

Architecture Viewpoint Definition (AVPD) for the Enterprise (SoS) Architecture Description Frame- work

Abstract

This Architecture Viewpoint Definition (AVPD) describes the design of the Enterprise (SoS) Architecture Description Framework. The Architecture Viewpoint Definition (AVPD) has been created using the COMPASS Architectural Framework Framework (CAFF) from the COMPASS Project.

This document uses the concepts, principles and systems identified in the Enterprise as a System of Systems (SoS) System Description and provides the rationale for selecting the Enterprise as a System of Systems (SoS) as a candidate for producing an Architecture Description Framework. The Enterprise as a System of Systems (SoS) is:

- A System of Systems
- A holistic view of the entire Enterprise: Organizations, Capability, Technology, Strategies and Plans, etc.

This Architecture Viewpoint Definition (AVPD) also identifies the need for a multi-disciplined team to provide coverage for the number of domains covered by the scope of the Enterprise as a System of Systems (SoS). These domains are:

- Top Management.
- Organizational design
- Team Management.
- Business Management.
- Product Management
- Systems thinking and systems engineering (ISO 42010, ISO 15288, ISO 15704)
- Quality Management. (ISO 9000, ISO 9001 and others with the same pattern / design)
- Programme and Project Management.
- Finance Management
- Human Resource Management
- Capability / Process Management.
- Information Technology Management.
- Business Change

This Architecture Viewpoint Definition (AVPD) also highlights the importance of an architecture led approach to transformation and change and supports the INCOSE UK Architect's Manifesto.

NOTE: This is still a draft document and needs appropriate reviews and consistency checks.

[PDF: System Description: Enterprise as a System of Systems \(SoS\), Version 0.17, 24-June-2023](#)

Link to [prototype](#) Enterprise (SoS) Architecture Description Framework

Link to [EntSoSADF AVPD PDF](#)

Link to [D21.5b Compass Architectural Framework Framework \(Local\)](#): CAFF Viewpoint Definitions

Author and Version

Bruce McNaughton, Version 0.9, 11-January-2023

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Revision History

- V0.9 11-January-2023 Revision to align with ISO 42010:2022 requirements.
- V0.8 17-May-2021 Update based upon System Description and AFD
- V0.7 01-Nov-2018 Initial draft of AFD for simplified enterprise models.
- V0.6 27-Mar-2018 Revised with Model Kind information and bigger size diagrams.
- V0.5 15-Nov-2017 Now with Strategic Plan and Strategy Viewpoint.
- V0.4 06-Nov-2017 Draft of views for EntSoSAF available.
- V0.3 05-Nov-2017 CAFF views as specified .. initial shaping.
- V0.2 30-Oct-2017: Draft prototype for review.
- V0.1 16-Oct-2017 revised draft with improved stakeholder information.
- V0.0 30-Sep-2017 Initial Draft

Introduction: Enterprise (SoS) Architecture Viewpoint Definition

This Architecture Viewpoint Definition (AVPD) describes the design of the Enterprise (SoS) Architecture Description Framework. The Architecture Viewpoint Definition (AVPD) has been created using the COMPASS Architectural Framework Framework (CAFF) from the COMPASS Project.

The overall objective is to create an Enterprise (SoS) Architecture Description Framework that is:

- Reusable
- Built on a consistent set of concepts and principles
- Ensures that all aspects of the enterprise are considered
- Provides an inclusive structure for the architecture of the enterprise.
- Meets all requirements of ISO 42010:2022

The term **Enterprise** is defined as:

ISO 15704:2019: Human undertaking or venture that has explicit and clearly defined mission, goals, and objectives to offer products or services, or to achieve a desired project outcome or business outcome.

ISO 15704:2000: Enterprise: one or more organizations sharing a definite mission, goals, and objectives to offer an output such as a product or service

"a project or undertaking, especially a bold or complex one." (dictionary)

or

"a business or company." (dictionary)

The **enterprise** is realized through one or more interacting organizations. Each organization is itself a constituent system and has a separate independence and contribution to the overall system of systems.

[Michael Porter, in Competitive Advantage](#), refers to this set of interacting organizations as a '[value system](#)'

See also: **SEBoK:** [Enterprise Systems Engineering](#)

See also: **ISO 15288:2015** Appendix G, Application of system life cycle processes to a system of systems.

The Enterprise (SoS) System Description and the Enterprise (SoS) Architecture Description Framework have been designed with ISO 15704:2019 requirements.

The system-of-interest is the Enterprise as a System of Systems (SoS)

The remainder of this System Description (SDSF) focuses on the enterprise as defined above.

Why consider an Architecture Description Framework for the Enterprise as a System of Systems (SoS)?

The Architecture Description Framework provides a structured approach to the creation of Enterprise (SoS) Architecture Descriptions. This Enterprise (SoS) Architecture Description Framework can be used to create Architecture Descriptions that:

- describe various states of an enterprise (e.g. current or target state).
- establish reference architecture descriptions for various types of enterprises.
- provide the top level design of an enterprise that forms the basis for further architecture descriptions (e.g. technical architecture descriptions):.
- allow a multi-disciplined team to collaborate to create an Enterprise as a System of Systems (SoS) Architