary to represent the NAFv4.1 Information Model and its viewpoints are included. Redundant or rarely used constructs are intentionally omitted to improve modelling clarity and reduce complexity.
- Flexibility - Where necessary, ArchiMate concepts have been specialized to represent NAF-specific semantics accurately and to ensure the metamodel reflects the intent of the NAFv4.1 Information Model.
- Usability - The model prioritises clear semantics and unambiguous representation of architectural concepts, ensuring that architects can interpret and apply the specialized ArchiMate elements confidently and consistently.
- Alignment – The implementation aligns closely with the NAFv4.1 Information Model, adapting ArchiMate where required to represent NAF concepts with the correct semantics. The objective is to deliver a consistent and faithful ArchiMate representation of NAFv4.1, rather than a full replication of either metamodel. It is **not** intended to be a 1:1 mapping of the ArchiMate specification to NAFv4.1 IM.

1.2.2 Addressed readers are

- Modellers required to produce NAFv4 compliant ArchiMate Models.
- Developers of national/organizational guidelines.
- Implementers of tool specific ArchiMate profiles.

1.2.3 Programme-level architects may use this guidance but retain the discretion to extend or tailor the metamodel to suit programme needs. Given typical constraints on time, resources and scope, they are expected to produce a minimum viable architecture aligned with the NAFv4.1 Information Model, rather than exhaustively constructing every viewpoint described in this guide.

2 ARCHIMATE AND NAF

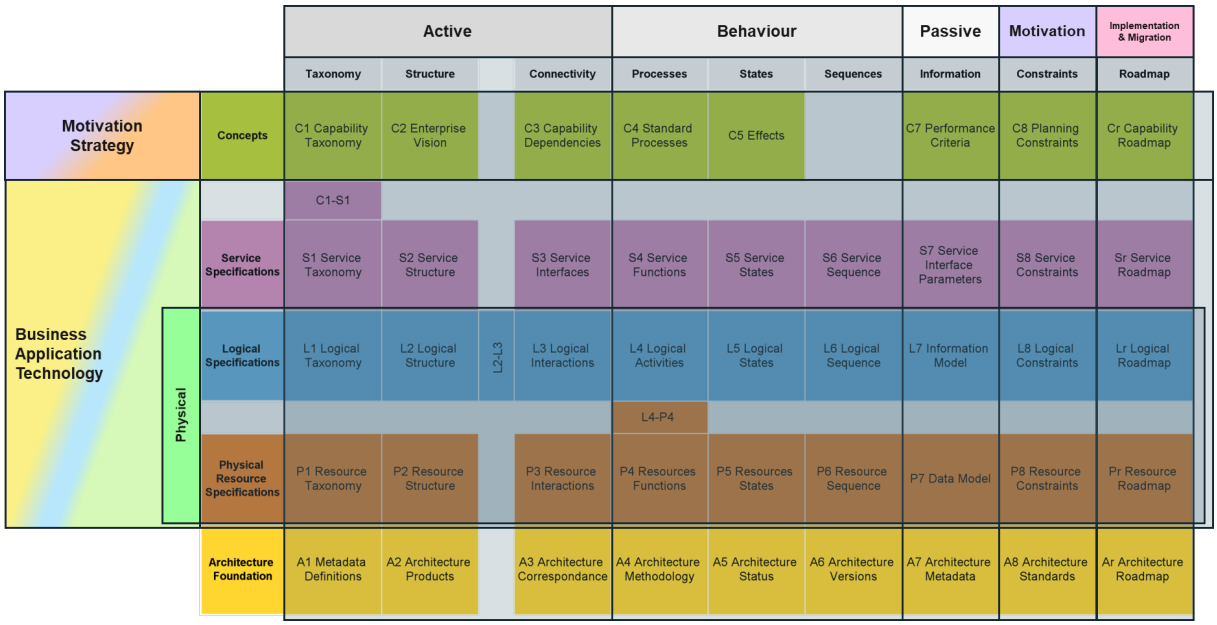
2.1 The NAFv4 Viewpoints

2.1.1 The NAF Grid is detailed in Chapter 2, Section 2 of the NAFv4.1. It is a two-dimensional classification scheme for the standardized NAF viewpoints, which serve as the baseline for any NAF-Compliant architecture effort.

2.1.2 The grid approach presents the NAF viewpoints by Subjects of Concerns (rows) and by Aspects of Concerns (columns). The NAF is arranged as a grid with columns as set of broad Model Kinds.

2.2 ArchiMate NAF Grid Overlay

2.2.1 The ArchiMate Full Framework captures the viewpoints in the NAF Grid thusly;



2.2.2 Aspects from the ArchiMate Full Framework do not align explicitly to the viewpoints, however, the shading of the vertical 'aspects' related to the fact that encapsulated viewpoints emphasize the use of objects from these aspects, but are *not* limited to them. Whilst in some cases there are terms in both NAF and ArchiMate that share the same meaning, others do not. Care must be taken to understand which term the document is referring to at any point in time, for example; Technology, Physical, Resource and Node etc.

2.2.3 Due to the use of ArchiMate concepts in multiple layers within the NAF Grid, the specialization of ArchiMate concepts is required.

2.3 Specialisms

2.3.1 Specializing the ArchiMate metamodel is a necessity, and as such, all elements within this document should be viewed as specialisms of the standard ArchiMate specification with some elements with the only distinction being in how much the specialisms deviate from the standard.

2.3.2 Specialization addresses both;

- gaps in aligning the standard ArchiMate framework and NAFv4.1, and, in future
- exchange between different modelling languages

2.3.3 By tailoring ArchiMate elements to represent NAF-specific constructs, the resultant specialized *NAFV4.1 ArchiMate Metamodel* becomes more effective and relevant for its intended purpose. This specialization is fully supported by the ArchiMate specification, ensuring compliance while enabling enhanced clarity and usability.

2.3.4 There is a many to many mapping between the Information Model elements and ArchiMate specialisms. This is because of either the natural extension of ArchiMate in some areas e.g. layering (business, application, technology) or because the definition of the IM elements map to multiple ArchiMate elements, e.g. the IM Goal is defined as “An aim or outcome..” which nicely maps onto the ArchiMate goal and/or the ArchiMate outcome depending on the context.

2.3.5 However, nations or organizations seeking consistency across multiple programmes, projects, or tool implementations may further constrain these options in their own guidance. In such cases, a single preferred ArchiMate mapping may be selected for a given NAF IM element, with alternative mappings used only where explicitly justified by the architecture context.

2.3.6 The definitions of the objects in the glossary are mainly derived from the NAF Information model. Where the objects are further specialized they are supplemented with explanations e.g. ArchiMate layer specific types of the definition. In other cases where an ArchiMate concept is used to represent an IM concept but the semantics don’t naturally align, then a case by case basis has been used to reflect an IM-centred definition or an ArchiMate only definition e.g. capability.

2.4 Nodes in ArchiMate

2.4.1 Before the publication of the NAFv4.1 Information Model, layered Nodes were used to represent the underlying business, application and technology performers. In the absence of a clearer metamodel, these Node specialisations were interpreted as resources at the logical level themselves, leading to modelling patterns such as Business Node, Application Node and Technology Node.

2.4.2 The NAFv4.1 Information Model now clarifies that the Node is a generic, layer-agnostic logical placeholder and performer, whereas the true layer-specific semantics are provided by the Logical Active Resource (Node) subtypes (such as Logical Actor, Logical Application, Logical Technology and Logical Equipment). As a result, architects should use Node only when the nature of the performer is not yet known, and model the appropriate Logical Active Resource whenever the layer and type of resource can be identified.

3 HOW TO READ

3.1 The Structure of each Viewpoint

3.1.1 Each Viewpoint (cell in the NAFv4.1 grid) has the following subsections:

- Viewpoint text
- NAF IM Viewpoint
- ArchiMate viewpoint
- NAF IM ArchiMate Mapping table
- Implementation Guidance
- SAR ArchiMate Example

3.2 ArchiMate Viewpoint Interpretation

3.2.1 Elements on the viewpoints show the specialization name and are prefixed with a #, such as '# Logical Application' making their extended purpose immediately clear. They retain the standard ArchiMate notations and colours (acknowledging that there are no formal semantics around colours) to maintain familiarity and consistency for users. This approach ensures that the specialized constructs remain intuitive while clearly conveying their specialized meaning within the NAFv4.1 framework.

3.2.2 Bold borders on relationships and elements represent mandatory (shall be present in the viewpoint, otherwise objects are optional (may be present in the viewpoint).

3.3 NAF IM ArchiMate Mapping Table

3.3.1 Within the Implementation guidance section is included a table with 3 columns, this serves to provide a mapping between NAFv4.1, standard ArchiMate, and the specialized objects as part of this guide. In these tables the columns are:

NAF IM Element	NAF ArchiMate Specialism	ArchiMate Name
The name in the NAFv4.1 Information Model.	The name of the specialized ArchiMate element created for the purpose described in this document.	The name of the generalized element from the ArchiMate specification from which the NAFv4 specialization is derived

3.4 Implementation Guidance

3.4.1 The guidance is intended to:

- clarify mandatory modelling constraints and representation choices;
- explain modelling choices that are implied by the NAF text but not stated explicitly;
- help modellers apply the intended pattern consistently across related and more complex viewpoints.

3.4.2 Where terms refer to elements/relations in the NAF IM they will be **bold**. For those that are ArchiMate specific they are *italicized*. In some cases the use of italics is meant in the context of ArchiMate as opposed to a specific ArchiMate concept e.g. '*services'* is shorthand for *Business Services, Application Services, Technology Services*. This applies to '*interfaces', 'functions', processes'.*

3.4.3 The NAFv4.1 Information Model simplifies several viewpoints by displaying only the meta-level superstructure element, for example showing Physical Active Resource. This approach is not compatible for the ArchiMate implementation. Accordingly, wherever the IM references a superstructure element, this guide includes all corresponding ArchiMate specialisations directly (where relevant) on the viewpoint to ensure completeness and remove ambiguity. The viewpoint diagram, the mapping table and the written guidance are intended to be read together, providing a full and unambiguous interpretation of each NAFv4.1 viewpoint.

3.4.4 In a small number of cases, including every relationship on the diagram would make it unreadable; where this occurs, the implementation guidance explicitly notes relationships that exist in the metamodel but are omitted visually for clarity.

3.4.5 To keep the text manageable, the implementation guidance places less emphasis on repeatedly distinguishing mandatory from optional, as this is already visible in the diagrams and stated in the IM.

3.4.6 Each viewpoint's guidance is written to stand alone and, where appropriate, cross-references related viewpoints and sections to reinforce the intended modelling pattern.

3.4.7 Note that element attributes and properties are not shown in the diagrams but are described in the guidance when relevant.

3.5 Tool Requirements for Implementation

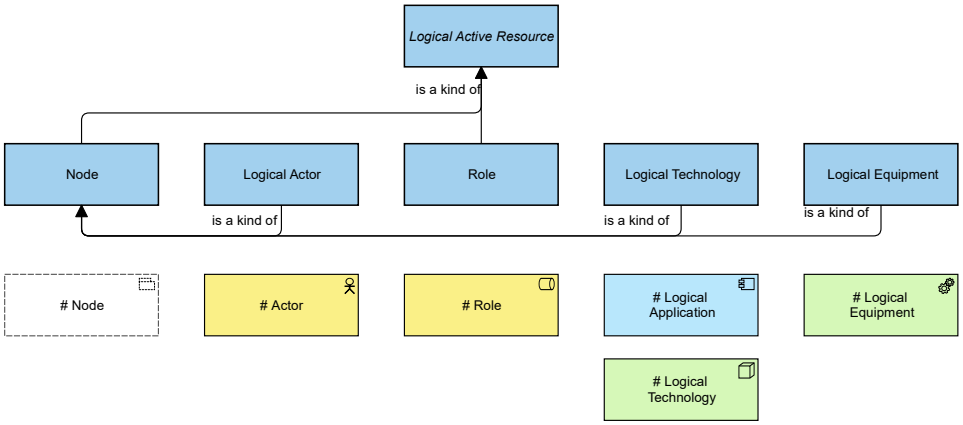
3.5.1 This guide is written as tool agnostic, but the minimum requirement for any ArchiMate modelling tool is that it is capable of implementing the ArchiMate specializations required, as per the ArchiMate specification. The toolset must support the ability to either embed the specializations as attributes for tagging elements or visually represent them as stereotypes on objects. These features are critical for ensuring that the specialized framework is consistently applied and intuitive for users, enabling effective modelling, analysis, reporting and stakeholder communication.

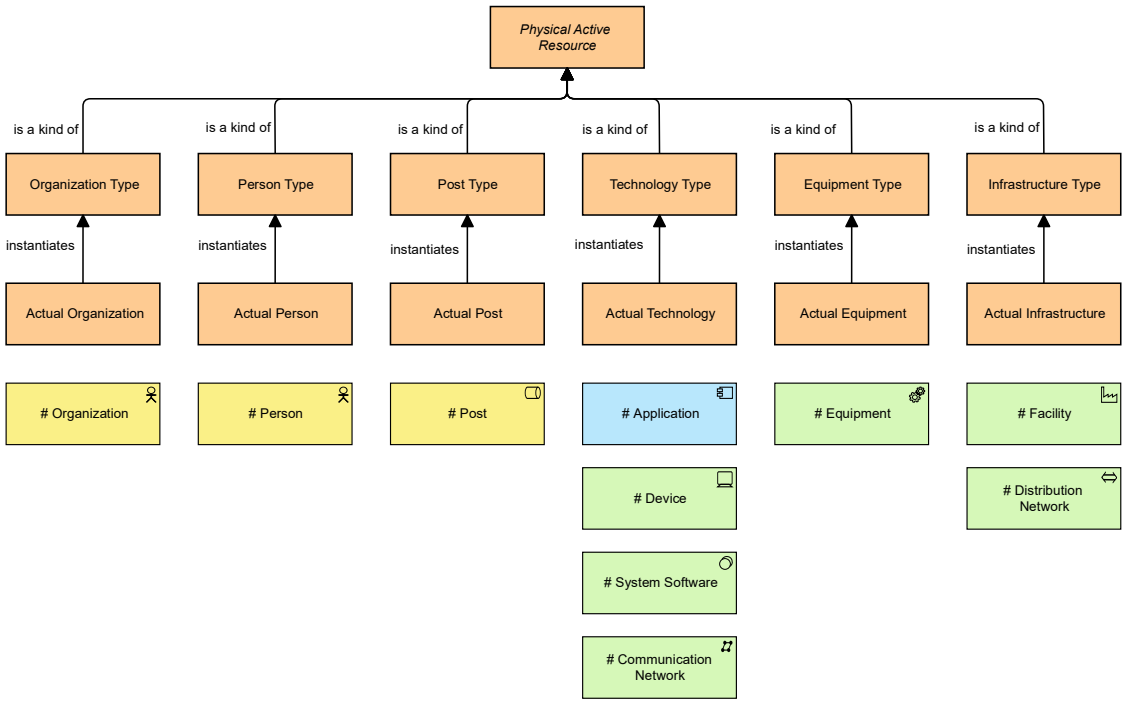
4 ARCHIMATE SUPERSTRUCTURE MAPPING

4.1 Mapping Purpose

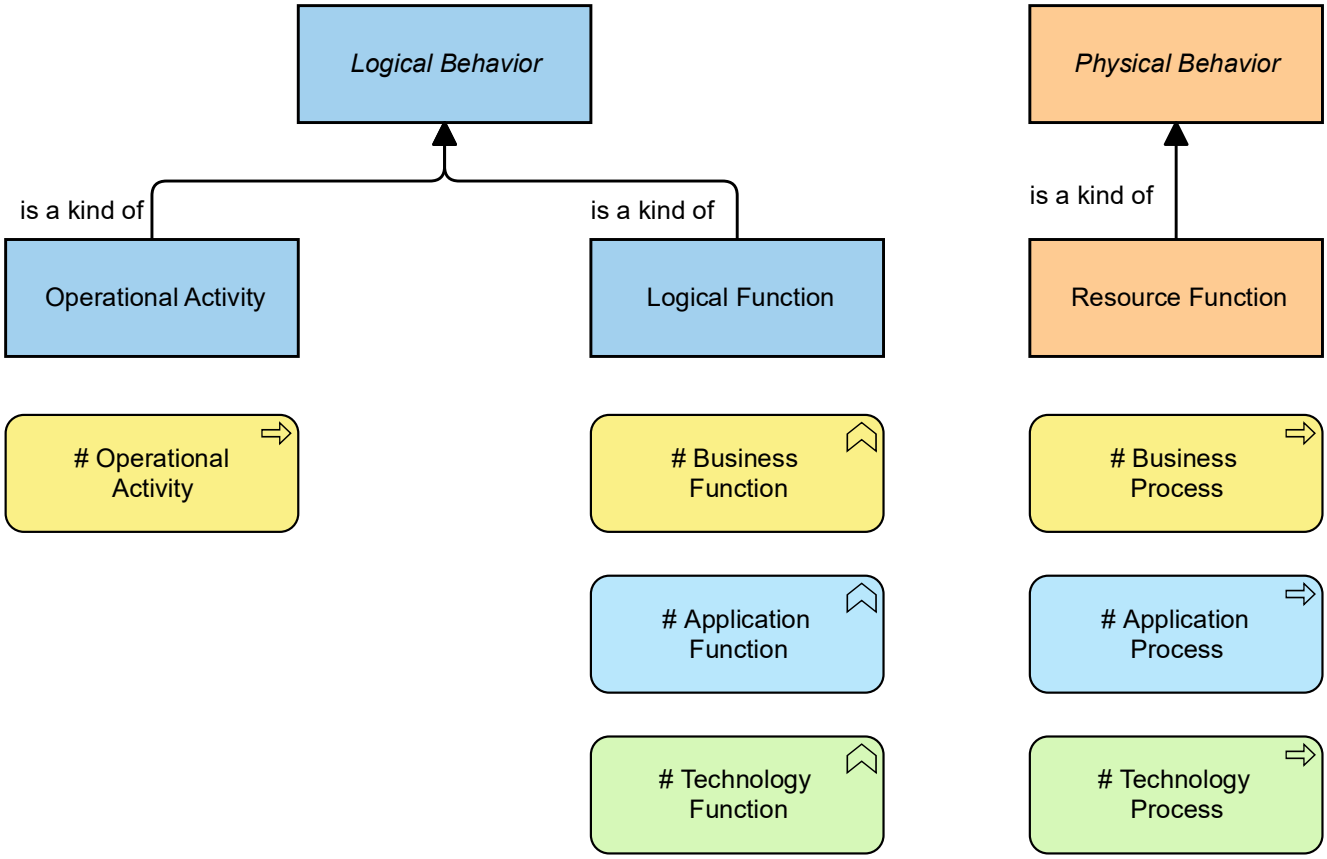
4.1.1 The following diagrams provide a visual mapping of the NAF IM Superstructure (NAFv4.1, Chapter 3, Section 3) to a subset of the specialized ArchiMate elements used in this guide. They show how the structural and behavioural aspects defined in the Information Model across the Logical and Physical rows are represented using the business, application, technology and physical layered specialisms. For clarity, the IM superstructure diagrams have been redrawn with the corresponding ArchiMate elements placed beneath each superstructure category.

4.2 Logical and Physical Resource Mapping

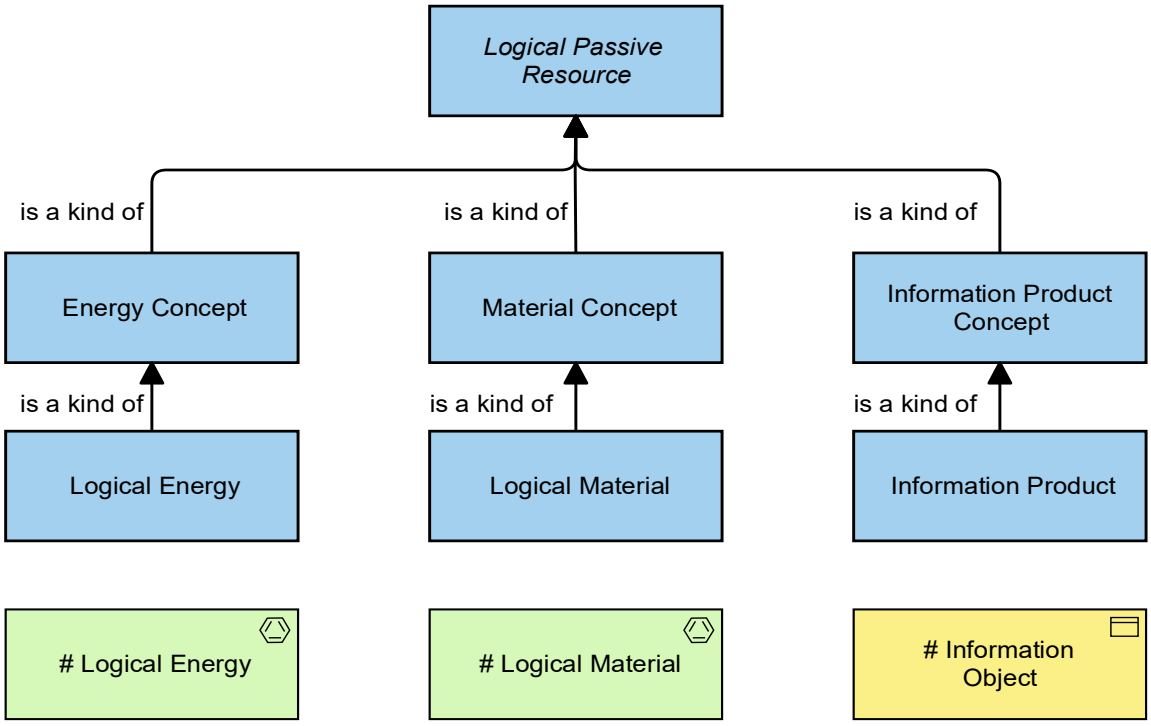


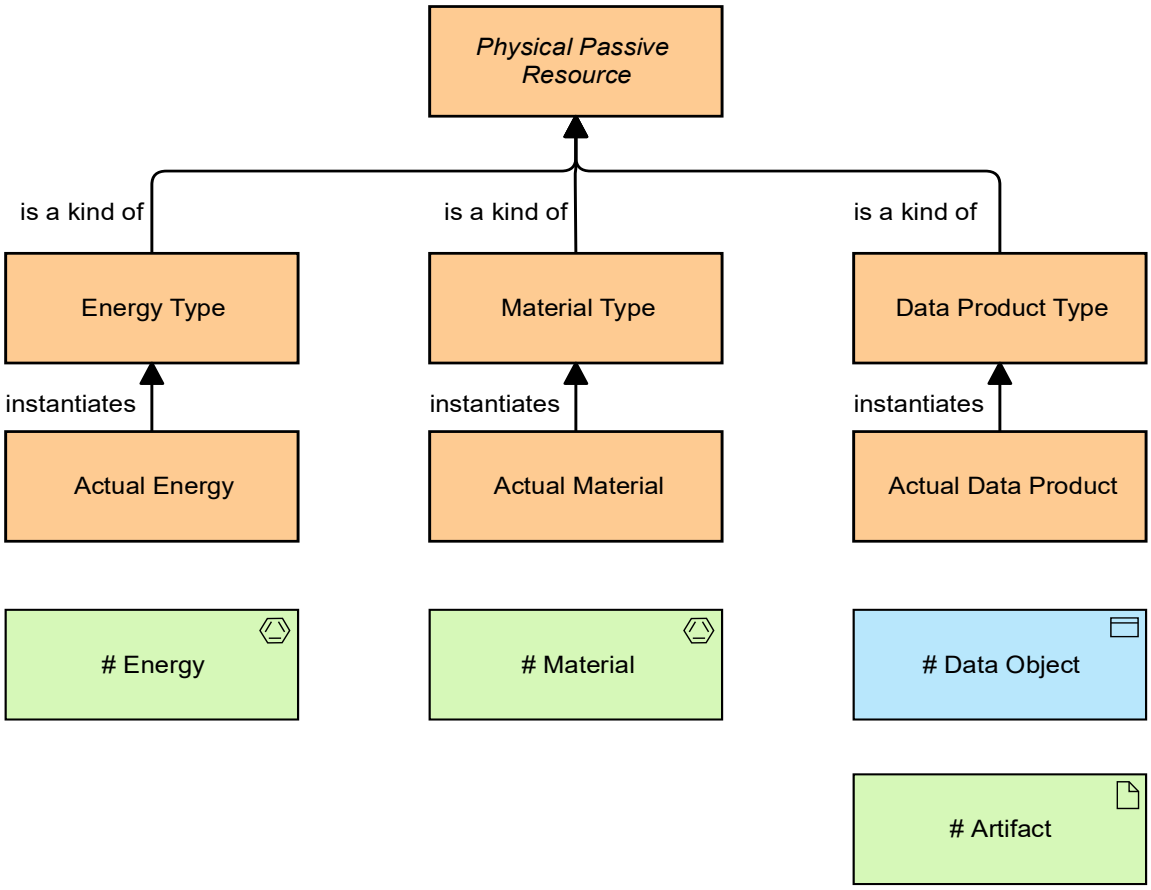


4.3 Logical and Physical Behaviour Mapping



4.4 Logical and Physical Passive Mapping





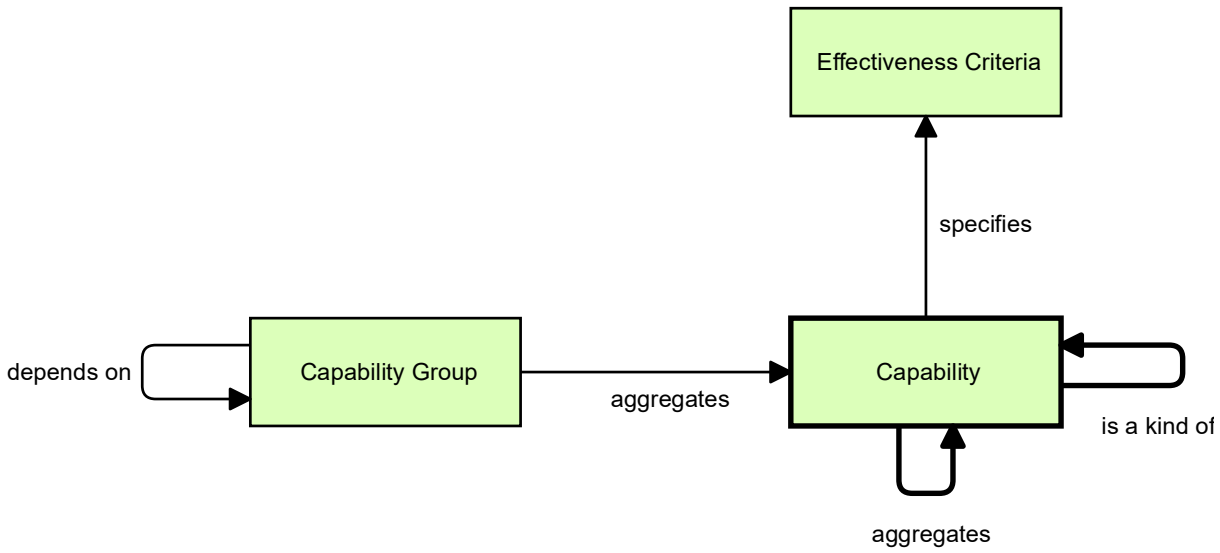
5 C1 - CAPABILITY TAXONOMY

Purpose	Usage & Concerns Addressed
The C1 Viewpoint is concerned with the identification of capabilities and their organization into specialization taxonomies, independent of their implementation.	• Capability Planning and Management. • Identification of existing and required Capabilities. • Providing reference Capabilities for multiple architectures.

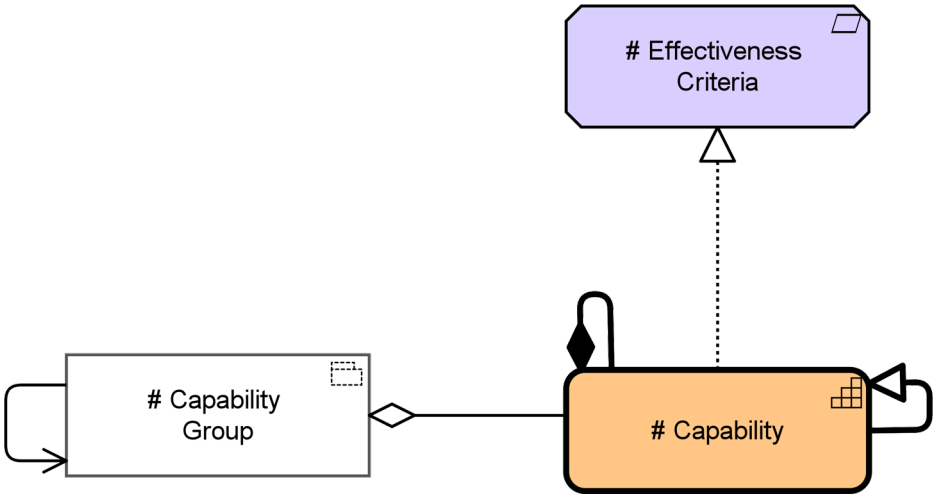
Scope
• Shall contain Capabilities relevant for the entity of interest • Shall contain Capabilities organized into specialization and hierarchical (aggregation) taxonomies. • May show Capabilities organized into Capability Groups. • May show Effectiveness Criteria for the Capabilities.

Representation
• Tabulation. • Hierarchical (Connected Shapes). • Diagram (with generalization relationships and property definitions).

5.1 C1 NAF IM Viewpoint



5.2 C1 ArchiMate Viewpoint

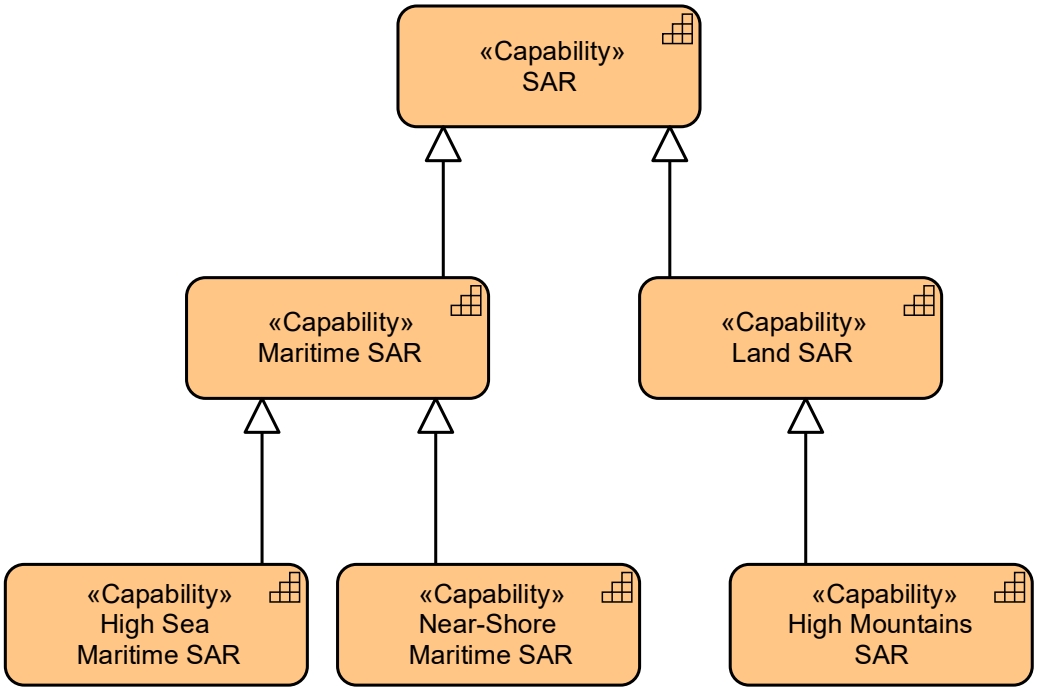


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Capability Group	# Capability Group	Grouping
Effectiveness Criteria	# Effectiveness Criteria	Requirement

5.3 C1 Implementation Guidance

Hierarchical taxonomies of ***Capabilities*** are represented using the *composition* relation. **Capability groupings** are represented as *groupings* and they *aggregate* ***capabilities***. Dependencies between **Capability Groupings** can be modelled with a *serving* relation. Specialization taxonomies of *capabilities* are represented using the *specialization* relationship. **Effectiveness Criteria** are represented as *requirements* that are *realized by* ***capabilities***.

5.4 C1 ArchiMate Example



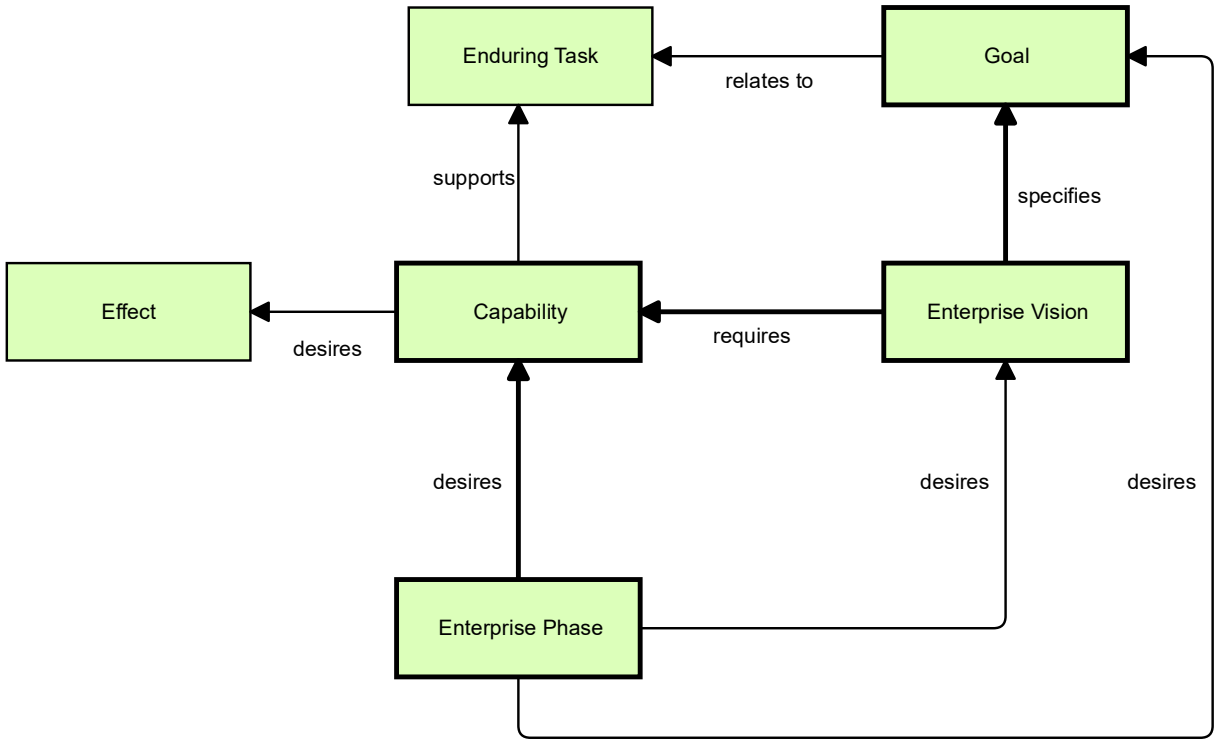
6 C2 - ENTERPRISE VISION

Purpose	Usage & Concerns Addressed
The C2 Viewpoint is concerned with the scoping of the Architectural effort and providing the strategic context for the Capabilities described in the Architecture.	• Enterprise Strategy. • Capability Planning. • Capture and communication of the strategic vision related to capability evolution. • Identify the capabilities required to meet the vision and goals. • Identify the required timescales for the capabilities as opposed to Cr which provides a summary of when projects are estimated to deliver capability. • Identify any enduring tasks the enterprise performs. • Provision of a blueprint for a transformational initiative.

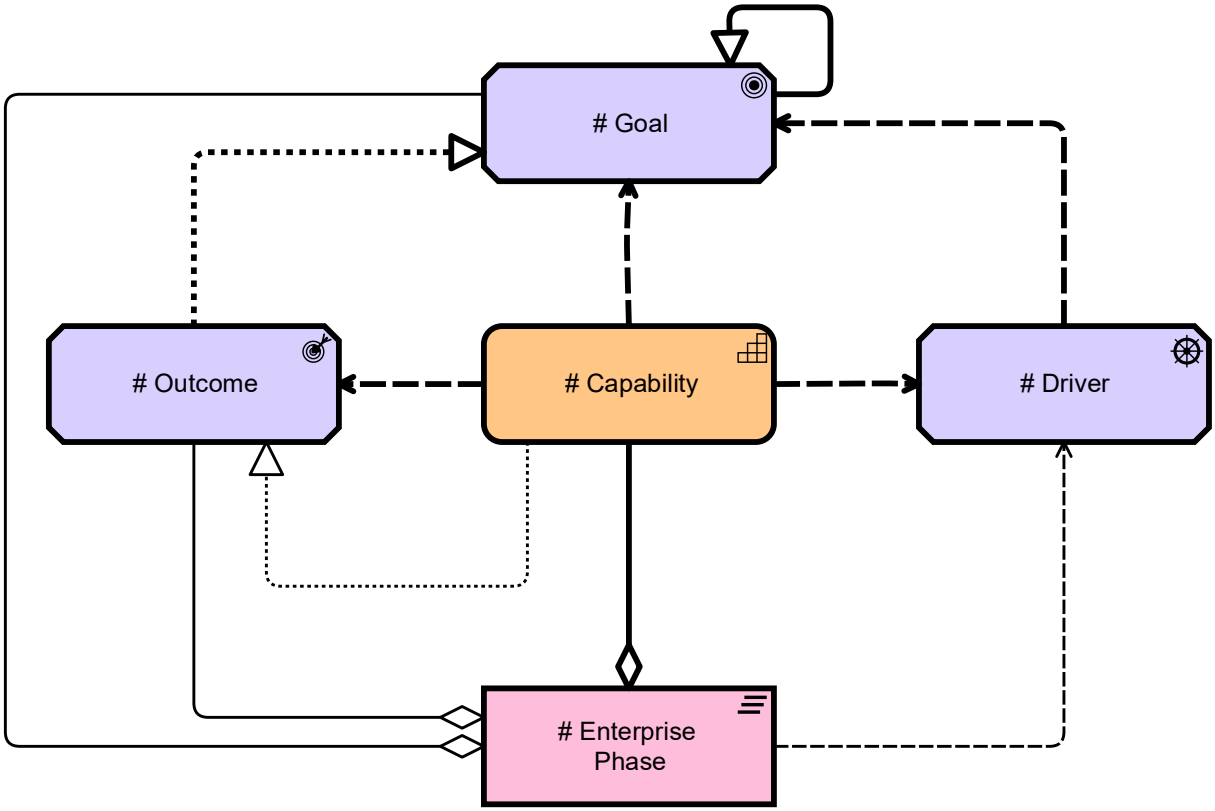
Scope
• Shall contain the Enterprise Vision and the required Capabilities. • Shall contain Goals specified by the Vision. • Shall contain Enterprise Phases the Capabilities desire. • May show the Effects that the Capabilities desire. • May show Enduring Tasks linked to Capabilities and Goals.

Representation
• Structured Text. • Composite Structure Diagram.

6.1 C2 NAF IM Viewpoint



6.2 C2 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Effect	# Outcome	Outcome
Enduring Task	# Capability	Capability
Enterprise Phase	# Enterprise Phase	Plateau
Enterprise Vision	# Driver	Driver
Enterprise Vision	# Goal	Goal
Goal	# Goal	Goal
Goal	# Outcome	Outcome

6.3 C2 Implementation Guidance

The C2 Enterprise Vision expresses the strategic intent that drives capability evolution. In this viewpoint, several NAF IM concepts may play different roles depending on the modelling context; the mappings below explain the valid combinations.

An **Enterprise Vision** can be either represented as a *goal* or *driver,* therefore a *goal* can *specialize* a *goal*, or be *influenced* by a *driver*. ***Capabilities*** *influence drivers.*

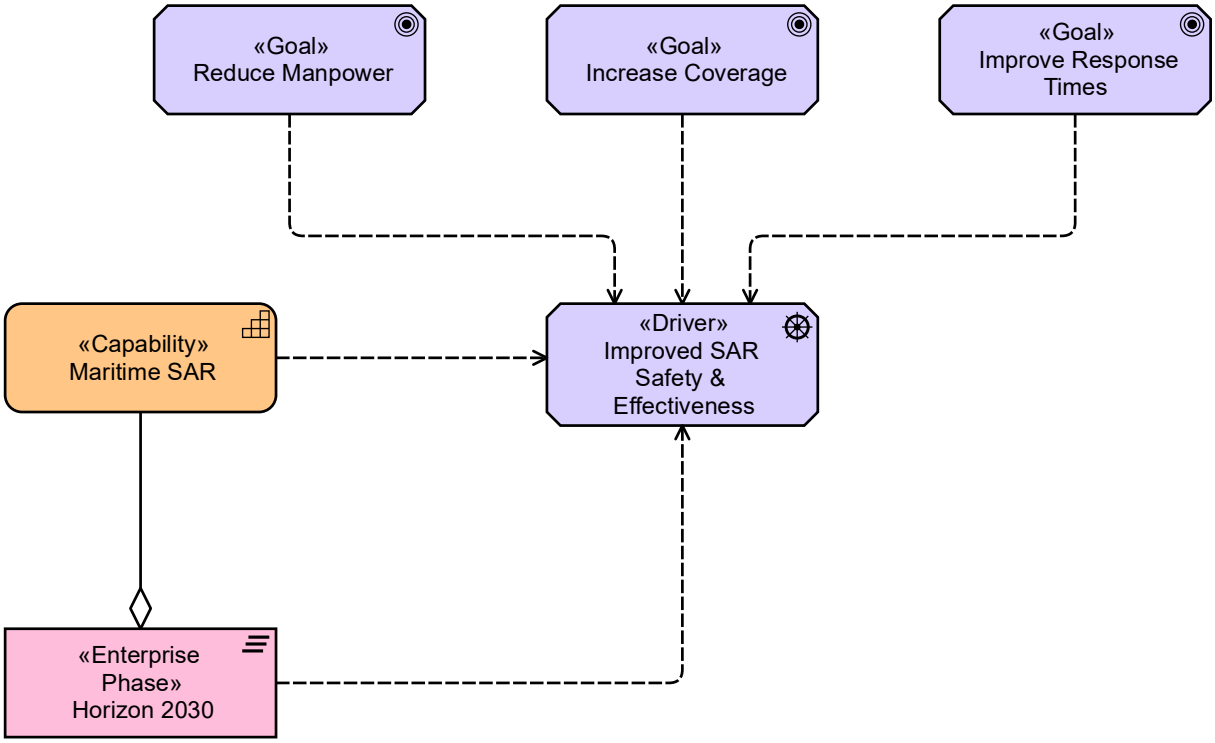
Enduring Tasks can be represented as ***capabilities*** which *influence* a *goal*.

Goals themselves are represented as either an *outcome* or a *goal*. This means ***Capabilities*** directly *influence* a *goal* or *influence* an *outcome* which *realizes* a *goal.*

A *plateau* is used to represent an **Enterprise Phase** which *aggregates* the *goal*, *outcome, **capability*** and *influences* a *driver*.

Outcomes are also further used to represent **Effects** that can be *realized by **capabilities**.*

6.4 C2 ArchiMate Example



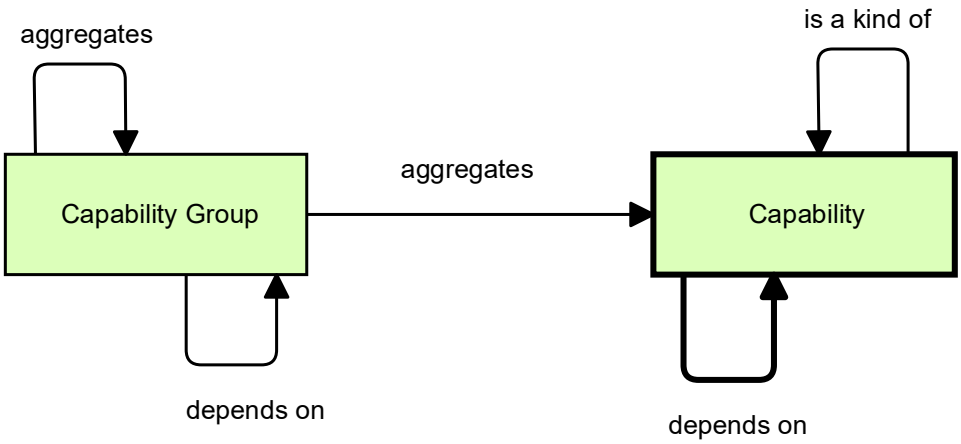
7 C3 - CAPABILITY DEPENDENCIES

Purpose	Usage & Concerns Addressed
The C3 Viewpoint is concerned with the identification of dependencies between capabilities.	• Capability Management. • Analysis of dependencies between capabilities and between Capability groups. • Impact analysis for Capability options, disposal of Capabilities. • Highlight potential integration requirements and the interactions needed between acquisition projects in order to achieve the overall capability.

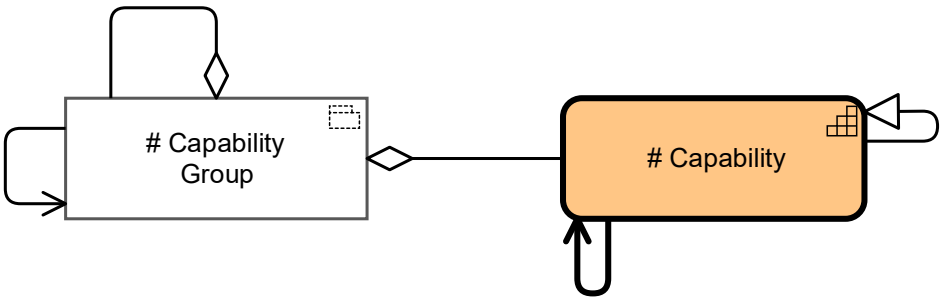
Scope
• Shall contain all dependencies between Capabilities relevant for the entity of interest. • May show the Capabilities Groups that the Capabilities belong to. • May show dependencies between Capability Groups. • May show Capability specializations.

Representation
• 'Nested box' diagram. • Class diagram. • Composite Structure diagram.

7.1 C3 NAF IM Viewpoint



7.2 C3 ArchiMate Viewpoint

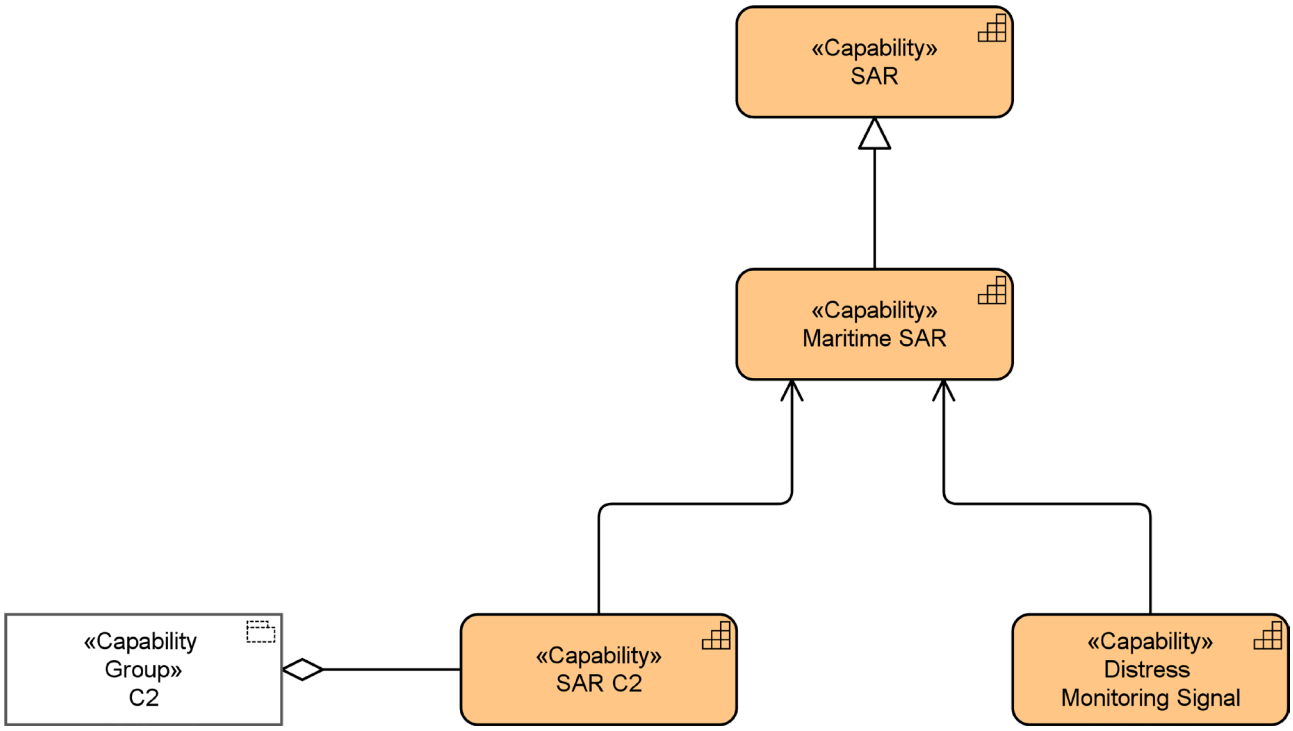


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Capability Group	# Capability Group	Grouping

7.3 C3 Implementation Guidance

The *serving* relation is mandatory here to show dependencies between ***capabilities***. **Capability groupings** are represented as *groupings* and they *aggregate* **capabilities**. Dependencies between **Capability Groupings** can be modelled with a *serving* relation. **Capability Groups** can also *aggregate* other **Capability Groups**. *Specialization* taxonomies of ***Capabilities*** are optionally represented using the *specialization* relationship.

7.4 C3 ArchiMate Example



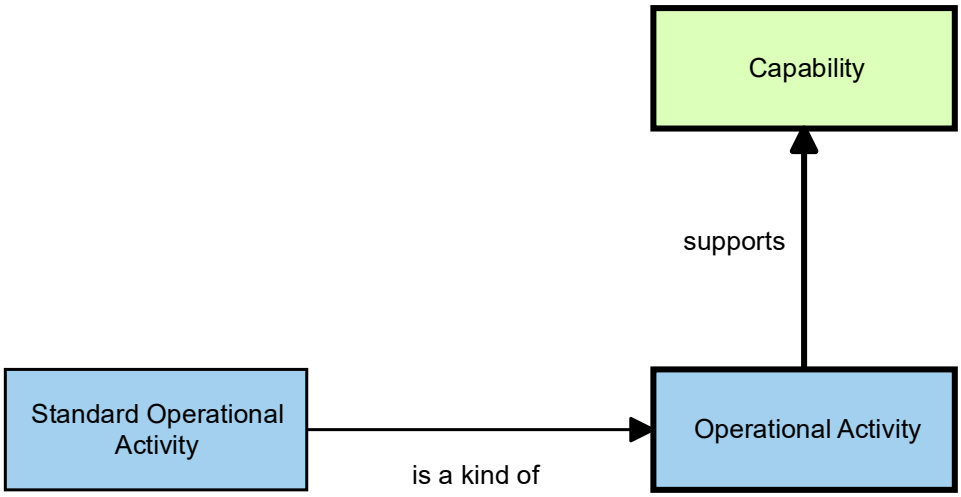
8 C4 - STANDARD PROCESSES

Purpose	Usage & Concerns Addressed
The C4 Viewpoint is concerned with the identification of processes with the traceability to the Capabilities they support.	• Doctrine Production. • Operational Analysis. • Specification of doctrine. • Tracing Capabilities to Standard Operational Activities. • Capability audit. • Concept of Operations.

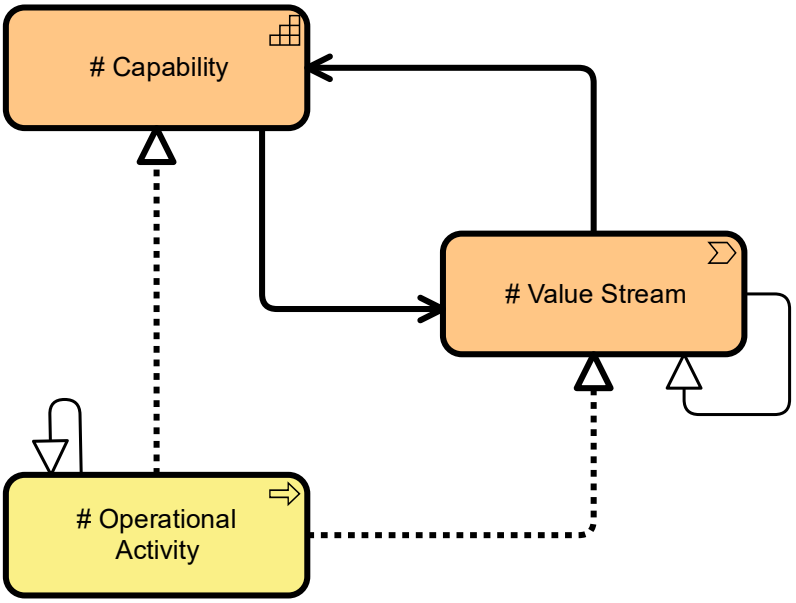
Scope
• Shall contain Operational Activities relevant for the entity of interest. • Shall contain the capabilities that Operational Activities support. • May show Standard Operational Activities that support capabilities.

Representation
• Tabular. • Tracing Diagram.

8.1 C4 NAF IM Viewpoint



8.2 C4 ArchiMate Viewpoint

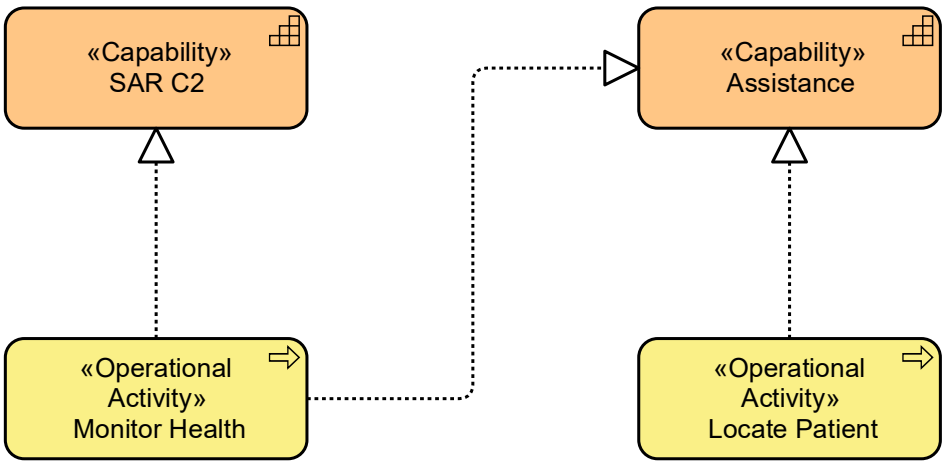


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Operational Activity	# Operational Activity	Business process
Operational Activity	# Value Stream	Value stream
Standard Operational Activity	# Operational Activity	Business process

8.3 C4 Implementation Guidance

The **Operational Activity** and the **Standard Operational Activity** are represented as a *business process* that *realizes* a *capability.* These **Operational Activities** may appear at different levels of abstraction; some define lower-level tasks or activities, while others express strategic-level intent. When an **Operational Activity** is expressed at this higher level, it may fit more naturally in the *strategy* layer, and can therefore be modelled as a *value stream***.** Relationships from the *business process realize* the *capability* and *serving* relations exist between the *capability* and *value stream* to preserve traceability.

8.4 C4 ArchiMate Example



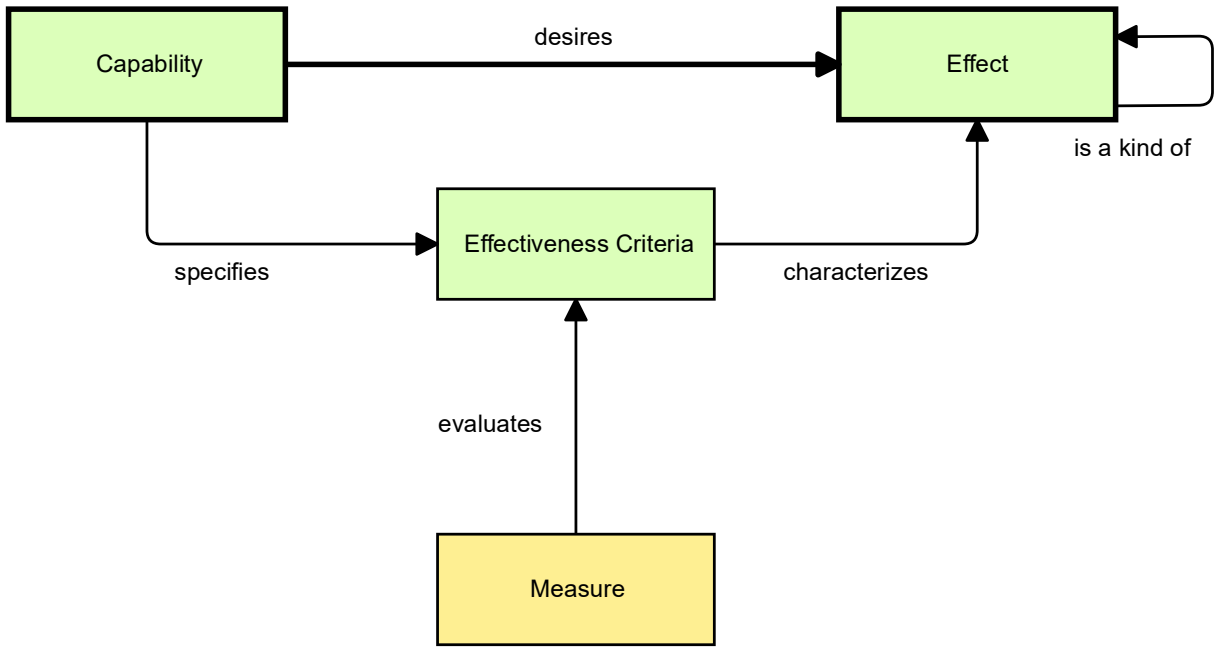
9 C5 - EFFECTS

Purpose	Usage & Concerns Addressed
The C5 Viewpoint is concerned with identifying and describing desired effects of Capabilities and the Effectiveness Criteria that are specified for them.	• Operational Analysis. • Analysis of non-functional properties. • Characterization of the expected results capabilities, noting that effects can be positive or negative. • Analysis of cumulative effects. • Analysis of persistence of the effects. • Tracing the operational states and modes with regards to the effects.

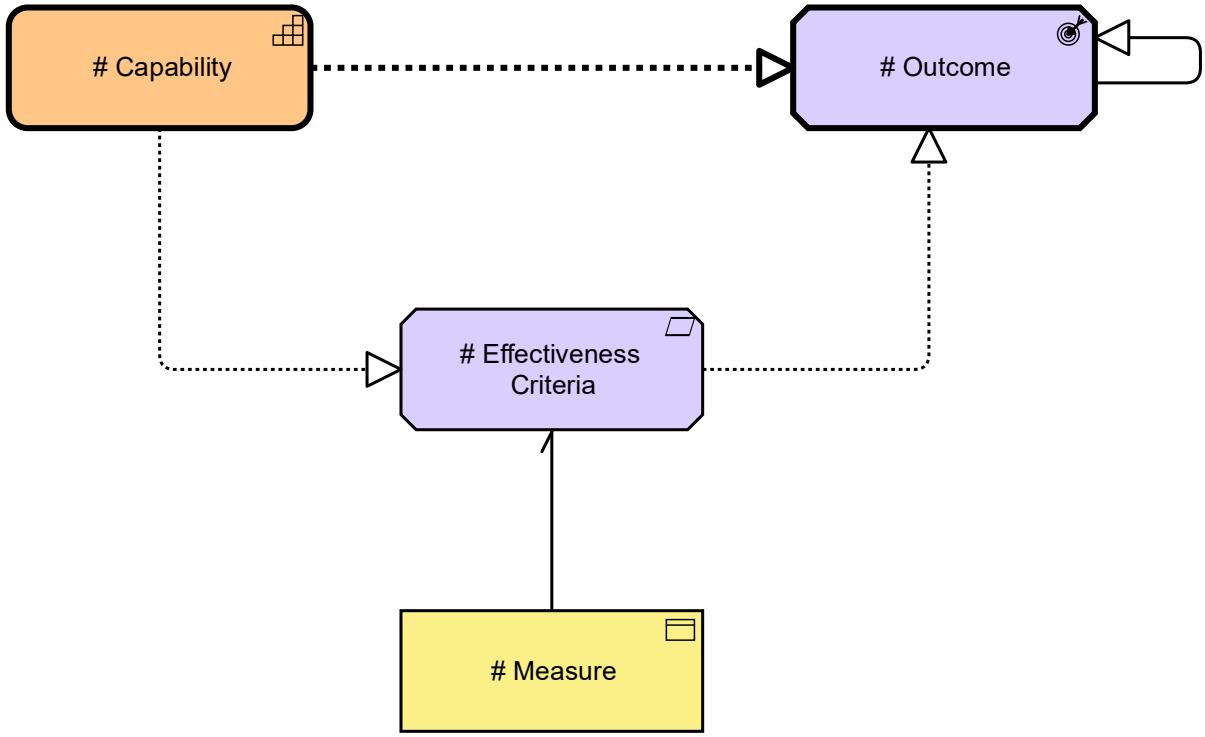
Scope
• Shall contain Effects that the Capabilities desire. • May show Effectiveness Criteria that is specified by Capabilities. • May show Effectiveness Criteria characterizing the Effects. • May show measures that evaluate the Effectiveness Criteria.

Representation
• Tabular. • Structural diagram.

9.1 C5 NAF IM Viewpoint



9.2 C5 ArchiMate Viewpoint

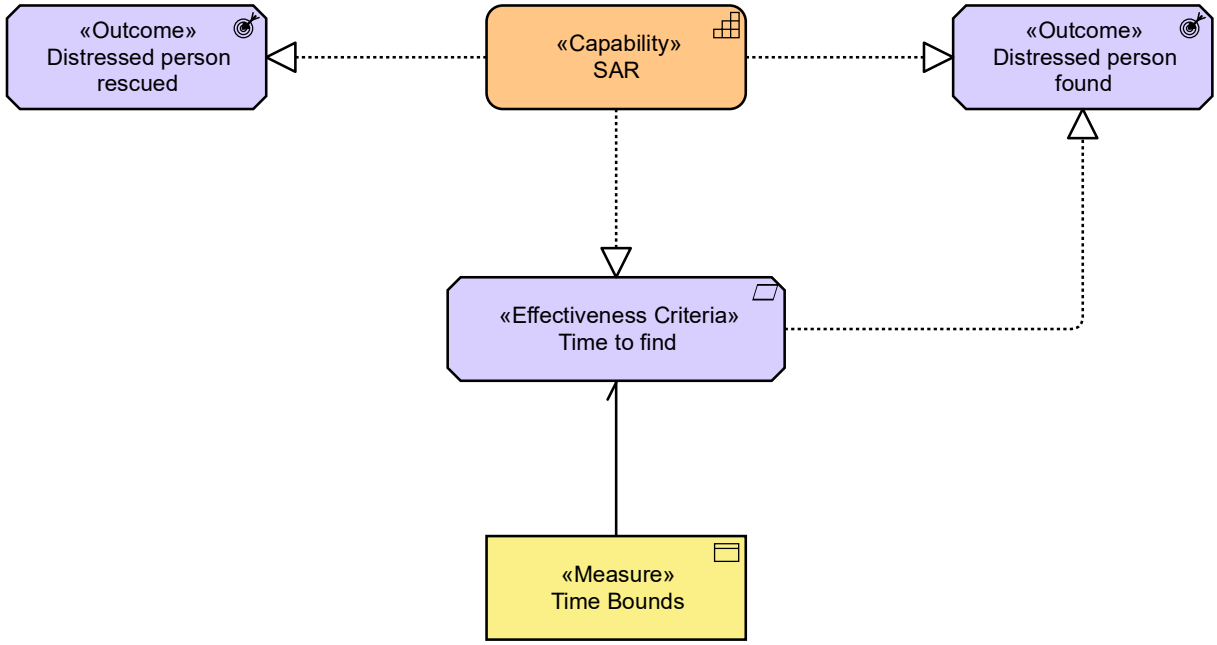


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Effect	# Outcome	Outcome
Effectiveness Criteria	# Effectiveness Criteria	Requirement
Measure	# Measure	Business object

9.3 C5 Implementation Guidance

Outcomes are used to represent **Effects** that are *realized by* ***Capabilities.*** A *requirement represents* **Effectiveness Criteria** that can *realize* an *outcome* or be *realized by* a *capability. Business objects* represent **Measures** that can be *associated with* the **Effectiveness Criteria.** Rather than modelled as *business objects*, the **Measures** may be best captured as attributes on **Effectiveness Criteria** (*requirement).*

9.4 C5 ArchiMate Example



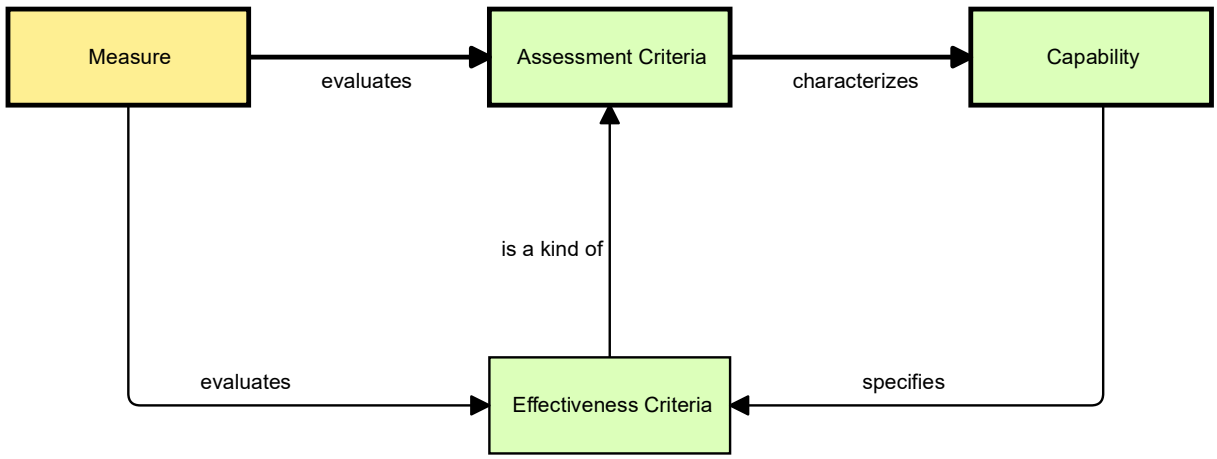
10 C7 - PERFORMANCE CRITERIA

Purpose	Usage & Concerns Addressed
The C7 Viewpoint is concerned with the identification and description of measure categories (Assessment Criteria) and identification of capabilities to which they are applicable.	• Capability Planning. • Capability Management. • Setting Capability Assessment Criteria. • Military Estimates. • Strategic Reviews. • Planning Assumptions.

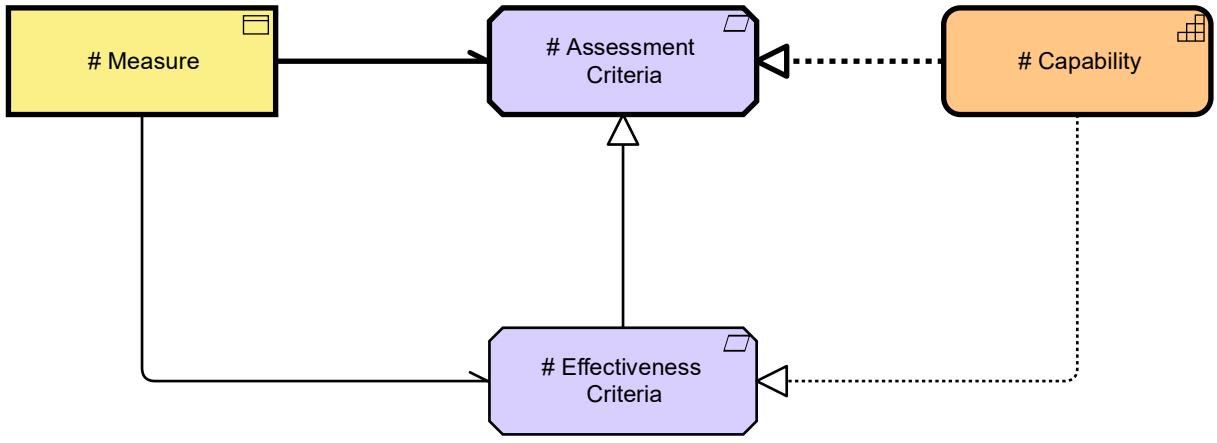
Scope
• Shall contain the Capabilities characterized by the Assessment Criteria. • Shall contain Measures that evaluate Assessment Criteria. • May show Effectiveness Criteria specified by Capabilities. • May show Effectiveness Criteria that is evaluated by Measures.

Representation
• Tabular (capabilities on one axis, measure categories on the other). • Class diagram with property definitions.

10.1 C7 NAF IM Viewpoint



10.2 C7 ArchiMate Viewpoint

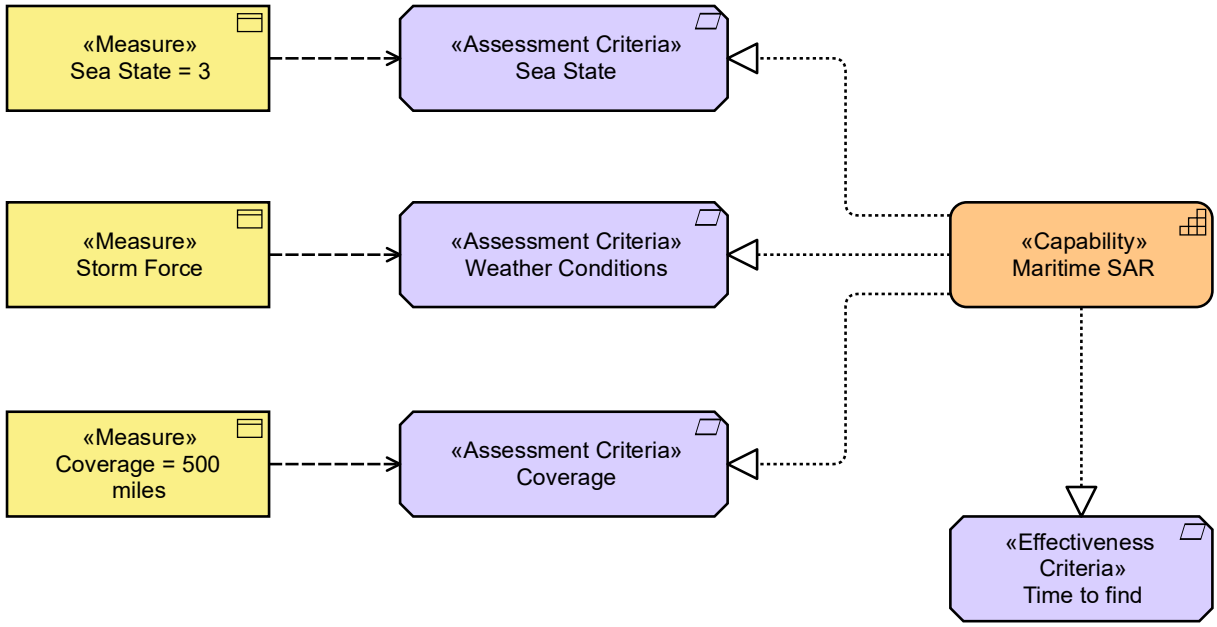


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Assessment Criteria	# Assessment Criteria	Requirement
Capability	# Capability	Capability
Effectiveness Criteria	# Effectiveness Criteria	Requirement
Measure	# Measure	Business object

10.3 C7 Implementation Guidance

Business objects represent **Measures** that are *associated with requirements. Requirements* represent **Assessment Criteria** and **Effectiveness Criteria**. *Capabilities realize* **Assessment Criteria** and **Effectiveness Criteria**. Rather than modelled as *business objects*, the **Measures** may be best captured as attributes on **Assessment Criteria** and **Effectiveness Criteria** (*requirements).*

10.4 C7 ArchiMate Example



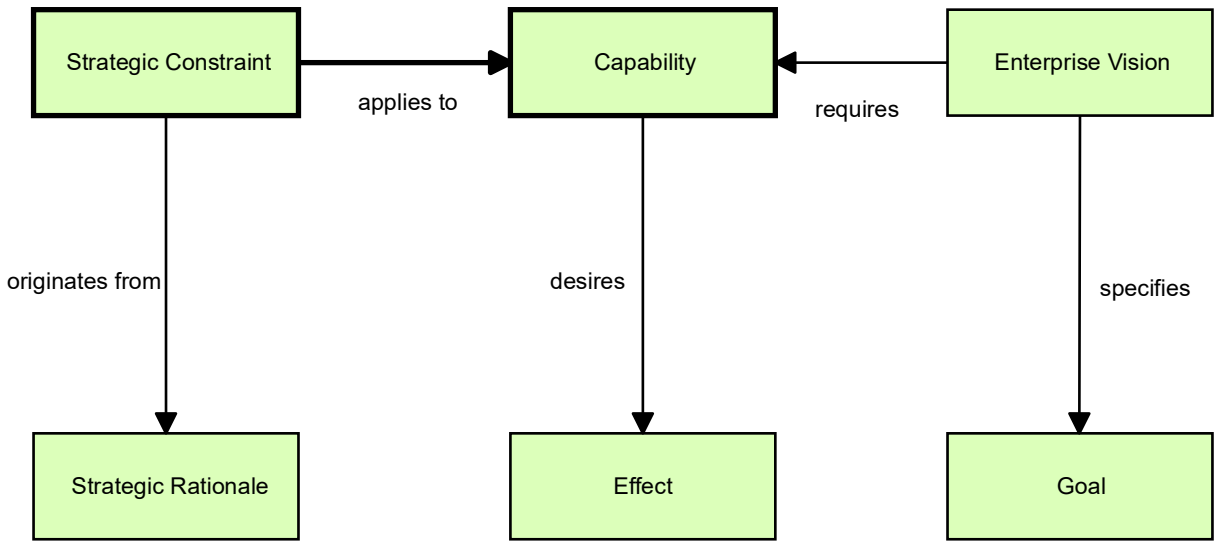
11 C8 - PLANNING CONSTRAINTS

Purpose	Usage & Concerns Addressed
The C8 Viewpoint is concerned with the identification and description of assumptions (Strategic Constraints).	• Capability Planning. • Planning Assumptions. • Implementation Planning.

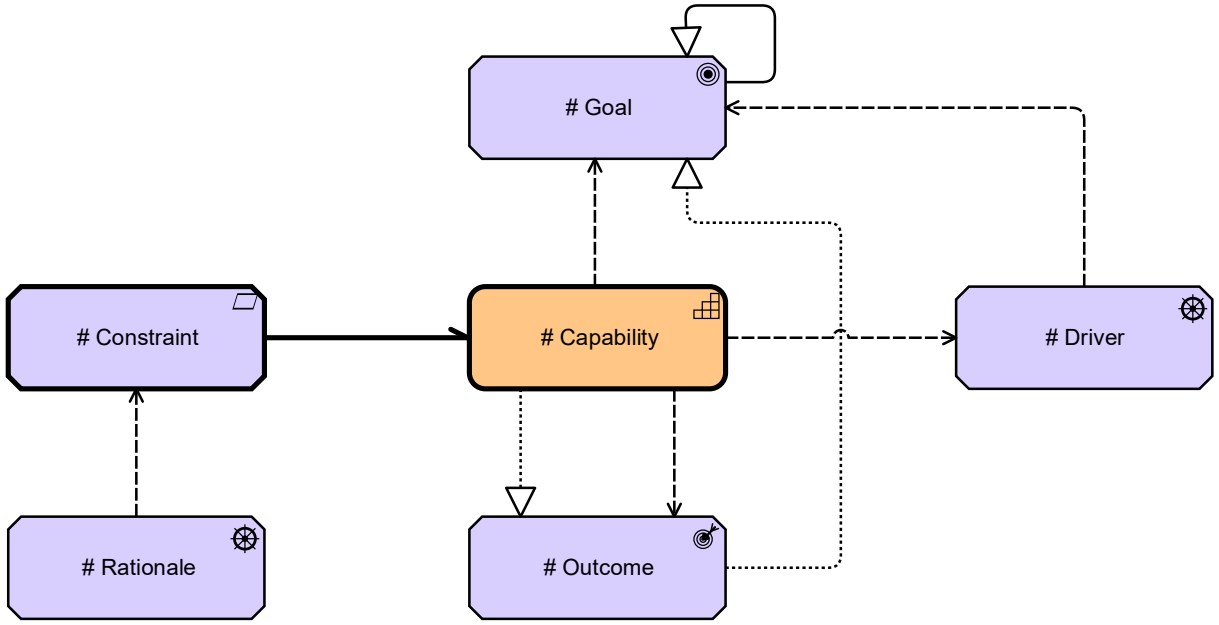
Scope
• Shall contain Capabilities relevant for the entity of interest. • Shall contain Strategic Constraints that apply to the Capabilities. • May show Strategic Rationale relating to Strategic Constraints. • May show Effects the Capabilities desire. • May show the Vision that requires the Capability and the Goal it specifies.

Representation
• Tabular. • Benefits diagram. • Parametric diagram.

11.1 C8 NAF IM Viewpoint



11.2 C8 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Effect	# Outcome	Outcome
Enterprise Vision	# Driver	Driver
Enterprise Vision	# Goal	Goal
Goal	# Goal	Goal
Goal	# Outcome	Outcome
Strategic Constraint	# Constraint	Requirement
Strategic Rationale	# Rationale	Driver

11.3 C8 Implementation Guidance

Drivers are specialized to represent **Rationale** at the Strategic, Logical and Resource Subject of Concerns (rows). *Requirements* are specialized to represent **Constraints** at the Strategic, Service, Logical and Resource Subject of Concerns (rows). The specialized *drivers* (**Rationale**) *influence* the *requirement* (**Constraint**). These *requirements* are *associated with* ***Capabilities***.

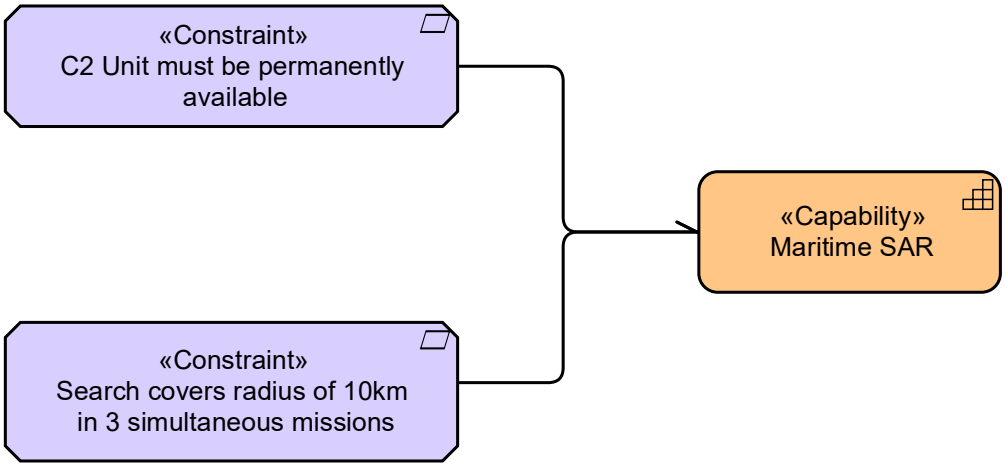
In this viewpoint, several NAF IM concepts may play different roles depending on the modelling context; the mappings below explain the valid combinations.

An **Enterprise Vision** can be either represented as a *goal* or *driver,* therefore a *goal* can *specialize* a *goal*, or be *influenced* by a *driver*. ***Capabilities*** *influence drivers.*

Goals themselves are represented as either an *outcome* or a *goal*. This means ***Capabilities*** directly *influence* a *goal* or *influence* an *outcome* which *realizes* a *goal.*

Outcomes are also further used to represent **Effects** that can be *realized by* ***Capabilities***.

11.4 C8 ArchiMate Example



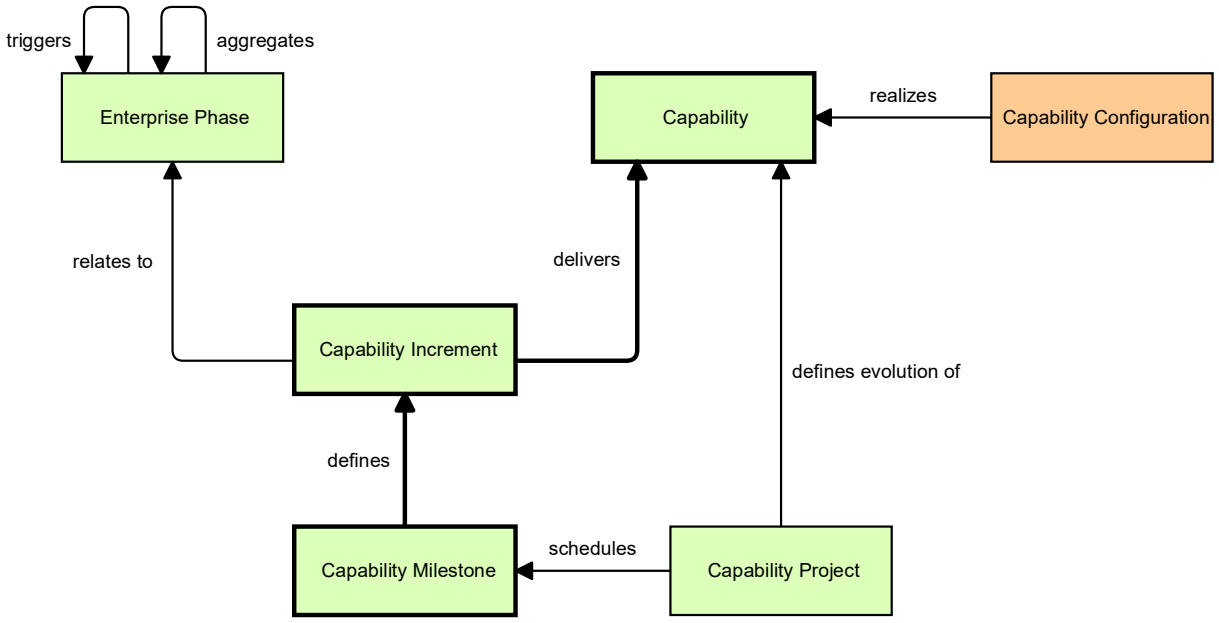
12 CR - CAPABILITY ROADMAP

Purpose	Usage & Concerns Addressed
The Cr Viewpoint is concerned with identifying Capability Milestones related to Capability Increments and the Capabilities it delivers.	• Capability Planning. • Acquisition Management. • Capability phasing. • Capability integration planning. • Capability gap/surplus analysis. • High-level dashboard for acquisition management.

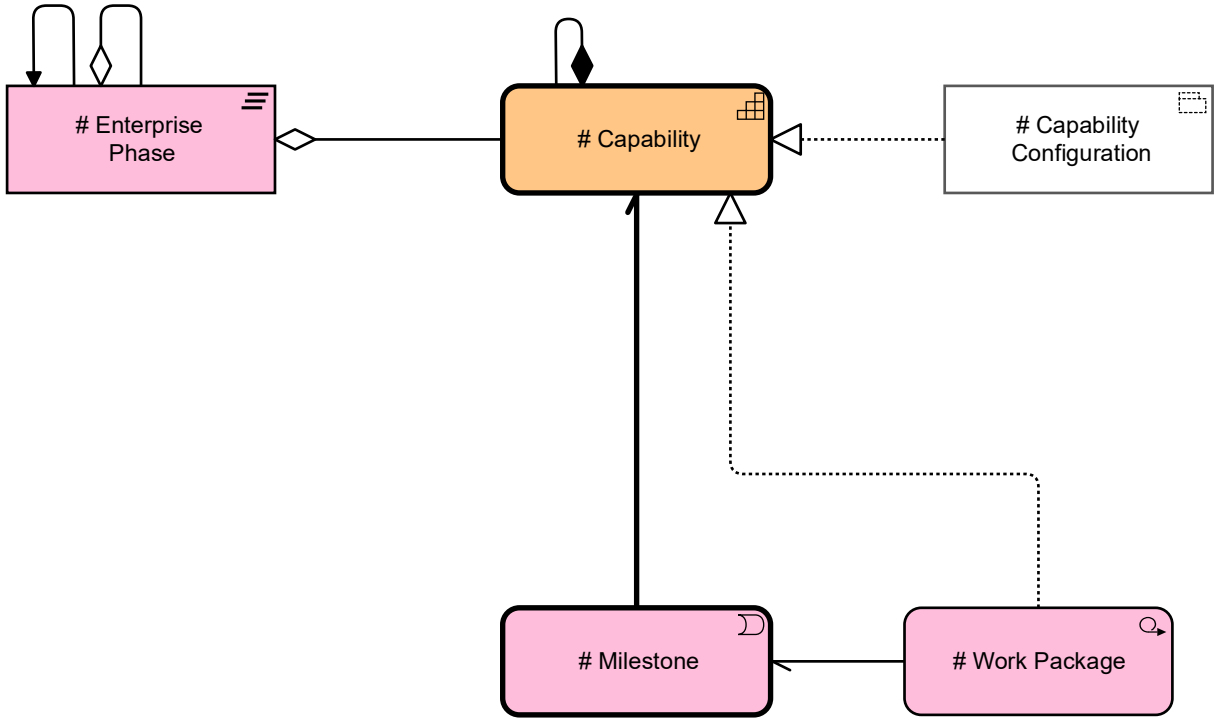
Scope
• Shall contain Capability Milestones. • Shall contain the Capability Increments that the Capability Milestone defines. • Shall contain the Capabilities the Capability Increments delivers. • May show Enterprise Phases related to Capability Increments. • May show the ordering and grouping of Enterprise Phases. • May show Capability Projects and how they schedule Capability Milestones during the evolution of the Capability. • May trace Capability Configurations to Capabilities.

Representation
• A time based chart in the style of a Gantt chart.

12.1 Cr NAF IM Viewpoint



12.2 Cr ArchiMate Viewpoint

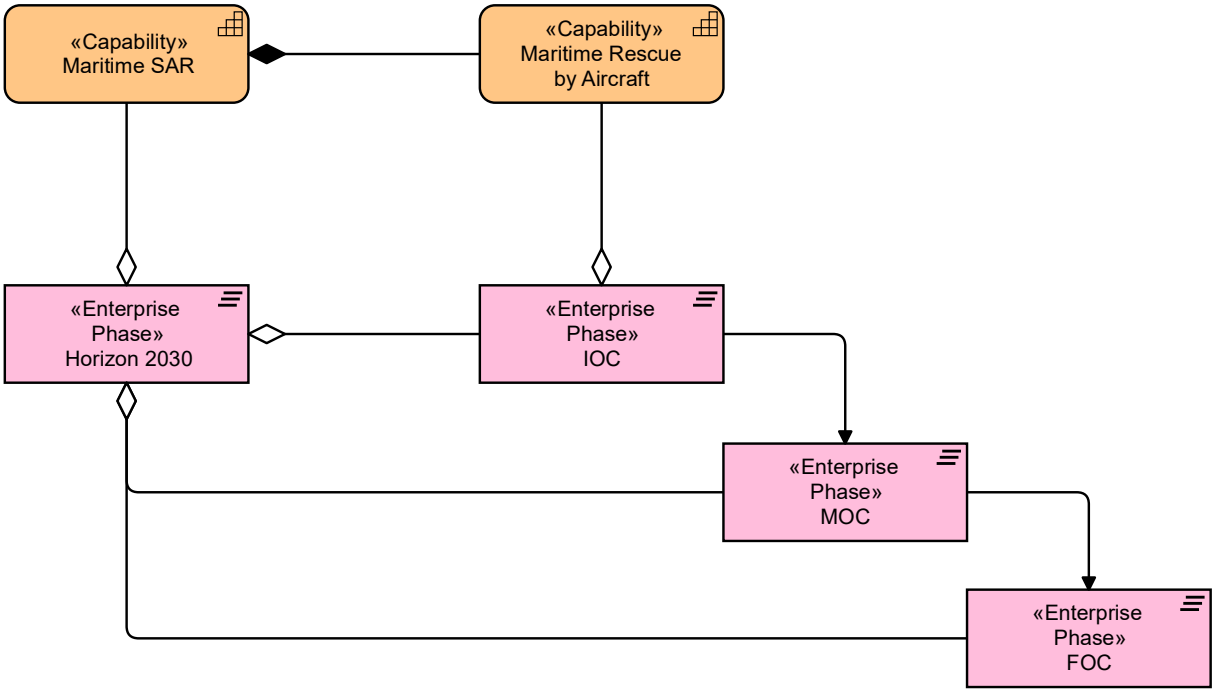


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Capability Configuration	# Capability Configuration	Grouping
Capability Increment	# Capability	Capability
Capability Milestone	# Milestone	Implementation event
Capability Project	# Work Package	Work package
Enterprise Phase	# Enterprise Phase	Plateau

12.3 Cr Implementation Guidance

Capability Increments and **Capabilities** are represented as *capabilities* with a *composition* relation between *capabilities* to model the increments. *Work packages* represent Projects and Programs that deliver **Capability Increments**, therefore a *work package* can *realise* a *capability*. **Milestones** can be modelled as *implementation events* with *associations* between the *capability* and the *work package* or as an attribute of the *work package/capability. Groupings* represent **Capability Configurations** that *realise* a *capability. Plateaus* are used to represent **Enterprise Phases**. They can *aggregate* and *trigger* other **Enterprise Phases** and *aggregate capabilities.*

12.4 Cr ArchiMate Example



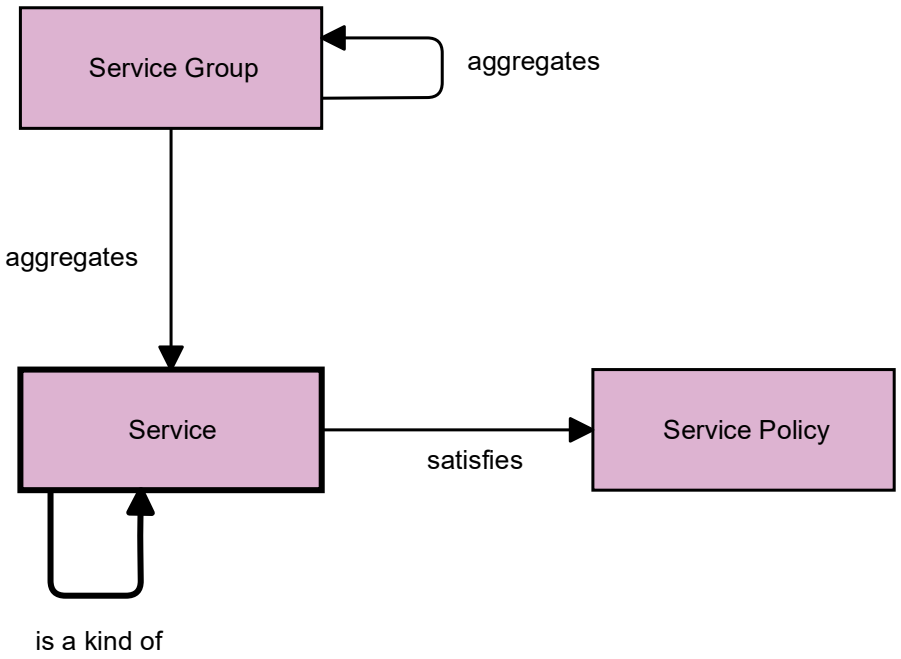
13 S1 - SERVICE TAXONOMY

Purpose	Usage & Concerns Addressed
The S1 Viewpoint is concerned with the identification of service specifications, and their organization into specialization taxonomies.	• Service planning. • Service audit. • Identification of services. • Defining measures for Service Levels. • Service gap analysis. • Providing reference services for architectures. • Tailoring generic services for specific applications.

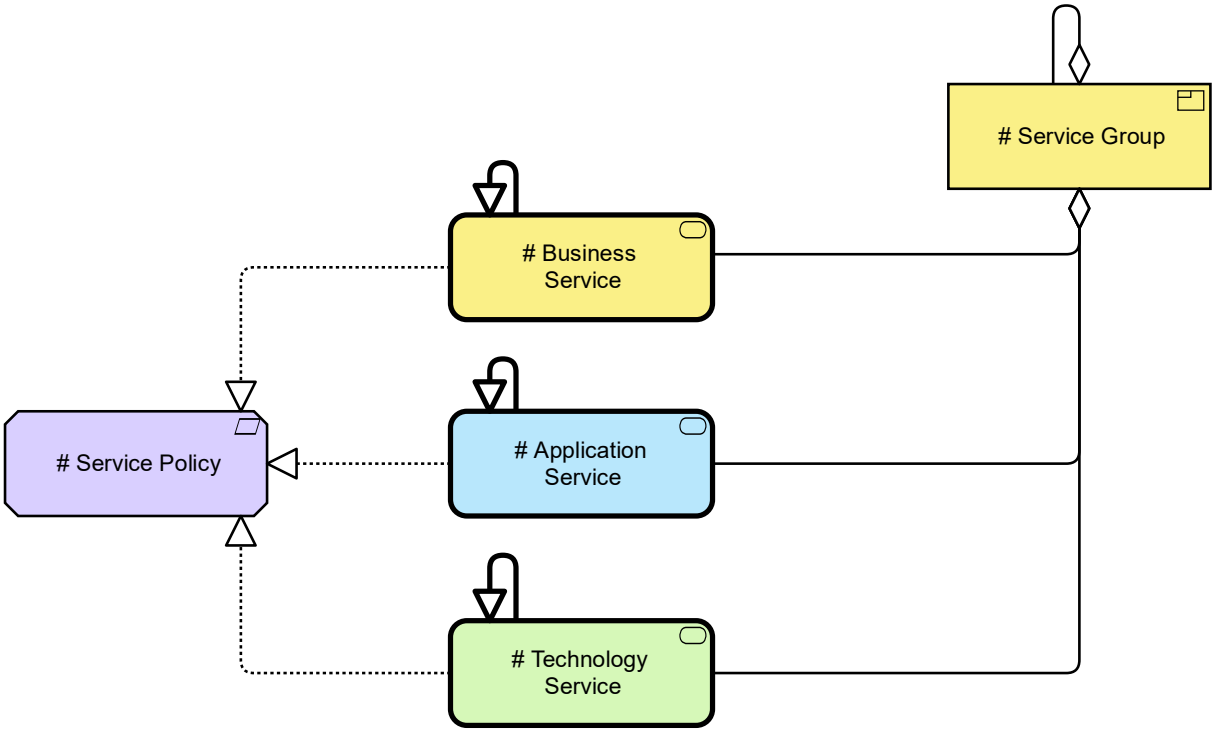
Scope
• Shall contain all Services organized into specialization taxonomies relevant for the entity of interest. • May show Services organized into Service Groups, and their groupings. • May show how Services satisfy Service Policies.

Representation
• Tabulation. • Hierarchical (connected shapes). • Class diagram.

13.1 S1 NAF IM Viewpoint



13.2 S1 ArchiMate Viewpoint

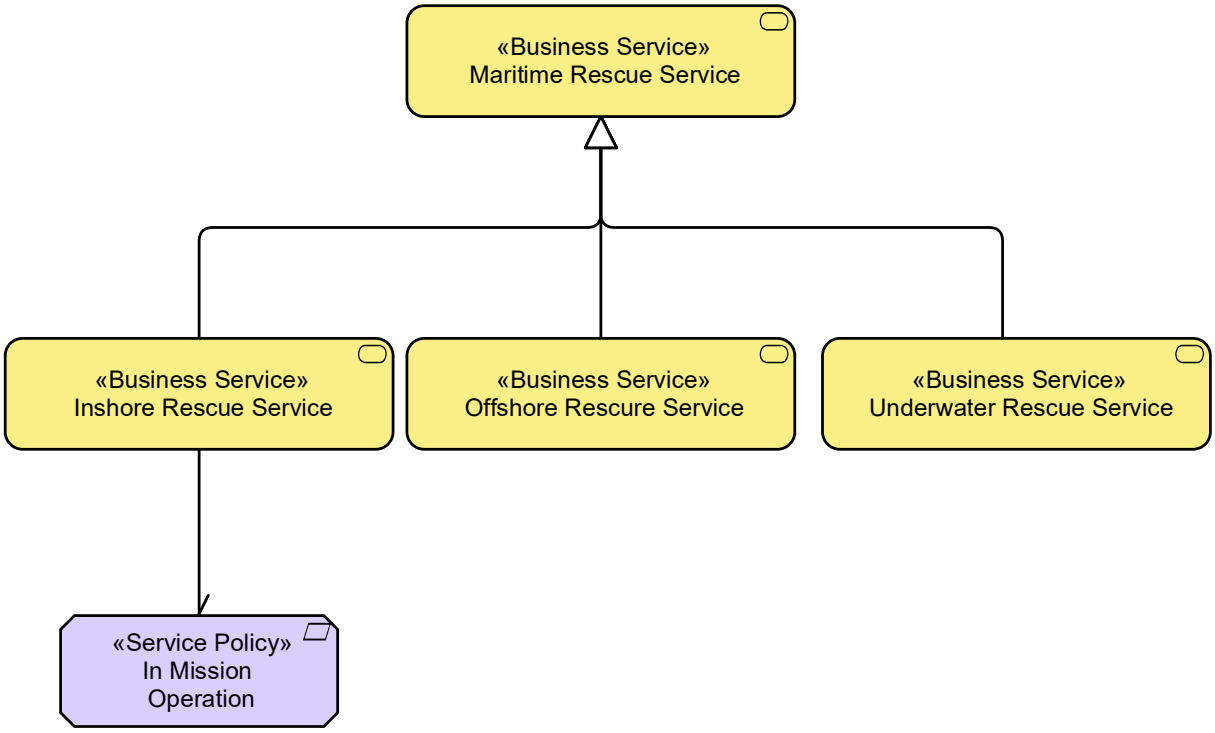


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Group	# Service Group	Product
Service Policy	# Service Policy	Requirement

13.3 S1 Implementation Guide

Services exist at three layers within ArchiMate: *business, application* and *technology*. Where the layering of *services* is applicable to the architecture, they must be present on the viewpoint.
Specialization taxonomies of **Services** are represented using the *specialization* relation.
Service Policies are represented as *requirements* and are *realized by* a *business, application or technology services.* These *services* can be *aggregated* into a *business product* to represent a **Service Group. Service Groups** can aggregate other **Service Groups**.

13.4 S1 ArchiMate Example



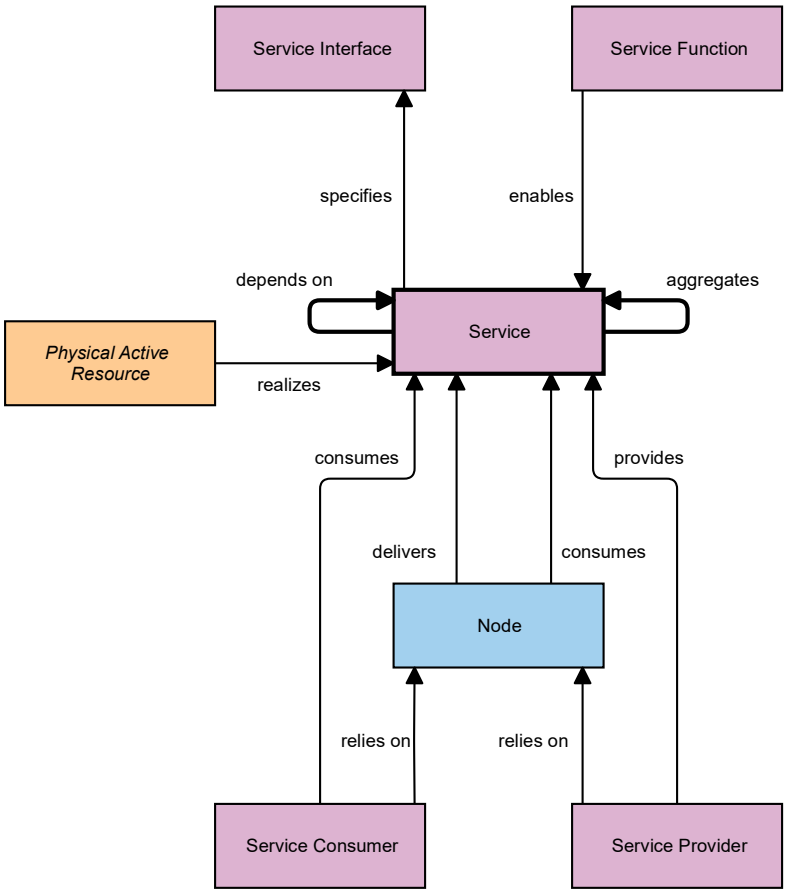
14 S2 - SERVICE STRUCTURE

Purpose	Usage & Concerns Addressed
The S2 Viewpoint is concerned with the identification of how Services are structured and their dependencies to other services.	• Service planning • Service composition. • Service dependency analysis. • Service interoperability.

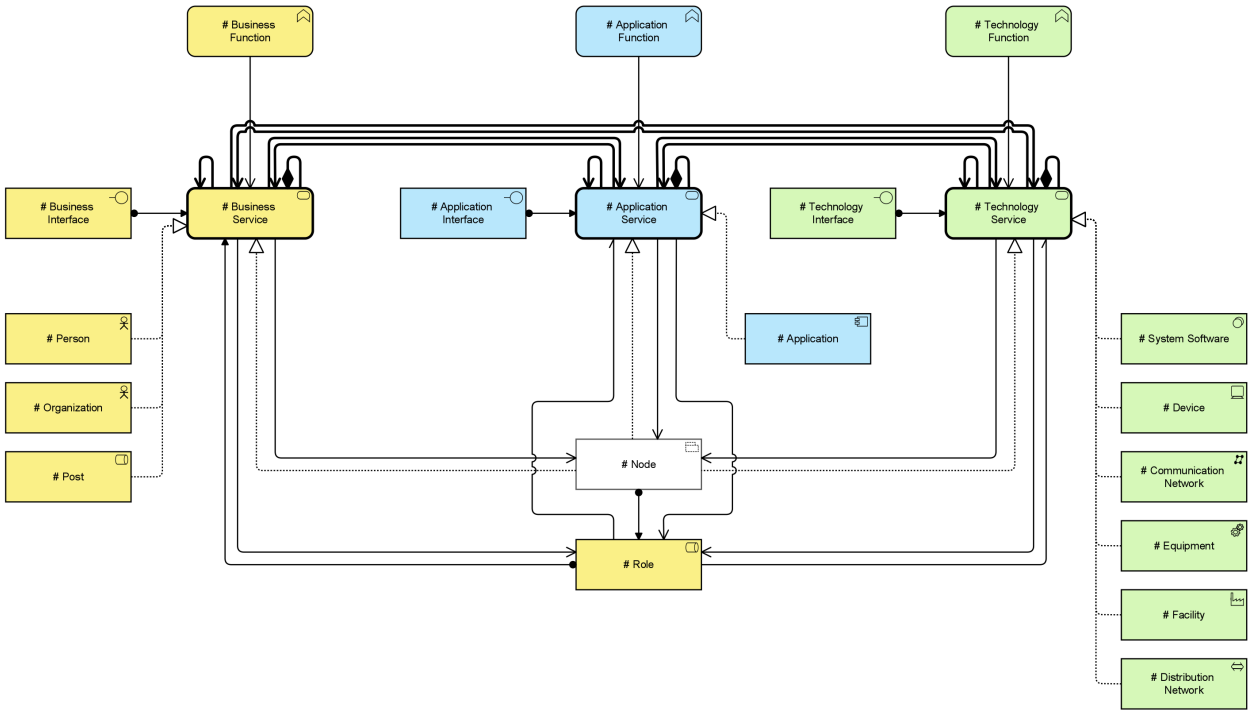
Scope
• Shall contain Services relevant for the entity of interest and their structural organization. • Shall contain dependencies between these Services. • May show Service Interfaces that the Service specifies. • May show Service Functions that the Service enables. • May show Service Consumers or Service Providers that consume/provide the Service. • May trace Services to Physical Active Resources. • May trace Services to Nodes that deliver or consume the Service and how these relate to a Service Provide or Service Consumer.

Representation
• Tabular. • Matrix. • Dependency graph. • Diagram.

14.1 S2 NAF IM Viewpoint



14.2 S2 ArchiMate Viewpoint

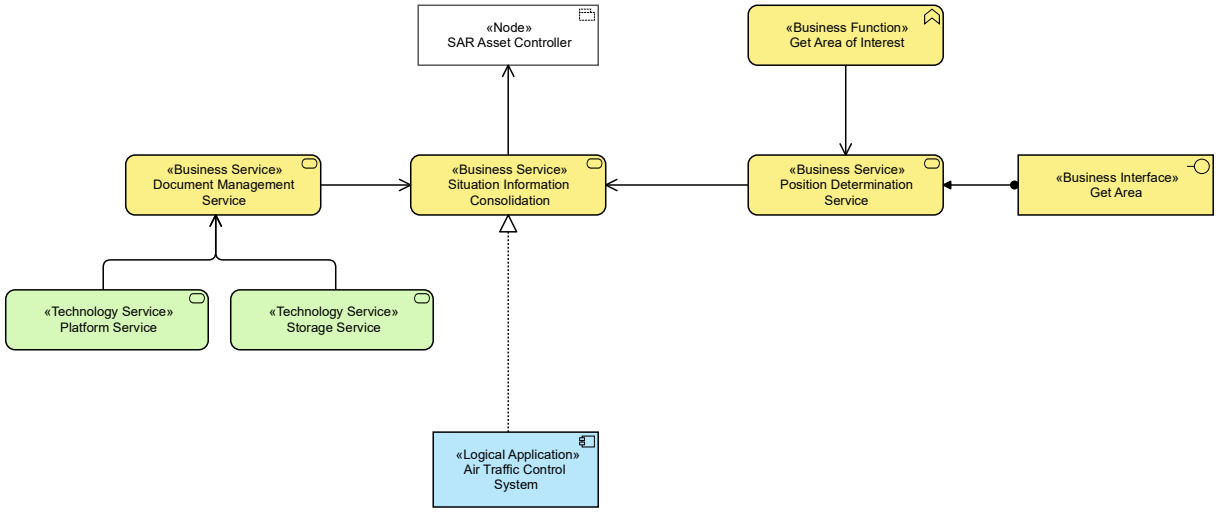


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Node	# Node	Grouping
Node	# Role	Business role
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Consumer	# Node	Grouping
Service Consumer	# Role	Business role
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function
Service Interface	# Application Interface	Application interface
Service Interface	# Business Interface	Business interface
Service Interface	# Technology Interface	Technology interface
Service Provider	# Node	Grouping
Service Provider	# Role	Business role

14.3 S2 Implementation Guidance

Services exist at three layers within ArchiMate: *business, application* and *technology*. Where the layering of *services* is applicable to the architecture, they must be present on the viewpoint.
Structural hierarchies of *services* are modelled with the *composition* relation and dependencies are modelled with the *serving* relation. Service dependencies are cross-layer; any *service* layer may *serve services* in other layers.
Service Interfaces exist at three layers within ArchiMate: *business, application* and *technology*. The layer specific *interface* is *assigned* to the corresponding *service*. **Service Functions** exist at three layers within ArchiMate: *business, application* and *technology*, the layer specific *function serves* the corresponding *service.*
Service Providers and **Service Consumers** are either ***Nodes*** or ***Roles*** in the context of the scenario you are modelling. The **Node** is represented as a *grouping* and the **Role** as a *business role.* The ***Node*** may be *assigned* to the **Role.** The ***Node*** may *realize* (**deliver**) a *service* or be *served by* (**consume**) a *service.* The ***Role*** may be *assigned to* or *associated with* (**provide**) a *service* depending on its layer. The ***Role*** may also be *served by* (**consume**) a *service.*
The **Physical Active Resource** can be represented as a number of ArchiMate elements, the full breakdown is shown in Section 4.2. Where relevant, the mapped ArchiMate elements can realize their corresponding layered *service*.
Given that the **Node** breaks down into further sub-types as shown in Section 4.2, instead of the ***Node,*** other ArchiMate **Logical Active Resource** mappings may be used, as shown in this viewpoint example.

14.4 S2 ArchiMate Example



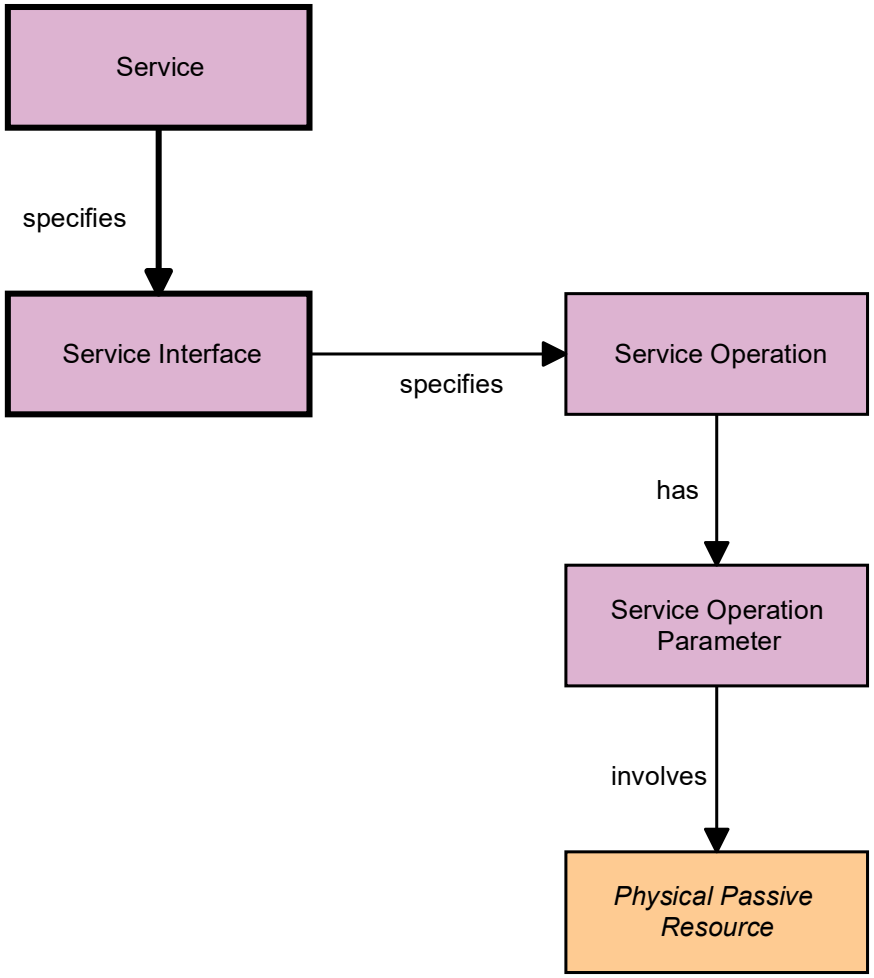
15 S3 - SERVICE INTERFACES

Purpose	Usage & Concerns Addressed
The S3 Viewpoint is concerned with the identification and specification of Service Interfaces.	• Service implementation guidance. • Service interoperability. • Service integration. • Defining Service interfaces and their boundaries.

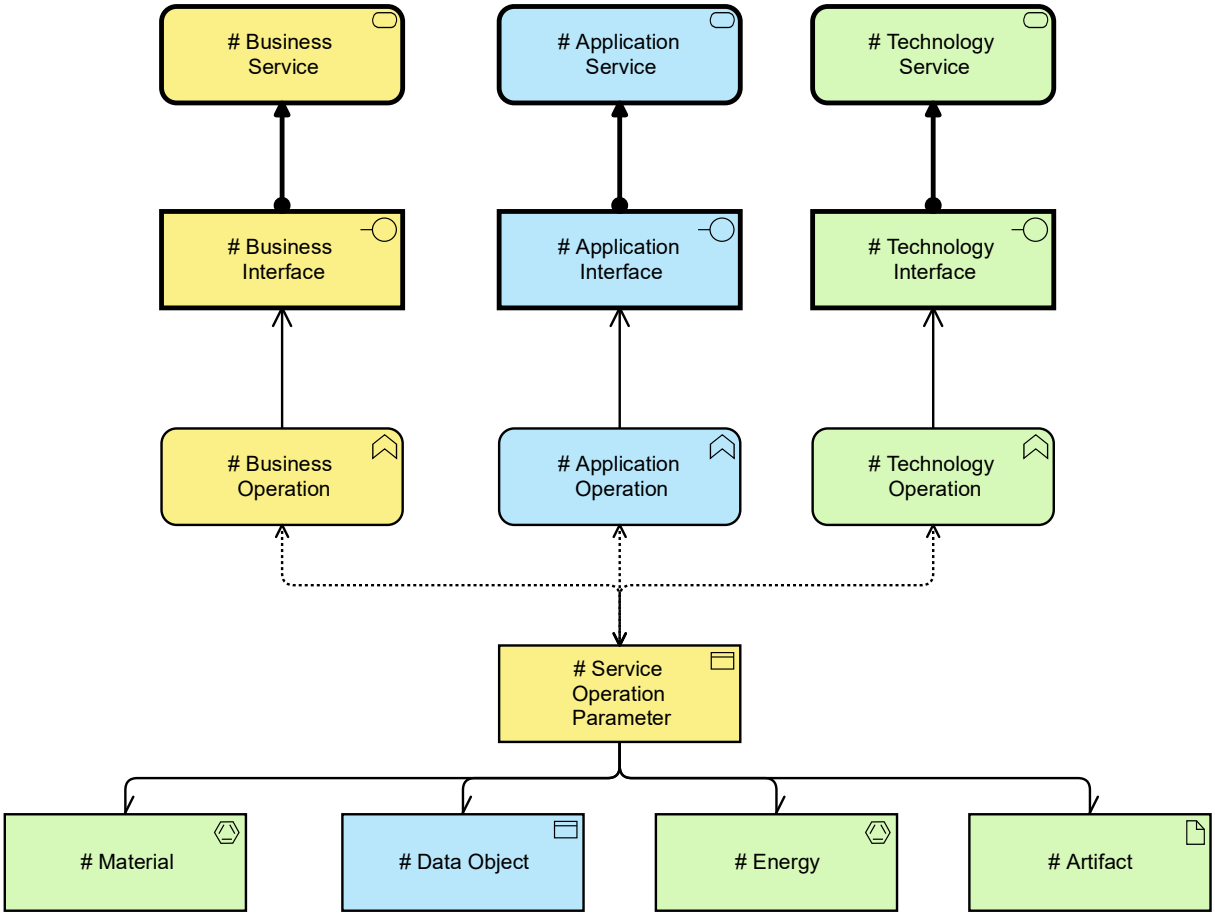
Scope
• Shall contains Service Interfaces specified by a Service. • May show Service Operations for Service Interfaces. • May show Service Operation Parameters for Service Operations. • May trace Service Operation Parameters to Physical Passive Resources.

Representation
•Tabular. • Diagram.

15.1 S3 NAF IM Viewpoint



15.2 S3 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Interface	# Application Interface	Application interface
Service Interface	# Business Interface	Business interface
Service Interface	# Technology Interface	Technology interface
Service Operation	# Application Operation	Application function
Service Operation	# Business Operation	Business function
Service Operation	# Technology Operation	Technology function
Service Operation Parameter	# Artifact	Artifact
Service Operation Parameter	# Service Operation Parameter	Business object

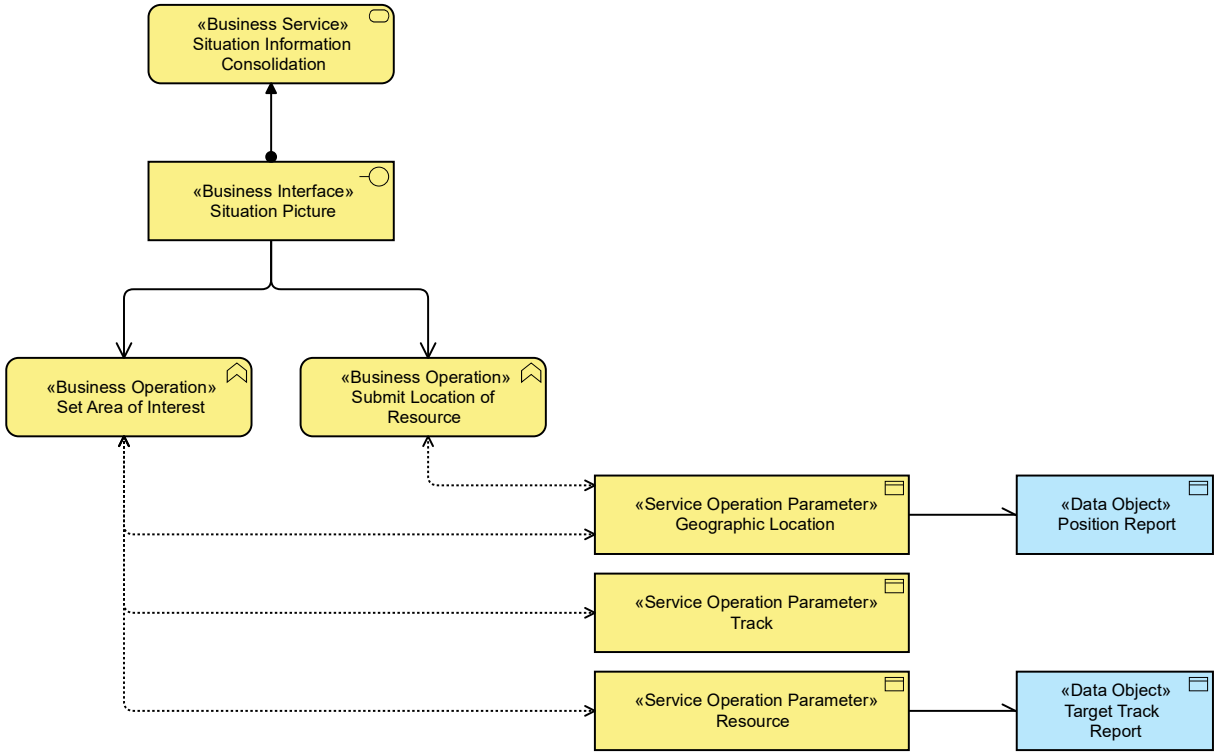
15.3 S3 Implementation Guide

Services and **Service Interfaces** exist at three layers within ArchiMate: *business, application* and *technology*. Where this layering is applicable to the architecture, they must be present in this viewpoint. Each *service* must be *assigned* to an *interface.*

Service Operations, represented as *functions,* exist at three layers within ArchiMate: *business, application* and *technology*. They can *serve* the *interfaces.* **Service Operation Parameters** are represented as *business objects* which are *accessed by* the **Service Operations** and are *associated with* the mapped **Physical Passive Resources** as shown in Section 4.4.

Alternatively each *operation* can *access* the **Physical Passive Resources** directly, and the **Service Operation Parameter** can be *associated with* the *access* relation. This is not shown on the viewpoint.

15.4 S3 ArchiMate Example



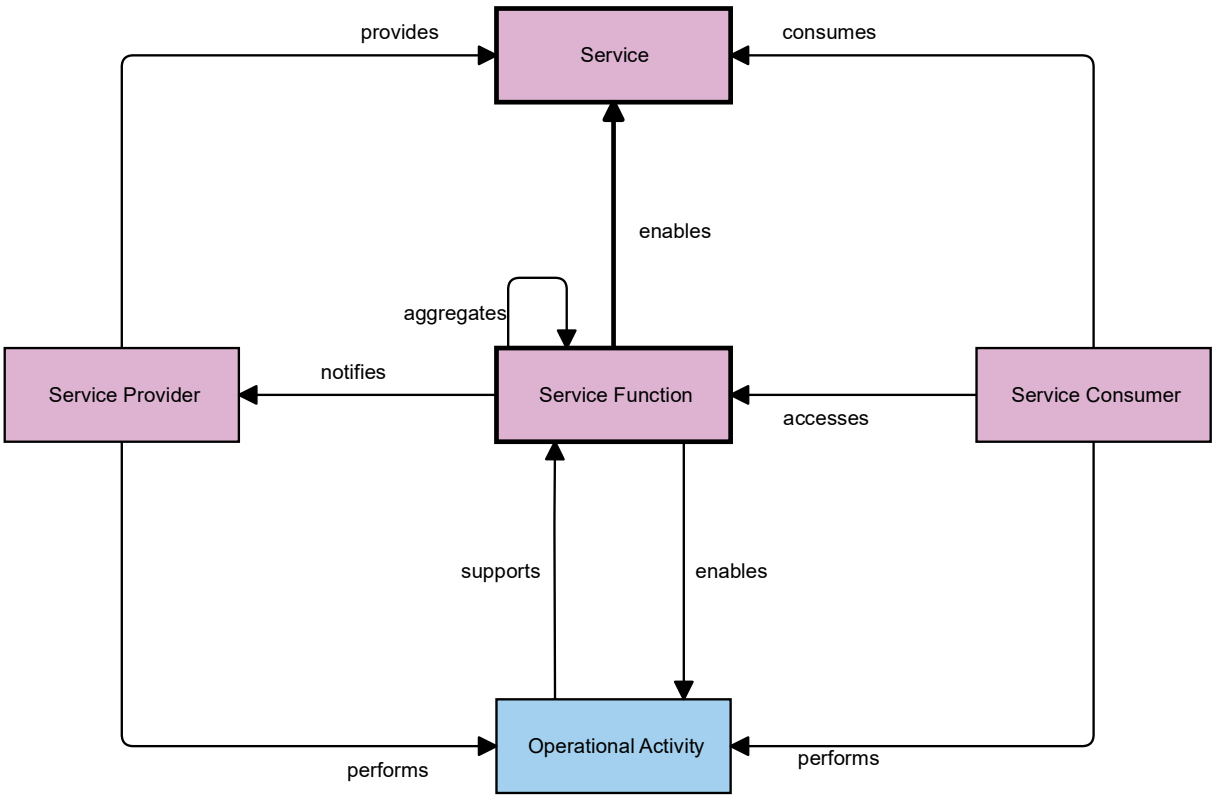
16 S4 - SERVICE FUNCTIONS

Purpose	Usage & Concerns Addressed
The S4 Viewpoint is concerned with the definition of the behaviour of a Service in terms of the Functions and Operational Activities that enable it.	• Better understanding of the level of detail required by a Service. • Outline requirements for Service behaviour. • Service implementation guidance. • Service specification & planning.

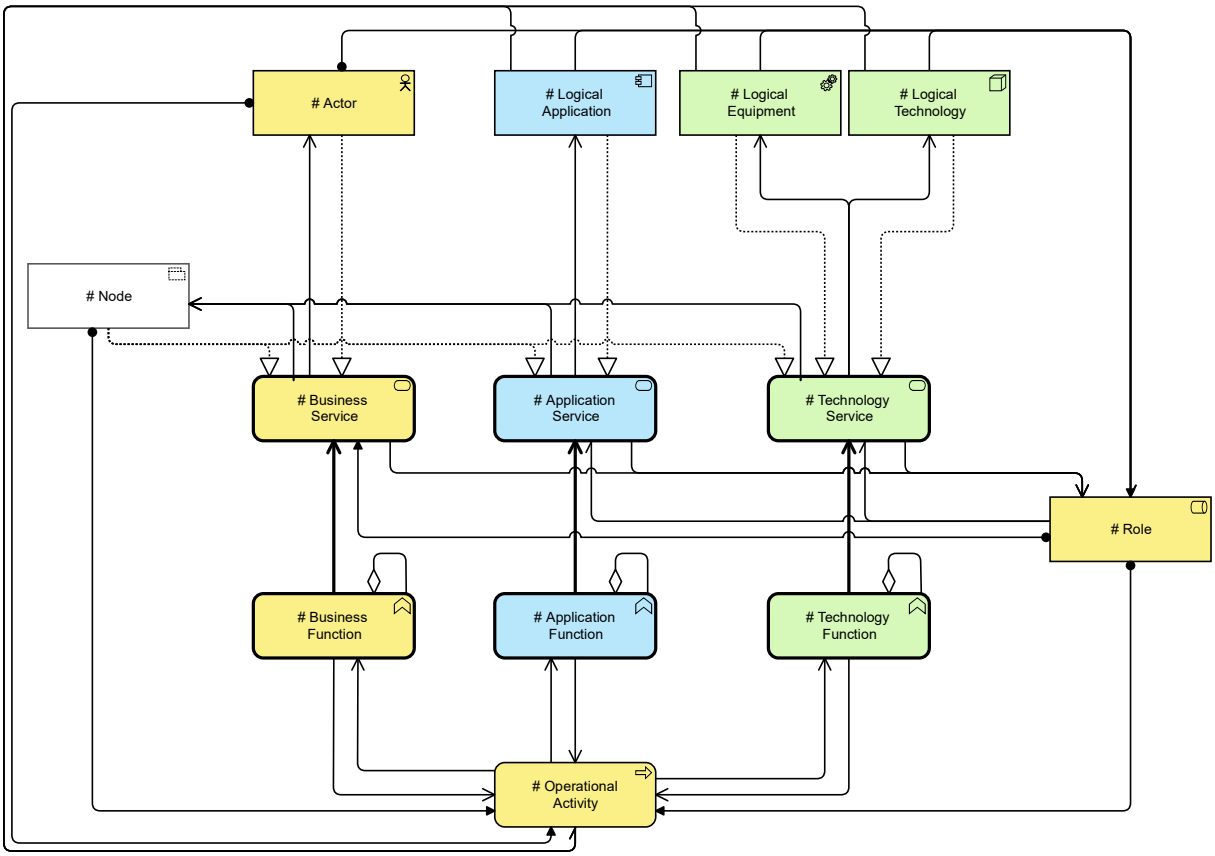
Scope
• Shall contain all Service Functions that enable a Service. • May show groupings of Service Functions. • May show Service Providers and/or Service Consumers relating to the Service Function or Service. • May show Operational Activities that support or are enabled by Service Functions. • May show Operational Activities that need to be performed by a Service Provider or Service Consumer.

Representation
•Tabular. • Diagram.

16.1 S4 NAF IM Viewpoint



16.2 S4 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Operational Activity	# Operational Activity	Business process
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Consumer	# Actor	Business actor
Service Consumer	# Logical Application	Application component
Service Consumer	# Logical Equipment	Equipment
Service Consumer	# Logical Technology	Node
Service Consumer	# Node	Grouping
Service Consumer	# Role	Business role
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function
Service Provider	# Actor	Business actor
Service Provider	# Logical Application	Application component
Service Provider	# Logical Equipment	Equipment
Service Provider	# Logical Technology	Node
Service Provider	# Node	Grouping
Service Provider	# Role	Business role

16.3 S4 Implementation Guidance

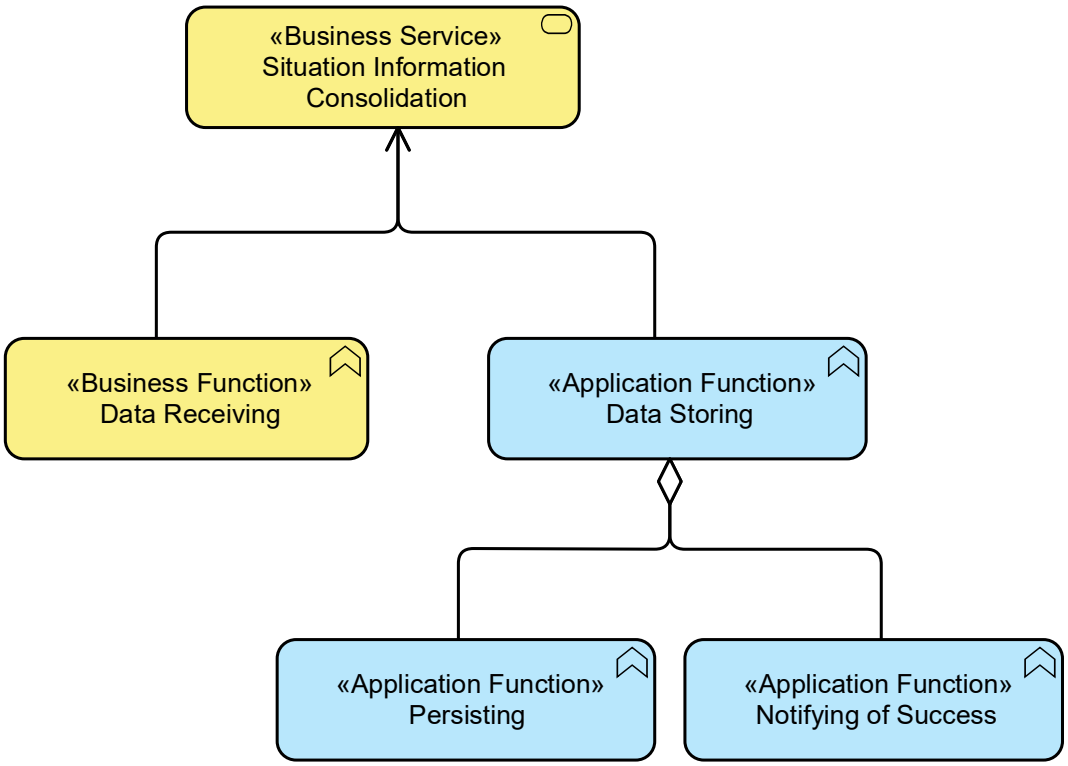
Services exist at three layers within ArchiMate: *business, application* and *technology*. **Service Functions** exist at three layers within ArchiMate: *business, application* and *technology*. The layer specific *function serves* the corresponding *service.* Where the layering of *services* and *functions* is applicable to the architecture, they must be present on the viewpoint. *Functions* can *aggregate functions* of the same type. *Functions serve* (**enable**) the *service.*

Business processes represent **Operational Activities**. These can *serve* (**support**) the *function* or be *served by* (**enables**) the *function.*

Service Providers and **Service Consumers** in this viewpoint are all subtypes of **Logical Active Resource** (including ***Nodes*** and/or ***Roles***) depending on the context of the scenario you are modelling the and level of detail known. The **Node** is represented as a *grouping* and the **Role** as a *business role*. *Services* can *serve* the **Node** or **Role**.

The subtypes of **Logical Active Resource** are detailed in Section 4.2. The mapped **Logical Active Resources** can *realize* (**provide**) a *service* or be *served by* (**consume**) a *service*. Depending on the layer of the mapped **Logical Active Resources**, they can be *assigned to* or *associated with* (**perform**) the *business process.*

16.4 S4 ArchiMate Example



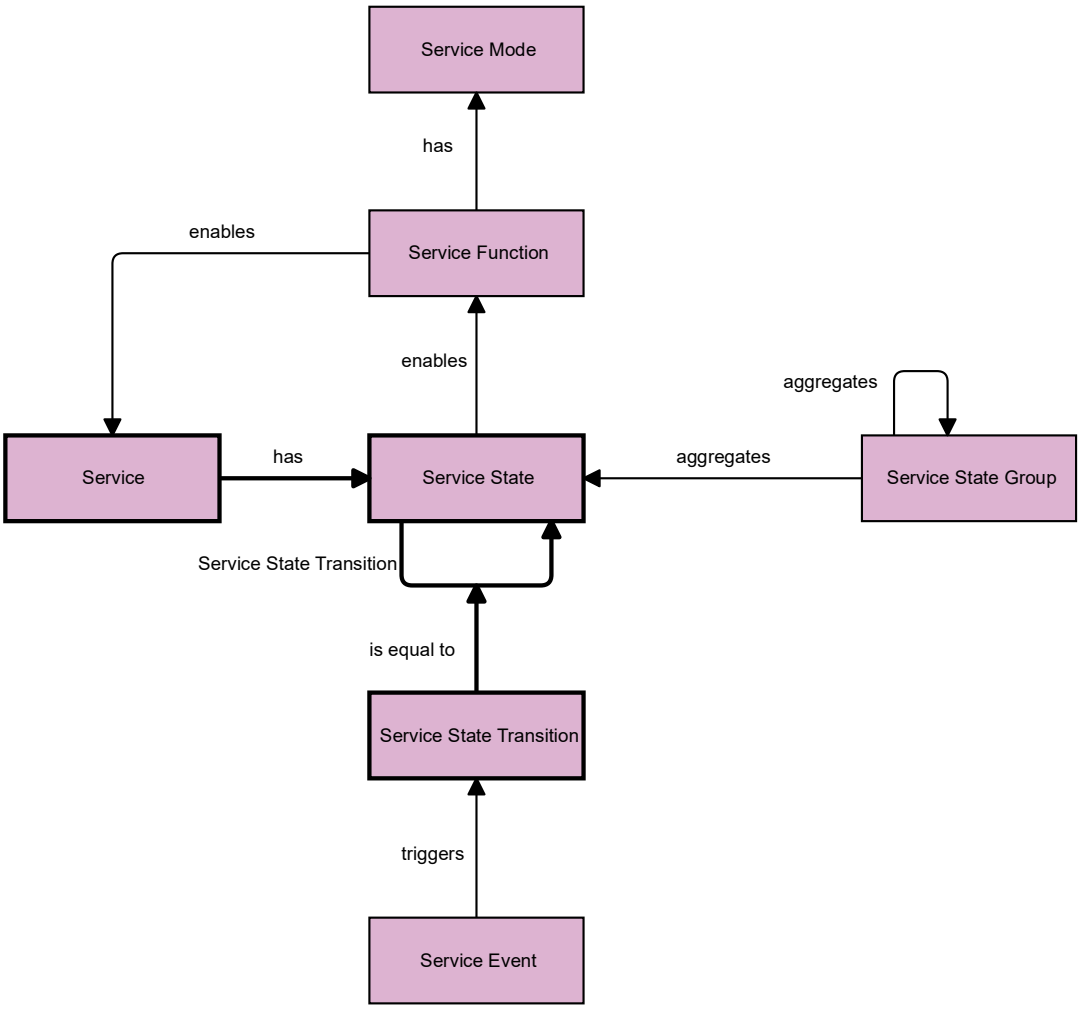
17 S5 - SERVICE STATES

Purpose	Usage & Concerns Addressed
The S5 Viewpoint is concerned with the identification and definition of the possible states a Service may have, and the possible transitions between those states.	• Better understanding of the level of detail required by a Service. • Outline requirements for Service behaviour. • Service implementation guidance. • Service behaviour specification.

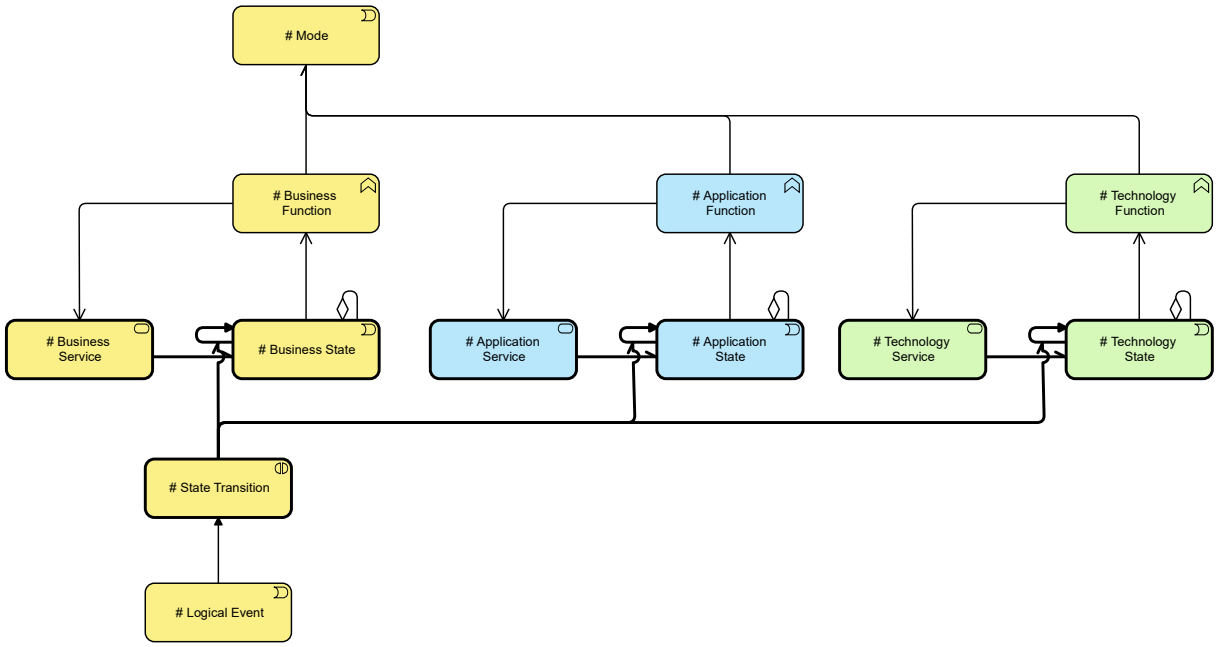
Scope
• Shall contain all Service States of a Service relevant for the entity of interest. • Shall contain Service State Transitions between Service States. • May show Service Events triggering Service State Transitions. • May show Service Functions that are enabled by a Service State. • May show Service Functions that enable the Service. • May show Service Modes of a Service Function. • May show Service States grouped into Service State Groups, and their groupings.

Representation
• Diagram. • State transition model.

17.1 S6 NAF IM Viewpoint



17.2 S5 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Event	# Logical Event	Business event
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function
Service Mode	# Mode	Business event
Service State	# Application State	Application event
Service State	# Business State	Business event
Service State	# Technology State	Technology event
Service State Group	# Application State	Application event
Service State Group	# Business State	Business event
Service State Group	# Technology State	Technology event
Service State Transition	# State Transition	Business interaction

17.3 S5 Implementation Guidance

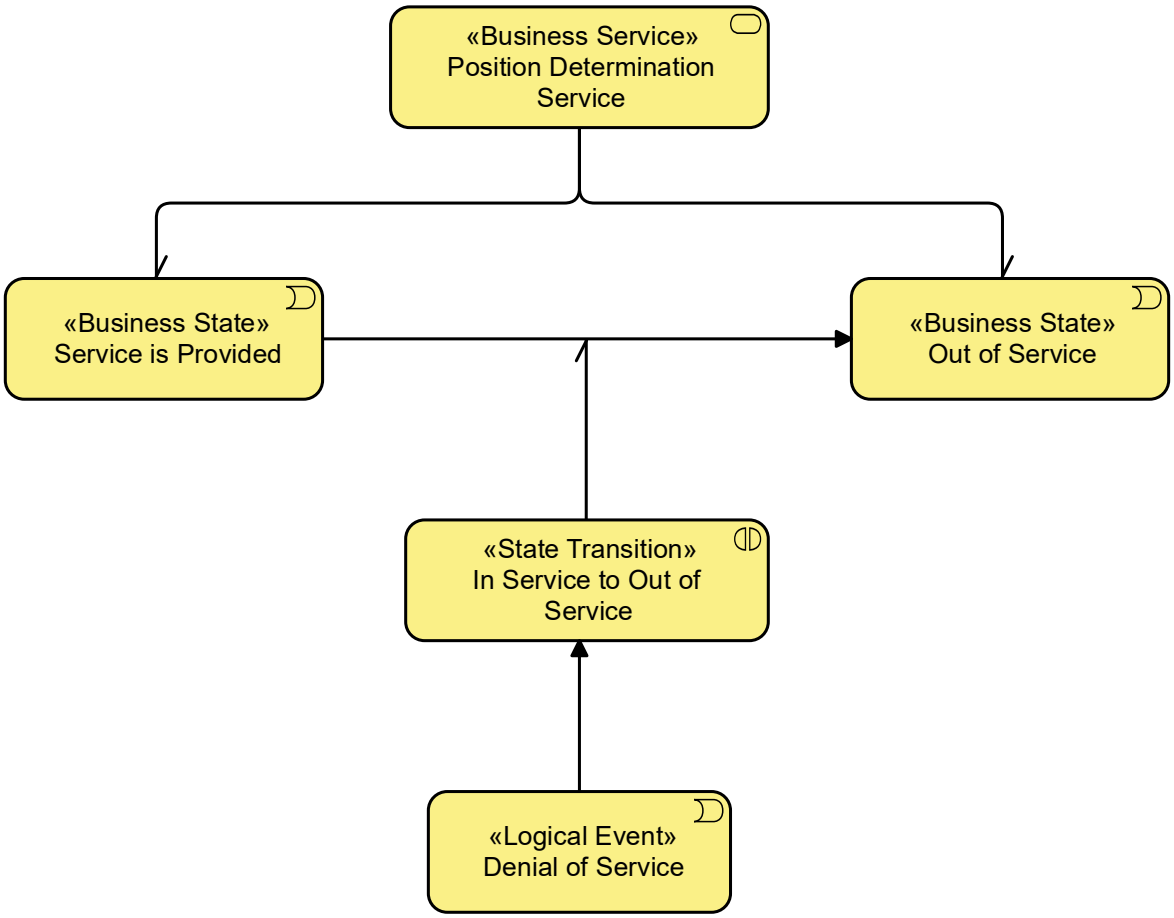
Services and **Service States** exist at three layers within ArchiMate: *business, application* and *technology*. **Service States** are represented by the layer appropriate ArchiMate *event*. **Service State Groups** are represented as *aggregation* relations between the *states*. *Services* are *associated with* (**has**) corresponding layer *states*. **Service States** *trigger* other **Service States.** *States trigger* other *states* at each ArchiMate layer; this is not shown in the viewpoint.

Service State Transitions are represented as *business interactions.* They are the objectification of the *trigger* relation between **Service States**. The option of using *business interactions* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario. A *business event* represents a **Service Event** and can trigger this transition. Note that the specialism of *business event* # Logical Event is used.

Service Functions exist at three layers within ArchiMate: *business, application* and *technology*. The layer specific *function serves* the corresponding *service* layer and is *served by* the corresponding *state* layer.

Service Modes are represented as *business events* and can be *associated with* a *function.*

17.4 S5 ArchiMate Example



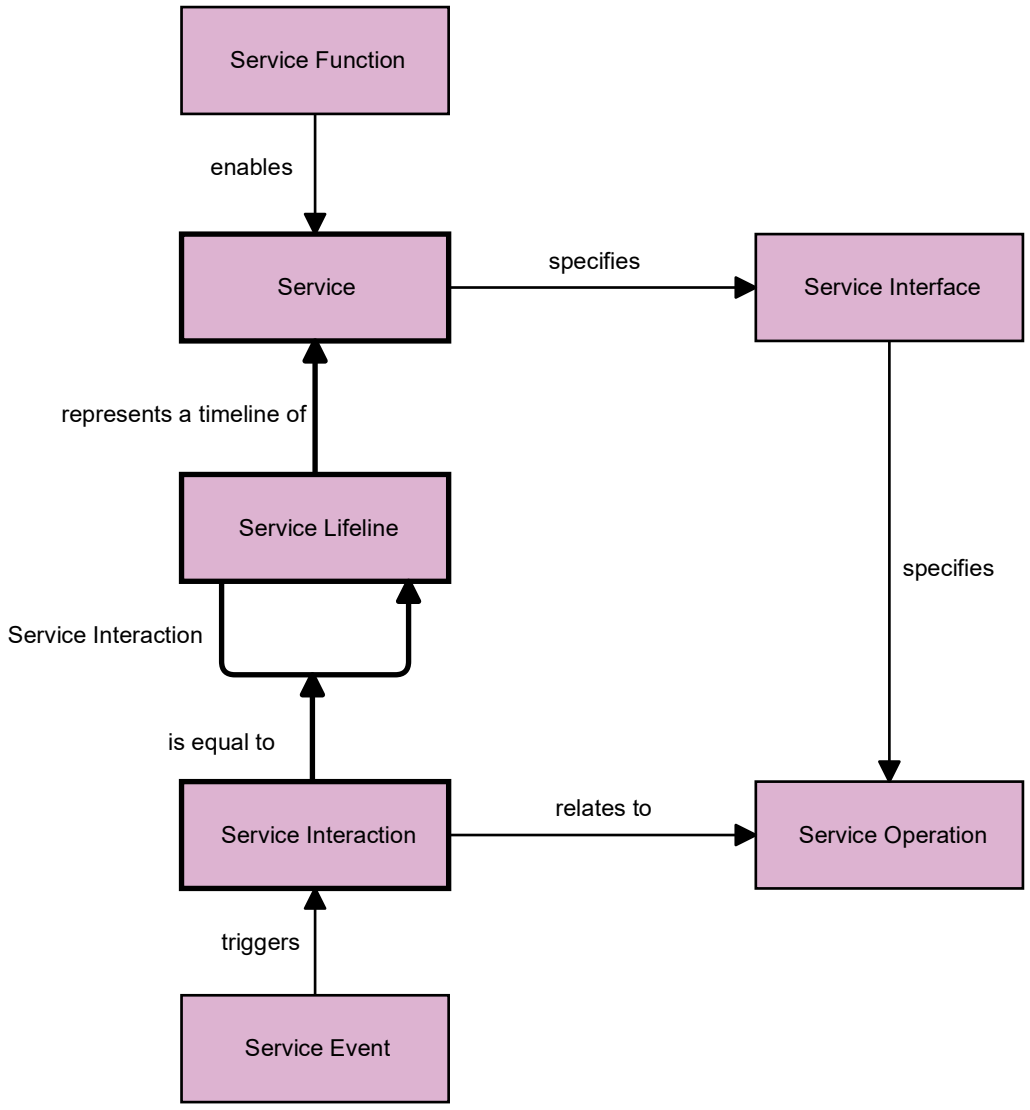
18 S6 - SERVICE SEQUENCE

Purpose	Usage & Concerns Addressed
The S6 Viewpoint is concerned with identifying the chronological sequence of interactions between services in a scenario.	• Outline requirements for Service behavior. • Service implementation guidance. • Service Orchestration.

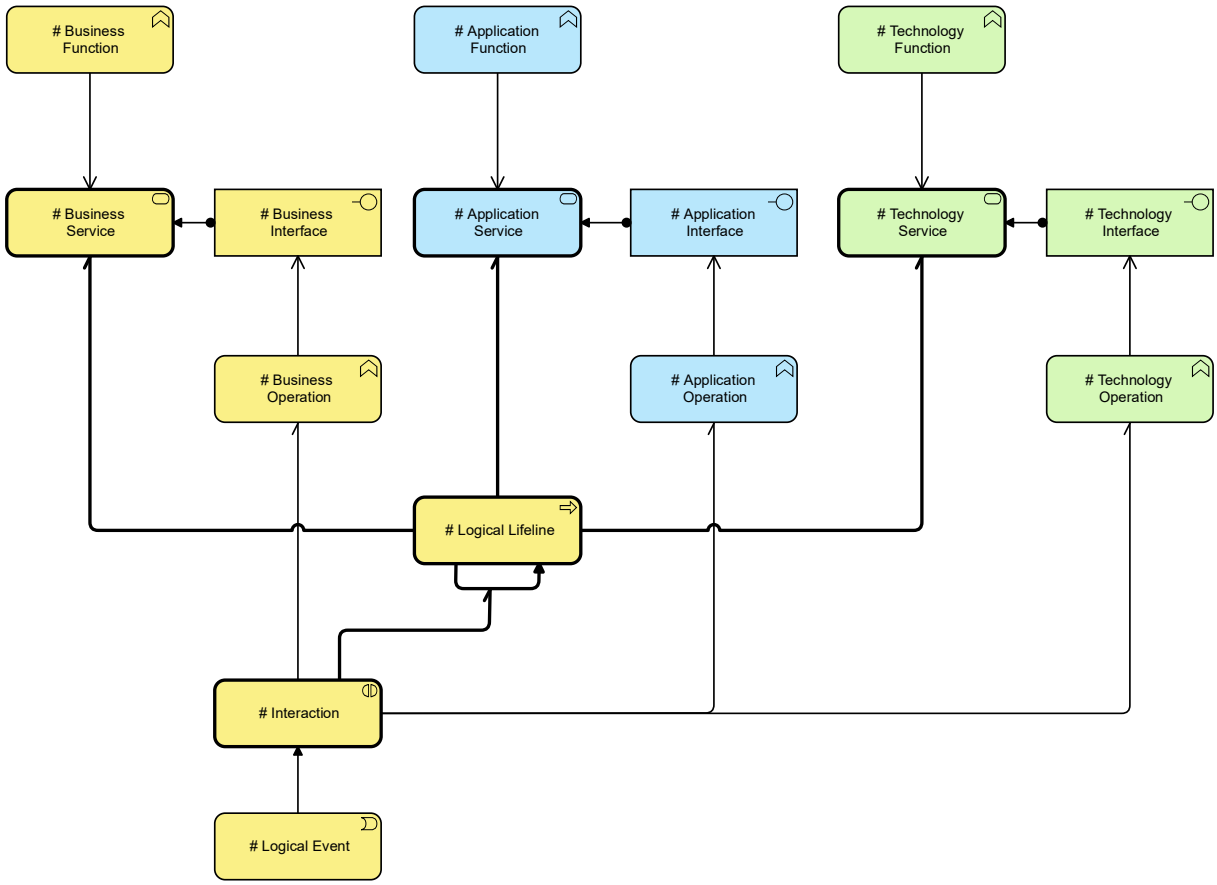
Scope
• Shall contain Service Lifelines representing Services. • Shall contain the Service Interactions between Service Lifelines. • May show Service Events that trigger Service Interactions. • May show Service Functions that enable the Service. • May show Service Interfaces specified by the Service. • May show Service Operations specified by the Service Interface or relating to the Service Interaction.

Representation
• Sequence Diagram.

18.1 S6 NAF IM Viewpoint



18.2 S6 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Event	# Logical Event	Business event
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function
Service Interaction	# Interaction	Business interaction
Service Interface	# Application Interface	Application interface
Service Interface	# Business Interface	Business interface
Service Interface	# Technology Interface	Technology interface
Service Lifeline	# Logical Lifeline	Business process
Service Operation	# Application Operation	Application function
Service Operation	# Business Operation	Business function
Service Operation	# Technology Operation	Technology function

18.3 S6 Implementation Guidance

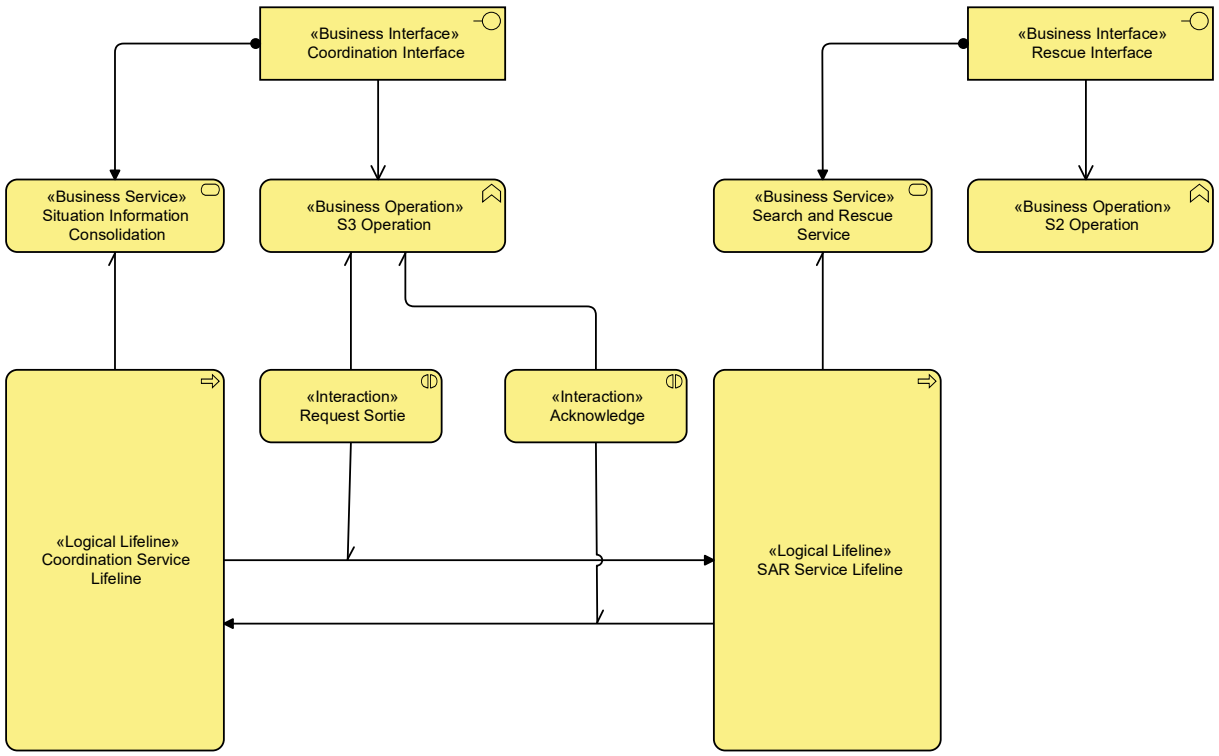
Services exist at three layers within ArchiMate: *business, application* and *technology*. **Service Lifelines** are represented as *business processes* with the specialism # Logical Lifeline. **Service Interactions** are represented as *business interactions* with the specialism # Interaction. They are the objectification of the *trigger* relation between **Service Lifelines**. The option of using *interactions* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario. A *business event* represents a **Service Event** and can trigger the # Interaction.

Service Functions exist at three layers within ArchiMate: *business, application* and *technology*, the layer specific *function serves* the corresponding *service.*

Service Interfaces exist at three layers within ArchiMate: *business, application* and *technology*. They can be *assigned* to the corresponding *service* layer.

Service Operations, represented as *functions,* exist at three layers within ArchiMate: *business, application* and *technology*. They can *serve* the corresponding *interface* layer and be *associated with* the # Interaction.

18.4 S6 ArchiMate Example



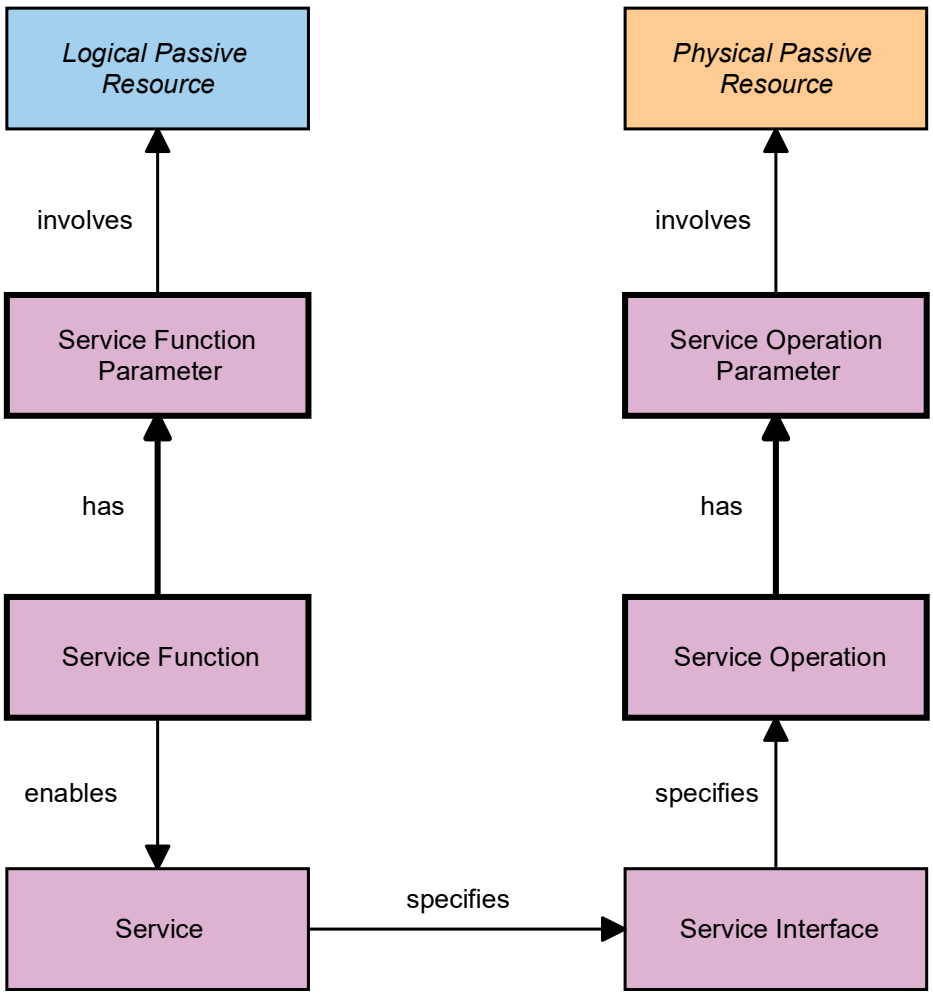
19 S7 - SERVICE INTERFACE PARAMETERS

Purpose	Usage & Concerns Addressed
The S7 Viewpoint is concerned with the identification and specification of all the parameters used in service operations/ functions for the interface in scope.	• Detailed Service design. • Service compatibility analysis. • Service-oriented architecture governance. • Service interoperability.

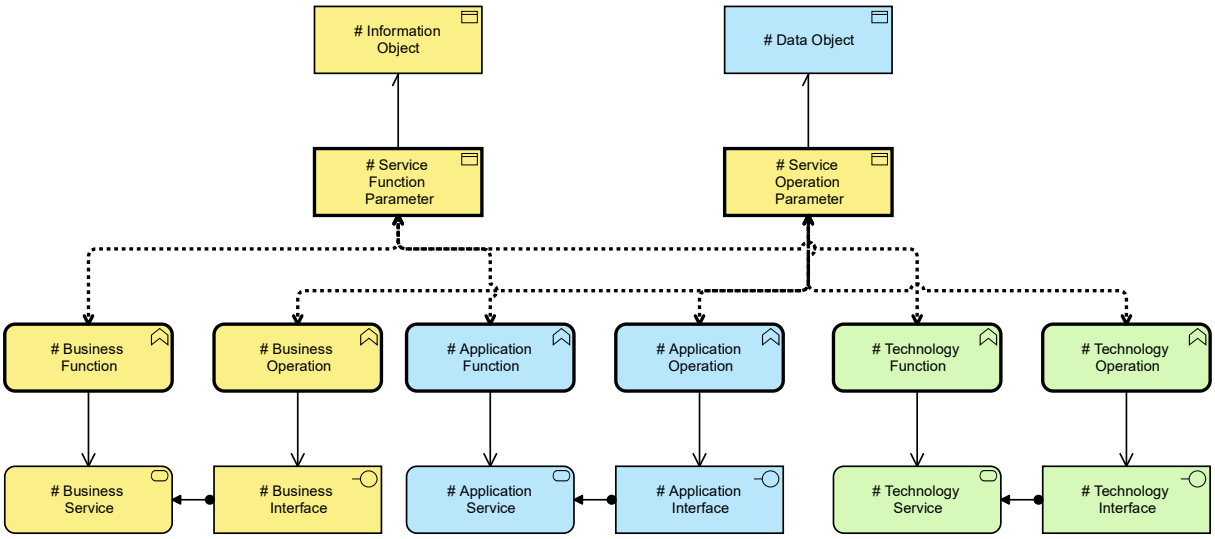
Scope
• Shall contain parameters of Service Operations or parameters of Service Functions relevant for the entity of interest. • Shall contain Passive Resources involved in Services Functions or Service Operation Parameters. • May show Services that are enabled by the Service Functions. • May show Service Interfaces that specify the Service Operation, and the Services that specify the Service Interface.

Representation
• Tabular. • Diagram.

19.1 S7 NAF IM Viewpoint



19.2 S7 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Passive Resource	# Information Object	Business object
Physical Passive Resource	# Data Object	Data object
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function
Service Function Parameter	# Service Function Parameter	Business object
Service Interface	# Application Interface	Application interface
Service Interface	# Business Interface	Business interface
Service Interface	# Technology Interface	Technology interface
Service Operation	# Application Operation	Application function
Service Operation	# Business Operation	Business function
Service Operation	# Technology Operation	Technology function
Service Operation Parameter	# Service Operation Parameter	Business object

19.3 S7 Implementation Guidance

Service Operations and **Service Functions**, represented as *functions,* exist at three layers within ArchiMate: *business, application* and *technology*.

Services and **Service Interfaces** exist at three layers within ArchiMate: *business, application* and *technology*.

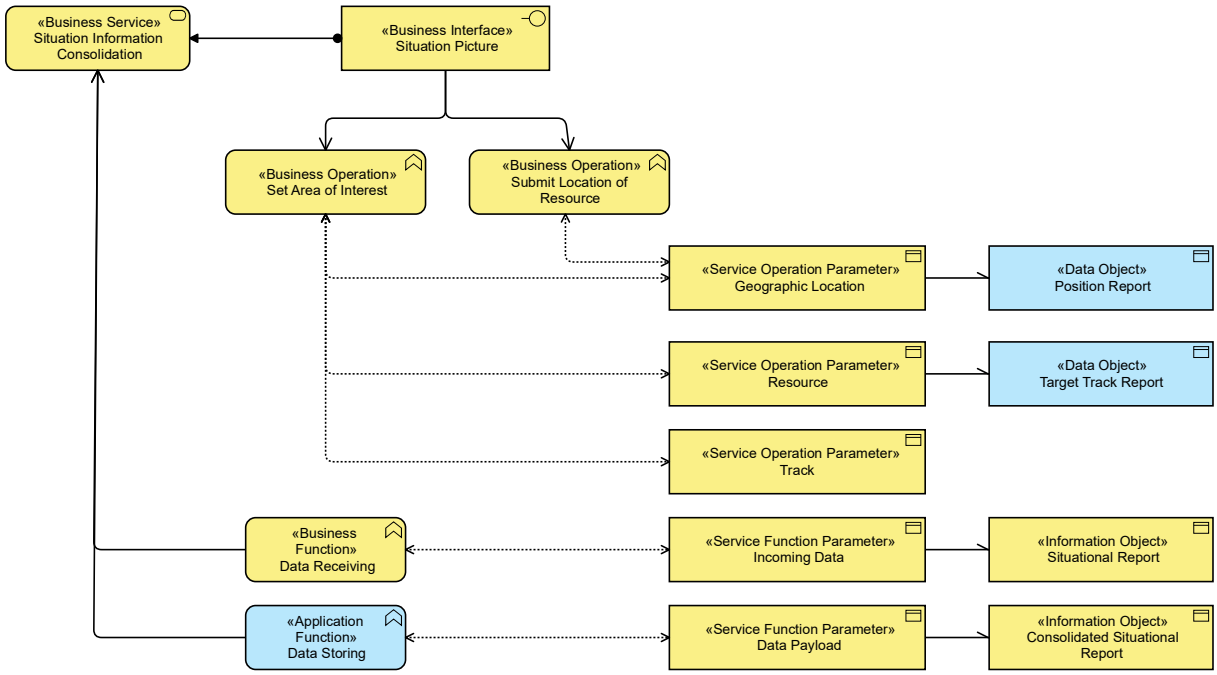
Service Functions can *serve* **Services**, whilst **Service Operations** can *serve* **Service Interfaces**.

Each **Service** may be *assigned to* a **Service Interface**.

Service Operation Parameters and **Service Function Parameters**, both represented as *business objects* are *accessed by* the **Service Operation** and **Service Function** respectively.

Service Operation Parameters can be *associated with* # Information Objects (represented as *business objects*) which is the relevant **Logical Passive Resource** in the context of this viewpoint. **Service Function Parameters** can be *associated with* # Data Objects (represented as *data objects*) which is the relevant **Physical Passive Resource** in the context of this viewpoint.

19.4 S7 ArchiMate Example



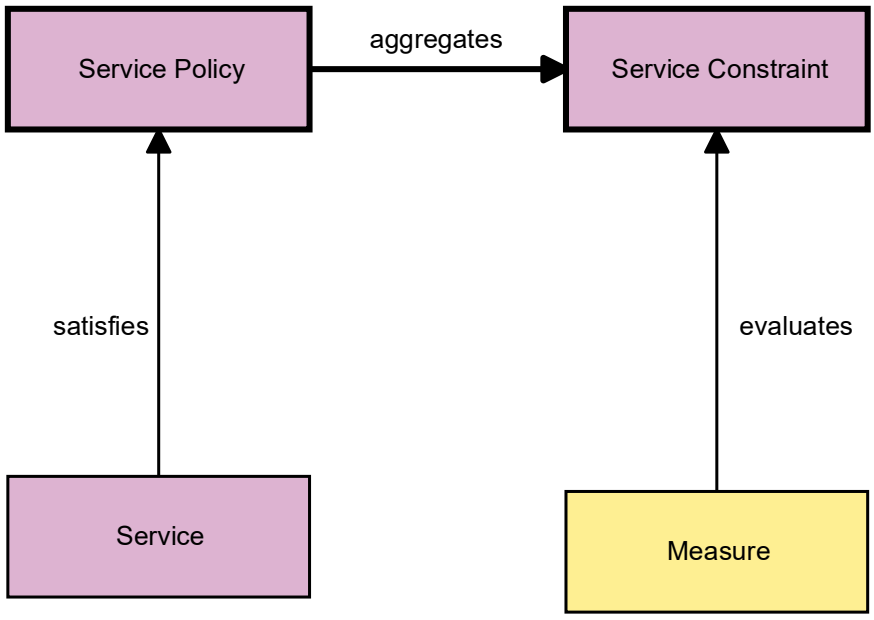
20 S8 - SERVICE CONSTRAINTS

Purpose	Usage & Concerns Addressed
The S8 Viewpoint is concerned with the identification and description of rules and constraints that apply to Service implementations, their operation and their use.	• Service design. • Contracting for Services. • User / System Requirements.. • Service governance.

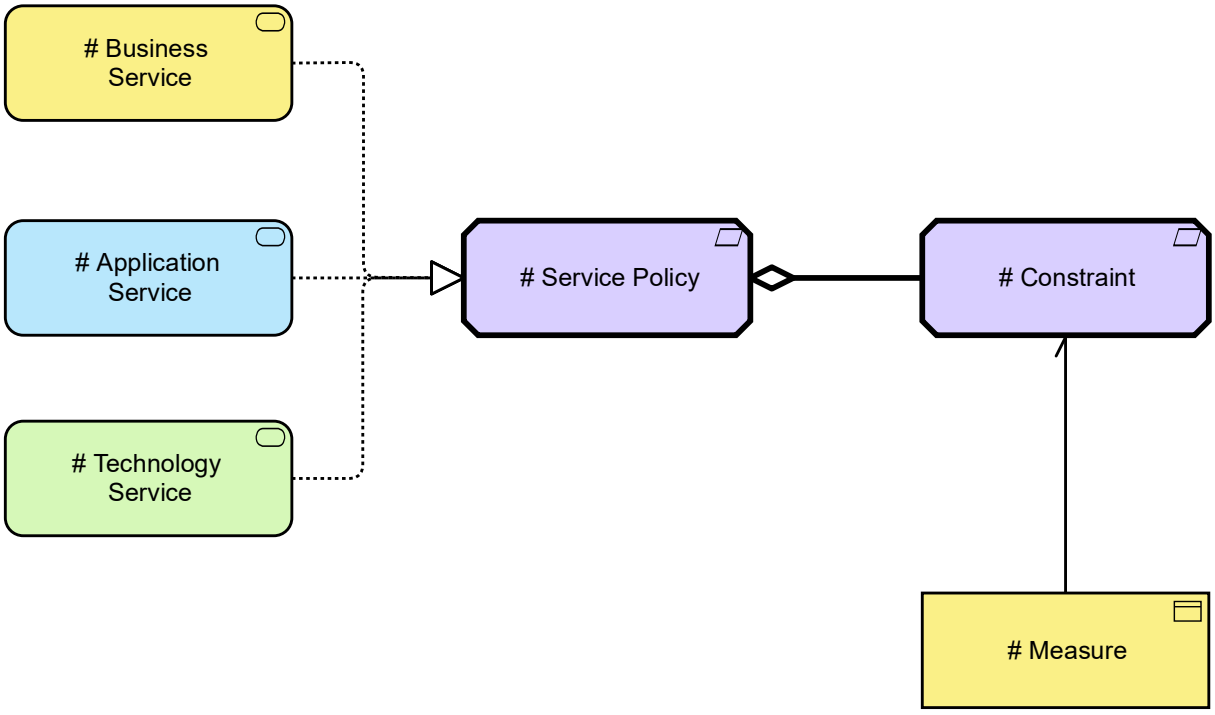
Scope
• Shall contain Service Constraints that are grouped by Service Policies. • May show Services that satisfy the Service Policy. • May shows Measures the Service Constraints can be evaluated by.

Representation
• Tabular. • Diagram. • Text Document. • Parametric diagram.

20.1 S8 NAF Viewpoint



20.2 S8 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Measure	# Measure	Business object
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Constraint	# Constraint	Requirement
Service Policy	# Service Policy	Requirement

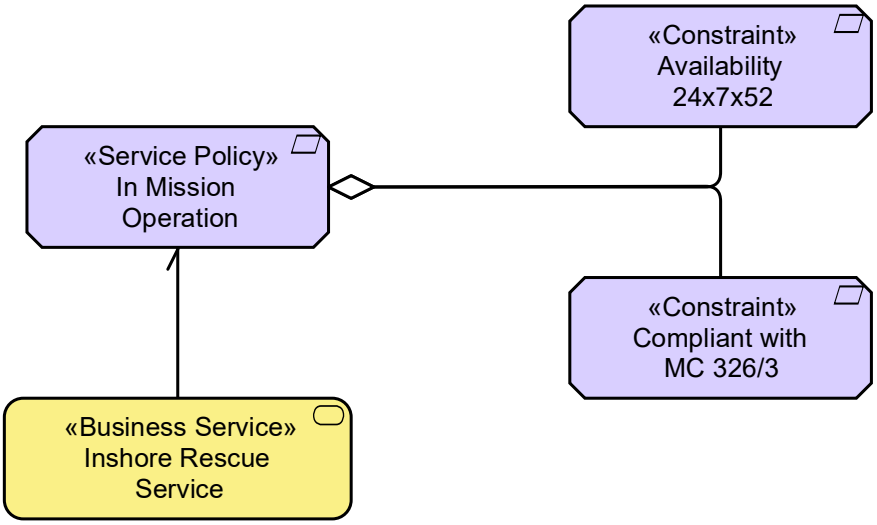
20.3 S8 Implementation Guidance

Service Policies are represented as *requirements. Requirements* are also used to represent **Constraints**, and they can be aggregated by the **Service Policy**.

Services exist at three layers within ArchiMate: *business, application* and *technology* and each can *realize* the **Service Policy**.

Measures are represented as *business objects* that can be *associated with* **Constraints**.

20.4 S8 ArchiMate Example



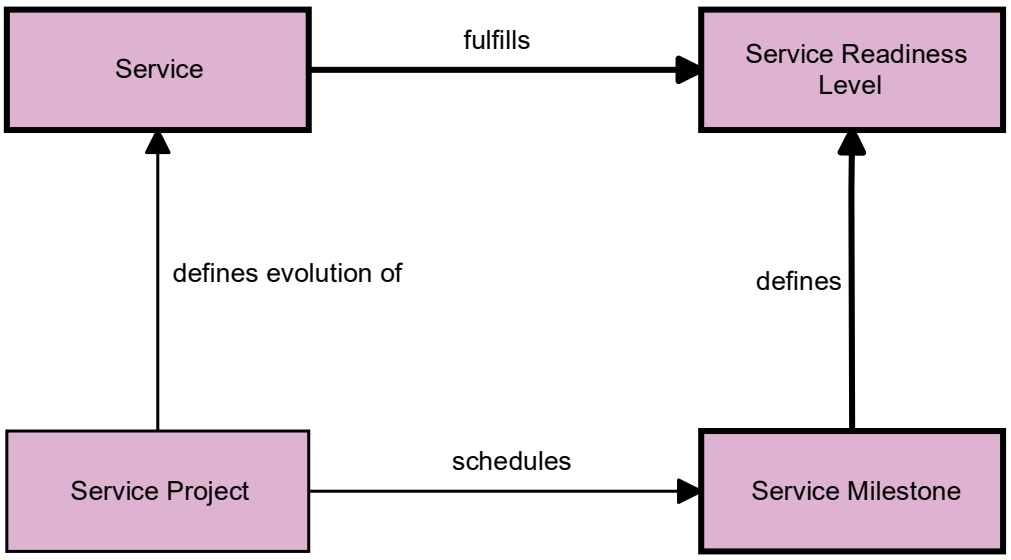
21 SR - SERVICE ROADMAP

Purpose	Usage & Concerns Addressed
The Sr Viewpoint is concerned with Service Roadmaps with Service Milestones related to the evolution of Service.	• Service Life Cycle Planning. • Acquisition Management. • Service phasing. • Service gap/surplus analysis. • Service orientated architecture governance.

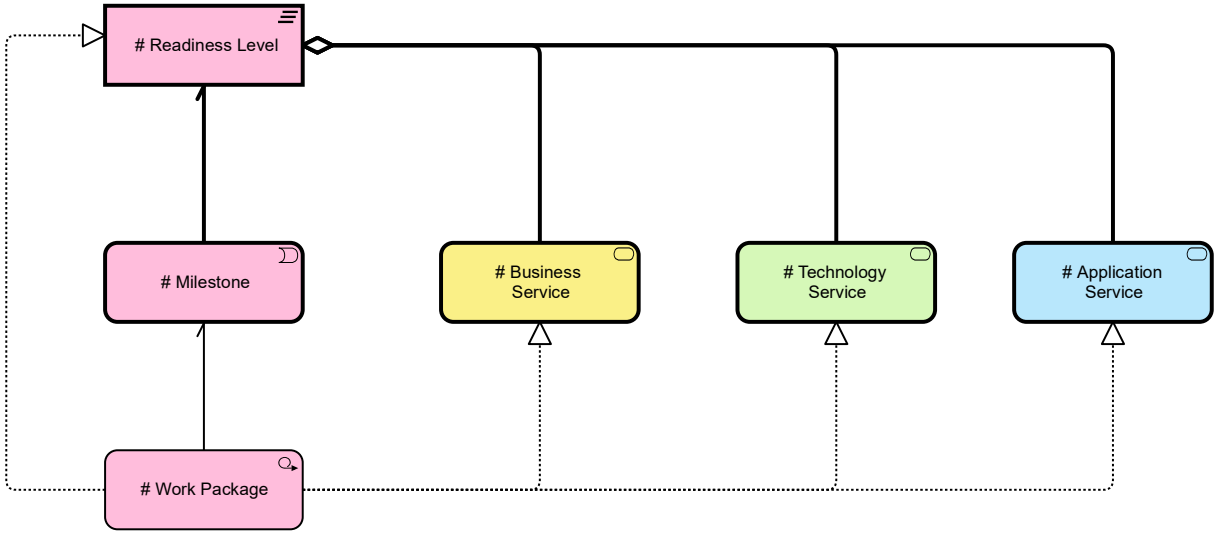
Scope
• Shall contain Service Milestones that define the Service Readiness Levels. • Shall contain the Services that fulfil the Service Readiness Level. • May show Service Projects and how they schedule Service Milestones and define the evolution of the Service.

Representation
• A time based chart in the style of a Gantt chart. • Tabular. • High-level dashboard.

21.1 Sr NAF IM Viewpoint



21.2 Sr ArchiMate Viewpoint

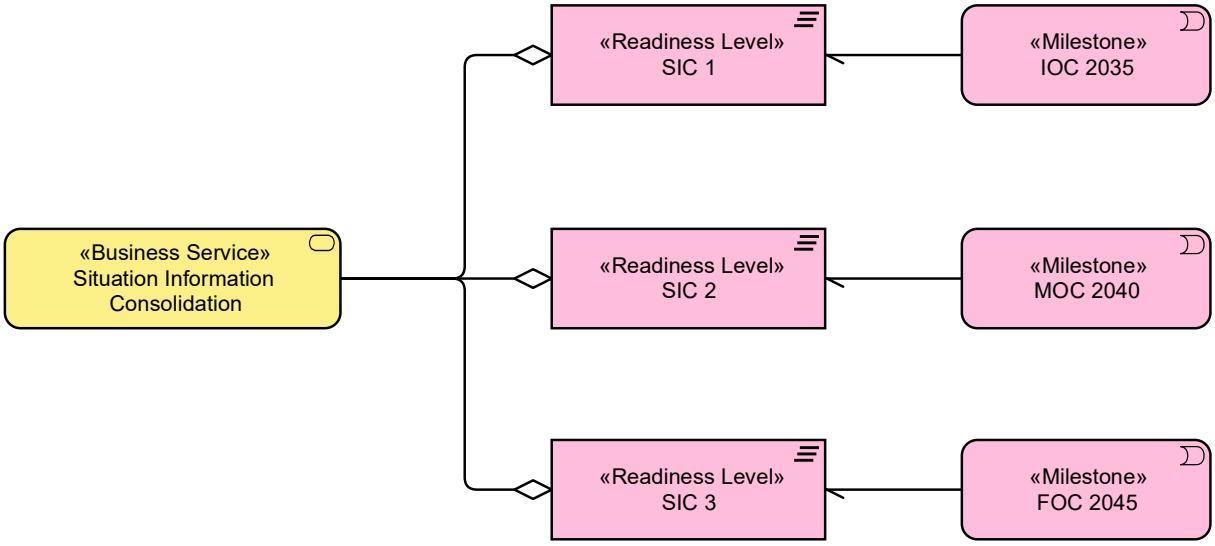


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service
Service Milestone	# Milestone	Implementation event
Service Project	# Work Package	Work package
Service Readiness Level	# Readiness Level	Plateau

21.3 Sr Implementation Guidance

Services exist at three layers within ArchiMate: *business, application* and *technology* and **Service Milestones** are represented as *implementation events.* **Service Readiness Levels** are represented as *plateaus* that *aggregate* the *services* and are *associated with* the *implementation event*. **Service Projects** are represented as *work packages.* **Service Milestones** are *associated with* the # Readiness Level. Alternatively, they may be captured as attributes on the # Readiness Level and so to represent the **schedules** relation, *work packages* can *realize* the # Readiness Level and be *associated with* the **Service Milestone**. *Work packages can* realize each of the *services.*

21.4 Sr ArchiMate Example



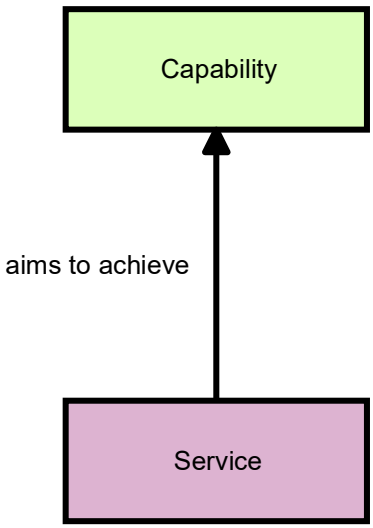
22 C1-S1 SERVICE TO CAPABILITY MAPPING

Purpose	Usage & Concerns Addressed
The C1-S1 Viewpoint is concerned with identification and description of services that enable capabilities.	• Mapping of capabilities to services that they are supported by. • Service Specification & Planning. • Governance.

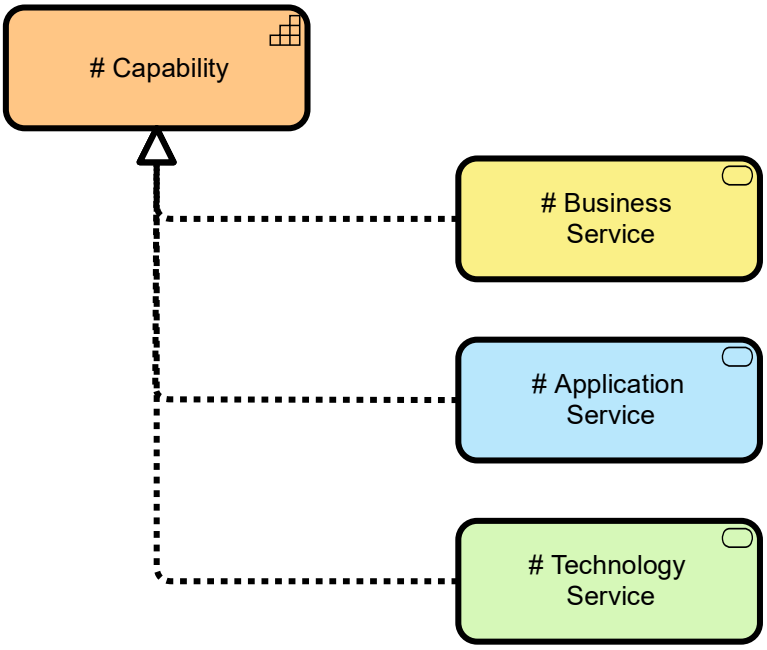
Scope
• Shall denote Services relevant for the architecture. • Shall denote Capabilities relevant for the architecture. • Shall link Services to Capabilities they enable or they contribute to.

Representation
• Matrix (with capabilities on one axis, and services on the other one). • Diagram.

22.1 C1-S1 NAF IM Viewpoint



22.2 C1-S1 ArchiMate Viewpoint

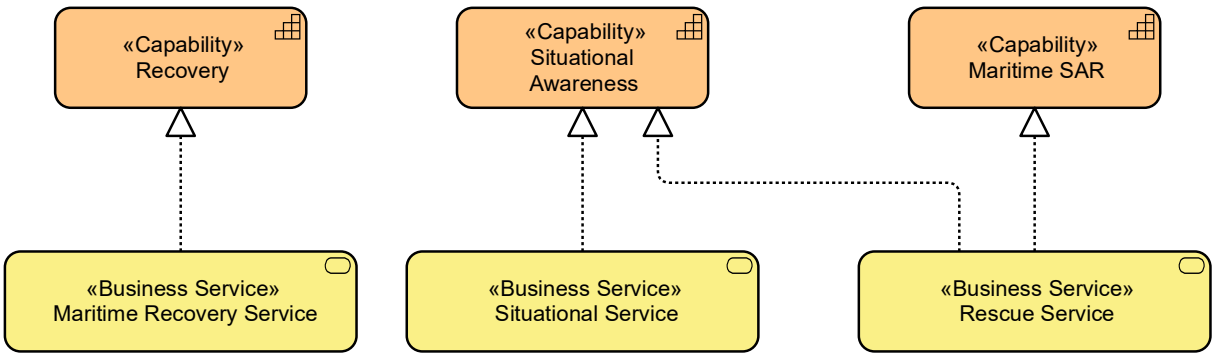


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service

22.3 C1-S1 Implementation Guidance

Services exist at three layers within ArchiMate: *business, application* and *technology*. Where the layering of *services* is applicable to the architecture, they must be present on the viewpoint. Each of the *services realize* a ***Capability***.

22.4 C1-S1 ArchiMate Example



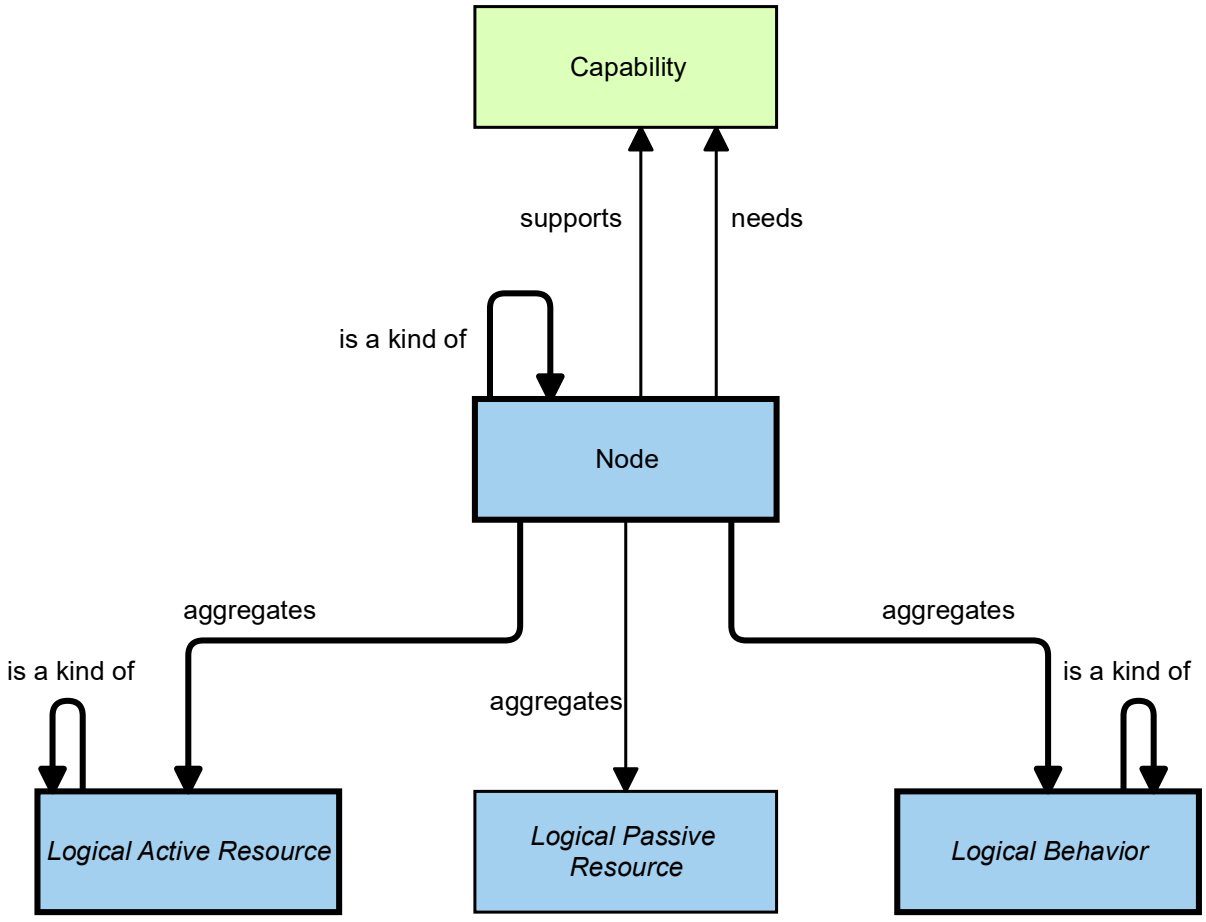
23 L1 - LOGICAL TAXONOMY

Purpose	Usage & Concerns Addressed
The L1 Viewpoint is concerned with the identification of Nodes, and their Active Resource (Logical) and Logical behaviour, and their organization into specialization taxonomies	• Operational Planning. • High-Level Requirements. • Initial set up of a Logical Architecture. • Defining the types of environment in which Nodes may operate.

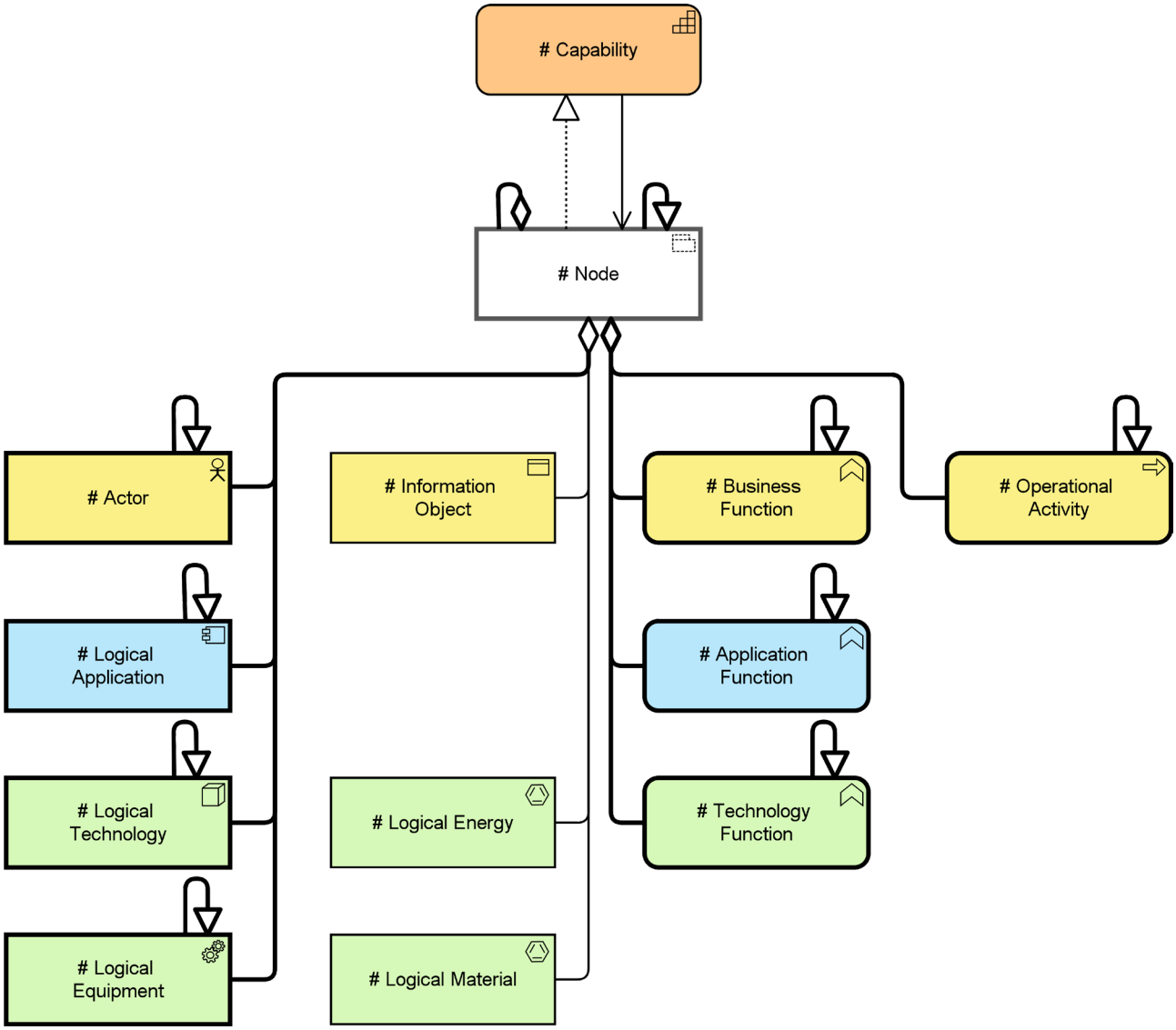
Scope
• Shall contain all Nodes relevant for the entity of interest organized into specialization taxonomies. • Shall contain Logical Active Resources and Logical Behaviour that are relevant for the entity of interest, grouped by Nodes and organized into specialization taxonomies. • May show Passive Resources (Logical) that are relevant for the entity of interest, grouped by Nodes. • May trace Nodes to Capabilities they need or support.

Representation
• Topological (connected shapes). • Tabular.

23.1 L1 NAF IM Viewpoint



23.2 L1 ArchiMate Viewpoint



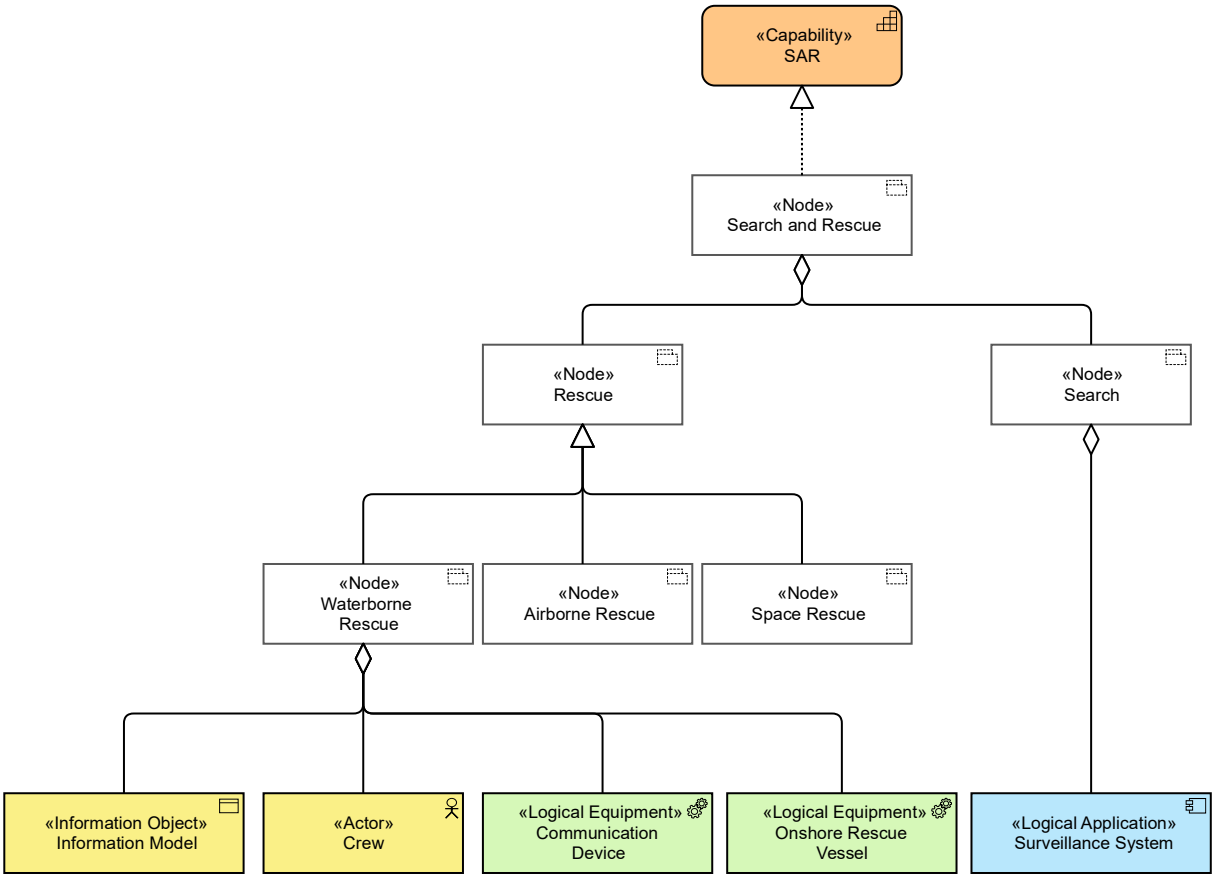
NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Active Resource	# Node	Grouping
Logical Behaviour	# Application Function	Application function
Logical Behaviour	# Business Function	Business function
Logical Behaviour	# Operational Activity	Business process
Logical Behaviour	# Technology Function	Technology function
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Node	# Actor	Business actor
Node	# Logical Application	Application component
Node	# Logical Equipment	Equipment

Node	# Logical Technology	Node
Node	# Node	Grouping

23.3 L1 Implementation Guidance

Nodes are represented as *groupings*. They *aggregate* the mapped **Logical Active Resources** (including the **Node** subtypes), **Logical Behaviour** and **Logical Passive Resources** detailed in Section 4. They can *realize* and be *served by capabilities*. The **Node** *specializes* other **Nodes** and the mapped ArchiMate **Logical Entities** *specialize* other mapped ArchiMate **Logical Entities**. The **Node** *aggregates* other **Nodes** and mapped ArchiMate **Logical Entities**.

23.4 L1 ArchiMate Example



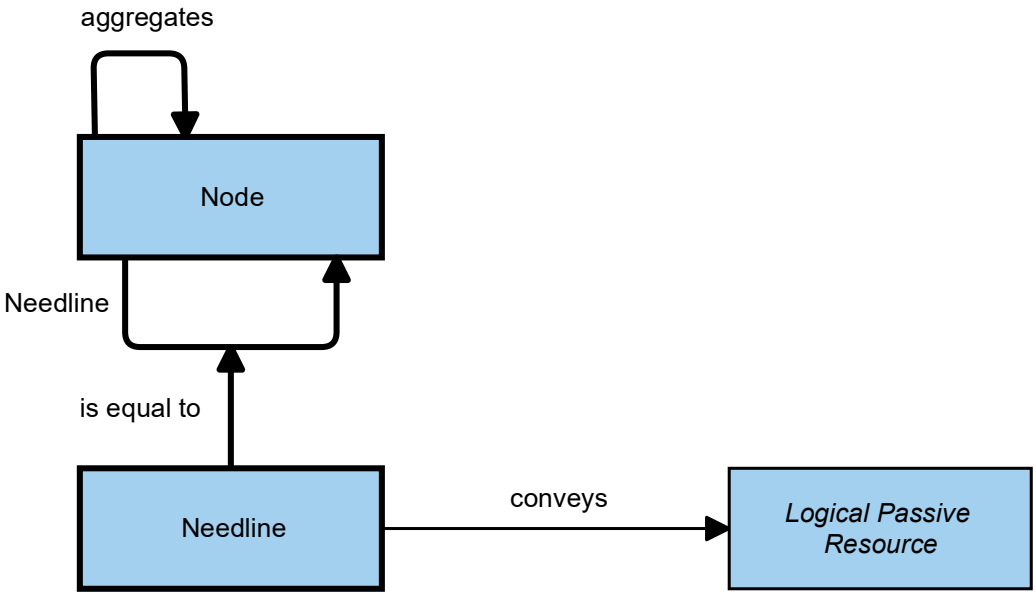
24 L2 - LOGICAL STRUCTURE

Purpose	Usage & Concerns Addressed
The L2 Viewpoint is concerned with identifying of how nodes are structured and their dependencies to other nodes through the use of Needlines for a relevant logical scenario.	• User Requirements. • Operational Planning. • Scenario Specification. • Definition of operational concepts. • Definition of collaboration needs. • Problem space definition. • Supply chain analysis.

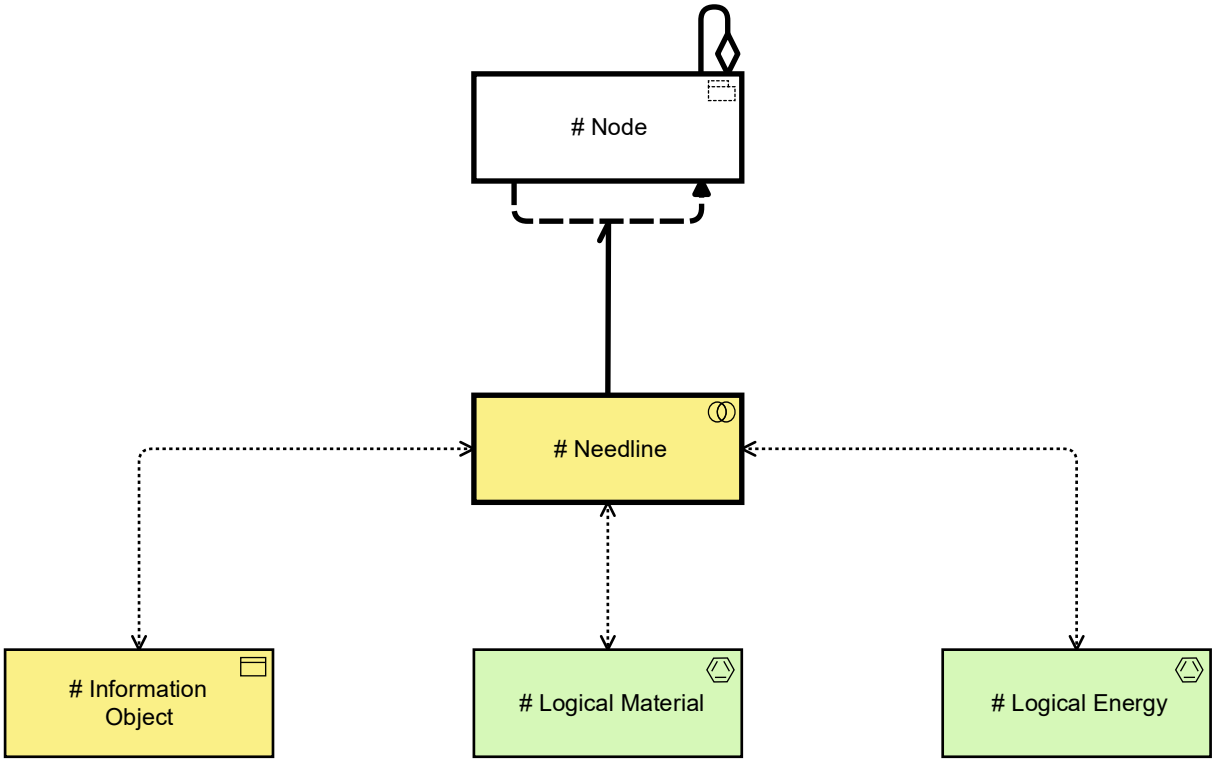
Scope
• Shall contain Nodes relevant for the entity of interest and their structural organization. • Shall contain Needlines between Nodes. • May show Logical Passive Resources that the Needlines convey.

Representation
• Topological (connected shapes). • Composite structure diagram. • Rich Picture.

24.1 L2 NAF IM Viewpoint



24.2 L2 ArchiMate Viewpoint



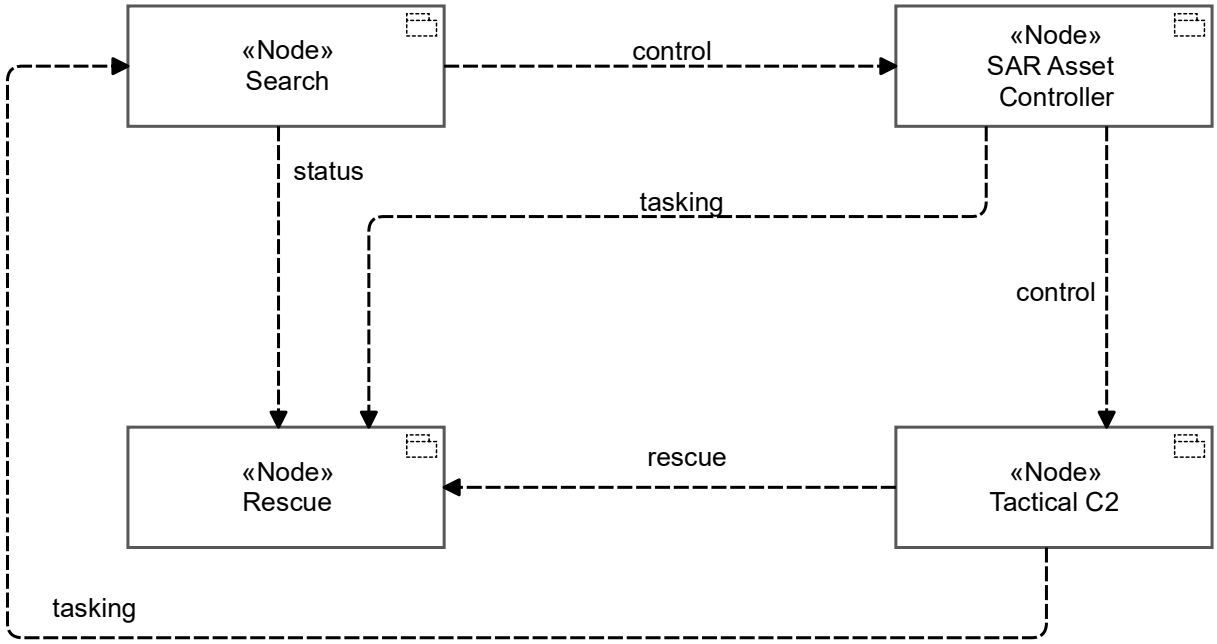
NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Needline	# Needline	Business collaboration
Node	# Node	Grouping

24.3 L2 Implementation Guidance

Nodes are represented as *groupings* and *aggregate* other **Nodes**. The **Needline** can be modelled as either a *flow* relation between the # Node or with a *business collaboration* that is *associated with* the *flow* relation. The option of using *business collaborations* or *flow* relations depends on the tooling constraints and level of detail required for modelling the scenario.

The # Needline can then *access* the relevant mapped **Logical Passive Resources** detailed in Section 4.4.

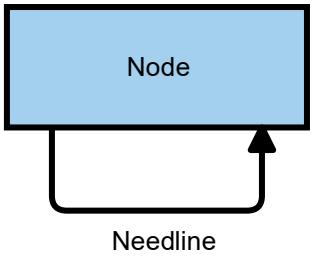
24.4 L2 ArchiMate Example



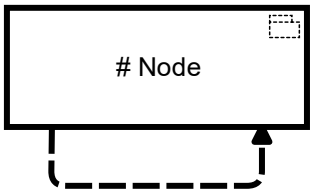
25 L2-L3 - LOGICAL CONCEPT

Scope
The L2-L3 is presented as a rich picture in most cases. Therefore, no information model elements are shown here. However, an L2-L3 may be constructed with a Node and it's Needlines.

25.1 L2-L3 NAF IM Viewpoint



25.2 L2-L3 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Node	# Node	Grouping

25.3 L2-L3 Implementation Guidance

Nodes are represented as *groupings* and **Needlines** represented as *flows* between them.

26 L3 - LOGICAL INTERACTIONS

Purpose	Usage & Concerns Addressed
The L3 Viewpoint is concerned with identifying all relevant interactions between Nodes.	• Interoperability requirements.

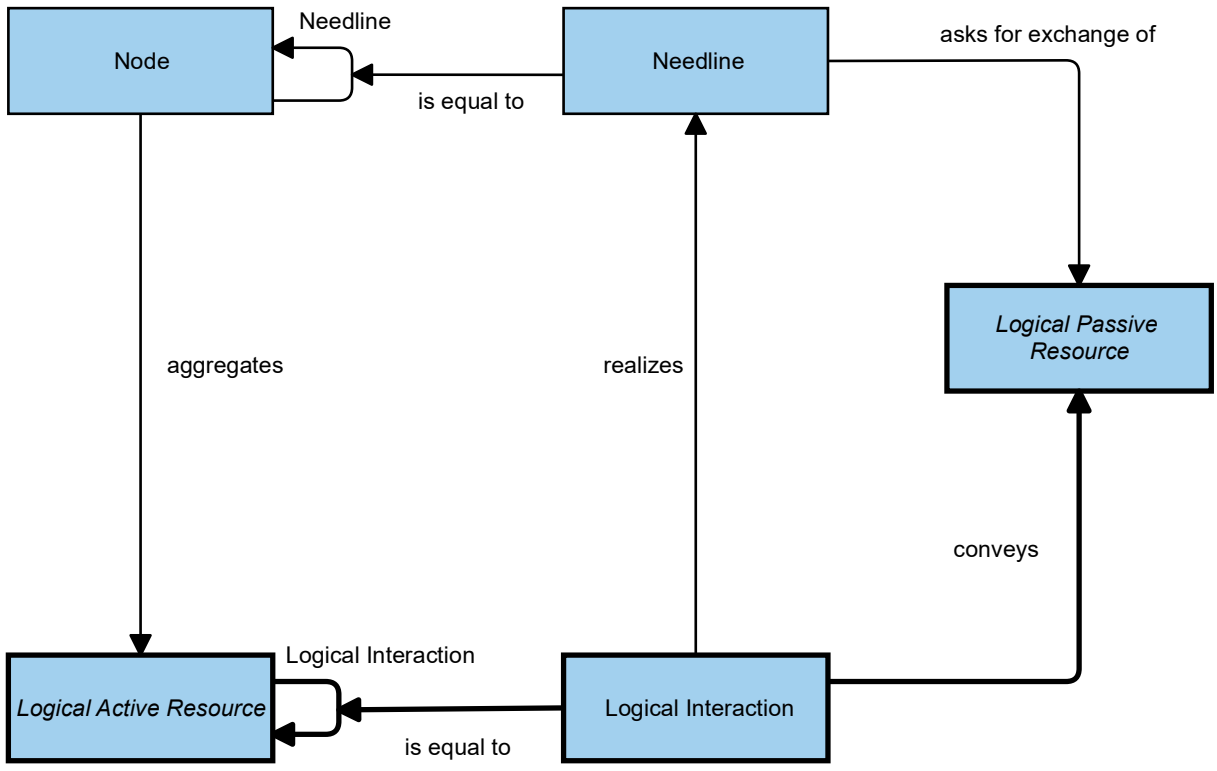
Scope

- Shall contain Logical Interactions between Logical Active Resources relevant to the entity of interest.
- Shall contain the Logical Passive Resources being conveyed by the Logical Interaction.
- May show Logical Interactions to the Needline.
- May show the Nodes relating to the Needlines and the Logical Active Resources they aggregate.
- May show the Logical Passive Resources asked for by the Needline.
- May show the Logical Interaction to Logical Passive Resources.

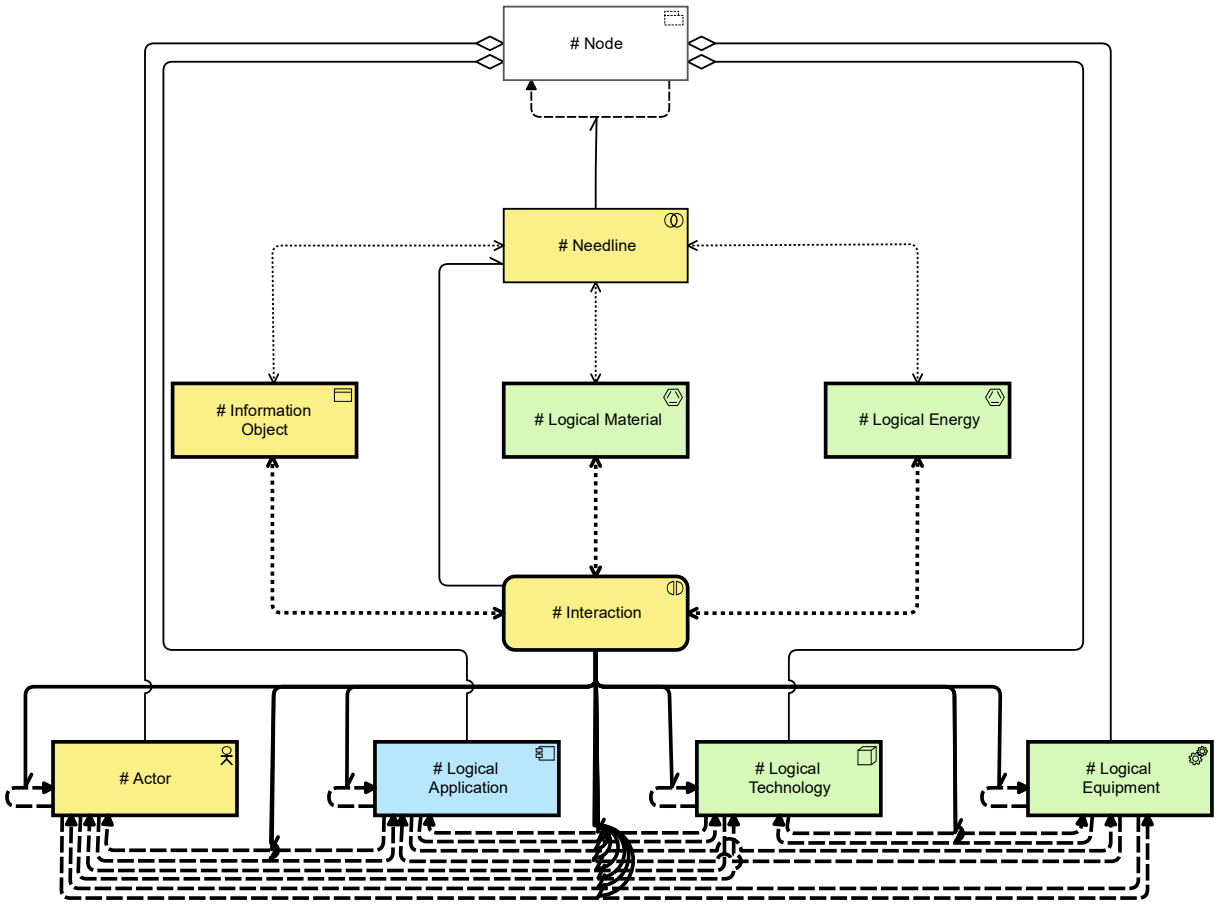
Representation

- Tabulation.
- Information flow diagram.
- Sankey diagram.

26.1 L3 NAF IM Viewpoint



26.2 L3 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Active Resource	# Node	Grouping
Logical Interaction	# Interaction	Business interaction
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Needline	# Needline	Business collaboration
Node	# Actor	Business actor
Node	# Logical Application	Application component
Node	# Logical Equipment	Equipment
Node	# Logical Technology	Node
Node	# Node	Grouping

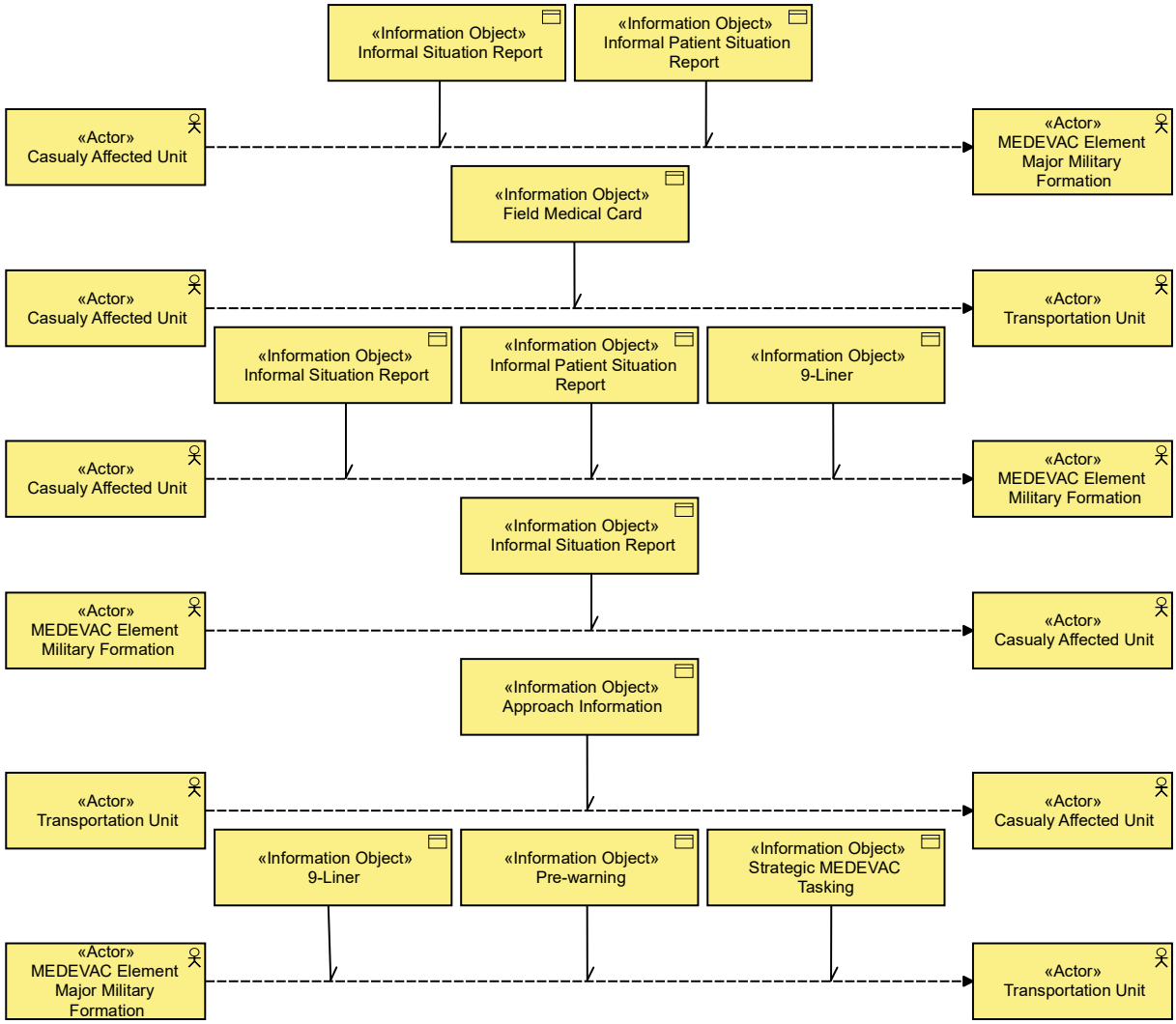
26.3 L3 Implementation Guidance

In the context of this viewpoint, the **Logical Active Resources** are the mapped **Node** subtypes detailed in Section 4.2. **Logical Interactions** are represented as either *flow* relations between all the relevant mapped **Logical Active Resources** or as *business interactions* (specialized as # Interaction) that are *associated with* the *flow* relations.

Nodes are represented as *groupings* with **Needlines** represented as the same pattern elaborated in the L2 Implementation Guidance. The # Node can aggregate the mapped **Logical Active Resources.**

The # Interaction can be *associated with* the # Needline. The # Needline and the # Interaction can *access* the mapped **Logical Passive Resources** detailed in Section 4.4. If the **Logical Interaction** is modelled with *flow* relations, then it is also possible to have the passive elements be *associated with* the *flow* relation as shown in the example.

26.4 L3 ArchiMate Example



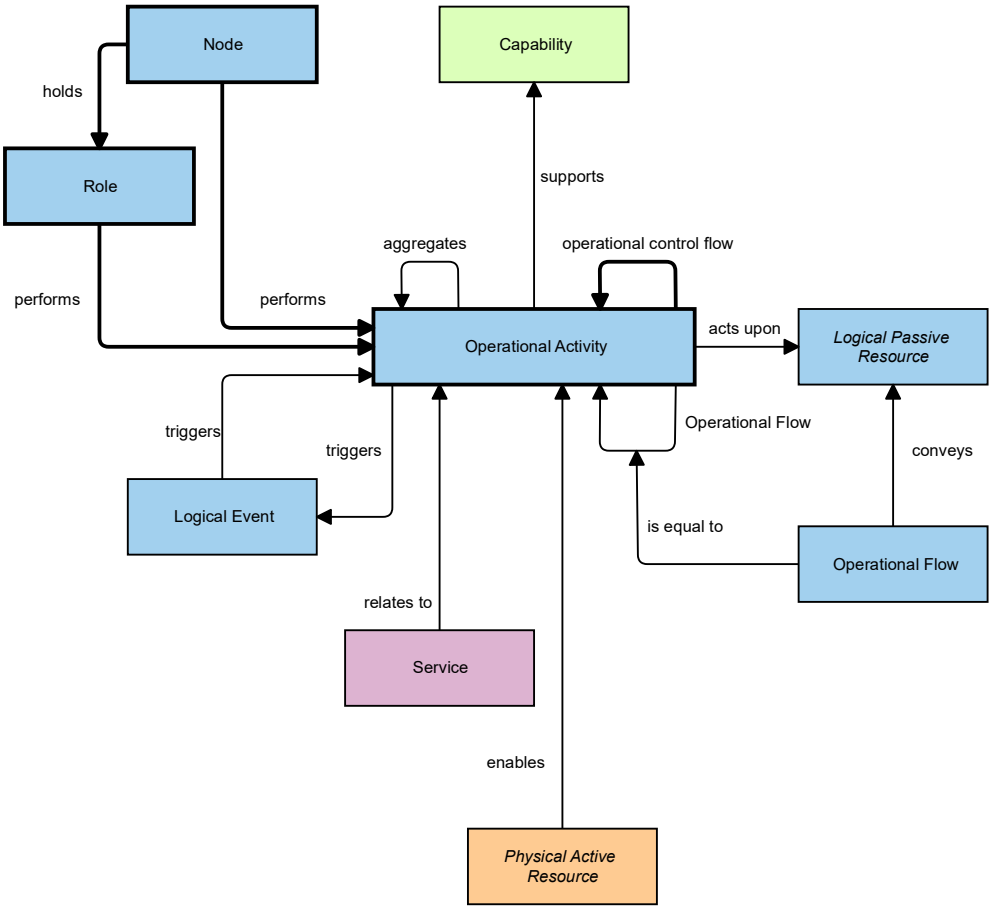
27 L4 - LOGICAL ACTIVITIES

Purpose	Usage & Concerns Addressed
The L4 Viewpoint is concerned with the identification of Logical Activities, grouping and composition of these Activities and logical flows between the Activities.	• Description of business processes and workflows. • Operational Planning. • Concept of Operations. • Service Orchestration. • Requirements capture, derivation and traceability • Logistics support analysis. • Information flow analysis. • Support task analysis to determine training needs. • Mission Threads.

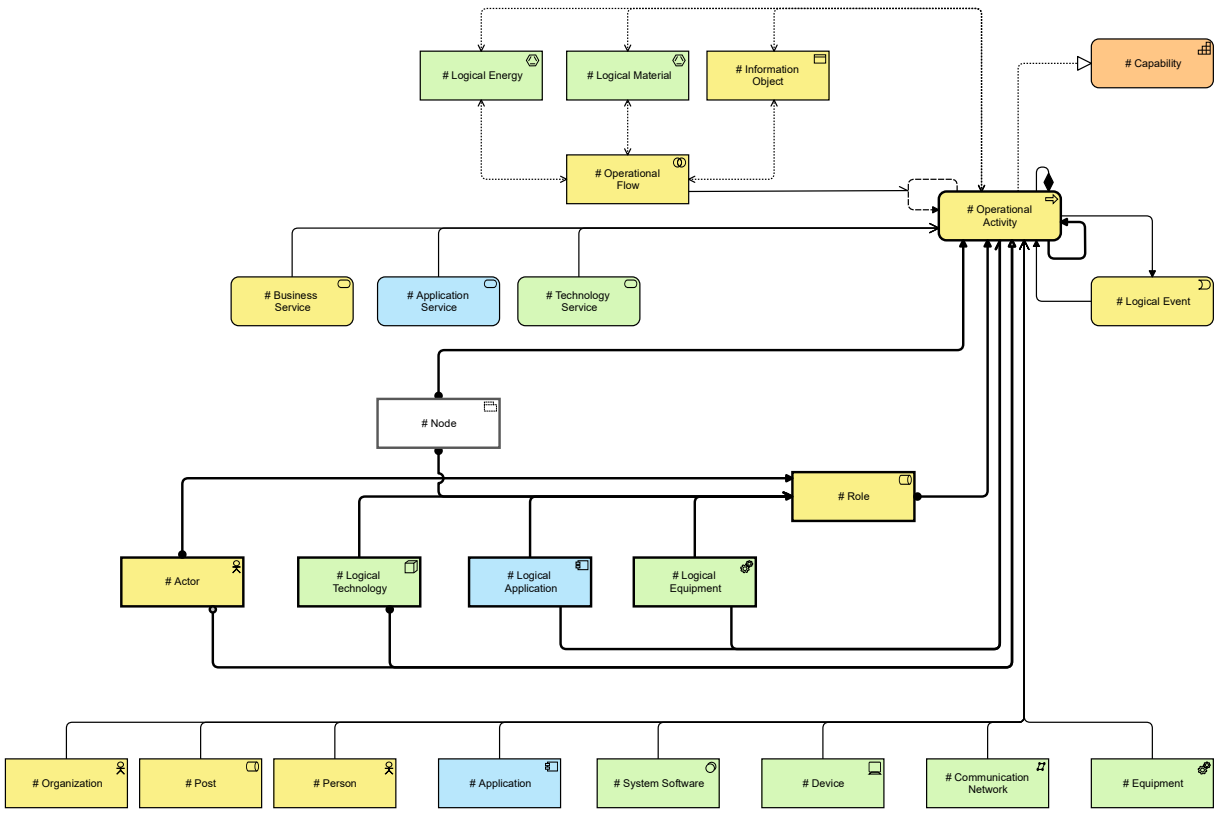
Scope
• Shall contain Operational Control Flows between Operational Activities. • Shall contain Nodes (or Roles that they hold) that perform Operational Activities. • May show Logical Events that trigger and can be triggered by Operational Activities. • May show Operational Flows between Operational Activities. • May show Logical Passive Resources to Operational Activities and Operational Flows. • May show the Capabilities the Operational Activities support. • May trace Physical Active Resources to the Operational Activity. • May trace Services to the Operational Activity.

Representation
• Hierarchy chart. • Activity diagram. • Process diagram. • Collaboration Diagram.

27.1 L4 NAF IM Viewpoint



27.2 L4 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Logical Event	# Logical Event	Business event
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Node	# Actor	Business actor
Node	# Logical Application	Application component
Node	# Logical Equipment	Equipment
Node	# Logical Technology	Node
Node	# Node	Grouping
Node	# Role	Business role
Operational Activity	# Operational Activity	Business process
Operational Flow	# Operational Flow	Business collaboration
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Role	# Role	Business role
Service	# Application Service	Application service
Service	# Business Service	Business service
Service	# Technology Service	Technology service

27.3 L4 Implementation Guidance

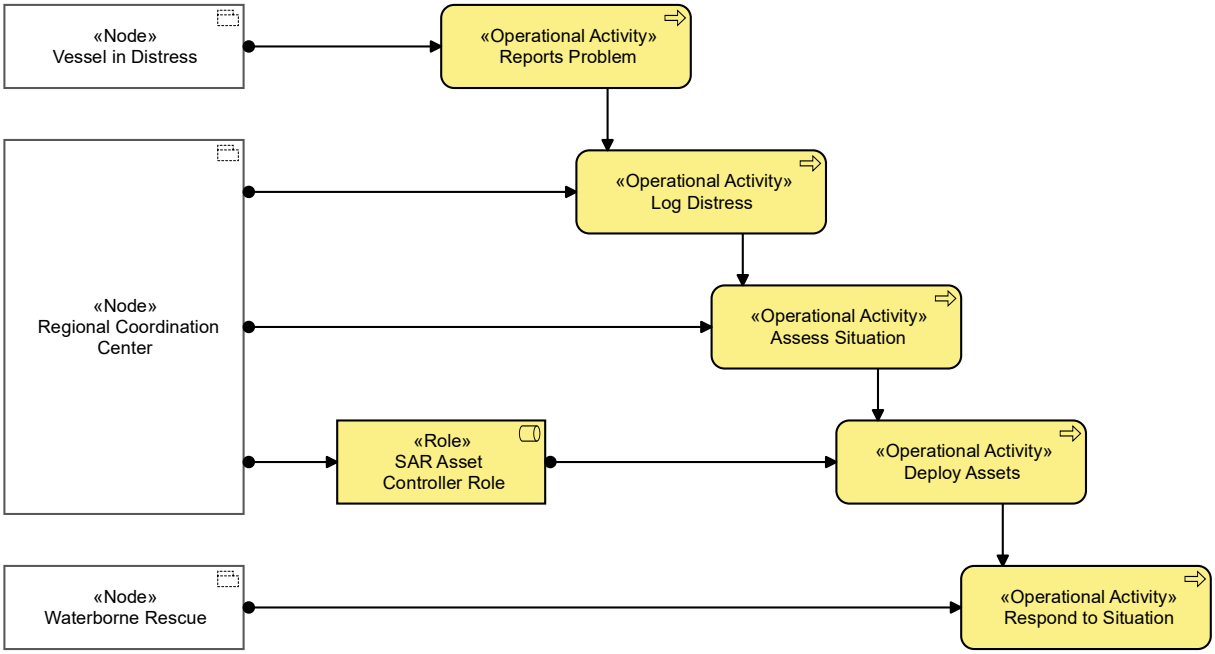
Operational Activities in this viewpoint are represented as *business processes.* ***Nodes*** are represented as *groupings*, and in the context of this viewpoint they can also be the **Node** subtypes detailed in Section 4.2. The **Role** is represented as a *business role*.

The **Node** or its subtypes are either *assigned to* or *associated with* the **Role** depending on the ArchiMate layer. The **Node**, it's subtypes or **Role** are either *assigned to* or *associated with* the **Operational Activities** depending on the ArchiMate layer and element type. **Operation Activities** *trigger* **Operational Activities**. **Logical Events** are represented as *business events* and they can either *trigger* or be *triggered by* **Operational Activities**. The **Operation Flow** can be represented as *business collaboration*. This is the objectification of the *flow* relation between the **Operational Activity**. The option of using a *business collaboration* or *flow* relations depends on the tooling constraints and level of detail required for modelling the scenario. The **Operational Control Flow** is represented with a *triggering* relation.

The mapped **Logical Passive Resources** are detailed in Section 4.4 and can have an *access* relation between either the **Operation Flow** or an *association* to the *flow* relation between **Operational Activities**.

Services exist at three layers within ArchiMate: *business, application* and *technology*. They can each *serve* the **Operational Activity**. The mapped **Physical Active Resources** are detailed in Section 4.2 that are relevant for the viewpoint can *serve* the **Operational Activity**.

27.4 L4 ArchiMate Example



28 L5 - LOGICAL STATES

Purpose	Usage & Concerns Addressed
The L5 Viewpoint is concerned with the identification and definition of the possible states or modes a Node may have, and the possible transitions between those States.	• User Requirements Specification. • Analysis of business events. • Behavioural analysis.

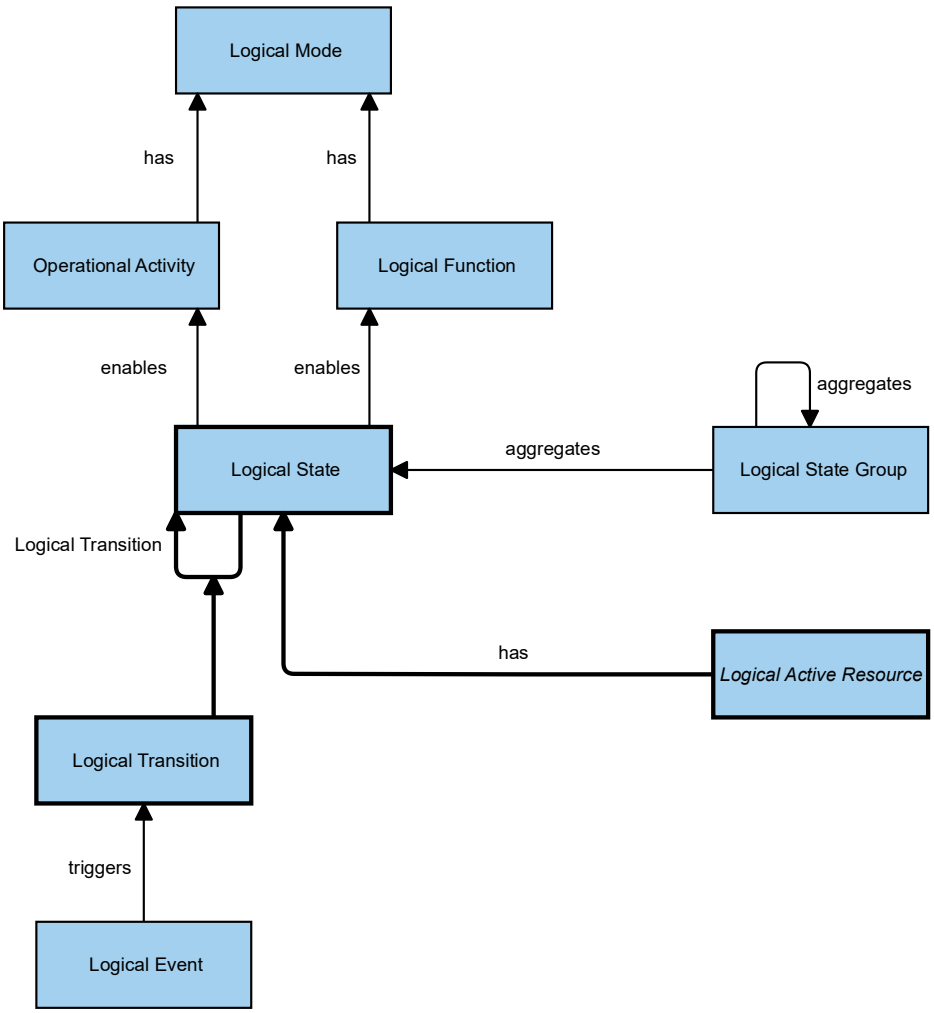
Scope

- Shall contain all Logical States of Logical Active Resources relevant for the entity of interest.
- Shall contain Logical Transitions between Logical States.
- May show Logical events triggering the Logical Transitions.
- May show Logical Modes of an Operational Activity or Logical Function that are enabled by the Logical State.
- May show Logical States Groupings of Logical States, and their groupings.

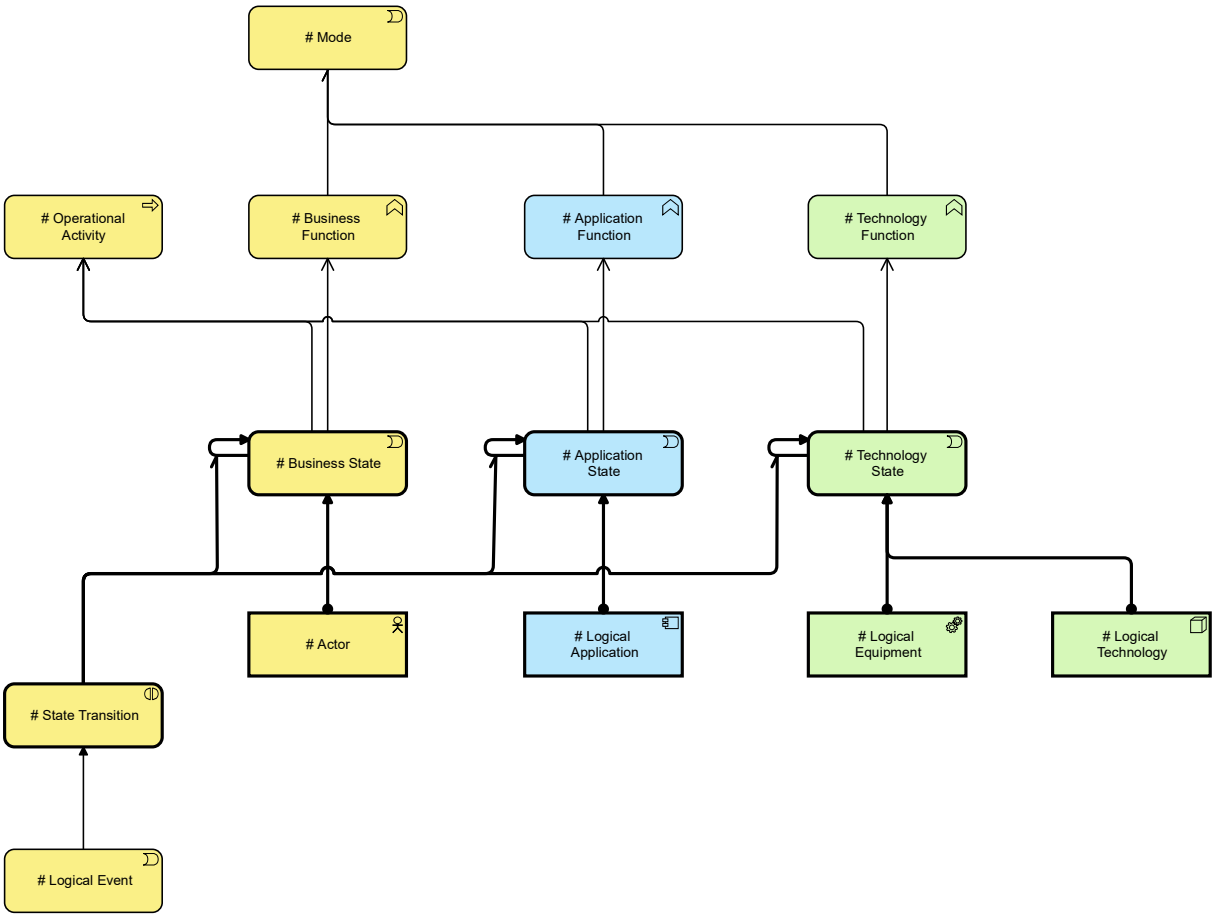
Representation

- Topological (Connected Shapes).
- Finite State diagram.
- State transition diagram.

28.1 L5 NAF IM Viewpoint



28.2 L5 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Event	# Logical Event	Business event
Logical Function	# Application Function	Application function
Logical Function	# Business Function	Business function
Logical Function	# Technology Function	Technology function
Logical Mode	# Mode	Business event
Logical State	# Application State	Application event
Logical State	# Business State	Business event
Logical State	# Technology State	Technology event
Logical State Group	# Application State	Application event
Logical State Group	# Business State	Business event
Logical State Group	# Technology State	Technology event
Logical Transition	# State Transition	Business interaction
Operational Activity	# Operational Activity	Business process

28.3 L5 Implementation Guidance

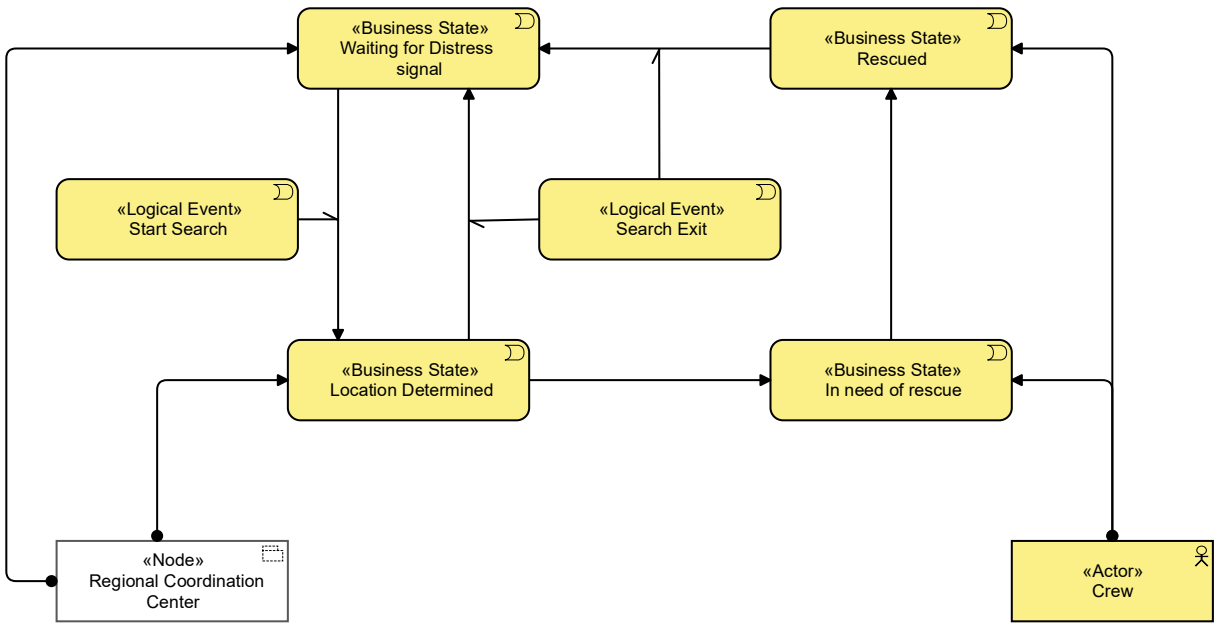
Logical States, represent as *events*, exist at three layers within ArchiMate: *business, application* and *technology*. The mapped **Logical Active Resources** are detailed in Section 4.2 and they are *assigned* to their corresponding layered ArchiMate *state*. The **Logical Transition** can be represented as either a *trigger* relation between the *states* or as a *business interaction* that is *associated with* the *trigger* relation. The option of using *business interactions* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario. *States trigger* other *states* at all ArchiMate layers; this is not shown in the viewpoint.

A *business event* represents a **Logical Event** and can trigger the **Logical Transition**. Note that the specialism of *business event* # Logical Event is used.

Logical Functions, represented as *functions*, exist at three layers within ArchiMate: *business, application* and *technology*. S*tates* can *serve* corresponding layered *functions*. The *states* can also serve **Operation Activities**, represented as *business processes*. The **Operation Activity** and *functions* can be *associated with* a **Logical Mode**, represented as a *business event.*

Although in the NAF IM viewpoint the **Logical Active Resource** is shown, on this viewpoint the **Node** subtypes are encouraged, as it's expected that they have been elaborated in the L3. Therefore # Nodes aren't shown on the viewpoint, they are however permitted as shown in the example.

28.4 L5 ArchiMate Example



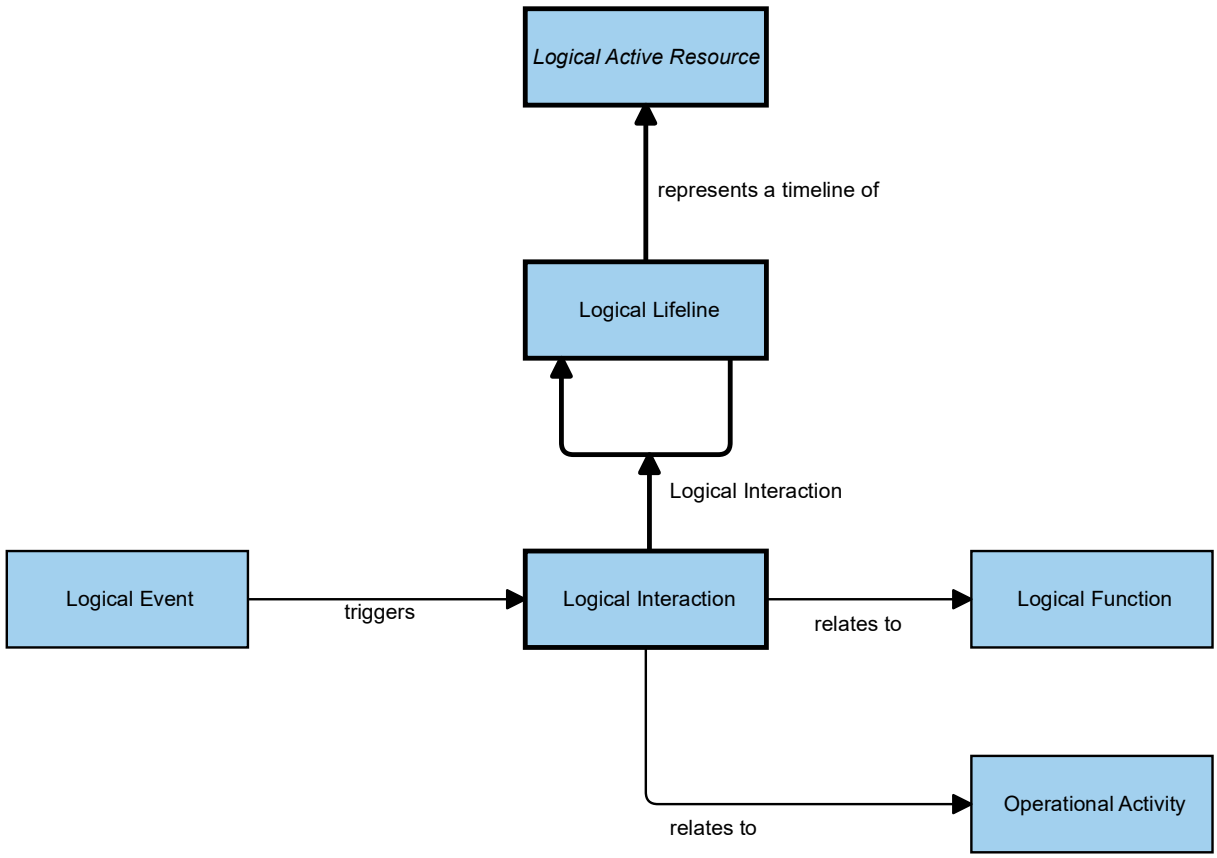
29 L6 - LOGICAL SEQUENCE

Purpose	Usage & Concerns Addressed
The L6 Viewpoint is concerned with identifying the chronological sequence of activities of Active Resource (Logical) elements and/ or Logical Flows in a scenario.	• Operational Planning. • User Requirements Specification. • Analysis of operational events. • Sequences of interactions between nodes. • Behavioural analysis. • Service Orchestration. • Operational test scenarios.

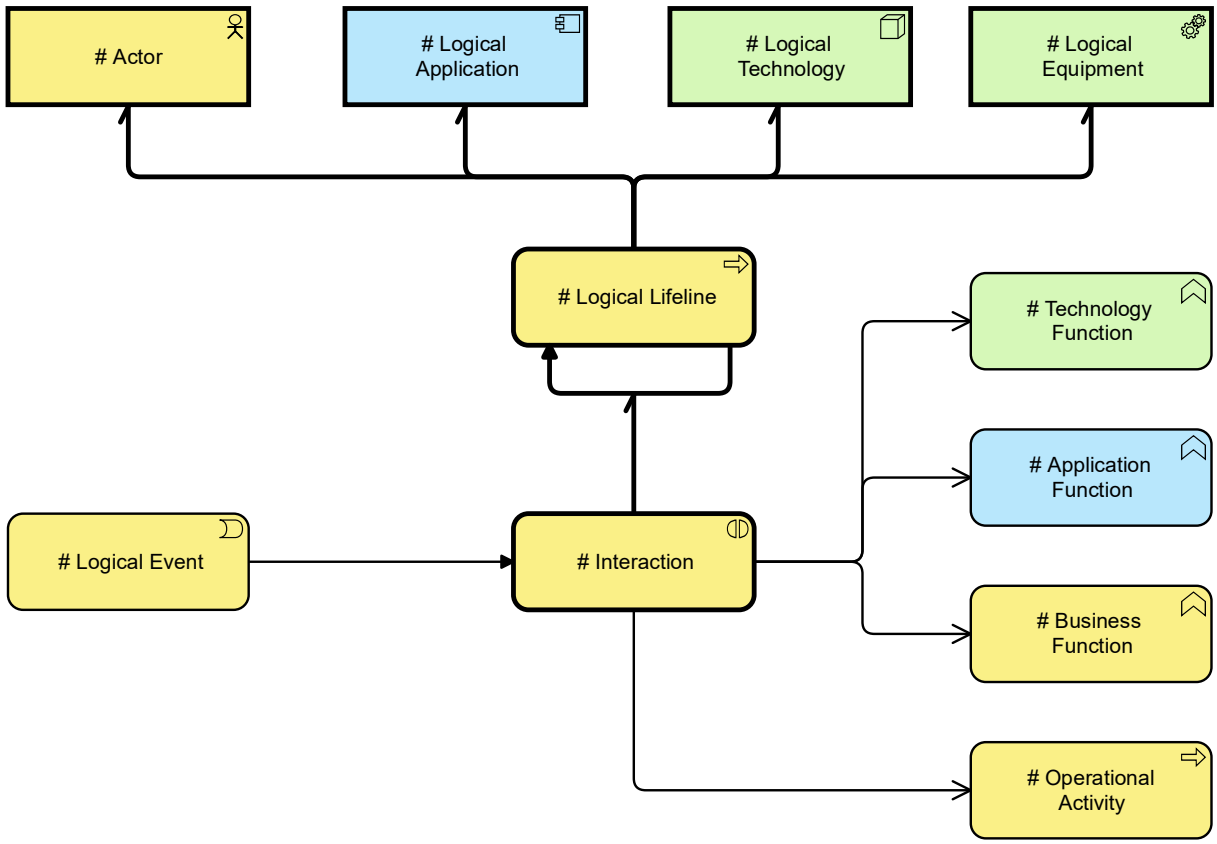
Scope
• Shall contain Logical Lifelines representing Logical Active Resources. • Shall contain the Logical Interactions between Logical Lifelines. • May show Logical Events that trigger Logical Interactions. • May show Operational Activities or Logical Functions related to Logical Interactions.

Representation
• Sequence diagram. • Event-trace diagram. • Timing diagram.

29.1 L6 NAF IM Viewpoint



29.2 L6 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Event	# Logical Event	Business event
Logical Function	# Application Function	Application function
Logical Function	# Business Function	Business function
Logical Function	# Technology Function	Technology function
Logical Interaction	# Interaction	Business interaction
Logical Lifeline	# Logical Lifeline	Business process
Operational Activity	# Operational Activity	Business process

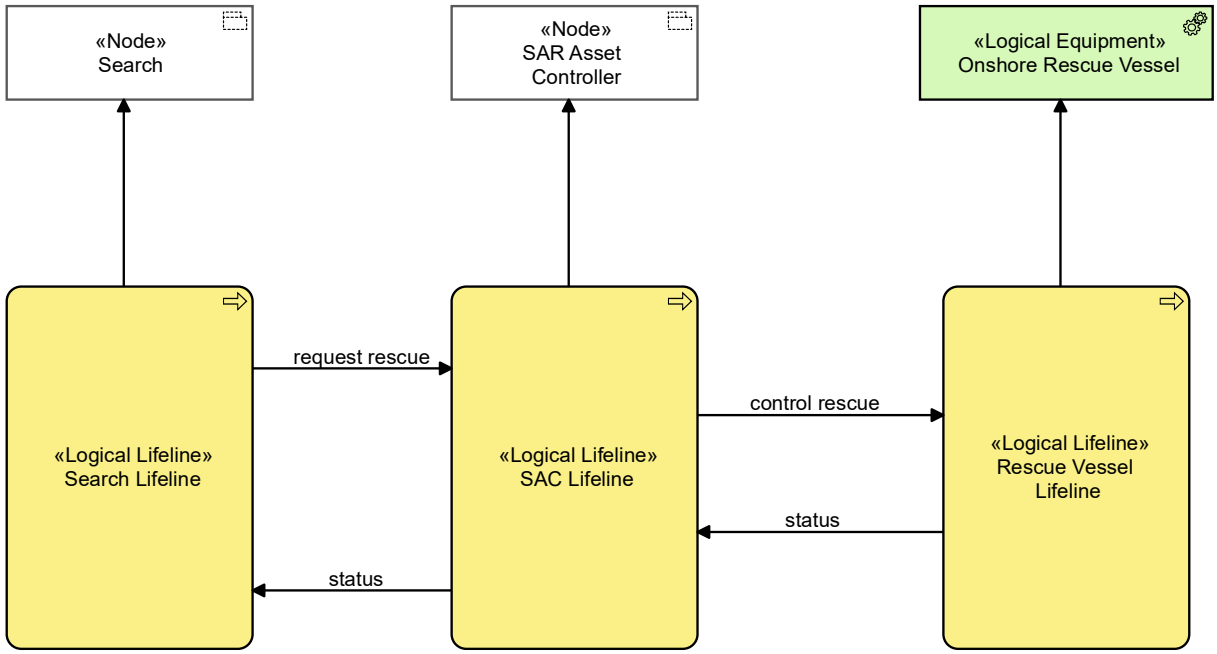
29.3 L6 Implementation Guidance

Logical Lifelines are represented as *business processes* with the specialism # Logical Lifeline. The mapped **Logical Active Resources** are detailed in Section 4.2 and are *associated with* the # Logical Lifeline. **Logical Interactions** are represented as *business interactions* with the specialism # Interaction. They are the objectification of the *trigger* relation between **Logical Lifelines**. The option of using *interactions* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario.

A *business event* represents a **Logical Event** and can trigger the # Interaction. **Logical Functions**, represented as *functions*, exist at three layers within ArchiMate: *business, application* and *technology* and are *served by* the # Interaction. The # Interaction can also serve **Operational Activities**, represented as *business processes*.

Although in the NAF IM viewpoint the **Logical Active Resource** is shown, on this viewpoint the **Node** subtypes are encouraged, as it's expected that they have been elaborated in the L3. Therefore # Nodes aren't shown on the viewpoint, they are however permitted as shown in the example.

29.4 L6 ArchiMate Example



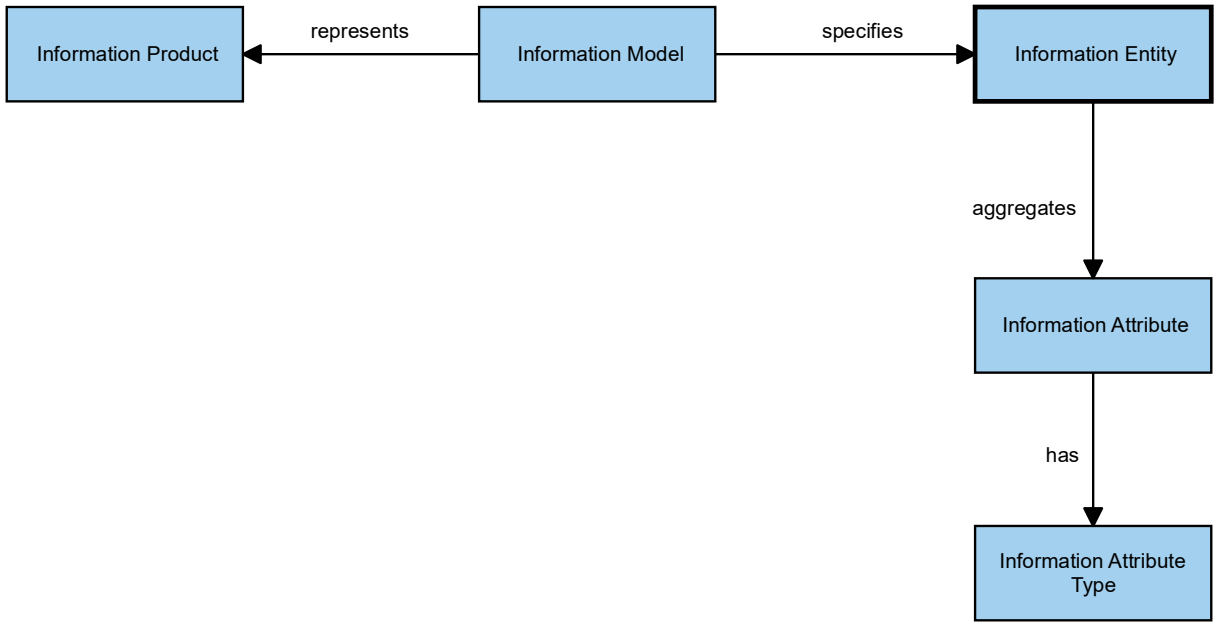
30 L7 - INFORMATION MODEL

Purpose	Usage & Concerns Addressed
The L7 Viewpoint is concerned with identifying Information Products, Information Entities and their relationships.	• Information Requirements. • Message Requirements. • Information Models. • Information architecture. • Information product hierarchy.

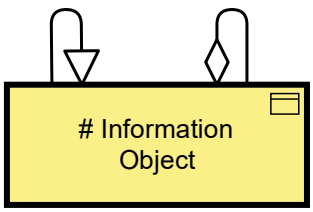
Scope
• Shall contain Information Entities relevant for the entity of interest. • May show an Information Model that specifies the Information Entities. • May show Information Attributes that are part of the Information Entity. • May show Information Attribute Types relating to Information Attributes. • May show Information Products that the Information Model represents.

Representation
• Entity-Relationship diagram. • Class diagram.

30.1 L7 NAF IM Viewpoint



30.2 L7 ArchiMate Viewpoint

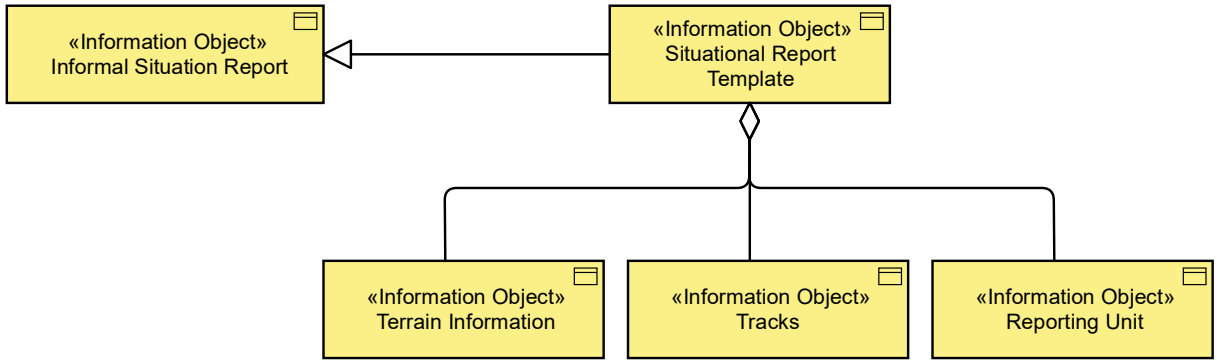


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Information Attribute	# Information Object	Business object
Information Attribute Type	# Information Object	Business object
Information Entity	# Information Object	Business object
Information Model	# Information Object	Business object
Information Product	# Information Object	Business object

30.3 L7 Implementation Guidance

Information Entities, **Models**, **Products**, **Attributes** and **Attribute Types** are all represented as *business objects* with the specialism # Information Object. The can have *specialization* and *aggregation* relationships between them.

30.4 L7 ArchiMate Example



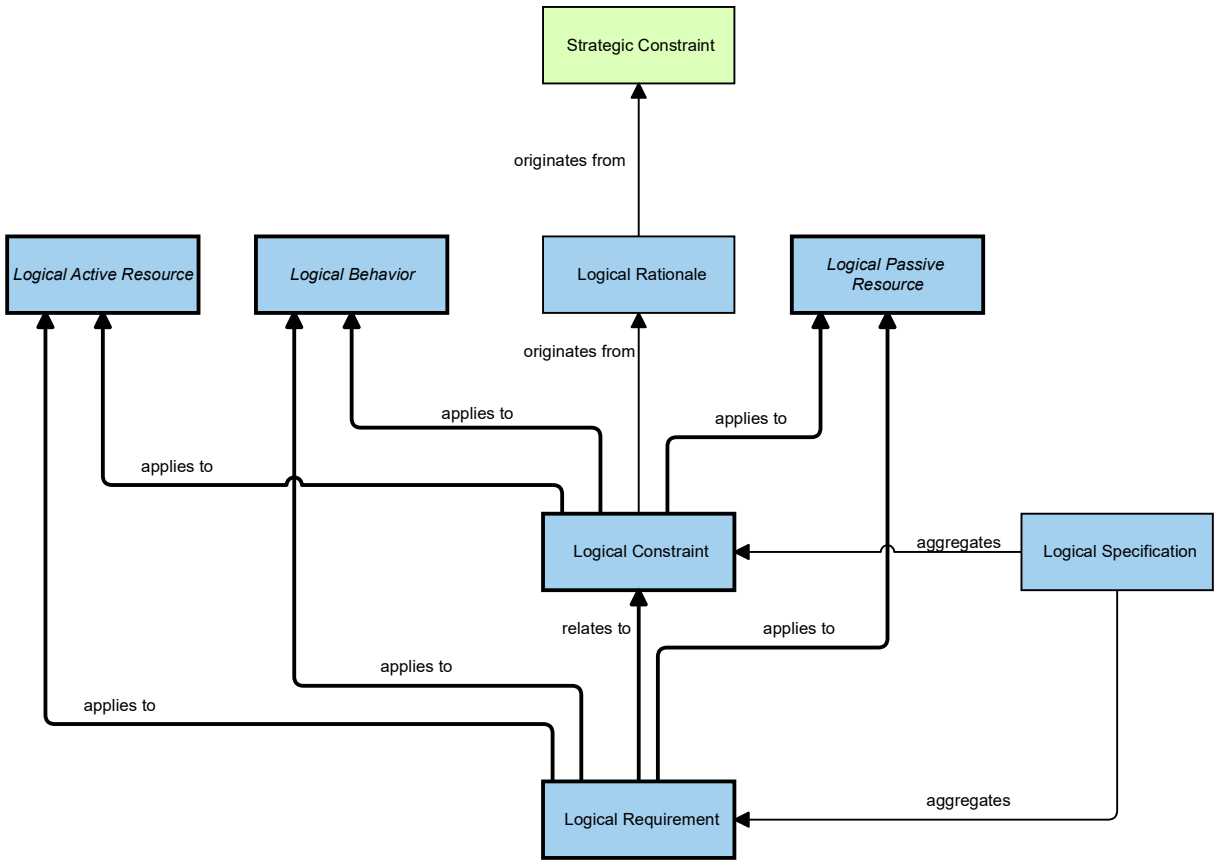
31 L8 - LOGICAL CONSTRAINTS

Purpose	Usage & Concerns Addressed
The L8 Viewpoint is concerned with the identification and description of Logical Constraints and Logical Requirements	• User Requirements Specification (Non-Functional). • Definition of business rules. • Identification of operational constraints.

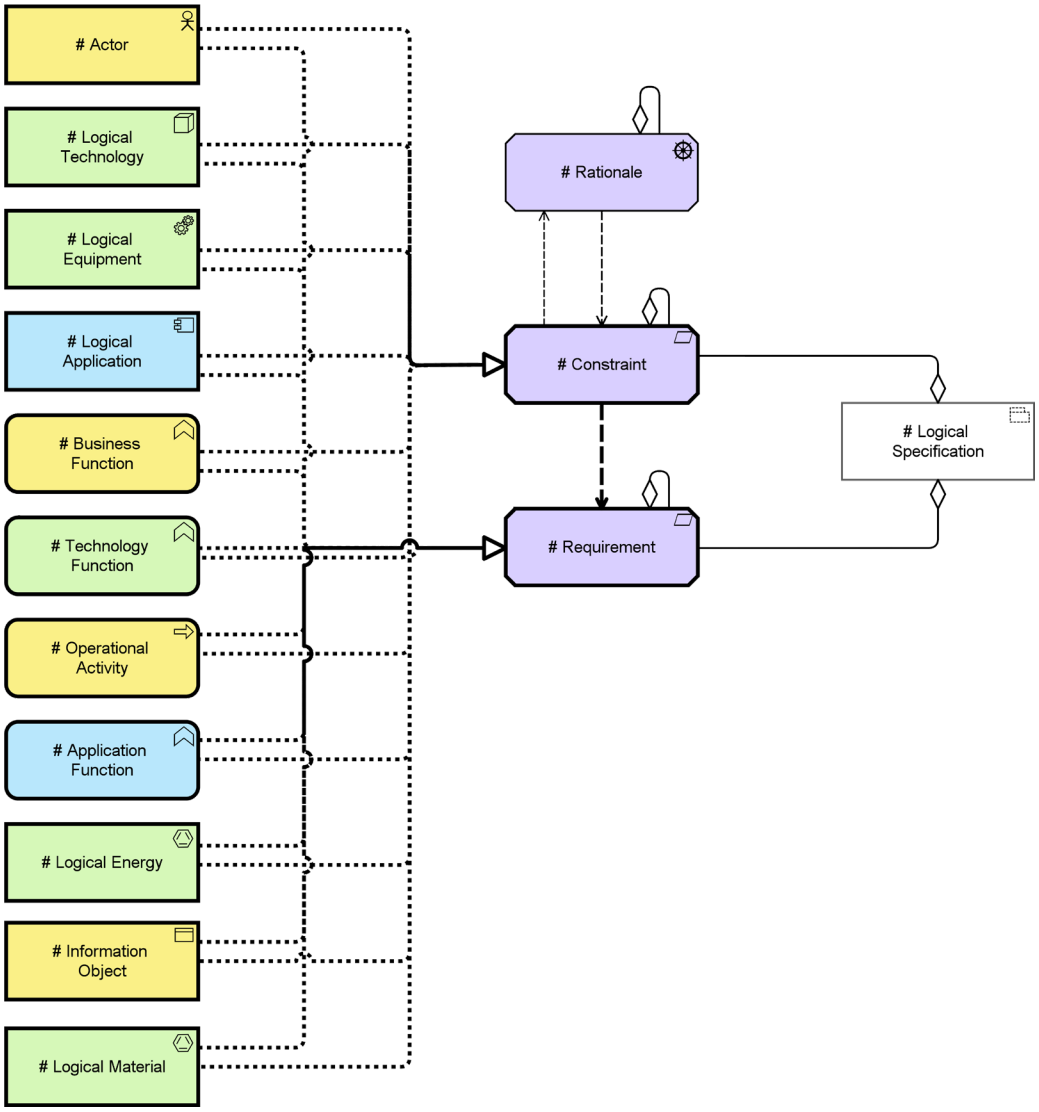
Scope
• Shall contain Logical Requirements that relate to Logical Constraints relevant for the entity of interest. • Shall contain Logical Active Resources, Logical Behaviour and Logical Passive Resources that these Logical Constraints or Logical Requirements apply to. • May show Logical Specifications that group Logical Constraints and Logical Requirements. • May show Logical Rationale relating to Logical Constraints. • May trace Logical Rationale to Strategic Constraints.

Representation
• Structured Text. • Business rules diagram. • Matrix Table. • Parametric diagram.

31.1 L8 NAF IM Viewpoint



31.2 L8 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Behaviour	# Application Function	Application function
Logical Behaviour	# Business Function	Business function
Logical Behaviour	# Operational Activity	Business process
Logical Behaviour	# Technology Function	Technology function
Logical Constraint	# Constraint	Requirement
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Logical Rationale	# Rationale	Driver
Logical Requirement	# Requirement	Requirement
Logical Specification	# Logical Specification	Grouping
Logical Specification	# Requirement	Requirement
Strategic Constraint	# Constraint	Requirement

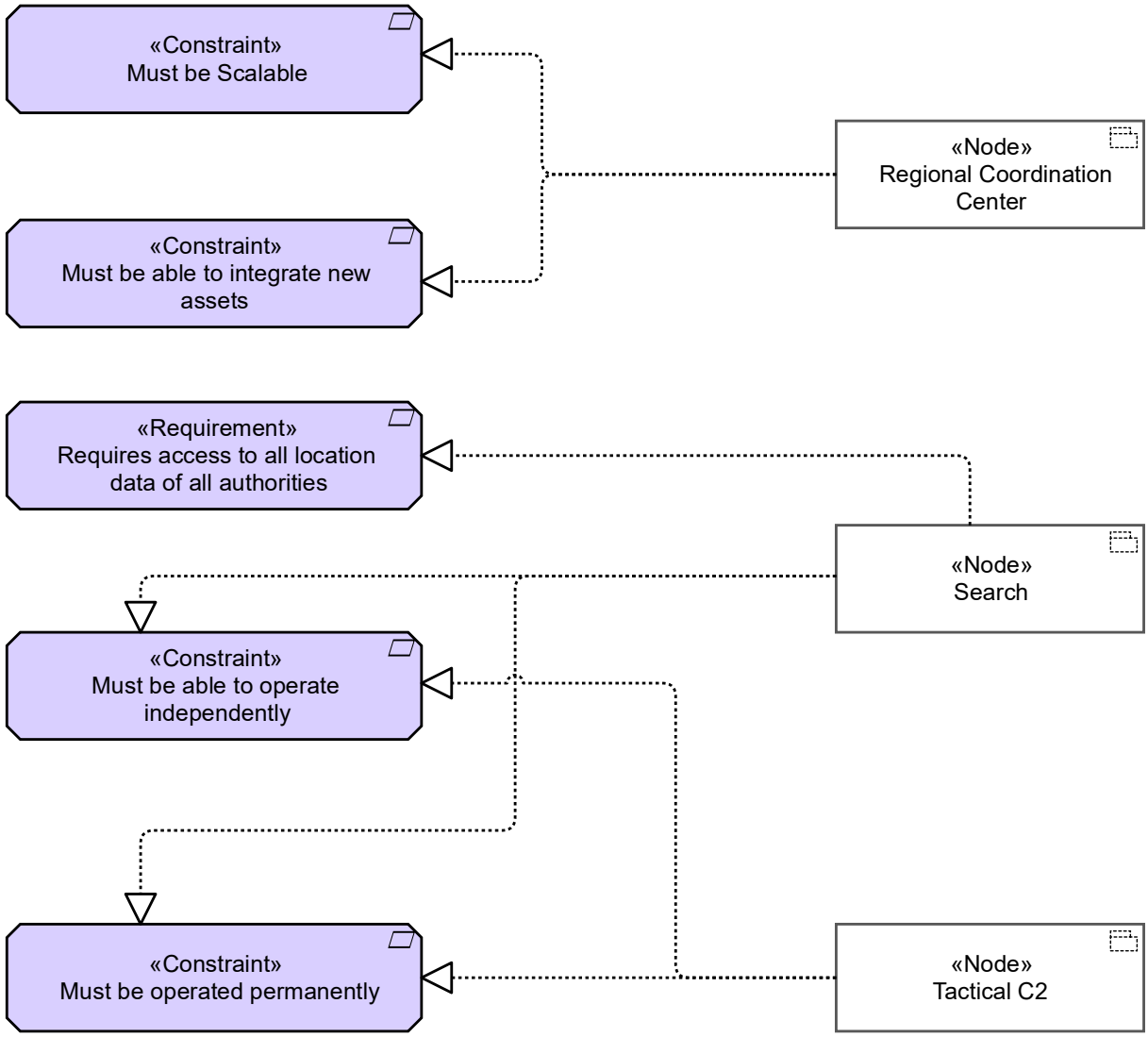
31.3 L8 Implementation Guidance

Logical Requirements and **Logical Constraints** are represented as *requirements*. They are *realized by* the mapped **Logical Active Resources**, **Logical Behaviour** and **Logical Passive Resources** detailed in Section 4. # Constraints can *influence* a # Requirement. **Logical Rationale** are represented as *drivers*. These # Rationale can *influence* a # Constraint. # Constraints can influence # Rationale which captures the relationship between **Logical Rationale** and **Strategic Constraints**.

The **Logical Specification** can be represented as either a *grouping* that *aggregates* **Requirements** and **Constraints** or as *aggregations* between **Requirements** and **Constraints**.

Although in the NAF IM viewpoint the **Logical Active Resource** is shown, on this viewpoint the **Node** subtypes are encouraged, as it's expected that they have been elaborated in the L3. Therefore # Nodes aren't shown on the viewpoint, they are however permitted as shown in the example.

31.4 L8 ArchiMate Example



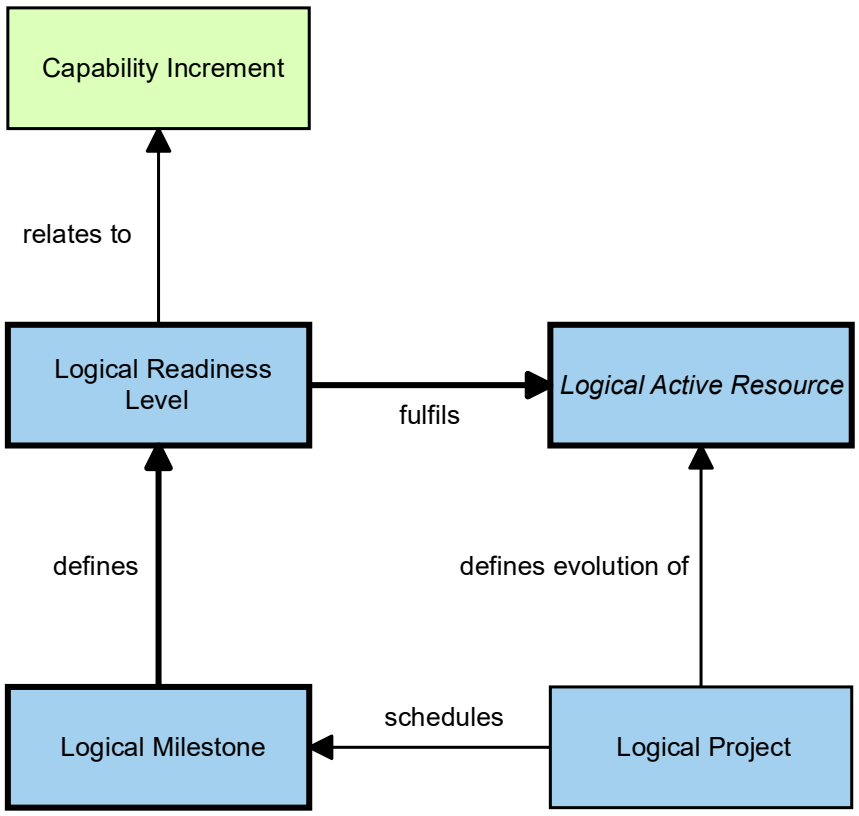
32 LR - LOGICAL ROADMAP

Purpose	Usage & Concerns Addressed
The Lr Viewpoint is concerned with Identifying Logical Roadmaps with Logical Milestones related to the evolution of Resource Building blocks	• Acquisition Planning. • Portfolio / Programme Management. • Project Performance Reporting. • Project management and control (including delivery timescales). • Project dependencies and the identification of associated risk. • Through Life Management Planning.

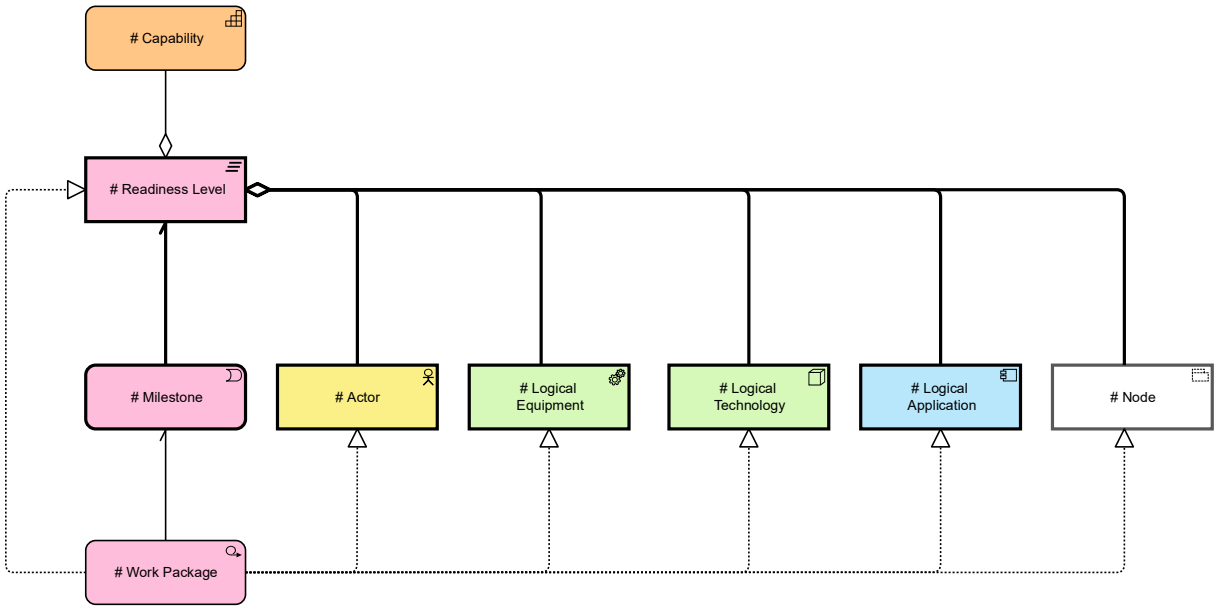
Scope
• Shall contain Logical Milestones that define the Logical Readiness Levels. • Shall contain the Logical Active Resources that the Logical Readiness Level fulfils. • May trace Logical Readiness Levels to Capability Increments. • May show Logical Projects and how they schedule Logical Milestones and define the evolution of the Logical Active Resource.

Representation
• Timeline View. • Augmented chart in style of a Gantt Chart. • Portfolio Dashboard.

32.1 Lr NAF IM Viewpoint



32.2 Lr ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability Increment	# Capability	Capability
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Active Resource	# Node	Grouping
Logical Milestone	# Milestone	Implementation event
Logical Project	# Work Package	Work package
Logical Readiness Level	# Readiness Level	Plateau

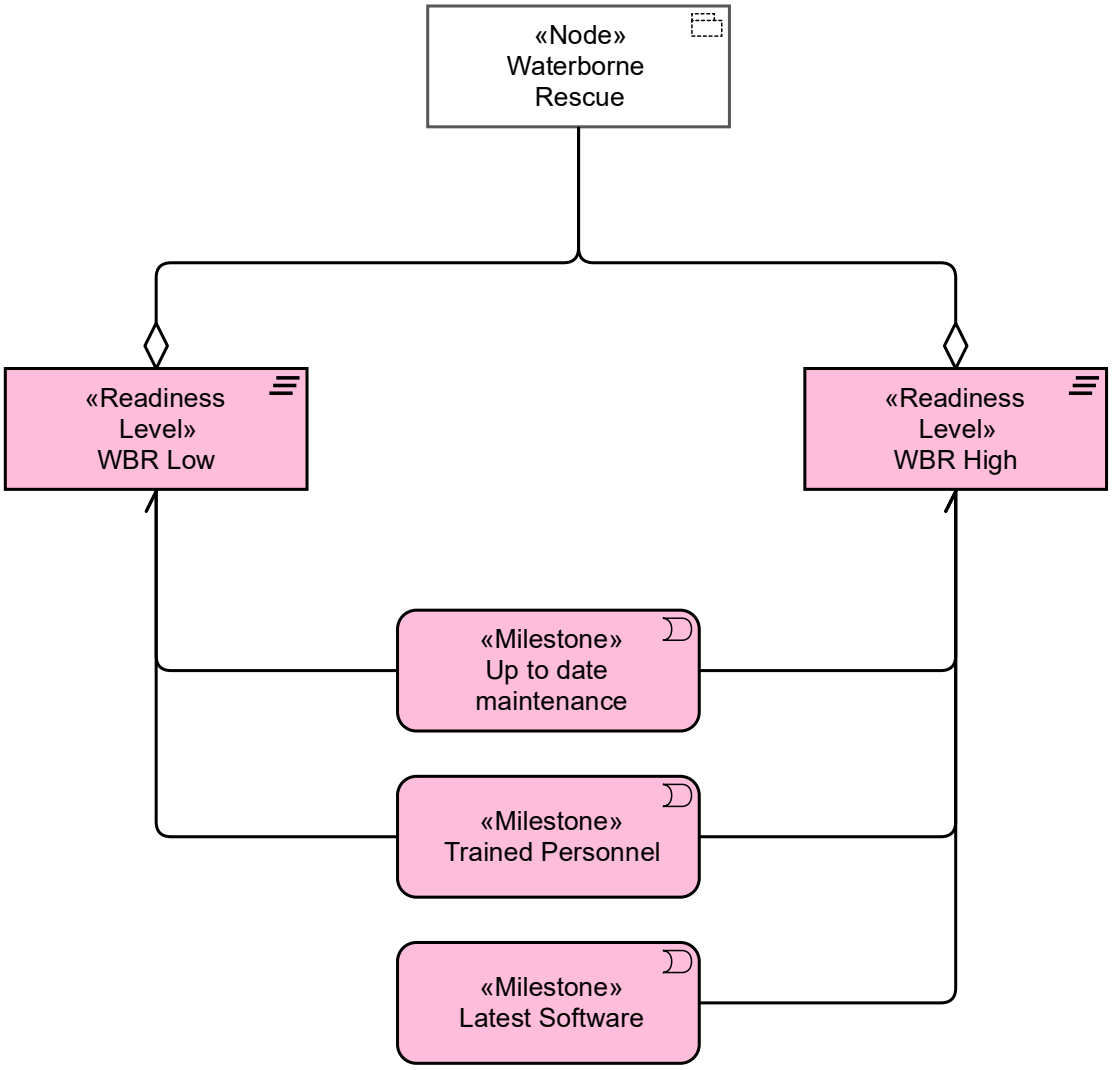
32.3 Lr Implementation Guidance

Logical Milestones are represented as *implementation* events. **Logical Readiness Levels** are represented as *plateaus that* are *associated with* the *implementation event.* The # Readiness level *aggregates* the mapped **Logical Active Resources** detailed in Section 4.2 relevant for the viewpoint. **Logical Projects** are represented as *work packages.*

Logical Milestones are *associated* with the # Logical Readiness Level. Alternatively, they may be captured as attributes on the # Readiness Level and so to represent the **schedules** relation, *work packages* can *realize the* # Readiness Level and be *associated with* **Logical Milestone**.

Work packages can *realize* each of the mapped **Logical Active Resources**.

32.4 Lr ArchiMate Example



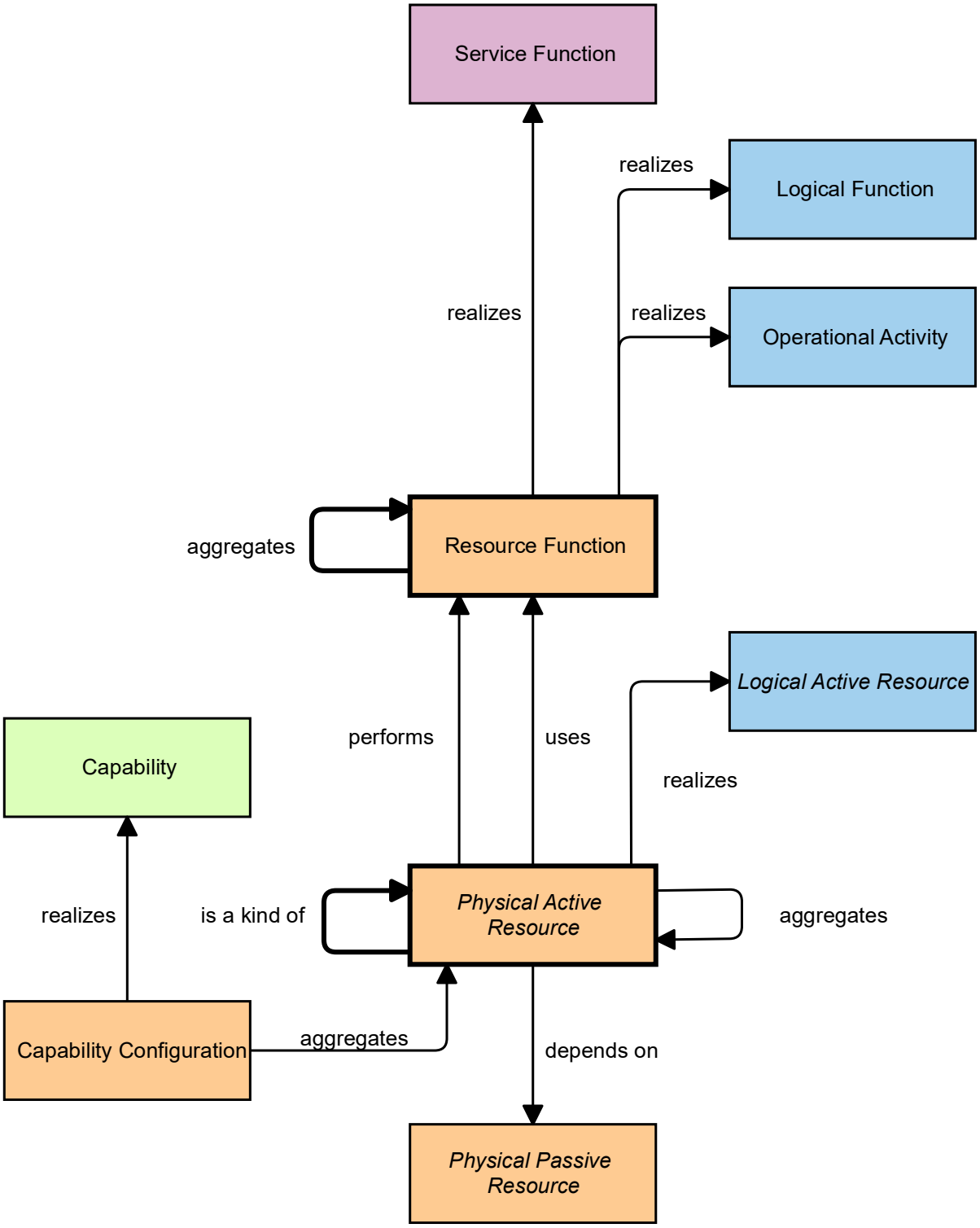
33 P1 - RESOURCE TAXONOMY

Purpose	Usage & Concerns Addressed
The P1 Viewpoint is concerned with the Identification of Active Resources (Physical) and Physical Behaviour and their mapping to Conceptual, Service and Logical building blocks and their organization into taxonomies.	• Capability Delivery. • Service Implementation. • Identifying Resource Taxonomies. • Identification of applicable protocols. • Forecasting technology readiness against time. • HR trends analysis. • Recruitment planning. • Planning technology insertion. • Input to options analysis.

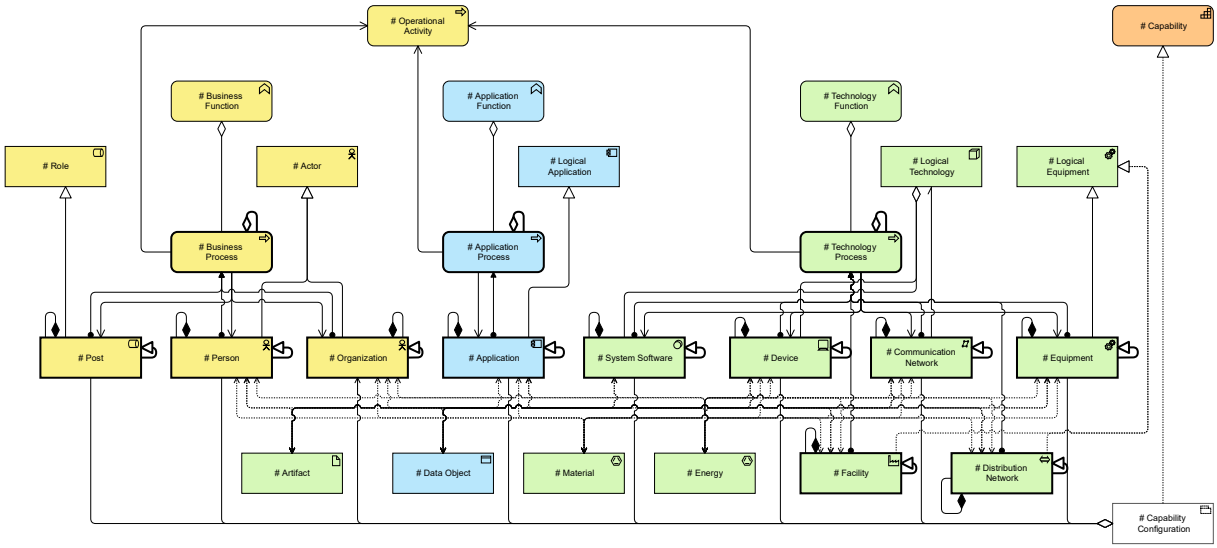
Scope
• Shall contain all Physical Active Resources organized into specialization taxonomies and Resource Functions, and their groupings, relevant for the entity of interest. • May show linkages between Physical Active Resources and Resource Functions. • May show Physical Active Resources organized into Capability Configurations. • May show Physical Passive Resources that Physical Active Resources depend on. • May trace Capabilities to Capability Configurations. • May trace Physical Active Resources to Logical Active Resources. • May trace Resource Functions to Service Functions and Logical Behaviour.

Representation
• Tabular. • Mapping (matrix). • Composite Structure Diagram. • Block diagram. • Class Diagram

33.1 P1 NAF IM Viewpoint



33.2 P1 ArchiMate Viewpoint

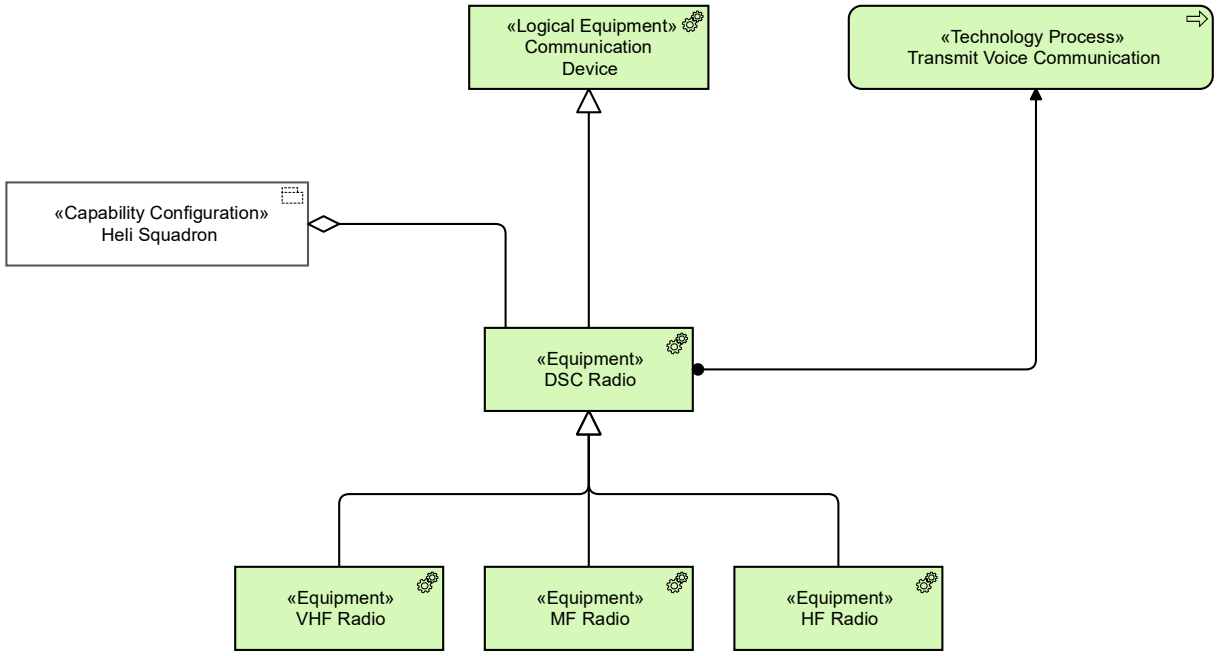


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability	# Capability	Capability
Capability Configuration	# Capability Configuration	Grouping
Logical Active Resource	# Actor	Business actor
Logical Active Resource	# Logical Application	Application component
Logical Active Resource	# Logical Equipment	Equipment
Logical Active Resource	# Logical Technology	Node
Logical Active Resource	# Role	Business role
Logical Function	# Application Function	Application function
Logical Function	# Business Function	Business function
Logical Function	# Technology Function	Technology function
Operational Activity	# Operational Activity	Business process
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Resource Function	# Application Process	Application process
Resource Function	# Business Process	Business process
Resource Function	# Technology Process	Technology process
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function

33.3 P1 Implementation Guidance

Physical Active Resources are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2. All mapped **Physical Active Resources** *specialize* and can *compose* other **Physical Active Resources**.
Resource Functions are represented as *processes* at the *business*, *application* and *technology* layers. Each **Physical Active Resource** is *assigned to* and is *served by* the corresponding *process layer.*
Capability Configurations are represented as *groupings*. They can *aggregate* all the **Physical Active Resources** and can *realize capabilities.* Where relevant, the **Physical Active Resources** can *access* the mapped **Physical Passive Resources** detailed in Section 4.4.
Logical Active Resources can either be specialized by or associated with **Physical Active Resources.** The mappings of Logical Active Resources are detailed in Section 4.2.
Service Functions and **Logical Functions** are represented as the same *functions* at three layers within ArchiMate: *business, application* and *technology*. They can *aggregate* the *processes* (**Resource Functions**). *Processes* (**Resource Functions**) can also *serve* **Operational Activities** represented as *business processes.*

33.4 P1 ArchiMate Example



34 P2 - RESOURCE STRUCTURE

Purpose	Usage & Concerns Addressed
The P2 viewpoint is concerned with the identification of how resources are structured and their dependencies to other resources,	• Physical Architecture. • Systems Engineering / Design. • Organizational Design. • Systems Integration. • System Requirements Specification. • Definition of system concepts. • Definition of system options. • Human – System interactions. • Interface requirements capture. • Capability integration planning. • System integration management. • Operational planning (capability configuration definition).

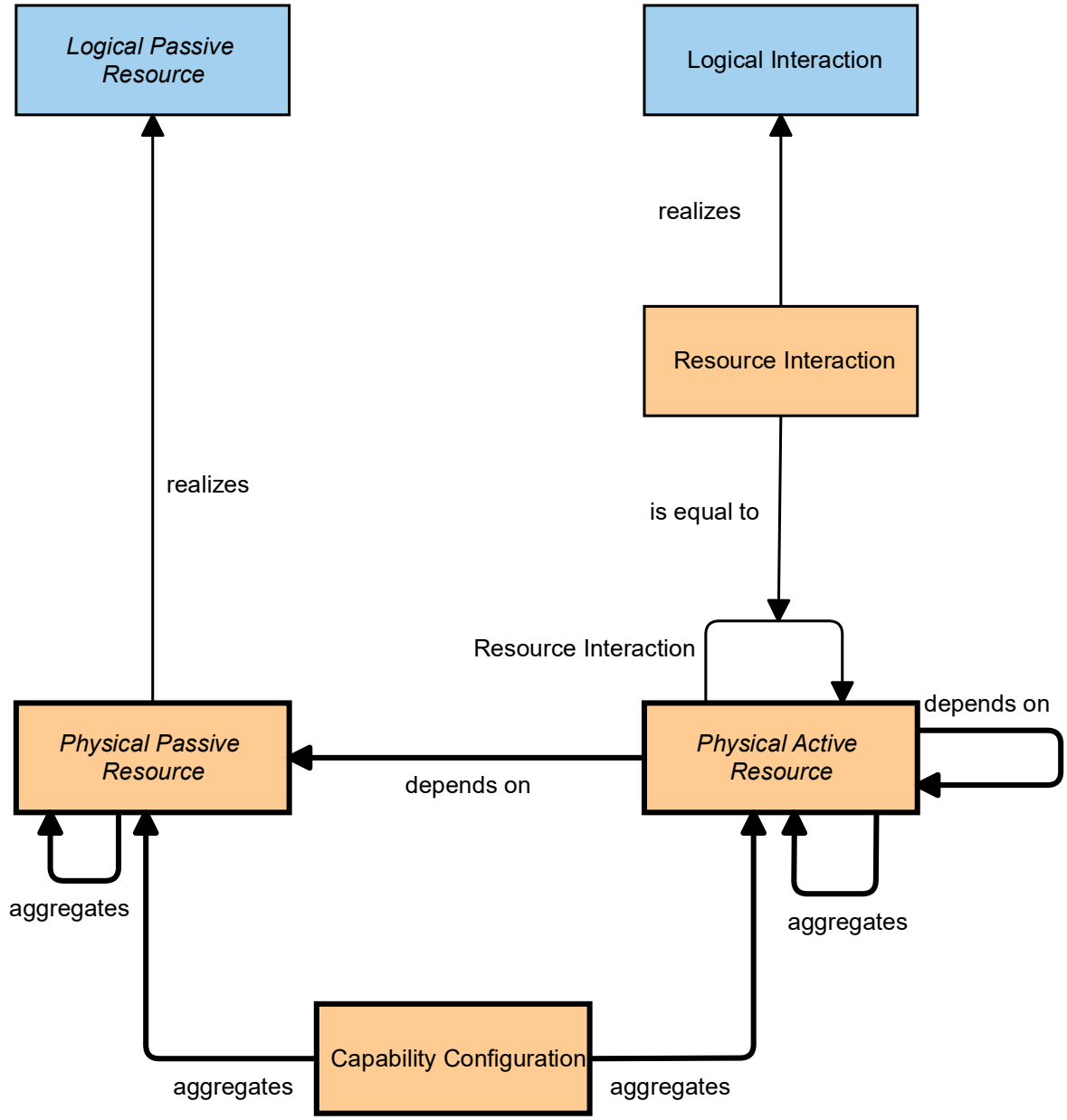
Scope

- Shall contain Physical Active Resources and Physical Passive Resources organized into Capability Configurations.
- Shall contain the structural organization of Physical Active Resources and Physical Passive Resources.
- Shall contain dependencies between Physical Active Resources and Physical Passive Resources.
- May show Resource interactions between Physical Active Resources.
- May trace Resource Interactions to Logical Interactions defined in L3.
- May trace Physical Passive Resources to Logical Passive Resources.

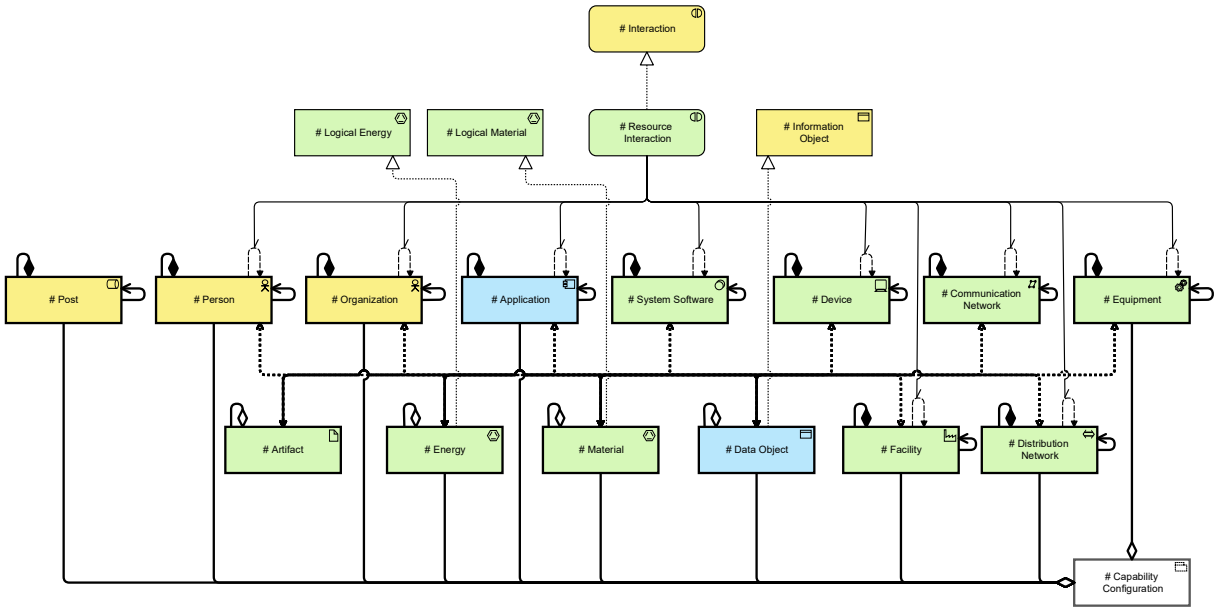
Representation

- Composite structure diagram.
- Block diagram.
- Internal Block diagram.
- Physical Block diagram.
- Class diagram.

34.1 P2 NAF IM Viewpoint



34.2 P2 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability Configuration	# Capability Configuration	Grouping
Logical Interaction	# Interaction	Business interaction
Logical Passive Resource	# Information Object	Business object
Logical Passive Resource	# Logical Energy	Material
Logical Passive Resource	# Logical Material	Material
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Resource Interaction	# Resource Interaction	Technology interaction

34.3 P2 Implementation Guidance

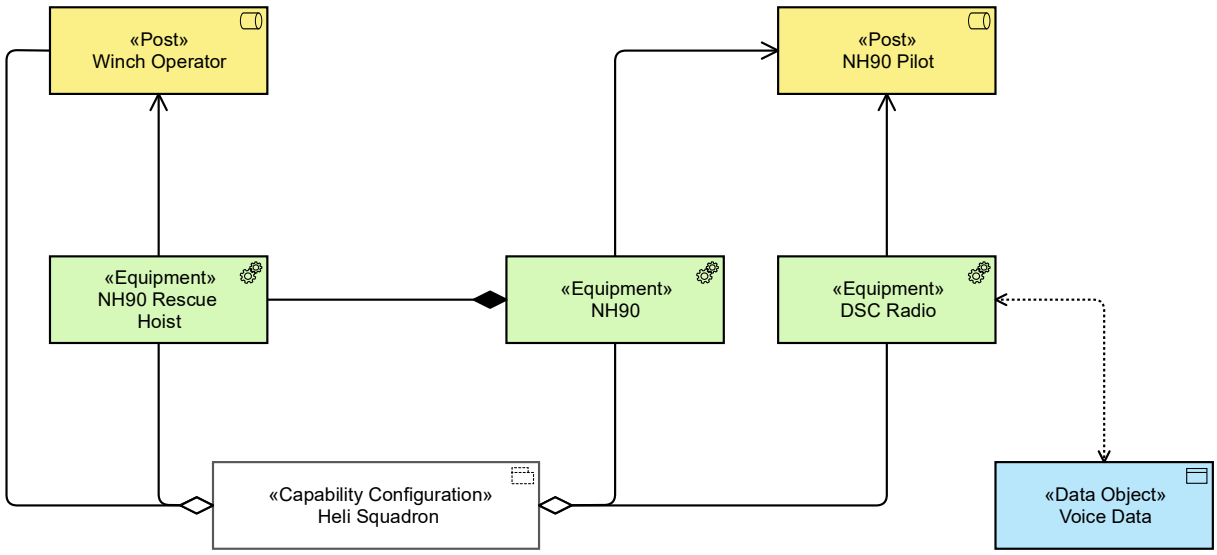
Physical Active Resources are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2. All mapped **Physical Active Resources** *specialize* and can *compose* other **Physical Active Resources**. All the *serving* relations between the mapped **Physical Active Resources** are not shown on this viewpoint but where ArchiMate permits, they are allowed.

Physical Passive Resources are detailed in Section 4.4. The **Physical Active Resources** *access* the **Physical Passive Resources. Capability Configurations** are represented as *groupings*. They *aggregate* the **Physical Active and Passive Resources.**

Resource Interactions are represented as either *flow* relations between the **Physical Active Resources** or as *technology collaborations* (specialized as # Resource Interactions) that are *associated with* the *flow* relations. All mapped **Physical Active Resources** can *flow* to each other (not shown on the viewpoint). Where **Logical Interactions** have been represented as *business interactions* (specialized as # Interaction), they can be *realized by* the # Resource Interaction.

The **Physical Passive Resources** can *realize* the relevant mapped **Logical Passive Resources** detailed in Section 4.4.

34.4 P2 ArchiMate Example



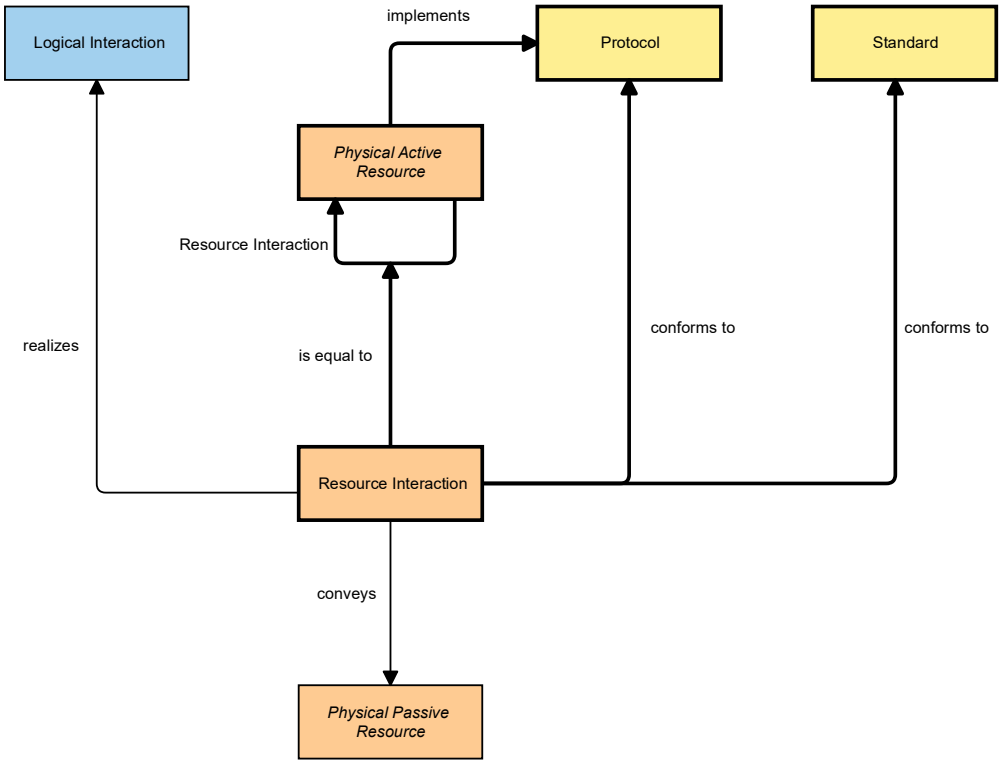
35 P3 - RESOURCE INTERACTIONS

Purpose	Usage & Concerns Addressed
The P3 Viewpoint is concerned with identifying all relevant interactions between active resources.	• Interface Specification. • Systems Engineering. • System Requirements. • Identification of interactions. • Identification of applicable protocols. • Description of system communication paths. • Bandwidth and capacity analysis. • Detailed definition of data flows. • Detailed definition of resource flows.

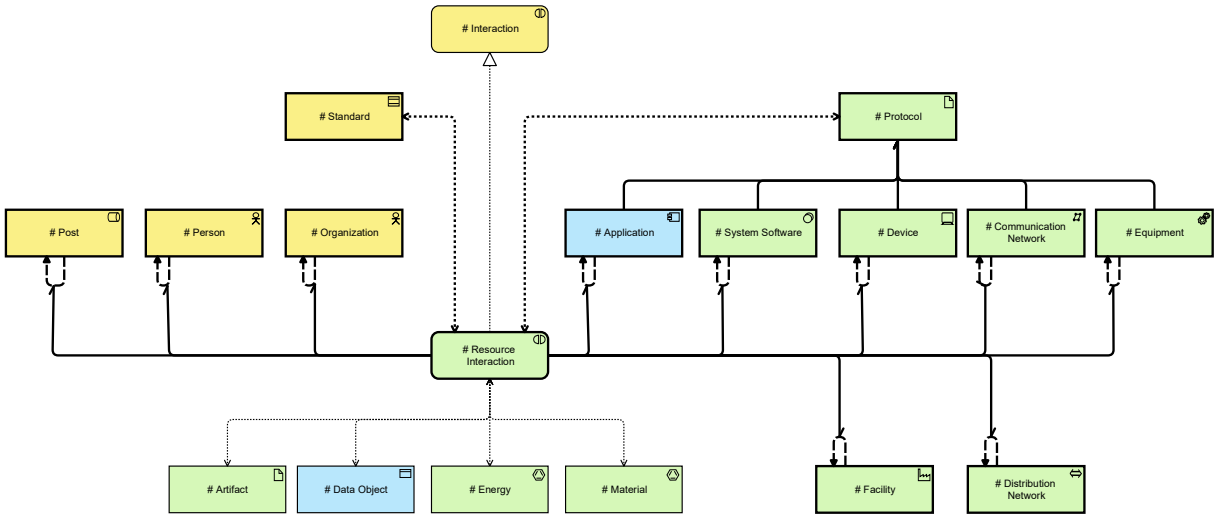
Scope
• Shall contain the Resource Interactions between the Physical Active Resources. • Shall contain the Standards and Protocols the Resource Interaction conforms to. • Shall contain the Protocols that the Physical Active Resource implements. • May trace Resource Interactions to Logical Interactions. • May show Physical Passive Resources that the Resource Interaction conveys.

Representation
• Block diagram. • Internal Block diagram. • Physical Block diagram. • Class diagram. • Tabular.

35.1 P3 NAF IM Viewpoint



35.2 P3 ArchiMate Viewpoint

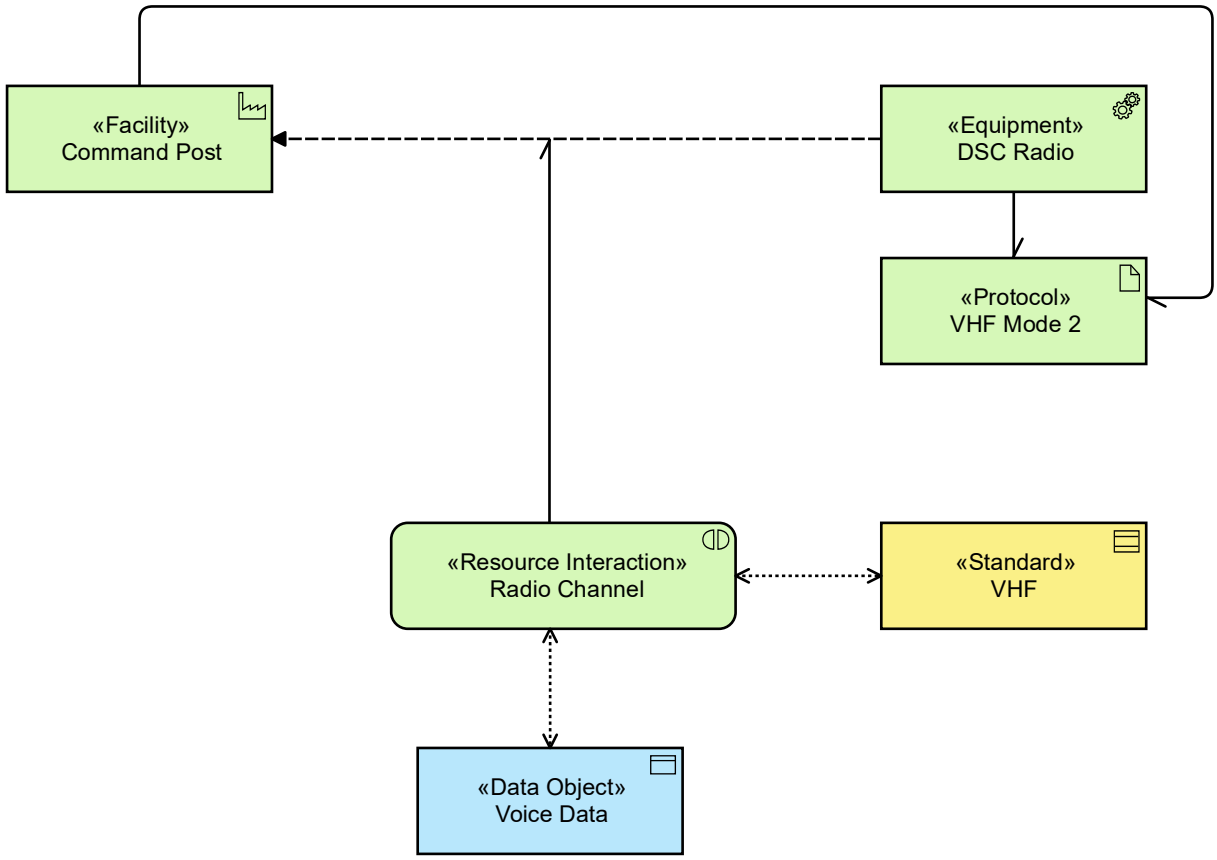


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Interaction	# Interaction	Business interaction
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Protocol	# Protocol	Artifact
Resource Interaction	# Resource Interaction	Technology interaction
Standard	# Standard	Contract

35.3 P3 Implementation Guidance

Physical Active Resources are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2.
Resource Interactions are represented as either *flow* relations between the **Physical Active Resources** or as *technology collaborations* (specialized as # Resource Interactions) that are *associated with* the *flow* relations.
Protocols are represented as *artifacts*, they can be *associated with* the relevant **Physical Active Resources** and *realized by* the # Resource Interaction. **Standards** are represented as *contracts* that have an *access* relation to the # Resource Interaction.
Where **Logical Interactions** have been represented as *business interactions* (specialized as # Interaction), they can be *realized by* the # Resource Interaction.
Physical Passive Resources are detailed in Section 4.4, they can have an *access* relation to the # Resource Interaction or if the **Resource Interaction** was modelled with *flow* relations, they can be *associated with* them.

35.4 P3 ArchiMate Example



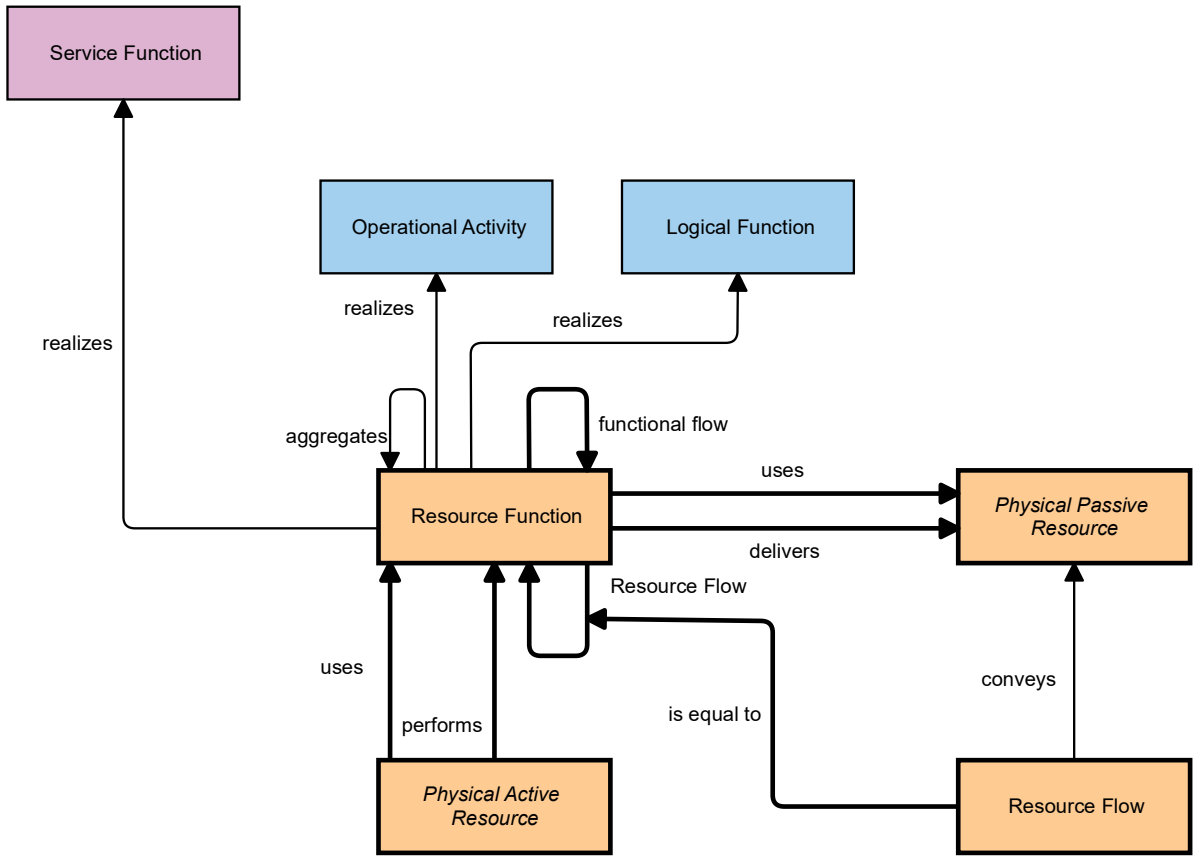
36 P4 - RESOURCE FUNCTIONS

Purpose	Usage & Concerns Addressed
The P4 Viewpoint is concerning the Identification of the Resource Functions carried out by Resources, and Resource Flows between Resources	• Capability-Based Acquisition. • Business Process Modelling. • Workflow Modelling. • Human-Machine Interaction Specifications. • Description of task workflow. • Identification of functional system requirements. • Functional decomposition of systems. • Relate human and system functions.

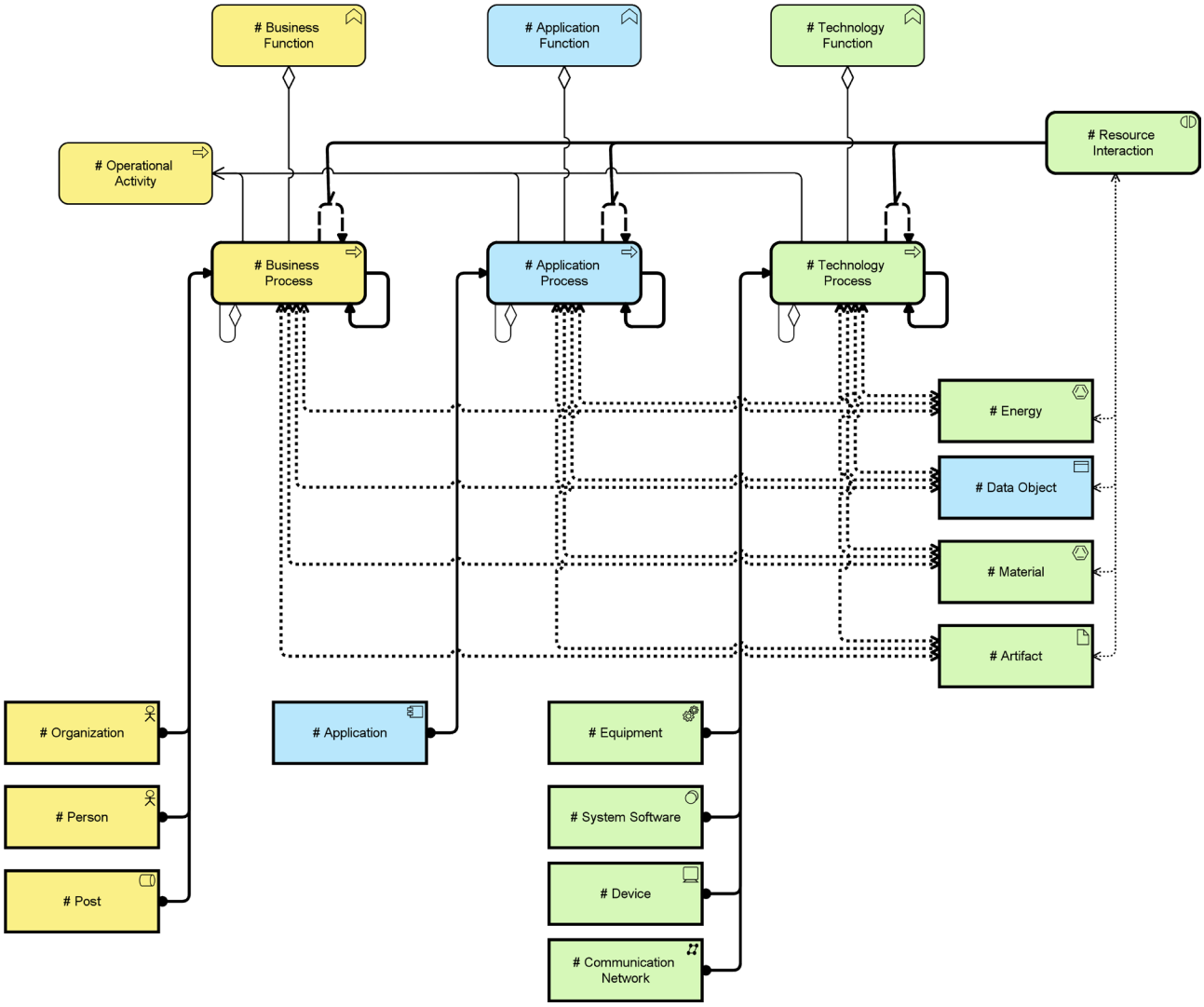
Scope
• Shall contain the Physical Active Resources that use or perform a Resource Function. • Shall contain the Physical Passive Resources that the Resource Function uses or delivers. • Shall contain Functional Flows and Resource Flows between Resource Functions. • May show the Physical Passive Resources that the Resource Flow conveys. • May trace Resource Functions to Logical Behaviour or Service Functions.

Representation
• Topological (connected shapes). • Activity diagram. • Collaboration diagram. • Process diagram. • Functional Breakdown (decomposition).

36.1 P4 NAF IM Viewpoint



36.2 P4 ArchiMate Viewpoint

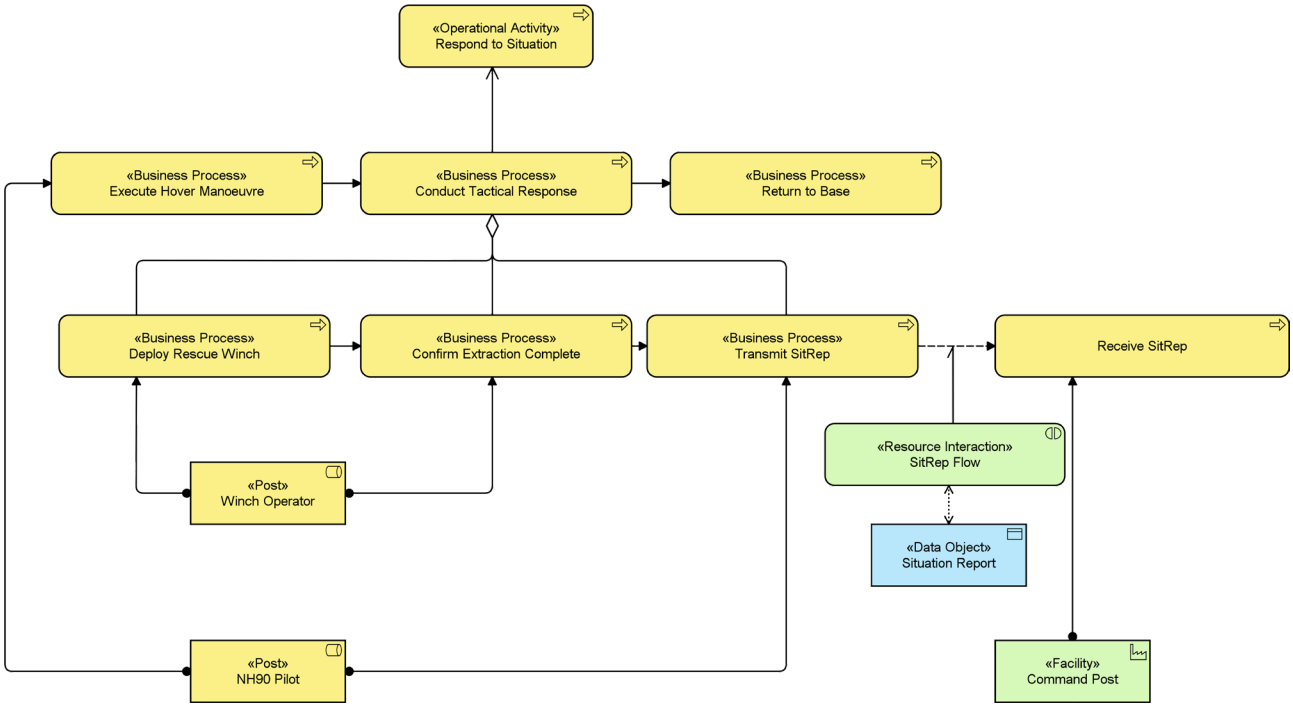


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Function	# Application Function	Application function
Logical Function	# Business Function	Business function
Logical Function	# Technology Function	Technology function
Operational Activity	# Operational Activity	Business process
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Resource Flow	# Resource Interaction	Technology interaction
Resource Function	# Application Process	Application process
Resource Function	# Business Process	Business process
Resource Function	# Technology Process	Technology process
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function

36.3 P4 Implementation Guidance

Resource Functions are represented as *processes* at the *business*, *application* and *technology* layers.
Physical Active Resources are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2.
Each **Physical Active Resource** is *assigned to (**performs**)* and is *served by* (**uses**) the corresponding layered *process*(**Resource Function**). The *serving* relation between the **Physical Active Resources** and the **Resource Functions** are not shown on this viewpoint, but are visualised on the L4-P4.
Resource Functions can *aggregate* other **Resource Functions**.
The **Resource Flow** can be represented as *flow* relations or as *technology interactions associated with* the *flow* relations. This is the objectification of the *flow* relation between the **Resource Functions**. The option of using *resource interactions* or *flow* relations depends on the tooling constraints and level of detail required for modelling the scenario. The **Function Flow** is represented with a *triggering* relation.
The mapped **Physical Passive Resources** are detailed in Section 4.4 and can have an *access* relation between either the # Resource Interaction or the **Resource Functions**.
Logical Functions and **Service Functions** are represented as *functions* at three layers within ArchiMate: *business, application* and *technology*. They can aggregate the corresponding layered *process*.
Operational Activities are represented as *business processes* that can be *served by* the **Resource Functions**.

36.4 P4 ArchiMate Example



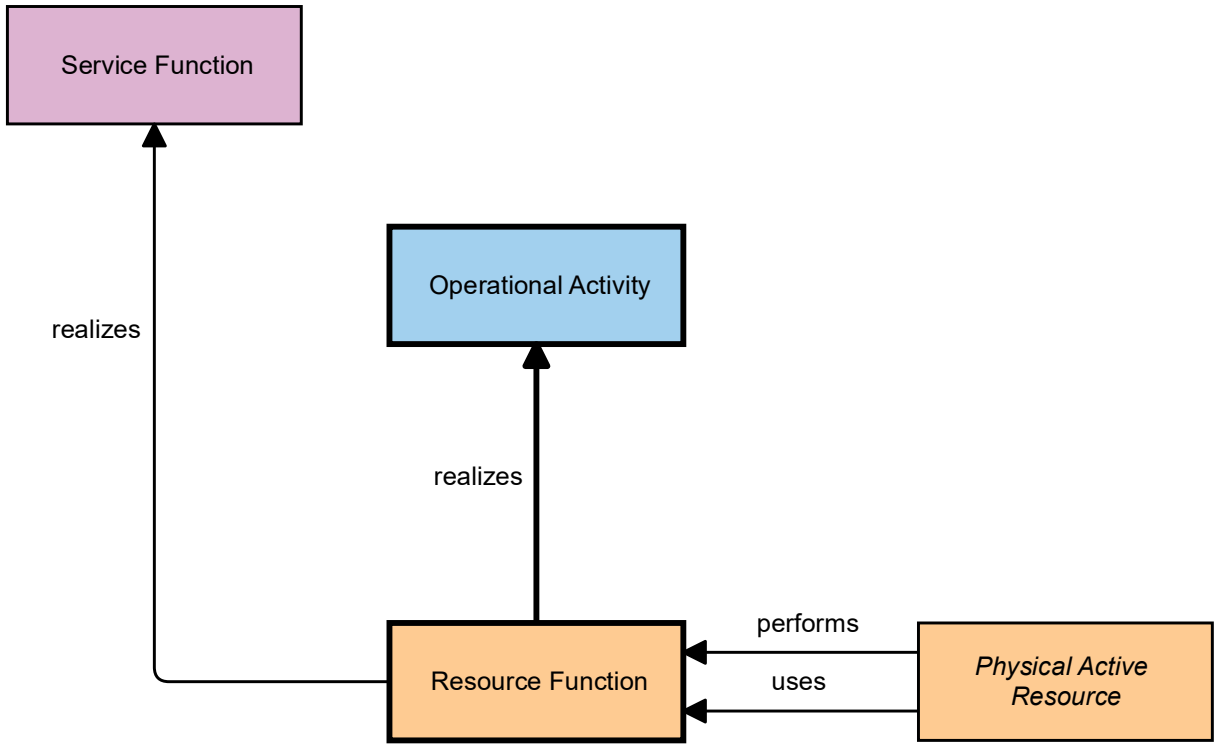
37 L4-P4 - ACTIVITY TO FUNCTION MAPPING

Purpose	Usage & Concerns Addressed
The L4-P4 Viewpoint is concerned with addressing the linkage between Resource Functions and Operational Activities specified in L4 as well as the linkage between Resource Functions and Service Functions specified in the S4.	• Requirements Definition. • Process Mapping. • Tracing functional system requirements to user requirements. • Tracing solution options to requirements. • Identification of overlaps.

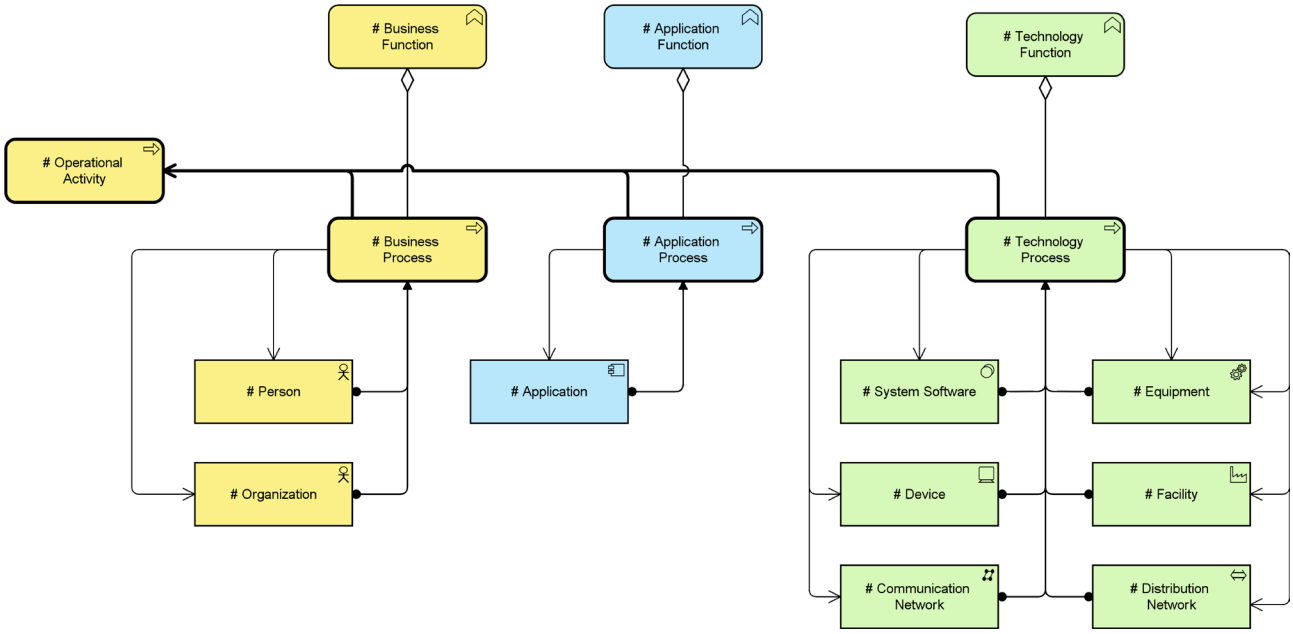
Scope
• Shall contain the traceability between Resource Functions and Operational Activities. • May trace Resource Functions to Service Functions defined in the S4. • May show Physical Active Resources that use or perform the Resource Functions.

Representation
• Tabular. • Matrix. • Diagram.

37.1 L4-P4 NAF IM Viewpoint



37.2 L4-P4 ArchiMate Viewpoint

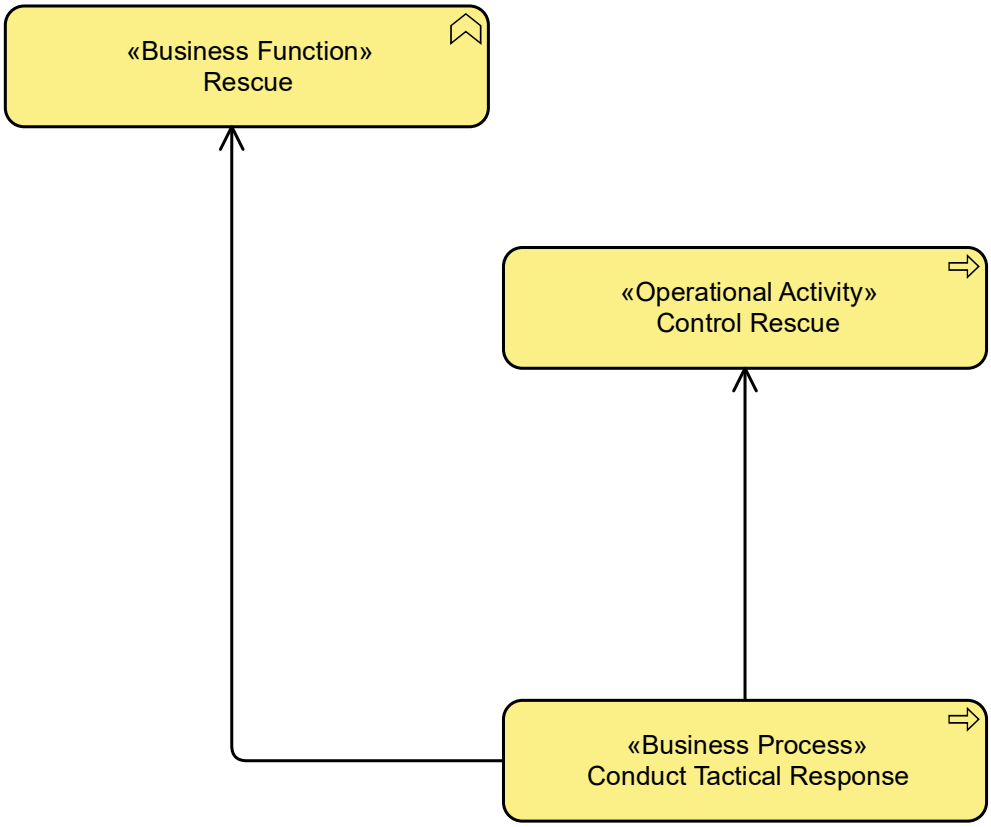


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Operational Activity	# Operational Activity	Business process
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# System Software	System software
Resource Function	# Application Process	Application process
Resource Function	# Business Process	Business process
Resource Function	# Technology Process	Technology process
Service Function	# Application Function	Application function
Service Function	# Business Function	Business function
Service Function	# Technology Function	Technology function

37.3 L4-P4 Implementation Guidance

Resource Functions are represented as *processes* at the *business*, *application* and *technology* layers.
Operational Activities are represented as *business processes* that are *served by* the **Resource Functions**.
Physical Active Resources are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2. Each **Physical Active Resource** is *assigned to* and is *served by* the corresponding layered *process.*
Service Functions are represented as *functions* at three layers within ArchiMate: *business, application* and *technology*. They can aggregate the corresponding layered *process* (**Resource Function**).

37.4 L4-P4 ArchiMate Example



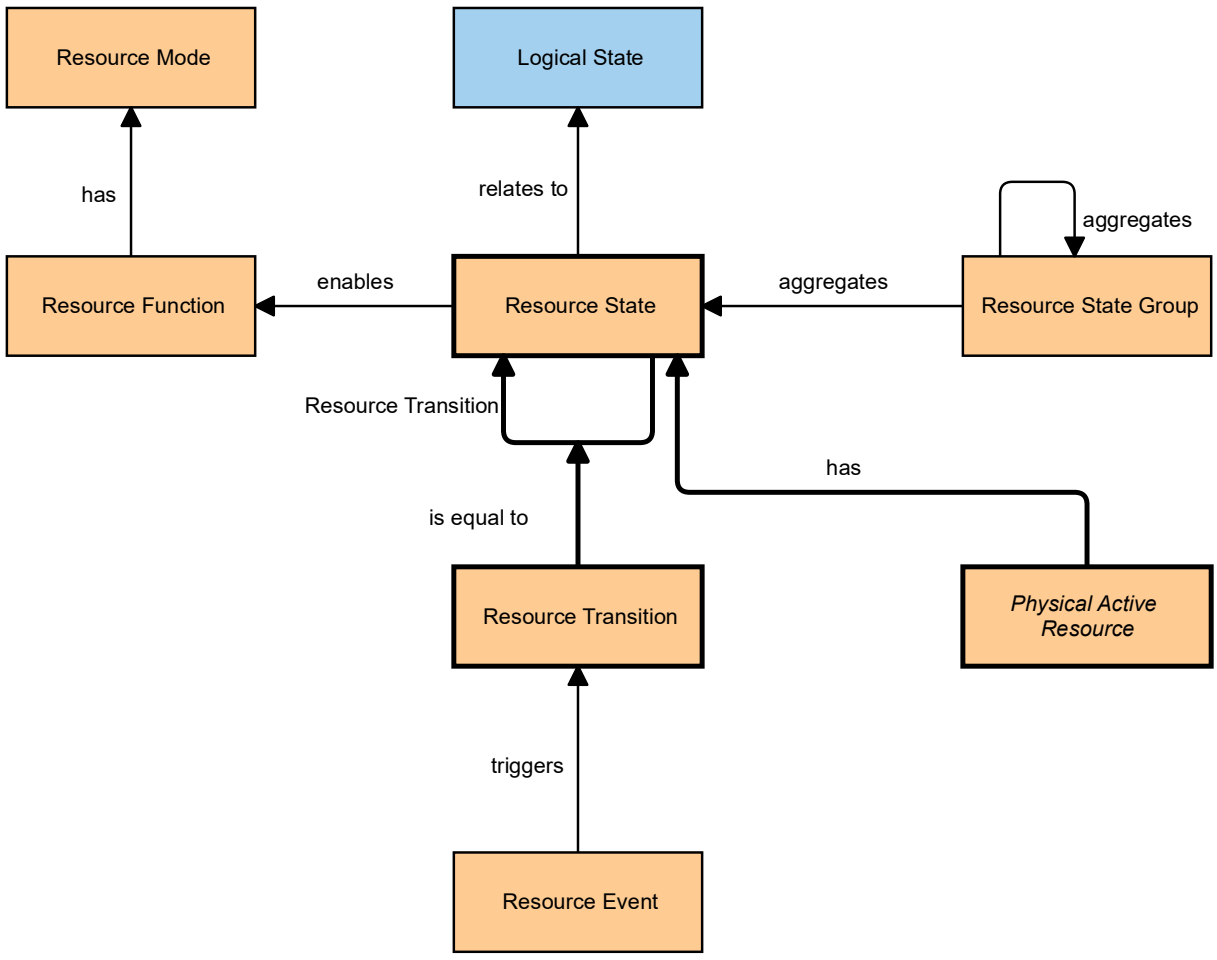
38 P5 - RESOURCE STATES

Purpose	Usage & Concerns Addressed
The P5 Viewpoint is concerned with Resource Types changing State in response to events and other stimuli.	• Systems Engineering. • Safety Cases. • Definition of states, events and state transitions (behavioural modelling).

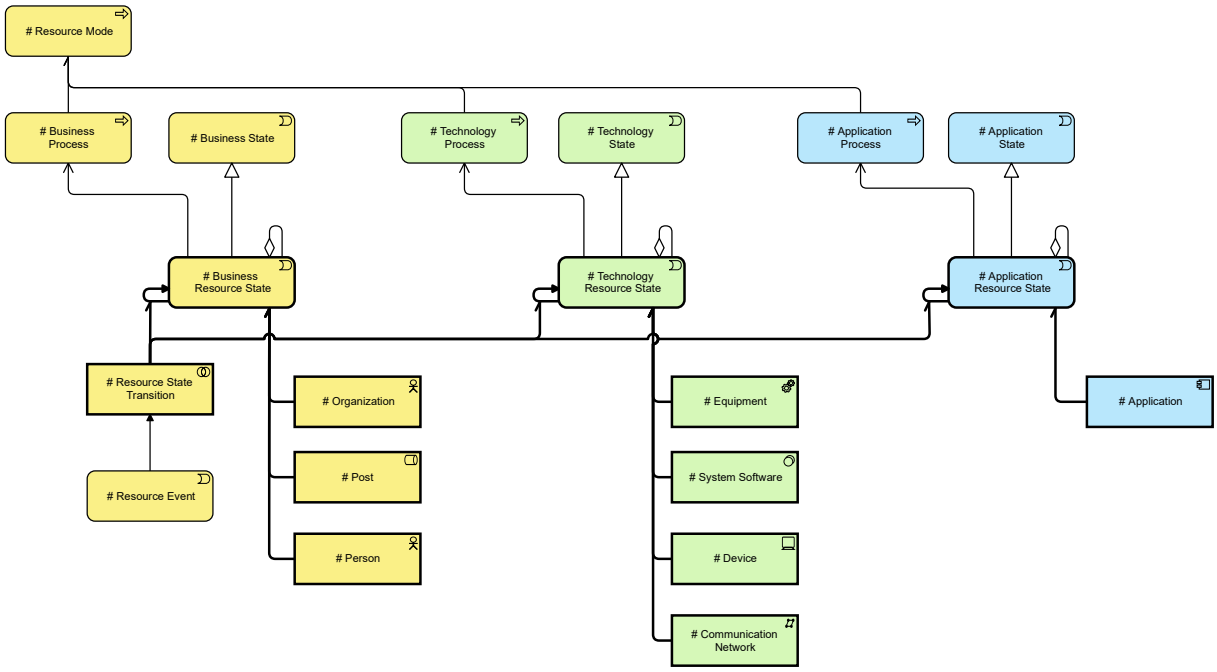
Scope
• Shall contain all Resource States of Physical Active Resources relevant for the entity of interest. • Shall contain Resource Transitions between Resource States. • May show Resource Events triggering Resource Transitions. • May show Resource Modes of a Resource Functions that are enabled by the Resource State. • May show Resource States Groupings of Resource States, and their groupings. • May trace Resource States to Logical States.

Representation
• State Transition diagram. • Finite State diagram.

38.1 P5 NAF IM Viewpoint



38.2 P5 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical State	# Application State	Application event
Logical State	# Business State	Business event
Logical State	# Technology State	Technology event
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Resource Event	# Resource Event	Business event
Resource Function	# Application Process	Application process
Resource Function	# Business Process	Business process
Resource Function	# Technology Process	Technology process
Resource Mode	# Resource Mode	Business process
Resource State	# Application Resource State	Application event
Resource State	# Business Resource State	Business event
Resource State	# Technology Resource State	Technology event
Resource State Group	# Application Resource State	Application event
Resource State Group	# Business Resource State	Business event
Resource State Group	# Technology Resource State	Technology event
Resource Transition	# Resource State Transition	Business collaboration

38.3 P5 Implementation Guidance

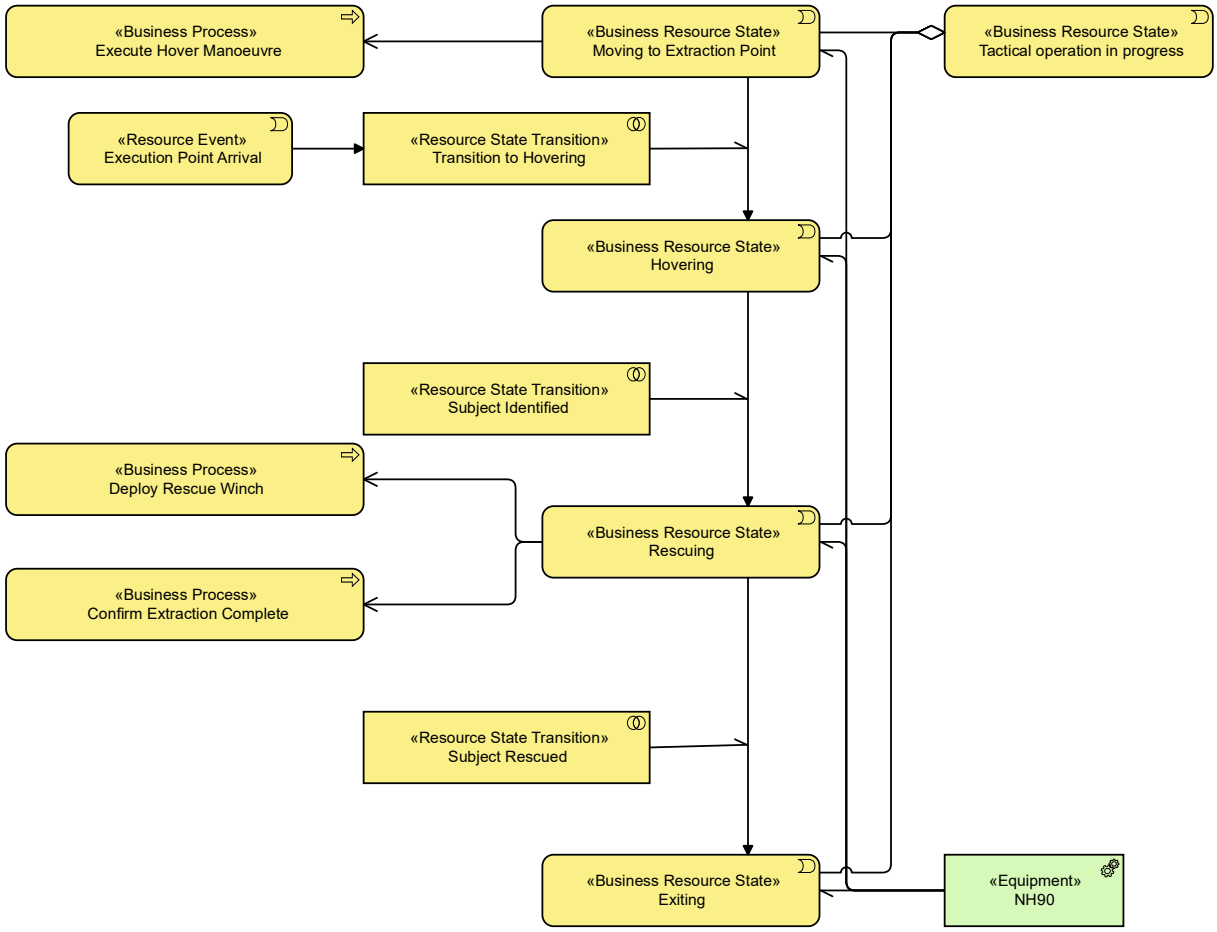
Resource States, represented as *events* exist at three layers within ArchiMate: *business, application* and *technology*. **Physical Active Resources** are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2 and are *associated with* their corresponding ArchiMate layered *state*.

The **Resource Transition** can be represented as either a *trigger* relation between the *states* or as a *business collaboration* that is *associated with* the *trigger* relation. The option of using *business collaborations* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario. S*tates trigger* other *states* at all ArchiMate layers; this is not shown in the viewpoint.

A *business event* represents a **Resource Event** and can *trigger* the **Resource Transition** (the # Resource State Transition).

Resource Functions are represented as *processes* at the business, application and technology layers. The **Resource States** can *serve* these layered *processes*. The **Resource States** can also *specialize* the corresponding layered **Logical State** defined in the L5. The **Logical** *states* and *processes* can be *associated with* a **Resource Mode**, represented as a *business event.*

38.4 P5 ArchiMate Example



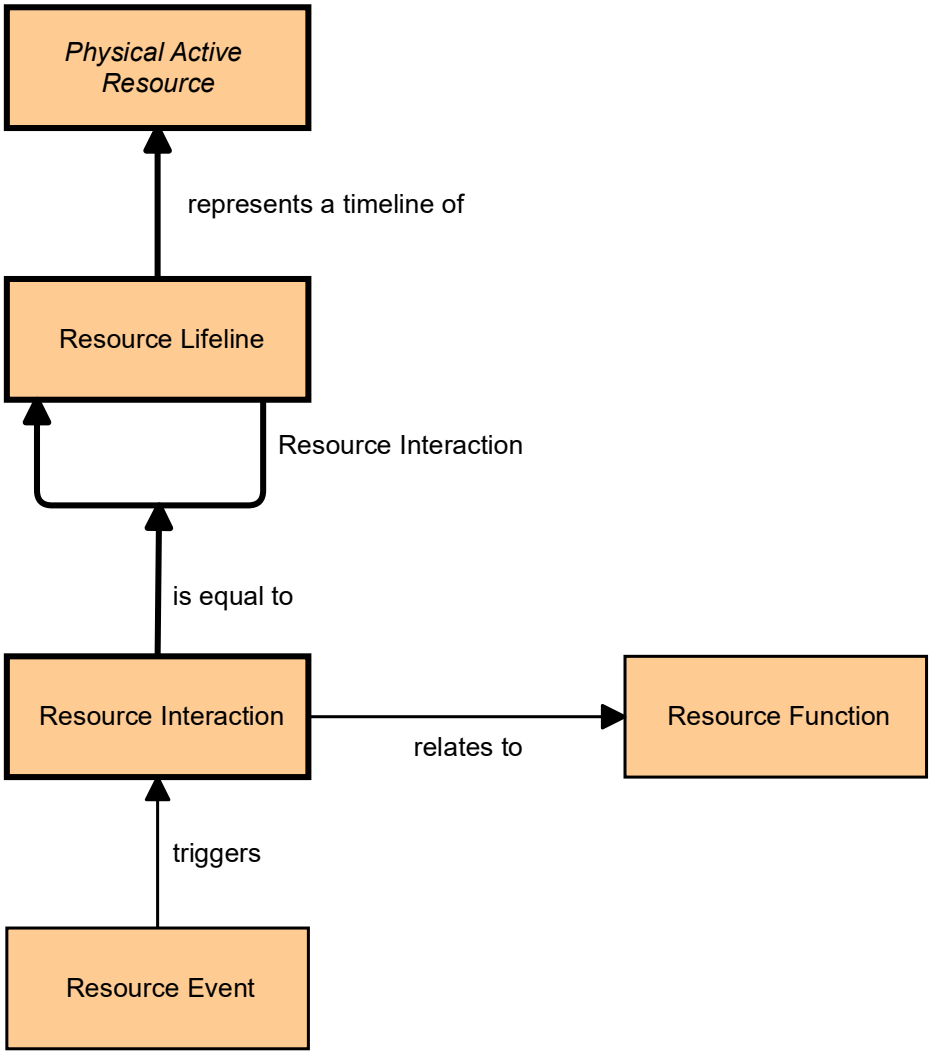
39 P6 - RESOURCE SEQUENCE

Purpose	Usage & Concerns Addressed
The P6 Viewpoint is concerned with identifying the chronological sequence of the Interactions between active Resources in a scenario.	• Message Handling. • Complex System Behaviours. • Security Modelling. • Analysis of resource events impacting operation. • Behavioural analysis.

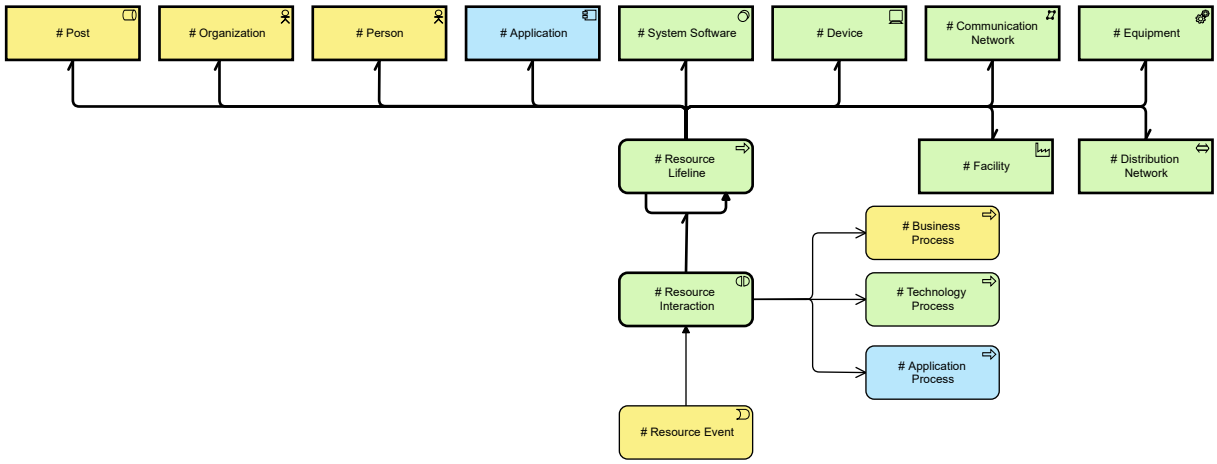
Scope
• Shall contain Resource Lifelines representing Physical Active Resources. • Shall contain the Resource Interactions between Resource Lifelines. • May show Resource Events that trigger Resource Interactions. • May show Resource Functions related to Resource Interactions.

Representation
• Topological (connected shapes). • Sequence Diagram.

39.1 P6 NAF IM Viewpoint



39.2 P6 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Resource Event	# Resource Event	Business event
Resource Function	# Application Process	Application process
Resource Function	# Business Process	Business process
Resource Function	# Technology Process	Technology process
Resource Interaction	# Resource Interaction	Technology interaction
Resource Lifeline	# Resource Lifeline	Technology process

39.3 P6 Implementation Guidance

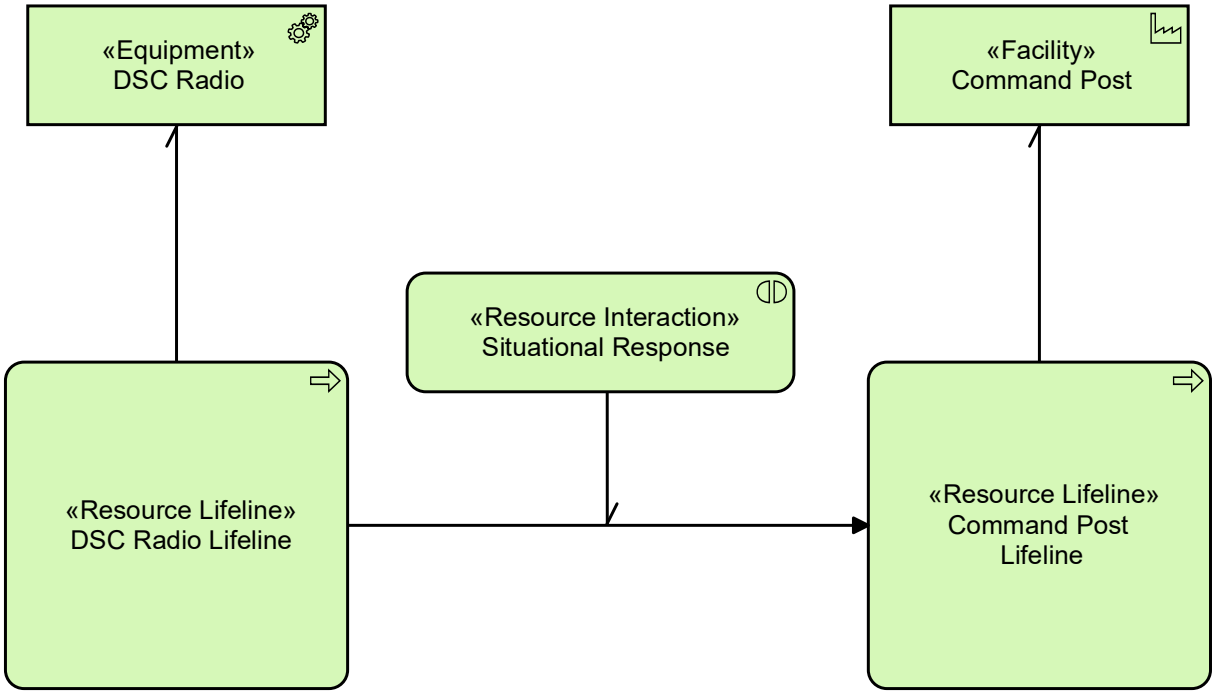
Resource Lifelines are represented as *business processes* with the specialism # Resource Lifeline. **Physical Active Resources** are represented by a variety of ArchiMate elements at four layers: *business*, *application*, *technology* and *physical*; the mappings are detailed in Section 4.2 and are *associated with* the **Resource Lifeline.**

Resource Interactions are represented as *technology interactions* with the specialism # Resource Interaction. They are the objectification of the *trigger* relation between **Resource Lifelines**. The option of using *technology interactions* or *triggering* relations depends on the tooling constraints and level of detail required for modelling the scenario.

A *business event* represents a **Resource Event** and can trigger the # Resource Interaction.

Resource Functions are represented as *processes* at the *business*, *application* and *technology* layers and can be *served by* the **Resource Interaction.**

39.4 P6 ArchiMate Example



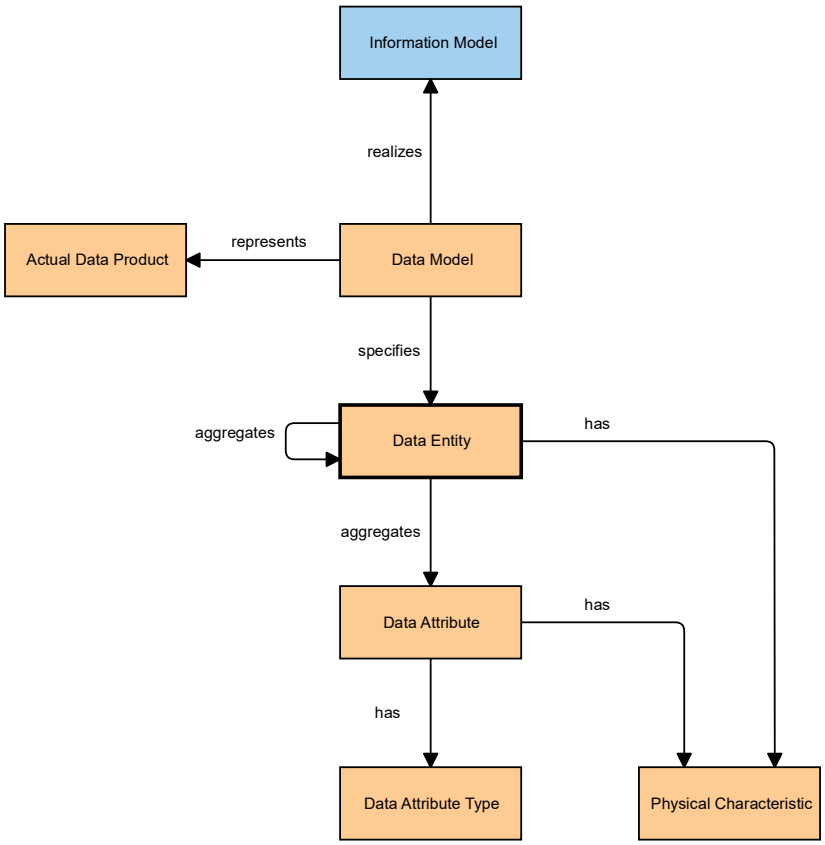
40 P7 - DATA MODEL

Purpose	Usage & Concerns Addressed
The P7 Viewpoint is concerned with the identifying Data Products, Data Entities and their relationships.	• System Design. • Data Schema Design. • Message / Protocol Specification. • Data Architecture. • Database Design. • Specifying the data elements exchanged between systems • Security Modelling.

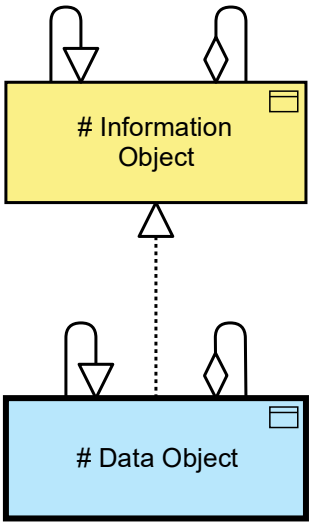
Scope
• Shall contain Data Entities relevant for the entity of interest. • May show the Data Model that specifies the Data Entities. • May show Data Attributes that are part of the Data Entity. • May show groupings of Data Entities. • May show Data Attribute Types relating to Data Attributes. • May show Physical Characteristics of Data Attributes and Data Entities. • May trace Data Models to Information Models.

Representation
• Formal text data modelling language. • Topological (connected shapes). • Class diagram. • Entity-Relation diagram

40.1 P7 NAF IM Viewpoint



40.2 P7 ArchiMate Viewpoint

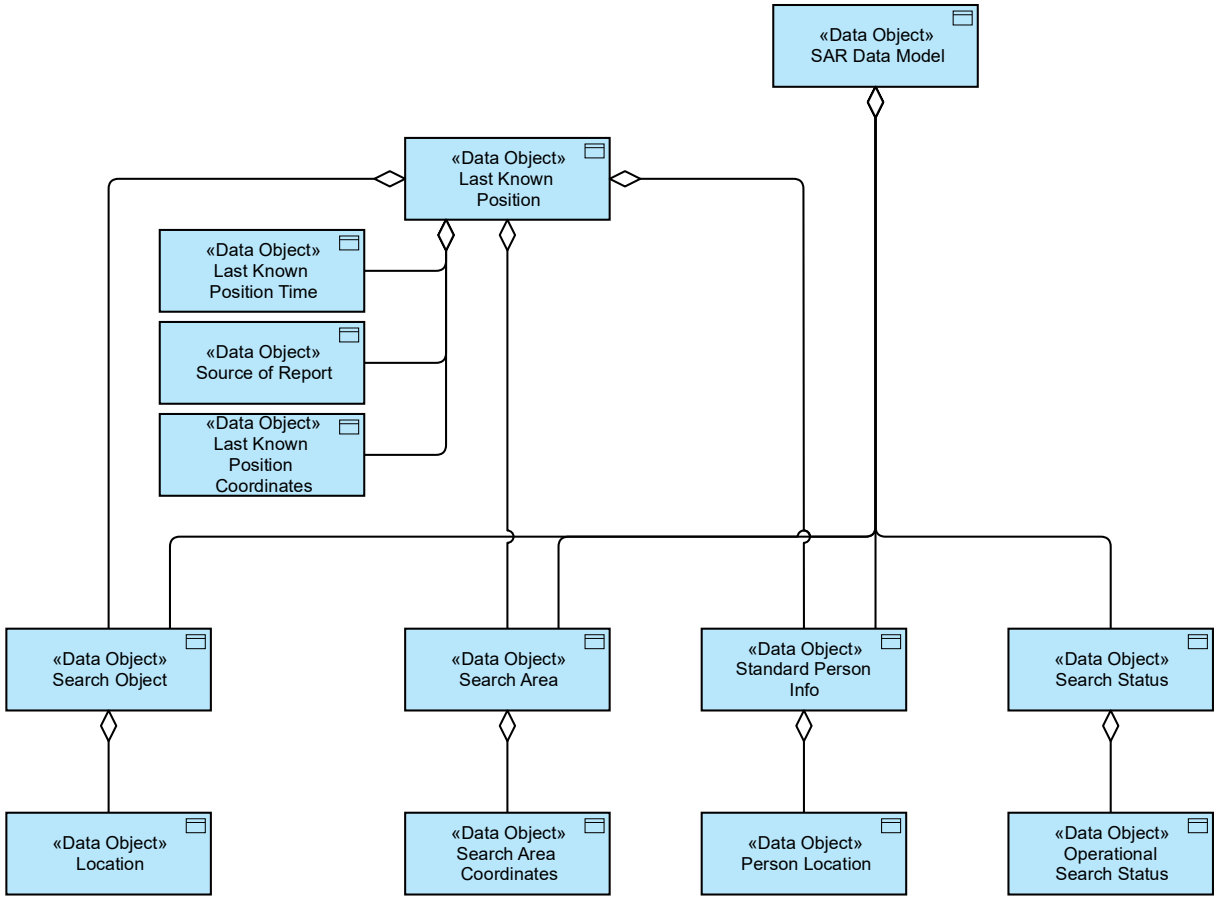


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Actual Data Product	# Data Object	Data object
Data Attribute	# Data Object	Data object
Data Attribute Type	# Data Object	Data object
Data Entity	# Data Object	Data object
Data Model	# Data Object	Data object
Information Model	# Information Object	Business object
Physical Characteristic	# Data Object	Data object

40.3 P7 Implementation Guidance

Data Entities, Modes, Products, Attributes and Attribute Types are all represented as *data objects* that can have *specialization* and *aggregation* relationships between them.
Information Models can be represented as *business objects* with the specialism # Information Object and can be *realized* by a *data object.*

40.4 P7 ArchiMate Example



41 P8 - RESOURCE CONSTRAINTS

Purpose	Usage & Concerns Addressed
The P8 Viewpoint is concerned with Identification and description of Resources Constraints and Resource Requirements	• Non-Functional Requirements. • Safety Cases. • Definition of implementation logic. • Identification of resource constraints.

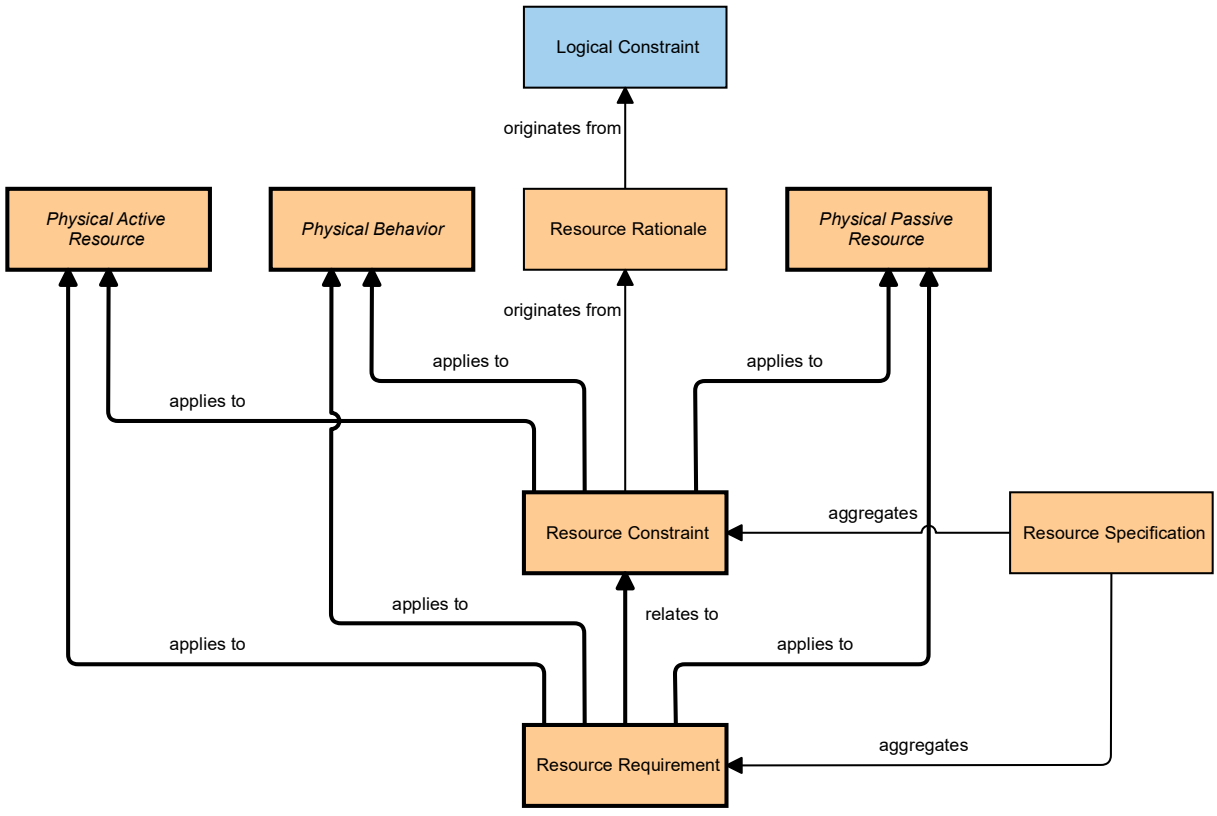
Scope

• Shall contain Resource Requirements that relate to Resource Constraints relevant for the entity of interest.
• Shall contain Physical Active Resources, Physical Behaviour and Physical Passive Resources that these Resource Constraints or Resource Requirements apply to.
• May show Resource Specifications that group Resource Constraints and Resource Requirements.
• May show Resource Rationale relating to Resource Constraints.
• May trace Resource Rationale to Logical Constraints.

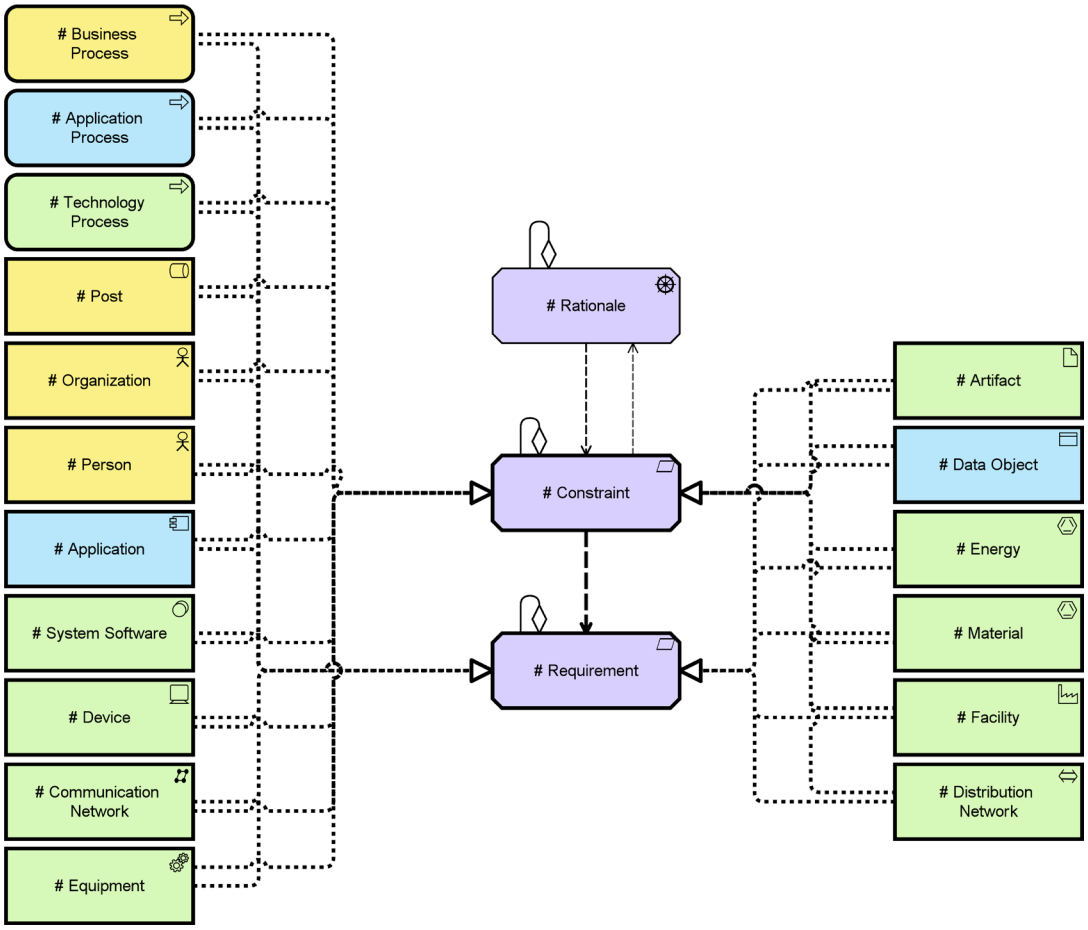
Representation

• Text Document
• Tabular.
• Parametric diagram.

41.1 P8 NAF IM Viewpoint



41.2 P8 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Logical Constraint	# Constraint	Requirement
Physical Active Resource	# Application	Application component
Physical Active Resource	# Communication Network	Communication network
Physical Active Resource	# Device	Device
Physical Active Resource	# Distribution Network	Distribution network
Physical Active Resource	# Equipment	Equipment
Physical Active Resource	# Facility	Facility
Physical Active Resource	# Organization	Business actor
Physical Active Resource	# Person	Business actor
Physical Active Resource	# Post	Business role
Physical Active Resource	# System Software	System software
Physical Behaviour	# Application Process	Application process
Physical Behaviour	# Business Process	Business process
Physical Behaviour	# Technology Process	Technology process
Physical Passive Resource	# Artifact	Artifact
Physical Passive Resource	# Data Object	Data object
Physical Passive Resource	# Energy	Material
Physical Passive Resource	# Material	Material
Resource Constraint	# Constraint	Requirement
Resource Rationale	# Rationale	Driver
Resource Requirement	# Requirement	Requirement
Resource Specification	# Requirement	Requirement

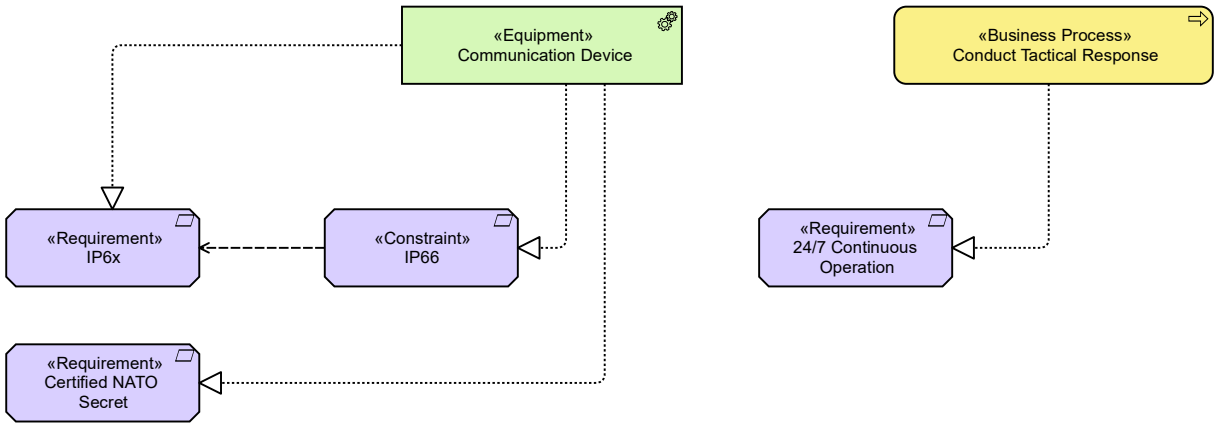
41.3 P8 Implementation Guidance

Resource Requirements and **Resource Constraints** are represented as *requirements*. They are *realized by* the mapped **Physical Active Resources**, **Physical Behaviour** and **Physical Passive Resources** detailed in Section 4.

Constraints can *influence* a # Requirement. **Resource Rationale** are represented as *drivers*. These # Rationale can *influence* a # Constraint. # Constraints can influence # Rationale which captures the relationship between **Resource Rationale** and **Logical Constraints**.

The **Resource Specification** can be represented as either a *grouping* that *aggregates* **Requirements** and **Constraints** (shown in the L8) or as *aggregations* between **Requirements** and **Constraints**.

41.4 P8 ArchiMate Example



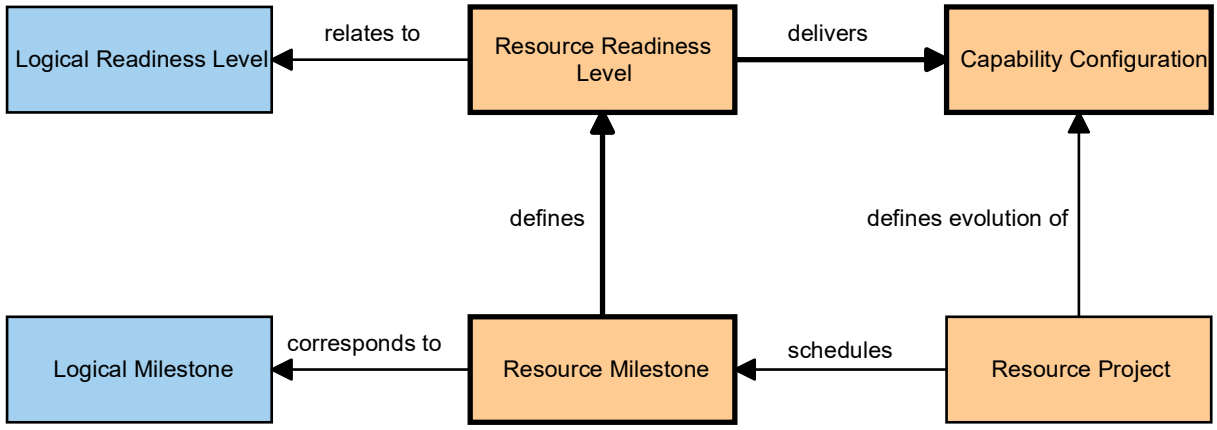
42 PR - RESOURCE ROADMAP

Purpose	Usage & Concerns Addressed
The Pr Viewpoint is concerned with Resource Roadmaps with Resource Milestones related to the evolution of Capability Configurations	• Product Lifecycle Management. • Version Control. • Release Scheduling. • Development of incremental acquisition strategy. • Configuration Management. • Planning technology insertion.

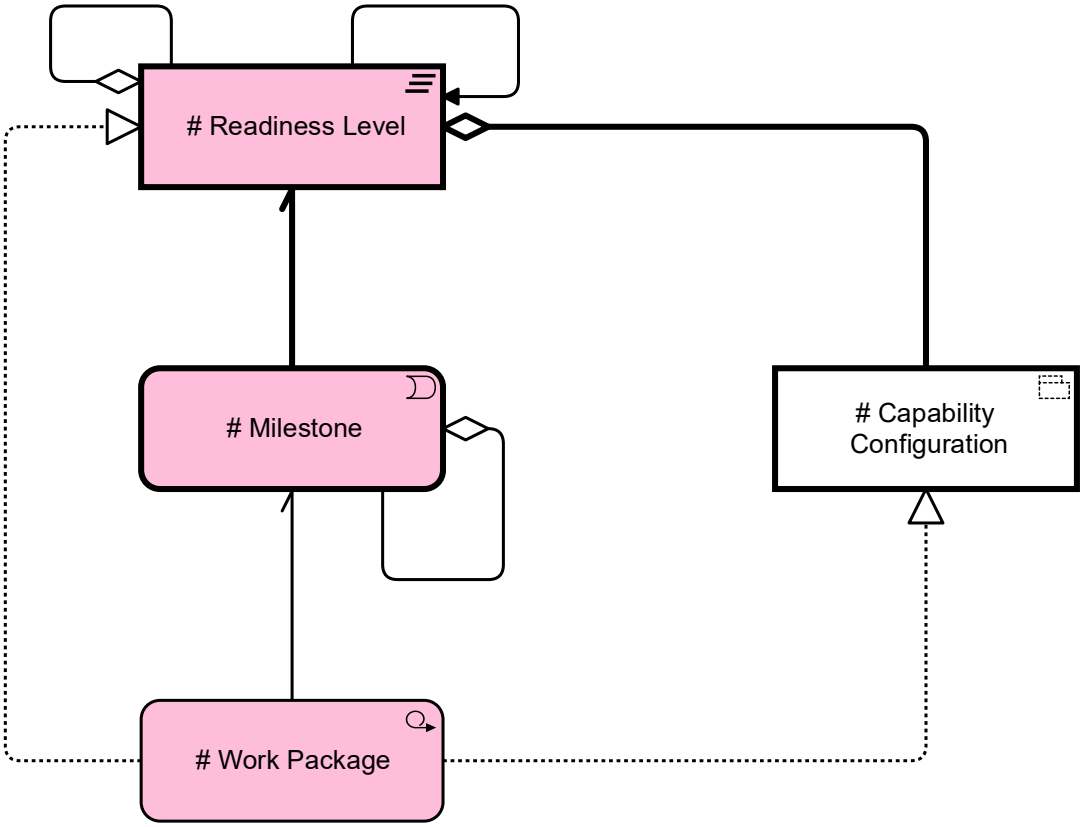
Scope
• Shall contain Resource Readiness Levels that Resource Milestones define. • Shall contain Capability Configurations that the Resource Readiness Level delivers. • May show Resource Projects and how they schedule Resource Milestones and define the evolution of the Capability Configuration. • May trace Resource Readiness Levels to Logical Readiness Levels. • May trace Resource Milestones to Logical Milestones.

Representation
• Timeline view. • Herringbone style diagram. • Augmented chart in style of a Gantt Chart.

42.1 Pr NAF IM Viewpoint



42.2 Pr ArchiMate Viewpoint



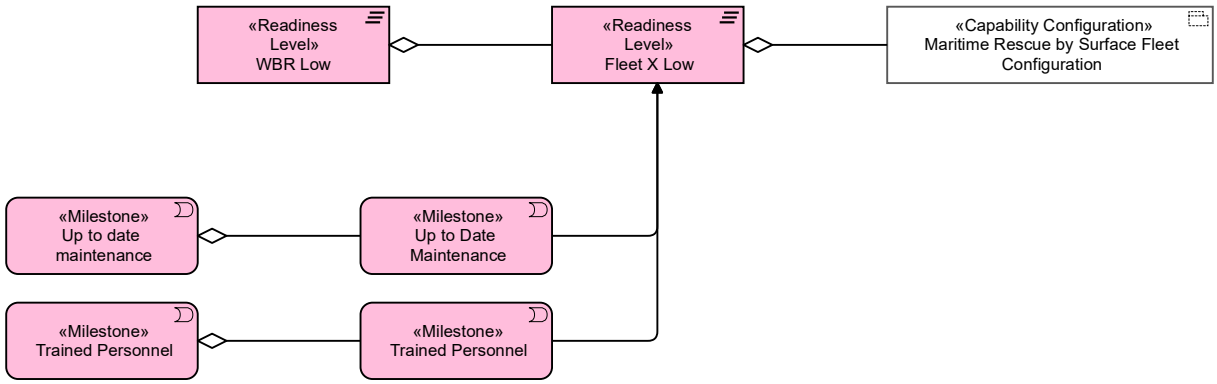
NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Capability Configuration	# Capability Configuration	Grouping
Logical Milestone	# Milestone	Implementation event
Logical Readiness Level	# Readiness Level	Plateau
Resource Milestone	# Milestone	Implementation event
Resource Project	# Work Package	Work package
Resource Readiness Level	# Readiness Level	Plateau

42.3 Pr Implementation Guidance

Resource Milestones are represented as *implementation* events. **Resource Readiness Levels** are represented as *plateaus that* are *associated with* the *implementation event.* The # Readiness level *aggregates* **Capability Configurations**, represented as *groupings.*

Resource Projects are represented as *work packages.* **Resource Milestones** are *associated* with the **Readiness Level.** Alternatively, they may be captured as attributes on the # Readiness Level and so to represent the **schedules** relation, *work packages* can *realize the* # Readiness Level and be *associated with* the **#** Milestone. *Work packages* also *realize* the **Capability Configuration**. # Milestones and # Readiness Levels can have an aggregation to show traceability from those defined in the Lr viewpoint.

42.4 Pr ArchiMate Example



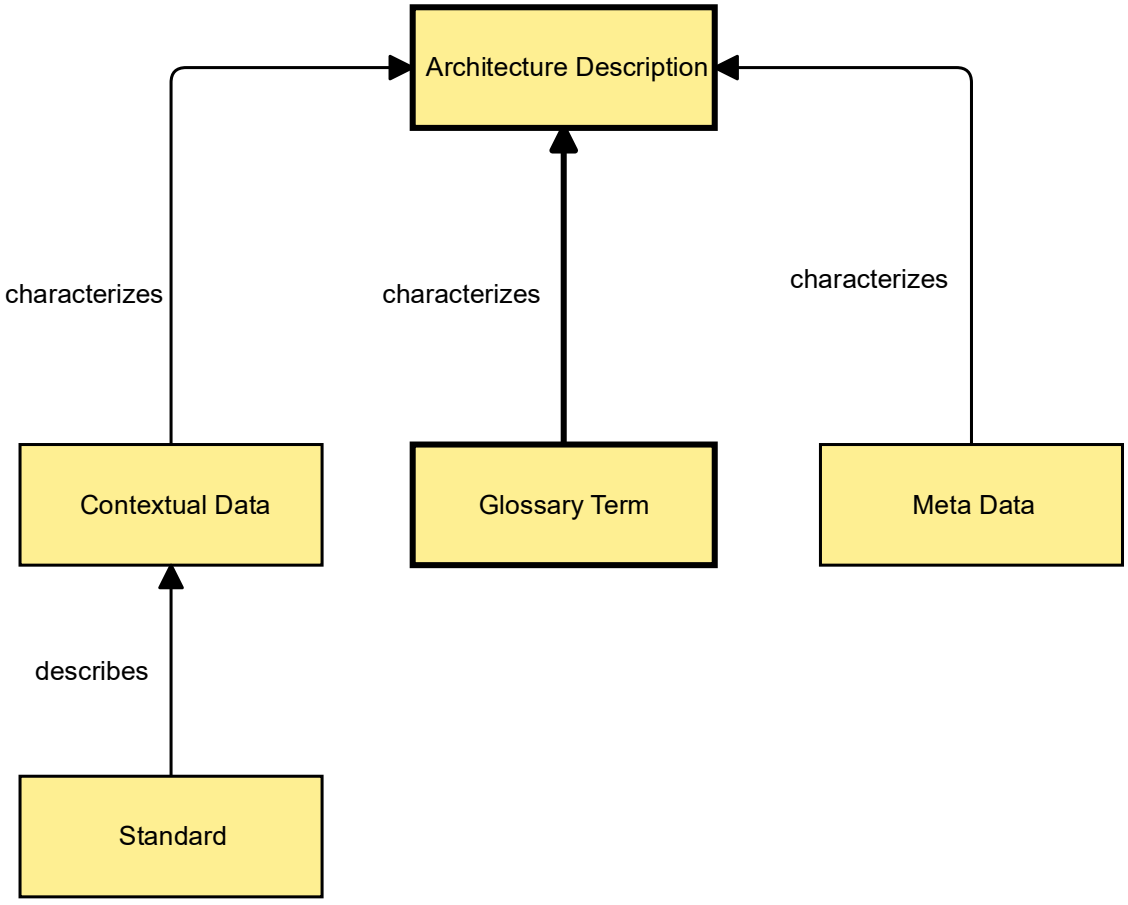
43 A1 - METADATA DEFINITIONS

Purpose	Usage & Concerns Addressed
The A1 is concerned with terminology and metadata of different kinds regarding the architecture.	• Architecture element discovery. • Security and data protection Management. • Summary and Overview. • Setting up a glossary for the architecture. • Managing architecture metadata.

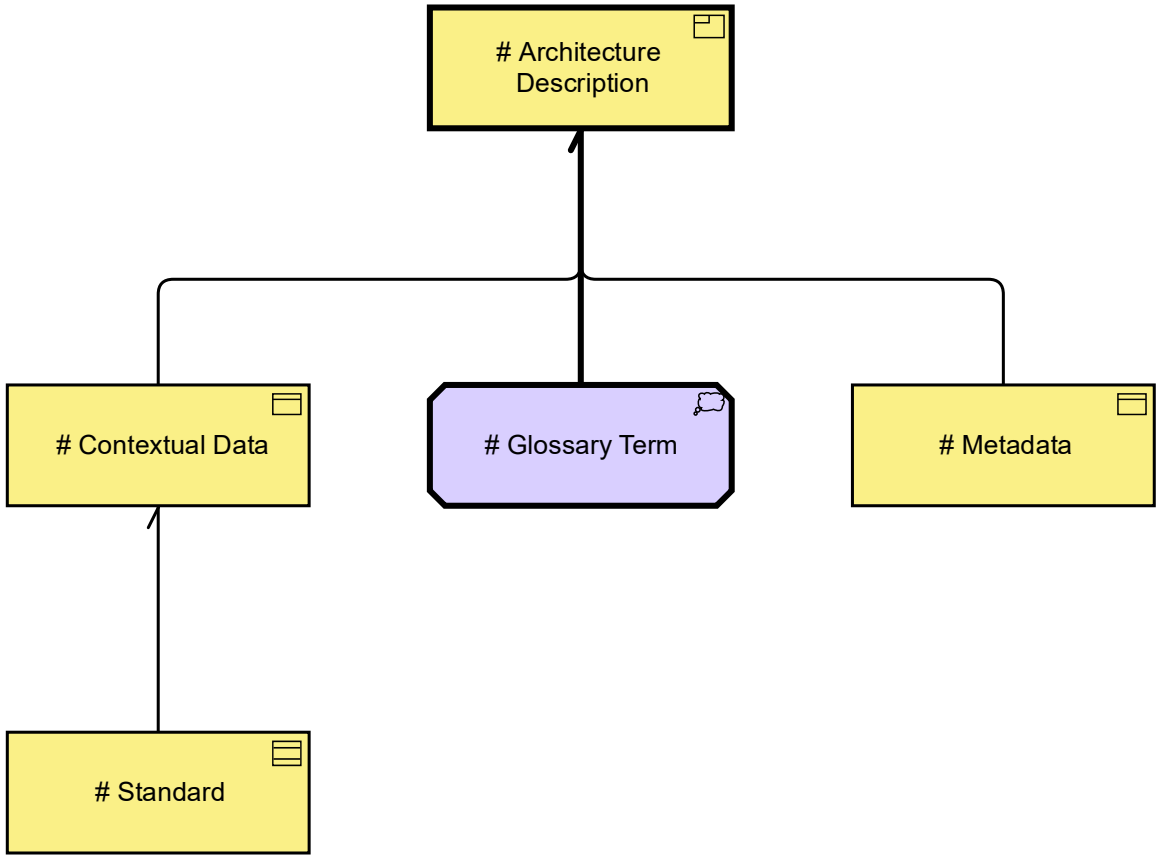
Scope
• Shall contain the Glossary Terms relevant for the Architecture Description. • May show metadata that characterizes the Architecture Description. • May show Contextual Data that characterizes the Architecture Description. • May show Standards that describe the Contextual Data.

Representation
• Tabular. • Text.

43.1 A1 NAF IM Viewpoint



43.2 A1 ArchiMate Viewpoint

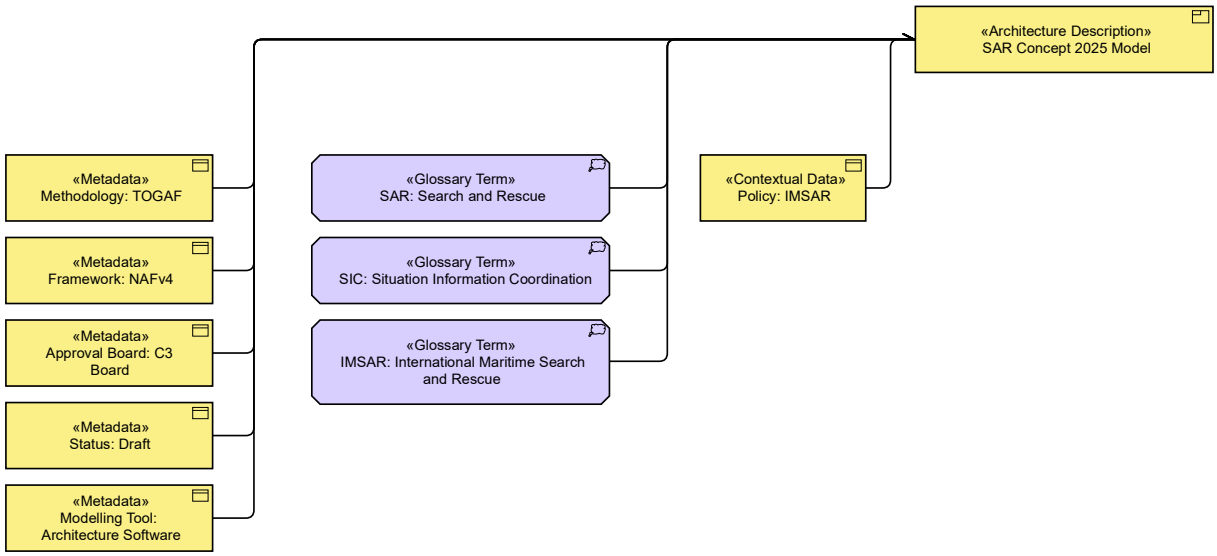


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Description	# Architecture Description	Product
Contextual Data	# Contextual Data	Business object
Glossary Term	# Glossary Term	Meaning
Meta Data	# Metadata	Business object
Standard	# Standard	Contract

43.3 A1 Implementation Guidance

Architecture Descriptions are represented as *products.* **Glossary terms** are represented as *meanings* and are *associated with* **Architecture Descriptions**.
Metadata and **Contextual data** are represented as *business objects* that can be *associated with* the **Architecture Description. Standards** are represented as *contracts* that can be associated with **Contextual Data**.

43.4 A1 ArchiMate Example



44 A2 - ARCHITECTURE PRODUCTS

Purpose	Usage & Concerns Addressed
The A2 Architecture Products Viewpoint is concerned with the Architecture Work Products that describe or accompany an Architecture.	• Architecture Content. • Stakeholder Management. • Summarizing an Architecture. • Navigating an Architecture.

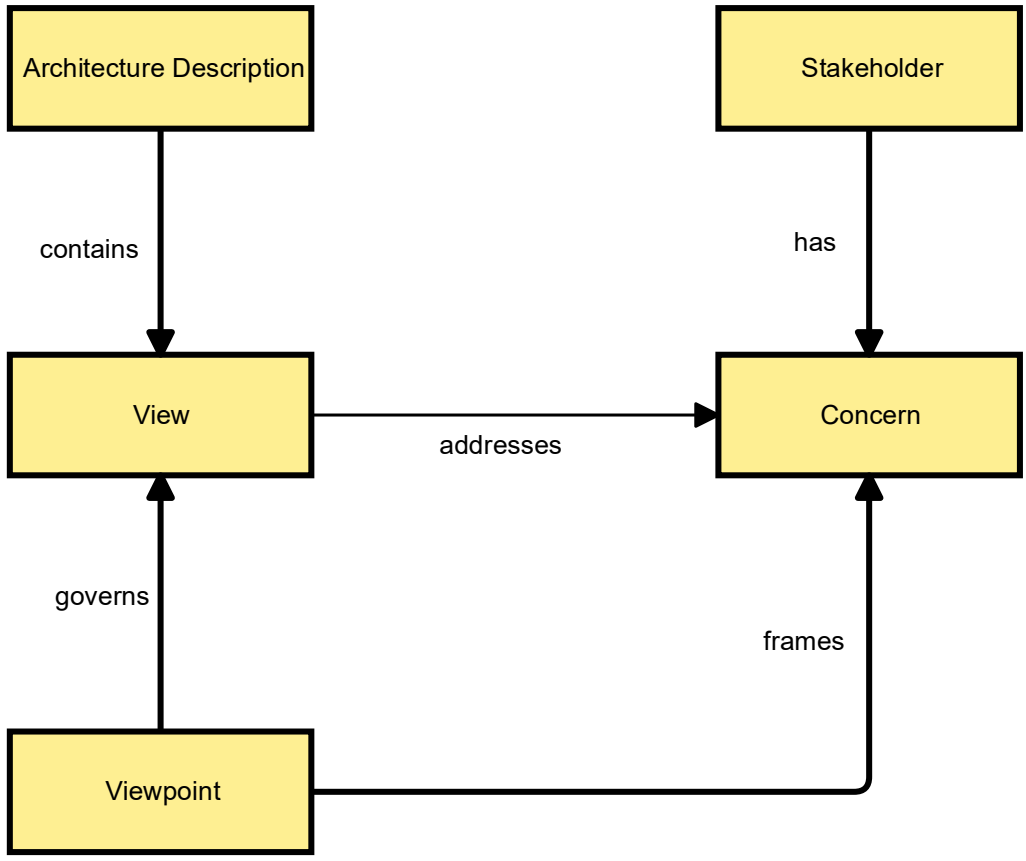
Scope

• Shall contain the Views that make up the Architecture Description and which Viewpoints those Views conform to.
• Shall contain Stakeholders. their concerns and the Viewpoints that frame the Concerns.
• May show Views that directly address a concern.

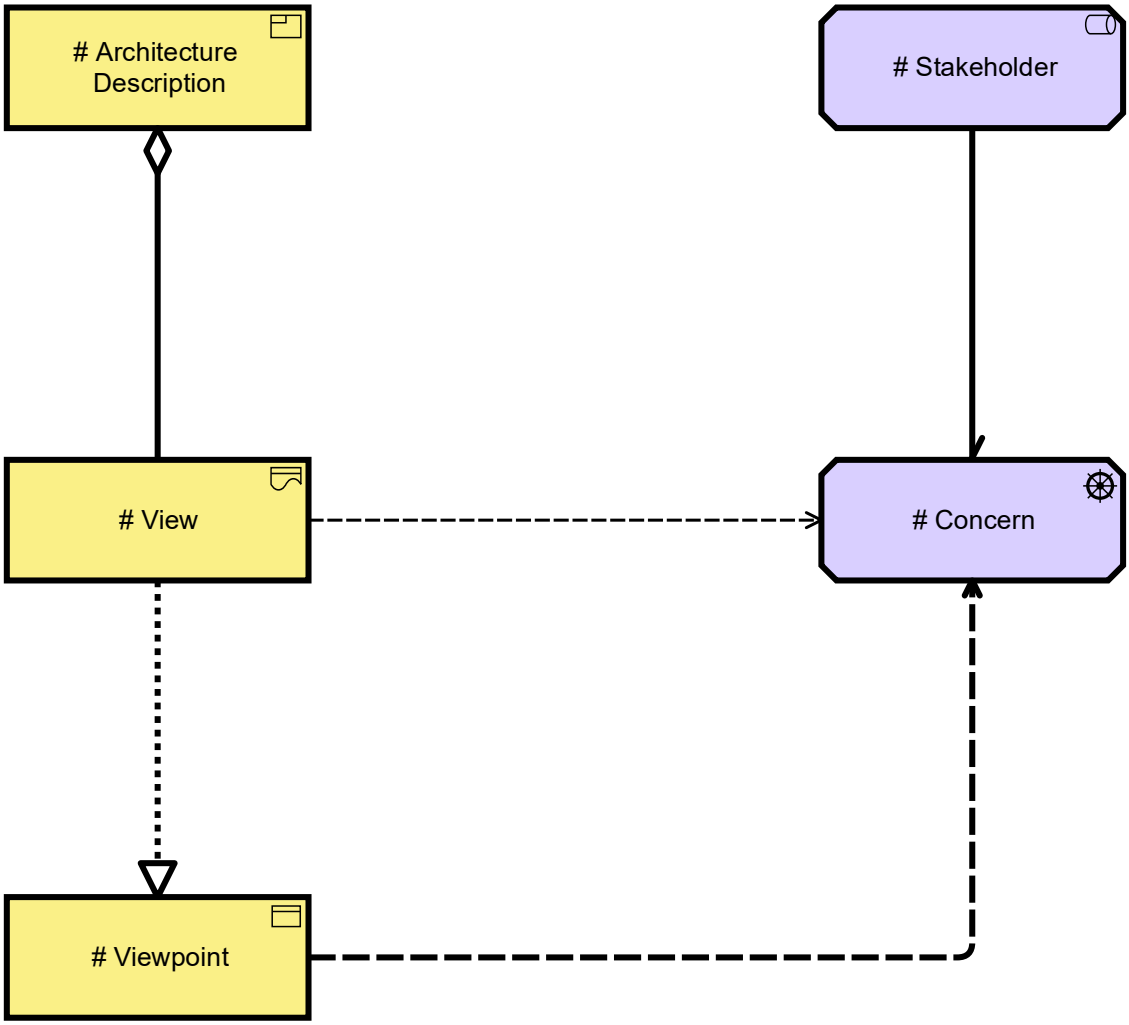
Representation

• NAF grid representation.
• Other representations suitable for the architect.

44.1 A2 NAF IM Viewpoint



44.2 A2 ArchiMate Viewpoint

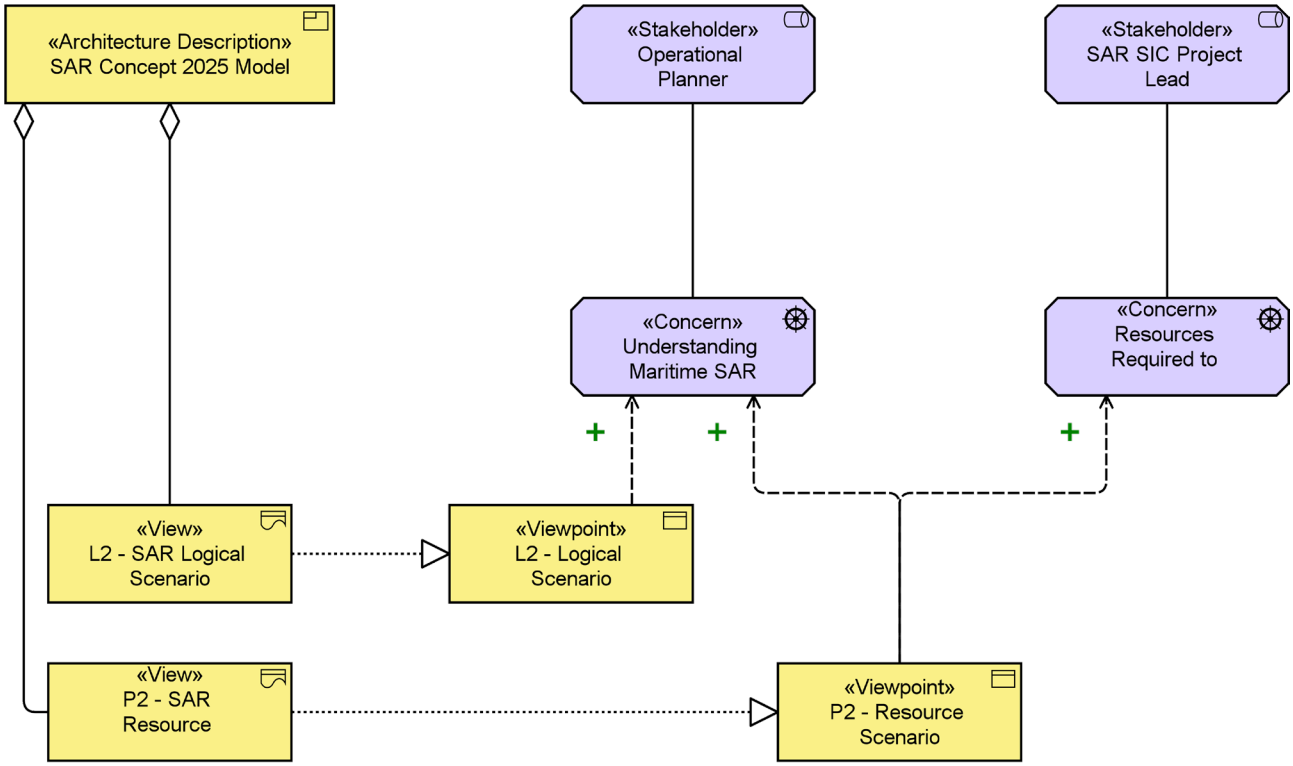


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Description	# Architecture Description	Product
Concern	# Concern	Driver
Stakeholder	# Stakeholder	Stakeholder
View	# View	Representation
Viewpoint	# Viewpoint	Business object

44.3 A2 Implementation Guidance

The Architecture Description is represented as a *product.* It aggregates **Views**, represented as *representations* with the specialism # View. **Viewpoints** are represented as *business objects*. **Concerns** are represented as *drivers*. **Views** realize a **Viewpoint. Views** and **Viewpoints** *influence* **Concerns**. ***Stakeholders*** are *associated with* a **concern**.

44.4 A2 ArchiMate Example



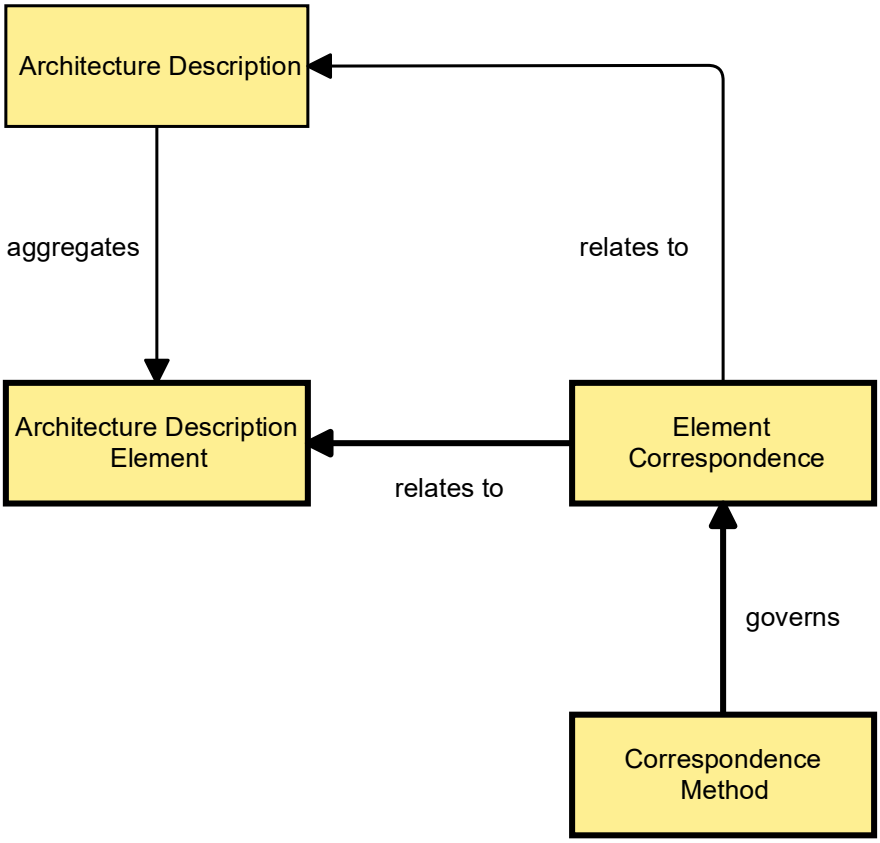
45 A3 - ARCHITECTURE CORRESPONDENCE

Purpose	Usage & Concerns Addressed
The A3 Viewpoint is concerned with implementing correspondence between elements of Architecture Descriptions (AD).	• Traceability / dependencies between architectures. • Re-Use of Architectures. • Dependency analysis across architectures.

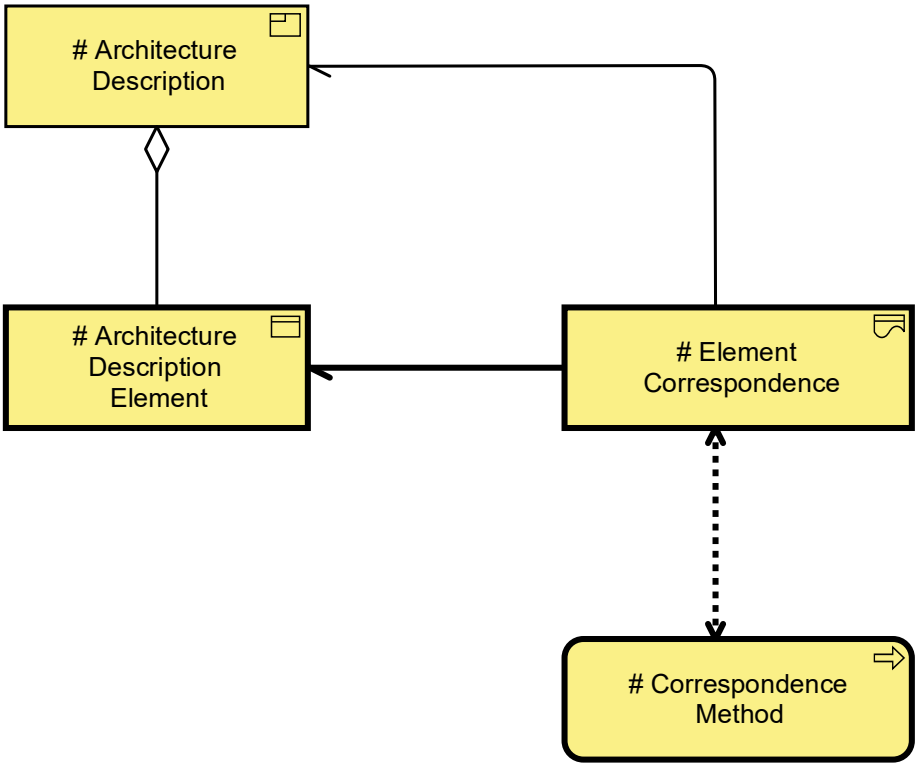
Scope
• Shall contain all relevant Architecture Description Elements. • Shall contain Element Correspondences that relate to Architecture Description Elements and Correspondence Methods that govern them. • May show how Architecture Descriptions relate to Architecture Description Elements. • May show how Architecture Descriptions relate to Element Correspondences.

Representation
• Tabular. • Diagram.

45.1 A3 NAF IM Viewpoint



45.2 A3 ArchiMate Viewpoint

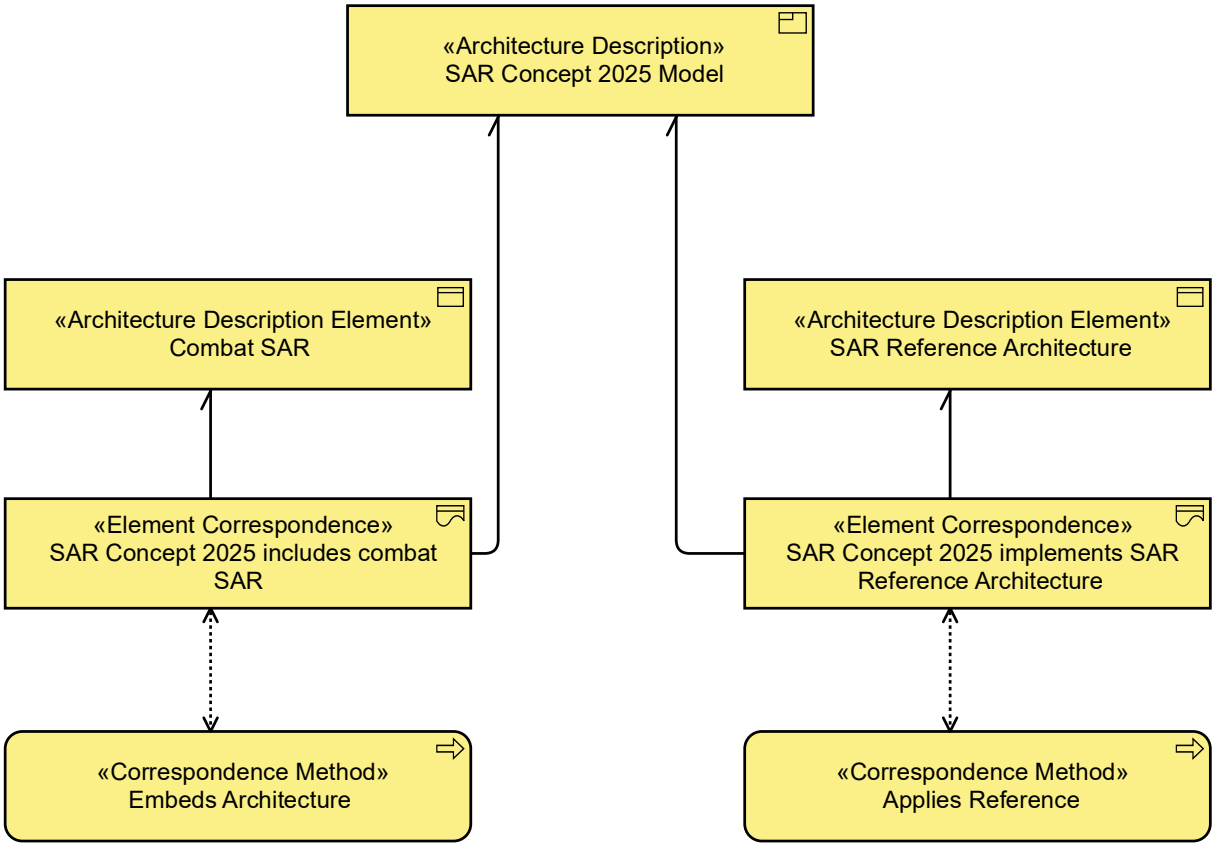


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Description	# Architecture Description	Product
Architecture Description Element	# Architecture Description Element	Business object
Correspondence Method	# Correspondence Method	Business process
Element Correspondence	# Element Correspondence	Representation

45.3 A3 Implementation Guide

Architecture Description Elements are represented as *business objects*. An **Element Correspondence** is represented as a *representation* that is *associated with* the **Architecture Description Element.**
Correspondence Methods are represented as *business processes* that have an *access* relation between **Element Correspondences**.
The Architecture Description is represented as a *product* that can *aggregate* the **Architecture Description Element** and be *associated with* the **Element Correspondence.**

45.4 A3 ArchiMate Example



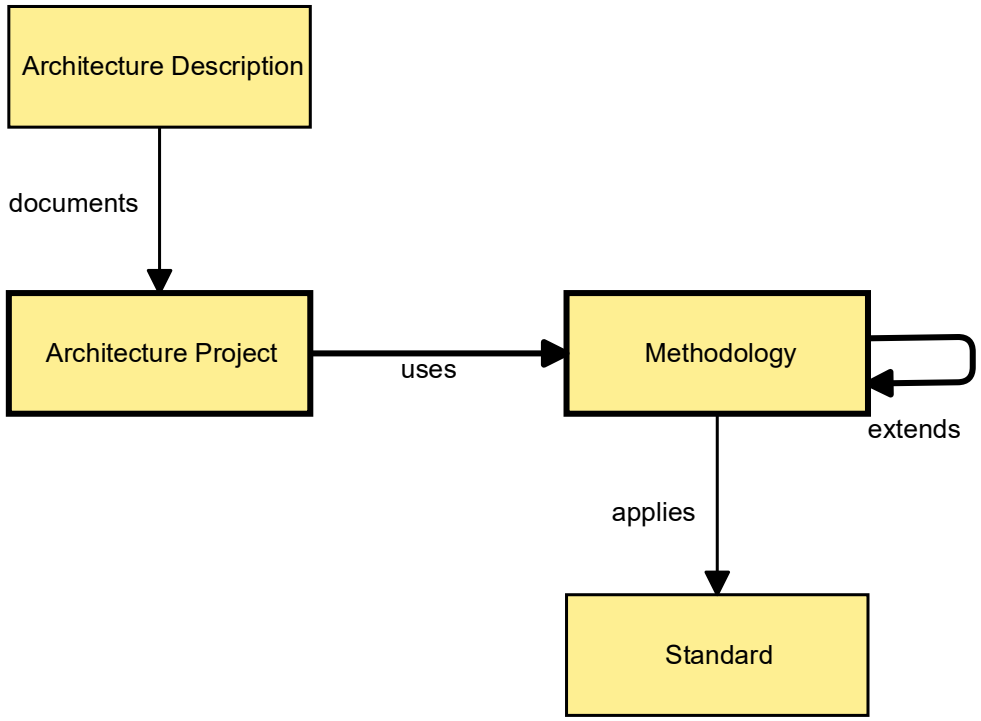
46 A4 - ARCHITECTURE METHODOLOGY

Purpose	Usage & Concerns Addressed
The A4 is concerned with methodology used in developing the architecture.	• Architecture Management & Review. • Architecture project management.

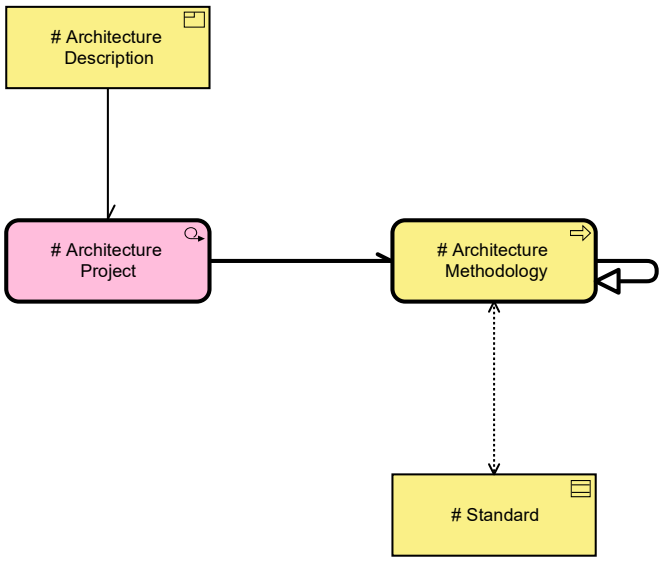
Scope
• Shall contain the Architecture Projects and the Methodologies it uses and Methodology extensions. • May show the Standards that apply to the Methodology. • May show the Architecture Description that document the projects.

Representation
• Tabular. • Text Document.

46.1 A4 NAF IM Viewpoint



46.2 A4 ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Description	# Architecture Description	Product
Architecture Project	# Architecture Project	Work package
Methodology	# Architecture Methodology	Business process
Standard	# Standard	Contract

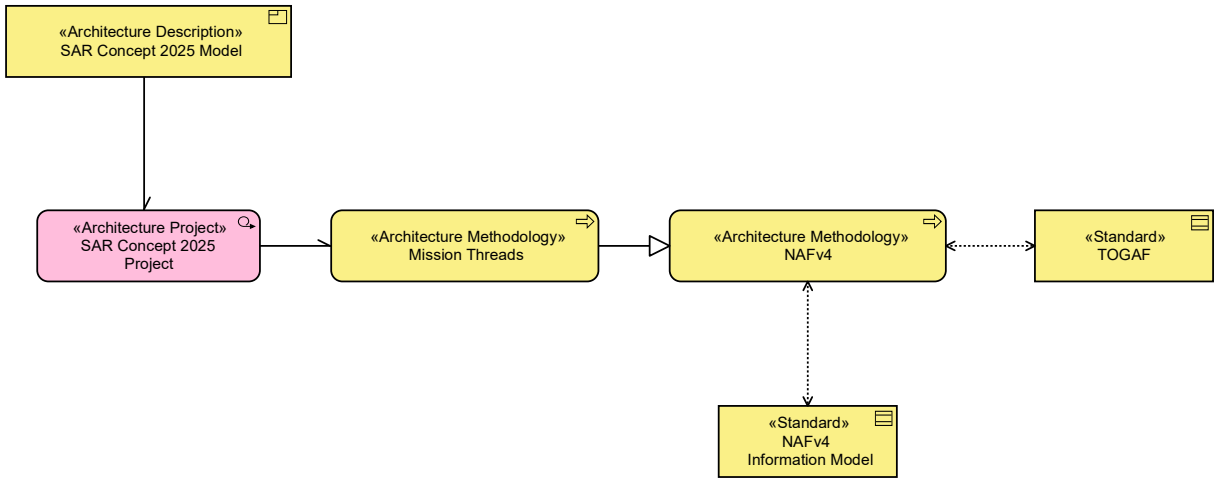
46.3 A4 Implementation Guidance

An **Architecture Project** is represented as a *work package*. The **Architecture Methodology** is represented as a *business process* that is *associated with* the **Architecture Project** and it *specializes* other **Architecture Methodologies**.

Standards are represented as *contracts* that can have an *access relationship* with the **Architecture Methodology.**

The **Architecture Description** is represented as a *product* that can be *associated with* the **Architecture Project.**

46.4 A4 ArchiMate Example



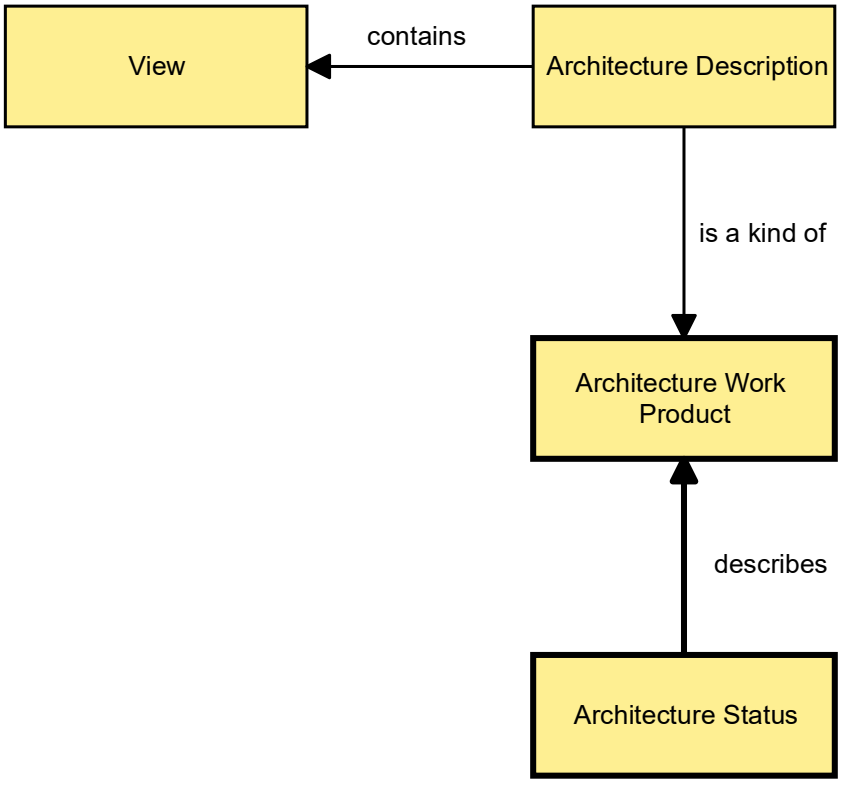
47 A5 - ARCHITECTURE STATUS

Purpose	Usage & Concerns Addressed
The A5 Viewpoint is concerned with usability and approval status of the Architecture Work Products which contribute to development and usability of the Architecture.	• Architecture Management & Review. • Architecture project management. • Release scheduling.

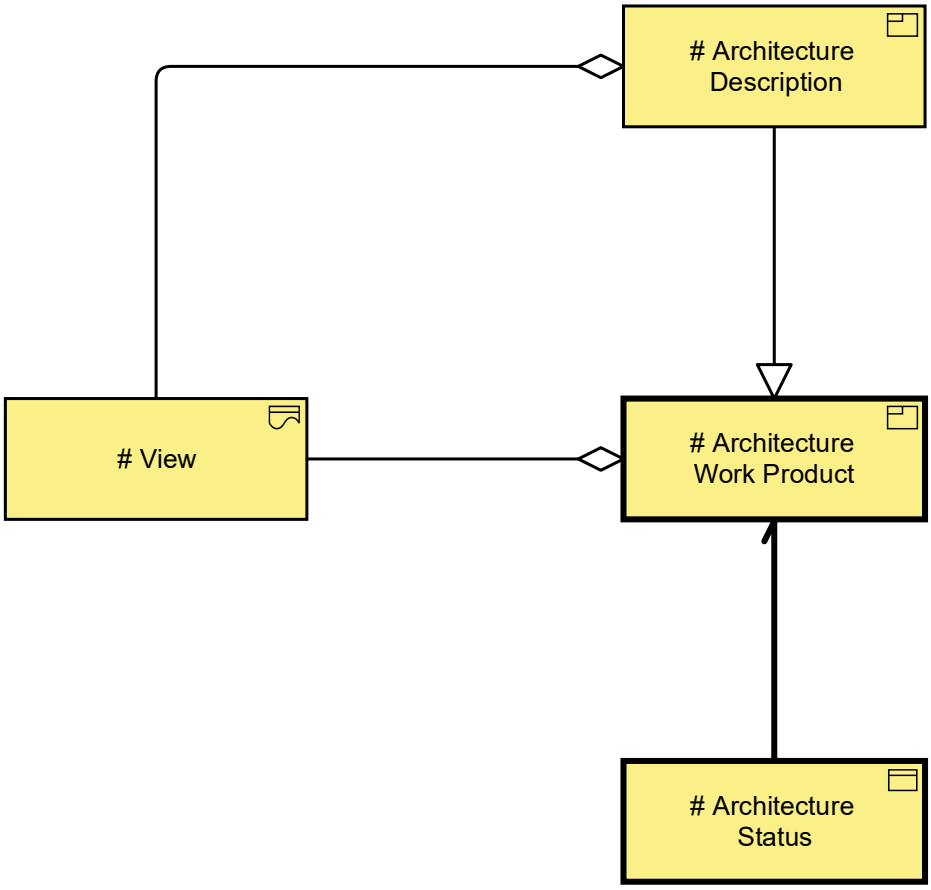
Scope
• Shall contain Architecture Work Products with their Architecture Status. • May show Architecture Descriptions that relate to Architecture Work Products. • May show Views that are contained in Architecture Work Products or Descriptions.

Representation
• Tabular. • Text Document.

47.1 A5 NAF IM Viewpoint



47.2 A5 ArchiMate Viewpoint



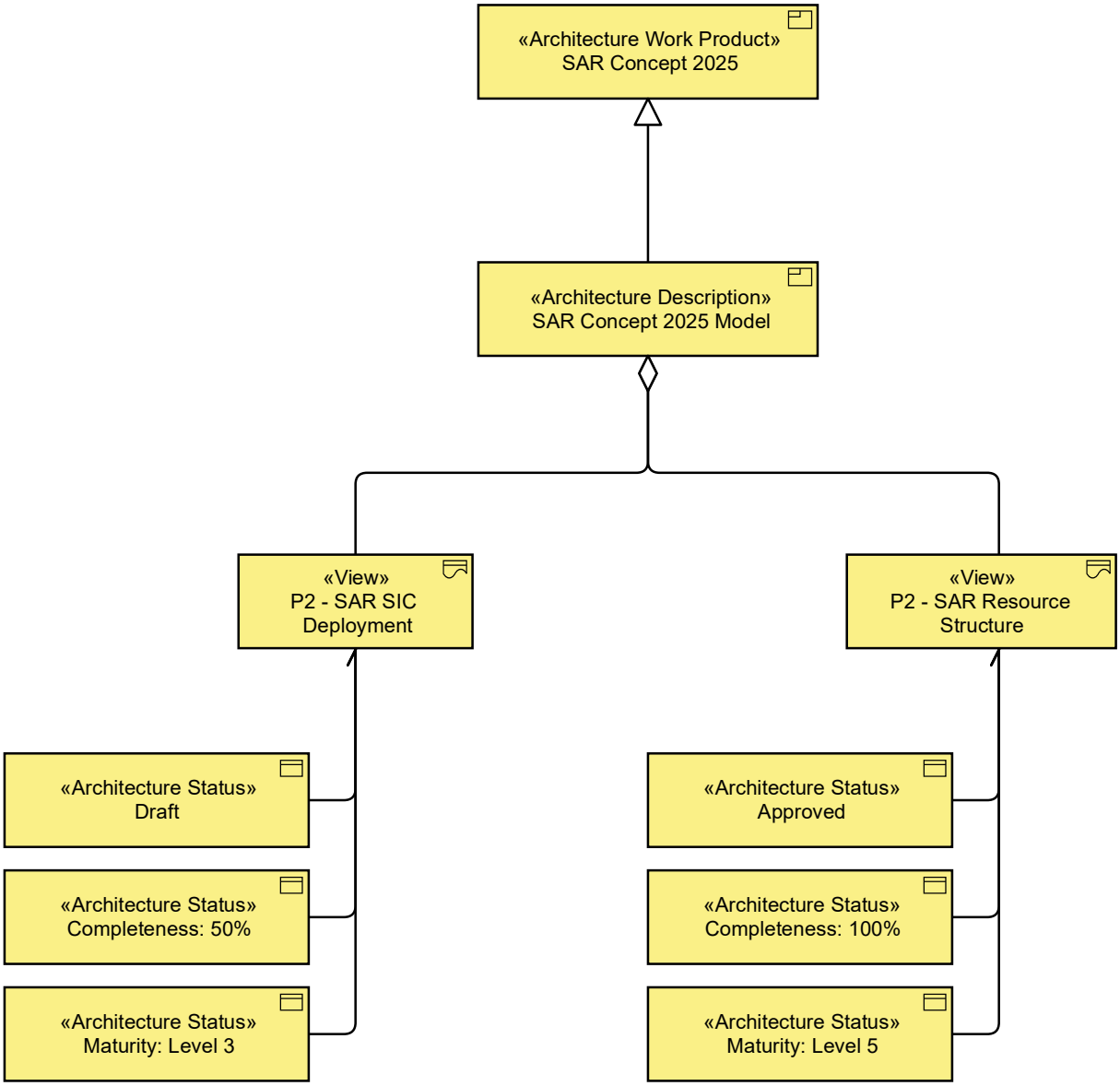
NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Description	# Architecture Description	Product
Architecture Status	# Architecture Status	Business object
Architecture Work Product	# Architecture Work Product	Product
View	# View	Representation

47.3 A5 Implementation Guidance

Architecture Work Products are represented as *products* that can be *specialized* by an **Architecture Description**. An **Architecture status** is represented as a *business object* that is *associated with* the **Architecture Work Product.**

The **Architecture Description** and the **Architecture Work Product** can *aggregate* a **View** represented as a *representation*.

47.4 A5 ArchiMate Example



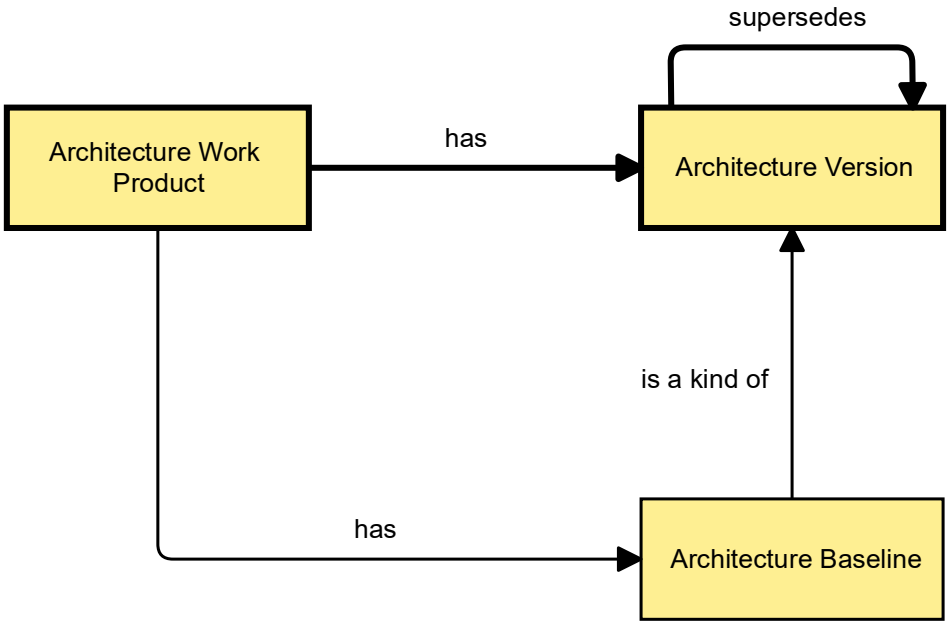
48 A6 - ARCHITECTURE VERSIONS

Purpose	Usage & Concerns Addressed
The A6 Architecture Versions Viewpoint is concerned with version history of the Architecture Work Products.	• Architecture Management. • Configuration Control of Architectures.

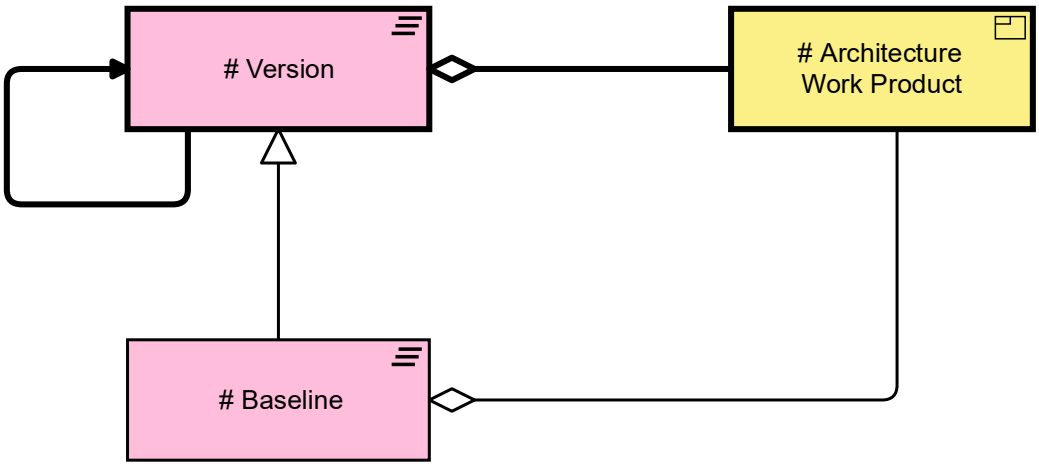
Scope
• Shall contain Architecture Versions and relating Architecture Work Products. • Shall contain the temporal succession of the Architecture Work Product Versions. • May show Architecture Baselines relating to Architecture Work Products and Architecture Versions.

Representation
• Tabular. • Text document.

48.1 A6 NAF IM Viewpoint



48.2 A6 ArchiMate Viewpoint

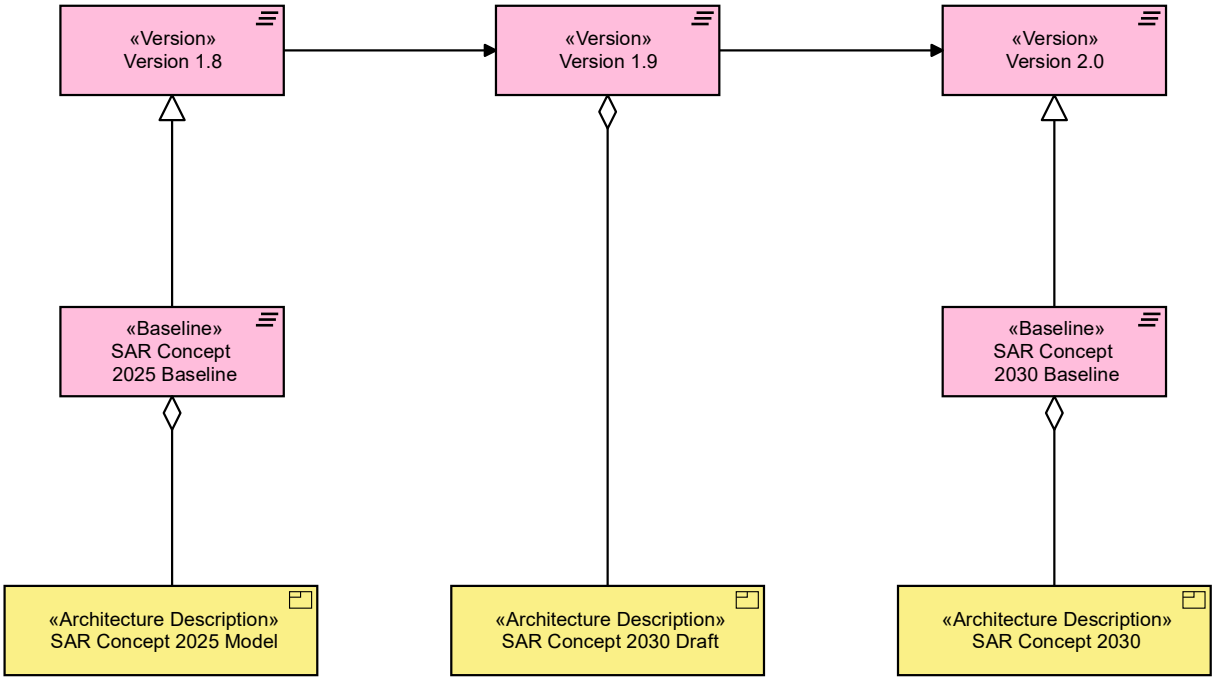


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Baseline	# Baseline	Plateau
Architecture Version	# Version	Plateau
Architecture Work Product	# Architecture Work Product	Product

48.3 A6 Implementation Guidance

Architecture Work Products are represented as *products*. An **Architecture Version** is represented as a *plateau* with the specialism # Version. The # Version *aggregates* the **Architecture Work Product** and *triggers* other # Versions.
Baselines are represented as *plateaus* that can *specialize* the # Version and *aggregate* the **Architecture Work Product.**

48.4 A6 ArchiMate Example



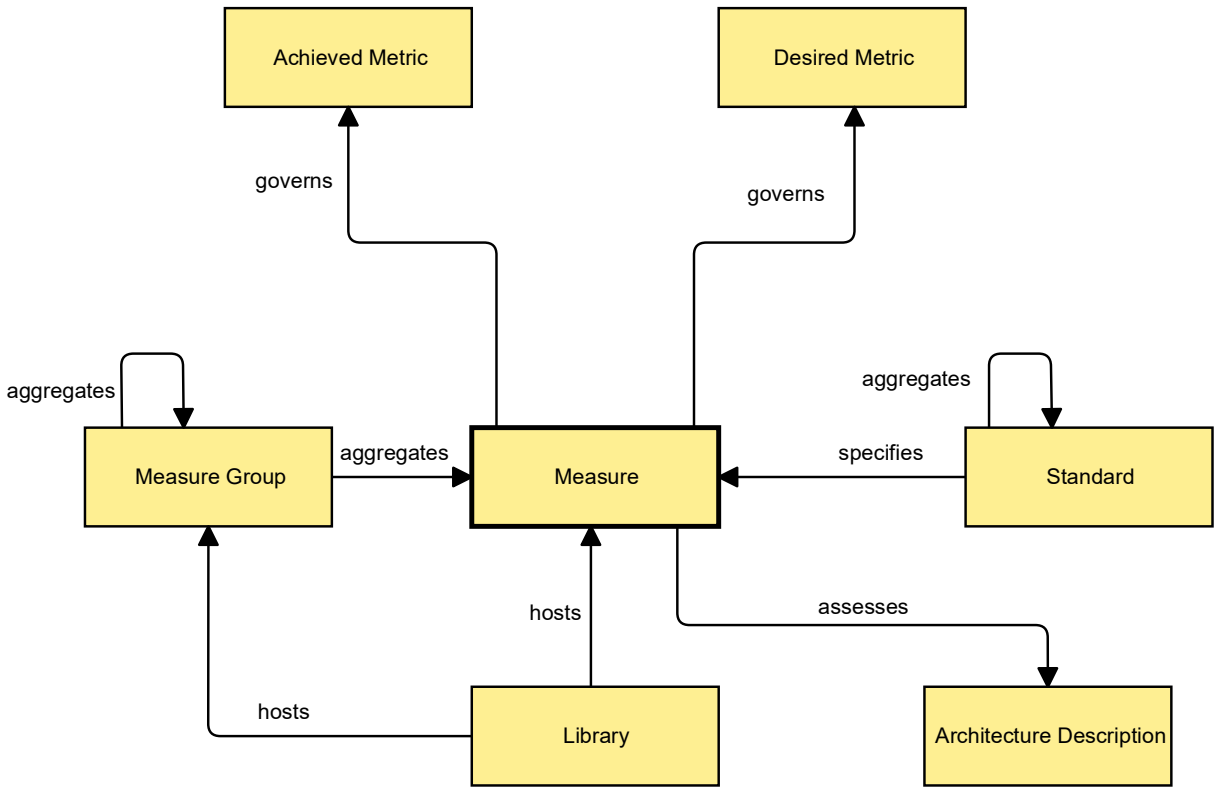
49 A7 - ARCHITECTURE METADATA

Purpose	Usage & Concerns Addressed
The A7 is concerned with the definition of Measures and associated criteria supporting architecture assessment.	• View discovery. • Architecture discovery. • Quality assurance. • Architecture element attributes.

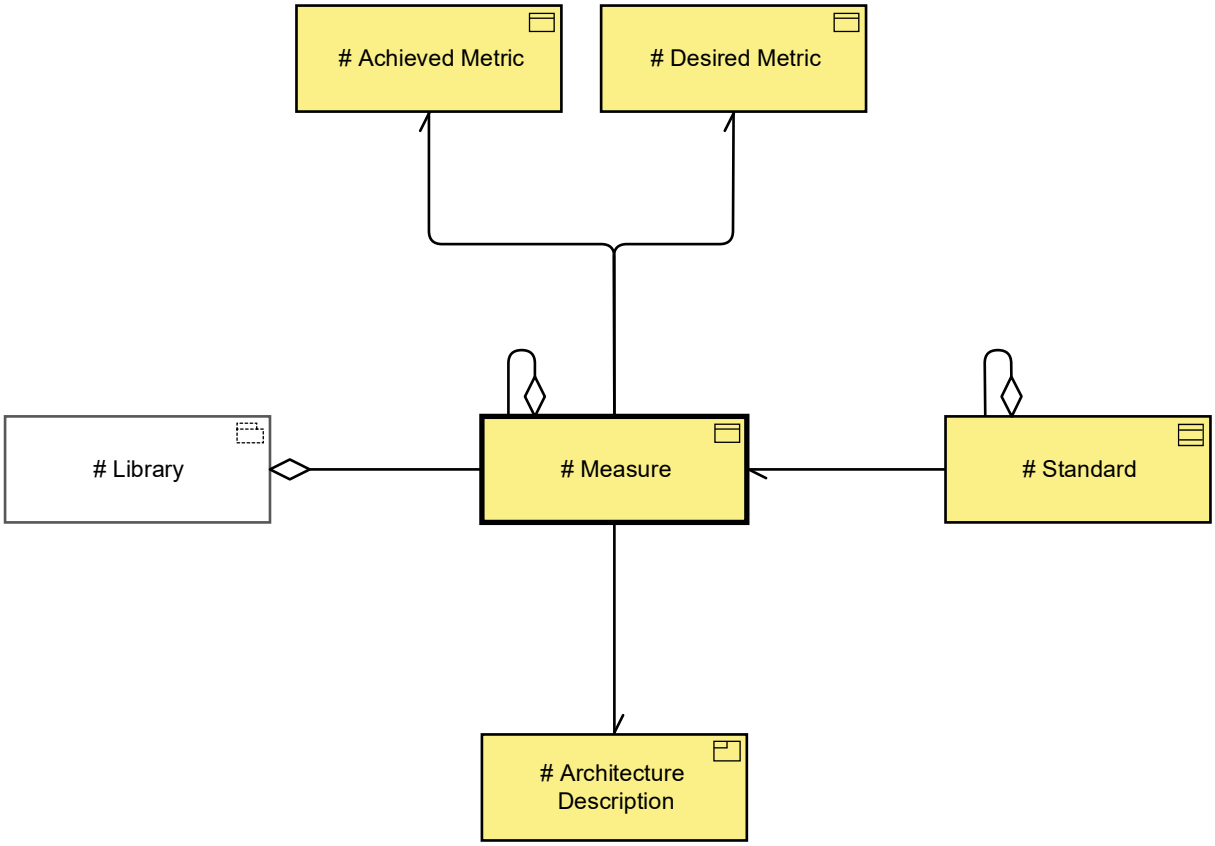
Scope
• Shall contain Measures relevant for the architecture assessment. • May show Measures organized into Measure Groups, and their groupings. • May show Libraries hosting Measure Groups and Measures. • May show Measures to Standards and the Standards' groupings. • May show Desired Metrics and Achieved Metrics that the Measures govern.

Representation
• Tabular. • Diagram.

49.1 A7 NAF IM Viewpoint



49.2 A7 ArchiMate Viewpoint

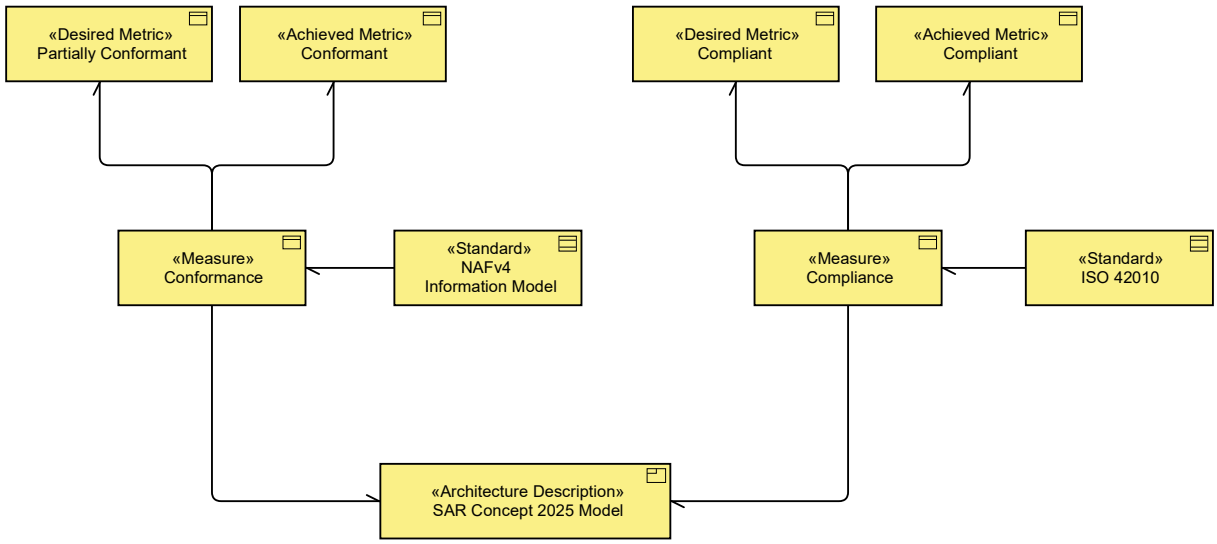


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Achieved Metric	# Achieved Metric	Business object
Architecture Description	# Architecture Description	Product
Desired Metric	# Desired Metric	Business object
Library	# Library	Grouping
Measure	# Measure	Business object
Measure Group	# Measure	Business object
Standard	# Standard	Contract

49.3 A7 Implementation Guidance

Measures are represented as *business objects* with the specialism # Measure.
Measure Groups are represented as # Measures that can *aggregate* other # Measures.
Achieved Metrics and **Desired Metrics** are represented as *business objects* that can be *associated with* the # Measure.
Libraries are represented as *groupings* that can *aggregate* the # Measure.
Standards are represented as *contracts* that can be *associated with* the # Measure and can *aggregate* themselves.
The **Architecture Description** is represented as a *product* that can be *associated with* the # Measure.

49.4 A7 ArchiMate Example



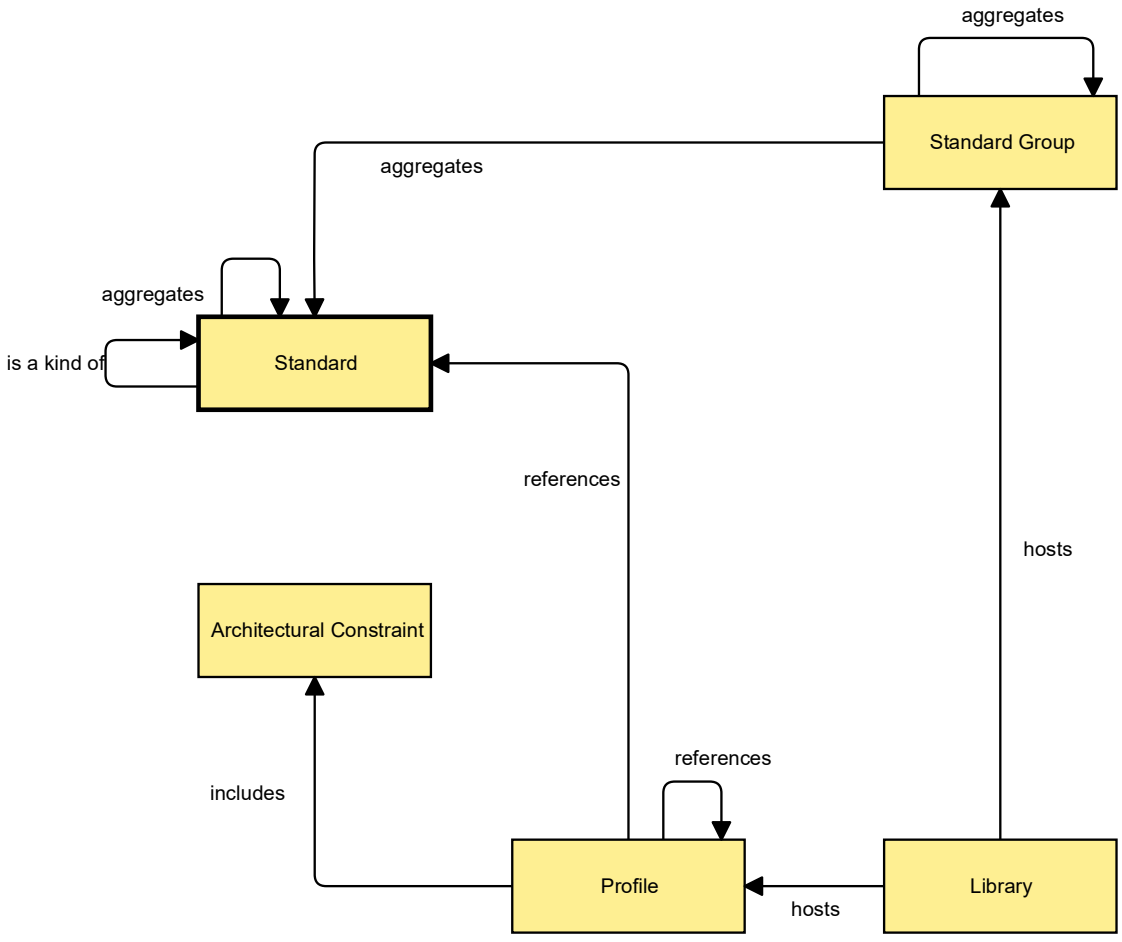
50 A8 - ARCHITECTURE STANDARDS

Purpose	Usage & Concerns Addressed
The A8 Standard Viewpoint specifies the Profiles, Standards and Constraints (rules, policy and guidance) that are applicable to aspects of the architecture. These Standards may be traced to elements elsewhere in the architecture to indicate that those elements conform to the applicable NATO and/or international Standards.	• Project Strategy. • Project Governance. • Application of standards (informing project strategy). • Standards compliance. • Forecasting future changes in standards (informing project strategy). • Specifying standards that will have an impact on the architecture and the capability it is to deliver.

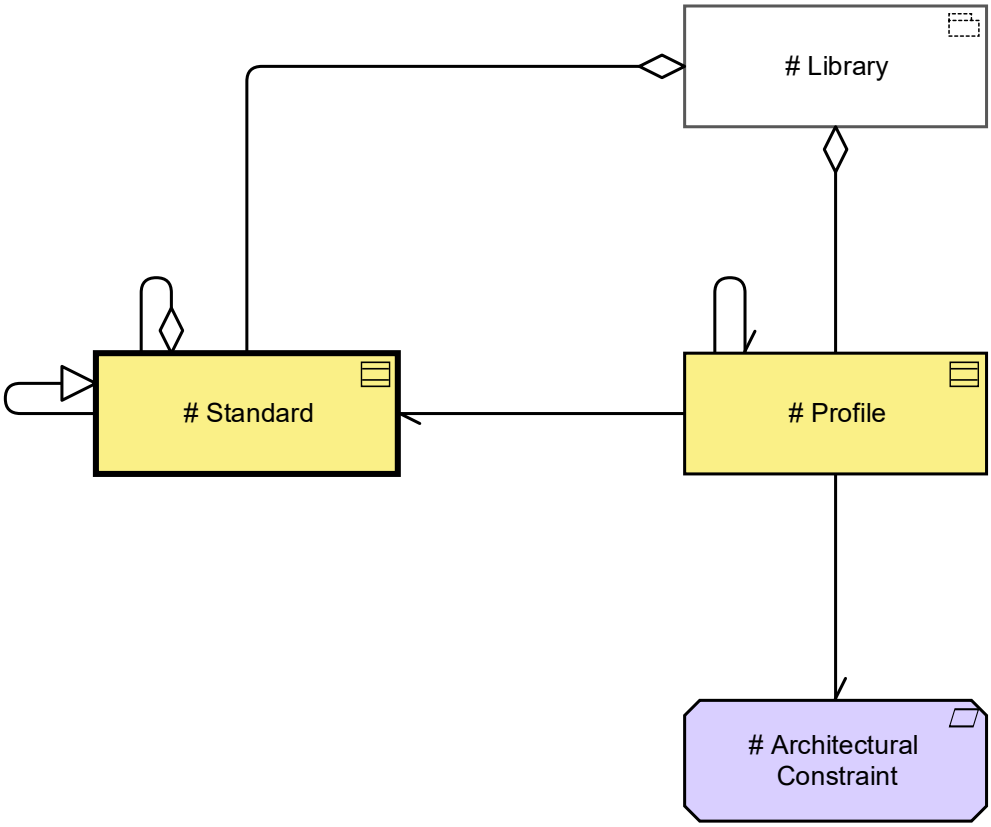
Scope
• Shall contain the Standards used throughout the architecture. • May show Standards in Standard Groups, and their groupings. • May show Profiles which reference Standards and other Profiles. • May show Architectural Constraints that the Profiles include. • May show Libraries hosting Profiles and Standard Groups.

Representation
• Tabular. • Diagram.

50.1 A8 NAF IM Viewpoint



50.2 A8 ArchiMate Viewpoint

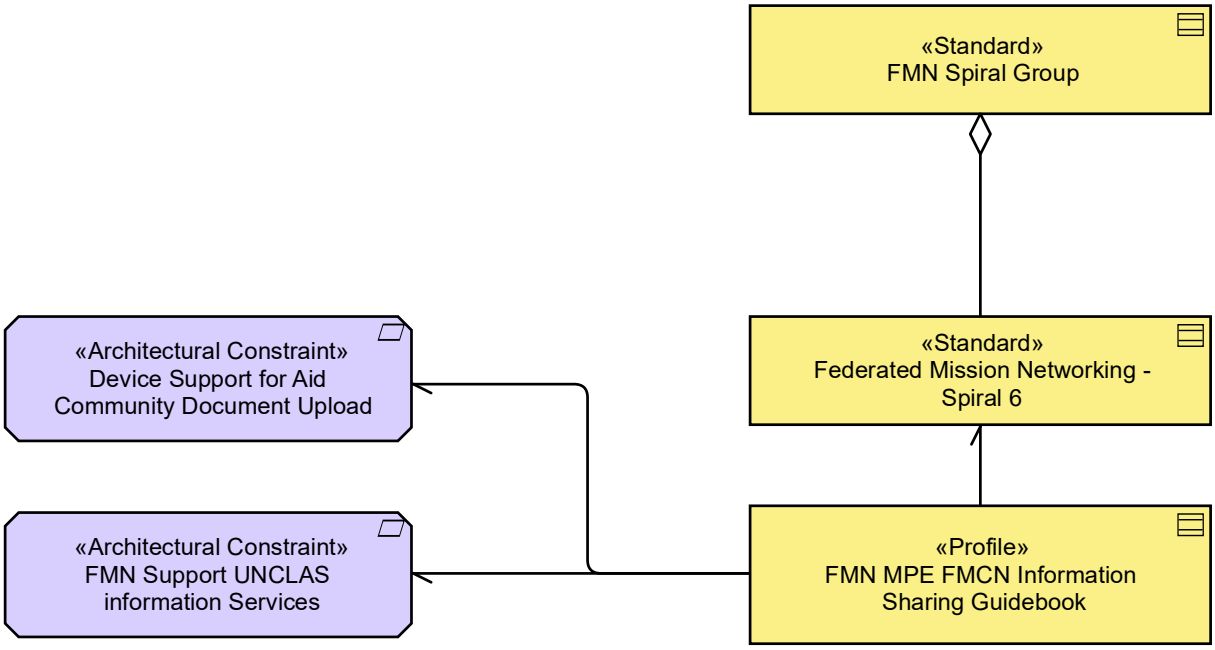


NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architectural Constraint	# Architectural Constraint	Requirement
Library	# Library	Grouping
Profile	# Profile	Contract
Standard	# Standard	Contract
Standard Group	# Standard	Contract

50.3 A8 Implementation Guidance

Standards are represented as *contracts*. They can *aggregate* and *specialize* other **Standards**.
Profiles are represented as *contracts* that are *associated with* a **Standard** and *associated with* other **Profiles**.
Architectural Constraints are represented as *requirements* that are *associated with* a **Profile.**
Libraries are represented as *groupings* that can *aggregate* **Standards** and **Profiles**.

50.4 A8 ArchiMate Example



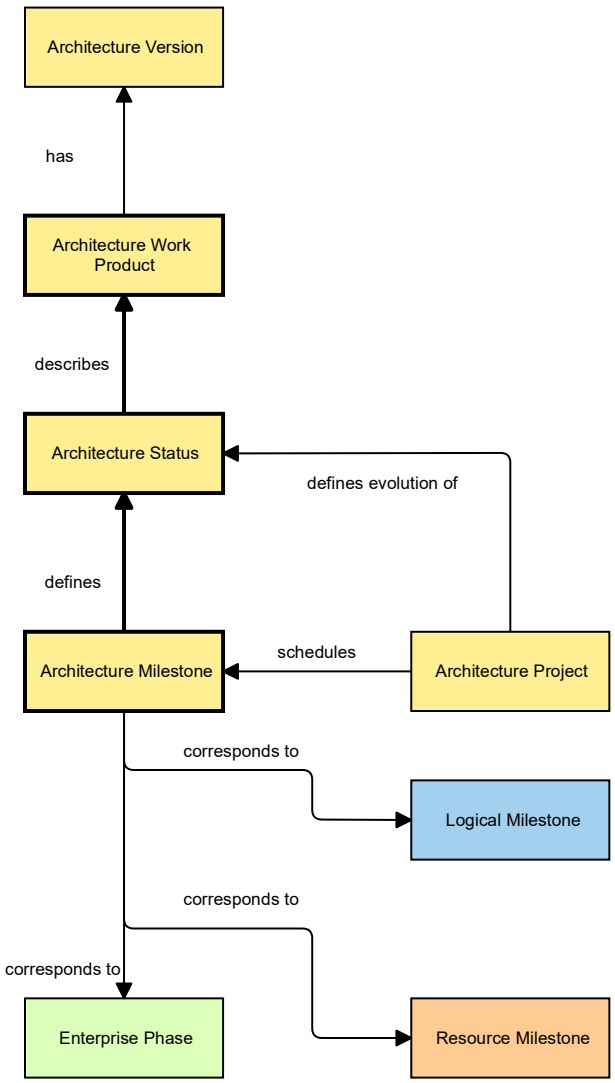
51 AR - ARCHITECTURE ROADMAP

Purpose	Usage & Concerns Addressed
The Ar Architecture Roadmap Viewpoint is concerned with the evolution timeline for an Architecture to meet the goals of the enterprise.	• Architecture Project Management. • Developing architectures.

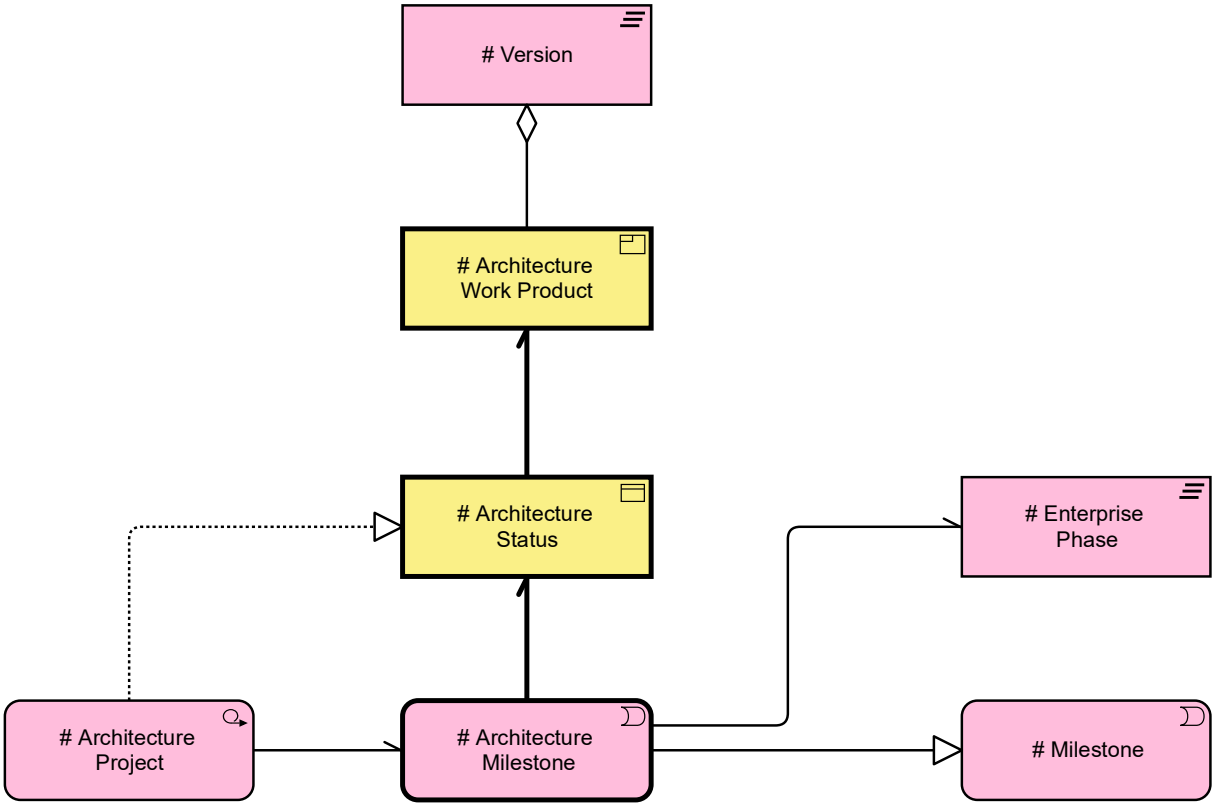
Scope
• Shall contain Architecture Statuses of Architecture Work Products. • Shall contain Architecture Milestones that define the Architecture Status. • May show Architecture Projects that schedule a Milestone and define the evolution of an Architecture Status. • May show Architecture Versions of the Architecture Work Product. • May trace Architecture Milestones to other row-specific Milestones they correspond to.

Representation
• Timeline view. • Augmented chart in style of a Gantt Chart.

51.1 Ar NAF IM Viewpoint



51.2 Ar ArchiMate Viewpoint



NAF IM Element	NAF ArchiMate Specialism	ArchiMate Element
Architecture Milestone	# Architecture Milestone	Implementation event
Architecture Project	# Architecture Project	Work package
Architecture Status	# Architecture Status	Business object
Architecture Version	# Version	Plateau
Architecture Work Product	# Architecture Work Product	Product
Enterprise Phase	# Enterprise Phase	Plateau
Logical Milestone	# Milestone	Implementation event
Resource Milestone	# Milestone	Implementation event

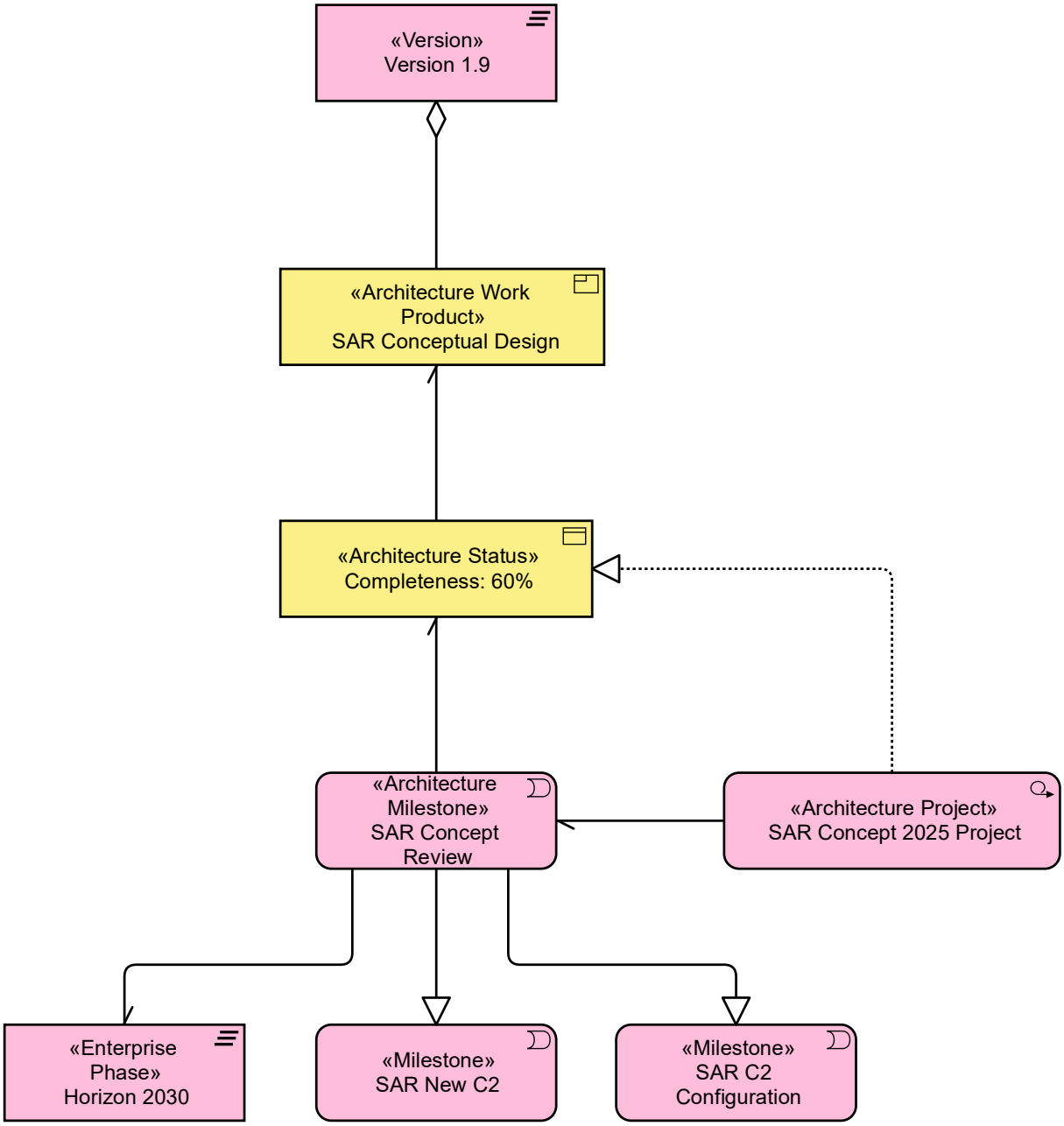
51.3 Ar Implementation Guidance

Architecture Work Products are represented as *products*. **Architecture Statuses** are represented as *business objects* that are *associated with* the **Architecture Work Product. Architecture Milestones** are represented as *milestones* and are *associated with* the **Architecture Status.**

Versions are represented as *plateaus* that can *aggregate* the **Architecture Work Products.**

Architecture Products are represented as *work packages* and they can *realize* the # Architecture Status and be *associates with* the # Architecture Milestone. The # Architecture Milestone can be associated with the # Enterprise Phase (represented as a *plateau* and defined in the Cr) and specialize # Milestones defined in the Cr, Lr and Pr viewpoints.

51.4 Ar ArchiMate Example



52 GLOSSARY

NAFv4 ArchiMate Name	Description
# Achieved Metric	A value for a [Metric] observed or measured for a specific Entity of Interest.
# Actor	An entity or party that actively performs or contributes to an activity, action or task.
# Application	An identifiable, technology-specific or product-based deployed and operational IT system within the organisation. Typically a line-of-business application used to deliver defined functionality in order to support Operational Activities, Business Processes or other Applications.
# Application Function	Internal application behaviour that may take the form of a specific task, action, or activity, or a broader collection of related activities needed to achieve a desired outcome.
# Application Interface	Exposes an Application Service for consumption.
# Application Operation	Enables programmatic communication with an Application Service via an Application Service Interface.
# Application Process	A specific task, action, or activity performed by an Application.
# Application Resource State	A [State] specified for an Application Resource
# Application Service	Exposes application-level behaviour or value to its consumers. It delivers value, functionality or a product in a standardised and contracted way, while hiding the underlying application logic, data structures and constraints.
# Application State	A functional condition of a Logical Application at a point in time.
# Architectural Constraint	An architectural limitation, restriction or boundary condition that a solution to a problem must satisfy.
# Architecture Description	A work product used to express an [Architecture
# Architecture Description Element	An identified or named part of an [Architecture Description] .
# Architecture Methodology	A defined set of methods and processes used to create, analyse, and manage architectures.
# Architecture Milestone	A [Milestone] in a project which predicts or delivers or decommissions one or more [Architecture]s.
# Architecture Project	An activity for the delivery of an [Architecture].
# Architecture Status	The current state or shape that an [Architecture] is in.
# Architecture Work Product	A tangible outcome of architectural work.
# Artifact	A piece of data that is used or produced in a software development process, or by deployment and operation of an IT system.
# Assessment Criteria	A specification of what is expected to be fulfilled by the future realization of a [Capability] (example: system or resource).
# Baseline	The approved version of an [Architecture Work Product] that can be changed only through formal change control procedures and is used as a basis for comparison.

# Business Function	Internal business behaviour that may take the form of a specific task, action, or activity, or a broader collection of related activities/business processes needed to achieve a desired outcome.
# Business Interface	Exposes a Business Service for consumption.
# Business Operation	Enables programmatic communication with a Business Service via a Business Service Interface.
# Business Process	A specific task, action, or activity performed by an Organization, Person or Post
# Business Resource State	A [State] specified for an Business Resource
# Business Service	Exposes business-level behaviour or value to its consumers. It delivers value, functionality or a product in a standardised and contracted way, while hiding the underlying business processes, roles and constraints.
# Business State	A functional condition of a node, Actor or resource at a point in time.
# Capability	The expected ability of one or more resources to deliver a specified type of effect or outcome or a specified course of action.
# Capability Configuration	A solution building block that combines physical resources (people, technology) and implements processes to realize a [Capability].
# Capability Group	Two or more [Capability]s forming a complete unit in a composition or collection. Note: A Capability Group can be structured as a taxonomy.
# Communication Network	A communication network represents a set of structures that connects devices or system software for transmission, routing, and reception of data.
# Concern	A matter of relevance or importance to a stakeholder.
# Constraint	A limitation, restriction or boundary condition that a solution to a problem must satisfy.
# Contextual Data	Contextual Data:[Data] describing the environment of surrounding things, conditions, or influences upon an entity of interest.
# Correspondence Method	Method used to govern the [AD Element Correspondence]
# Data Object	Representation of information in a formalized manner suitable for communication, interpretation, or processing
# Desired Metric	A value for a [Metric] required for a specific Entity of Interest.
# Device	A device represents a physical IT resource upon which system software and artifacts may be stored or deployed for execution.
# Distribution Network	A physical network used to transport materials or energy.
# Driver	Represents an external or internal condition that motivates an organization to define its goals and implement the changes necessary to achieve them over a given period of time.
# Effectiveness Criteria	An operational criterion of effectiveness or success which is specified for a [Capability] or an [Effect].
# Element Correspondence	:An identified or named relation between two or more architecture description elements.
# Energy	concrete and deliverable instance of a resource that provides power, strength or force for any kind of purpose.
# Enterprise Phase	A current or future state of the enterprise.
# Equipment	All non-expendable items needed to outfit/equip an individual or organization. Can represent real-world, named physical machines or tools.
# Facility	A facility represents a physical structure or environment.
# Glossary Term	The name and definition of a defined concept that appears within an [Architecture].

# Goal	The aim or objective that a person, group, or organization works towards or strives to achieve.
# Information Object	An item that is derived from one or more sources of Knowledge that is exchangeable amongst users, about things, facts, concepts, and so on, in a universe of discourse to meet a specific purpose.
# Interaction	An [Interaction] between two or more Services or Active Resources at the Service or Logical Layer, conveying Passive or Data Resources
# Library	A collection of artefacts providing information.
# Logical Application	An identifiable, technology-agnostic application concept that represents a coherent set of intended functionality or system behaviour. Typically used to express an abstract or conceptual application or system, independent of specific products or implementations, in order to support Business Processes or other Applications. e.g. ERP System.
# Logical Energy	An abstract description of a type of energy resource used or transformed within the system. Logical Energy represents a general category of energy flow or supply, such as electrical power, fuel, thermal energy, or hydraulic pressure, without identifying any specific source, medium, storage unit, or physical implementation.
# Logical Equipment	The conceptual category or kind of equipment or infrastructure, representing a high-level type without referencing a specific real-world model or variant. E.g. Tent, Helicopter, Jet Plane or Snowmobile
# Logical Event	An external trigger to start a [sequence of] Interaction[s] at the logical level. Example: Casualty at the point of injury.
# Logical Lifeline	A linear representation of the course of a logical entity's life.
# Logical Material	An abstract description of a type of material resource used, consumed, created, or moved within the system. Logical Material represents a general category of physical substance or item, such as water, ammunition, medical supplies, or raw materials, without identifying any specific batch, container, form factor, or physical implementation.
# Logical Specification	An information part that identifies, in a complete, precise and verifiable manner, the requirements, design, behaviour, or other expected characteristics of an entity
# Logical Technology	An abstract description of a kind of machine, equipment, or IT-related element developed from scientific or engineering knowledge. Logical Technology expresses a general category of software, hardware, firmware, or technical infrastructure without identifying any specific product or implementation.
# Material	A concrete and tangible piece of physical matter.
# Measure	A unit used for stating a numerical or categorical attribute of an entity of interest.
# Metadata	[Data] that describe other [Data].
# Milestone	A significant stage or event in the progress or development of something.
# Mode	A functional condition of an activity or function at a point in time.
# Needline	A relationship specifying the need to exchange information between [Node]s.
# Node	A placeholder for an aggregate of logical resources and behaviour (including: organizations, equipment, technology, material, information, activities etc) that together perform specific activities and/or functions.
# Operational Activity	A logical process, specified independently of how it is carried out.
# Operational Flow	An exchange of information, material, people, energy or another [Resource] between two [Operational Activity]s.
# Organization	An organized group of people with a particular purpose such as a business, government department or team.
# Outcome	The outcome which a person, group, or organization works towards or strives to achieve.
# Person	A human as an individual, being used to define the

	characteristics needed.
# Post	The type of job title or position that a person can fill. Example: Chief Executive Officer, Lawyer, Machine Operator, Cook.
# Profile	A set of one or more standards, with one or more constraints and implementation guidance to support development and operation.
# Protocol	A kind of [Standard] specifying how two entities communicate or interact with each other.
# Rationale	A reason behind a rule or [Constraint].
# Readiness Level	A measured willingness or state of being prepared for something, described as a defined and stable condition that indicates the current state of readiness within the architecture.
# Requirement	A statement which specifies an expectation that a solution shall fulfil.
# Resource Event	An [Event] specified at the resource level.
# Resource Interaction	A [Resource Interaction] between two or more Active Resources at the physical layer, conveying Passive and/or a exchange of data, material, people, energy or another [Resource] between two [Resource]s.
# Resource Lifeline	A [Lifeline] specified at the resource level.
# Resource Mode	A [Mode] specified at the resource level.
# Resource State Transition	A change from one [Resource State] to another.
# Role	Represents the responsibility or characteristics that an Actor plays in a particular activity, process or interaction.
# Service Function Parameter	A constant or variable passed into or out of a [Service Interface] as part of the execution of a [Service Function].
# Service Group	Two or more [Service]s forming a complete unit in a collection.
# Service Operation Parameter	A constant or variable passed into or out of a [Service Interface] as part of the execution of a [Service Operation].
# Service Policy	A set of rules and constraints that specify the non-functional aspects of a [Service]. Examples: Availability, Reliability, Safety, Security, Useability.
# Stakeholder	Individual or organization having an interest in an entity or a course of action. Adapted from ISO 15288
# Standard	A document developed by consensus of different parties and approved by a recognized body with the objective to maximize compatibility, interoperability, safety, repeatability, or quality.
# State Transition	A change from one [Service State] to another.
# System Software	System software represents software that provides or contributes to an environment for storing, executing, and using software or data deployed within it.
# Technology Function	Internal technology behaviour that may take the form of a specific task, action, or activity, or a broader collection of related activities needed to achieve a desired outcome.
# Technology Interface	Exposes a Technology Service for consumption.
# Technology Operation	Enables programmatic communication with a Technology Service via a Technology Service Interface.
# Technology Process	A specific task, action, or activity performed by Physical or Technical Resource.
# Technology Resource State	A [State] specified for a Technology Resource.

# Technology Service	Exposes technology-level behaviour or value to its consumers. It delivers value, functionality or a product in a standardised and contracted way, while hiding the underlying technology, infrastructure and operational constraints.
# Technology State	A functional condition of Logical Technology at a point in time.
# Value Stream	Represents a sequence of activities that create an overall result for a customer, stakeholder, or end user.
# Version	An identifiable form of an [Architecture] differing in certain respects from an earlier form.
# View	An Information part comprising a portion of an architecture description.
# Viewpoint	A set of conventions for the creation, interpretation and use of an architecture view to frame one or more concerns.
# Work Package	A Work Package represents a project or programme activity that organizes, manages, and delivers changes required to realize a Capability Increment. It schedules and coordinates Milestones and may realize part or all of a Capability.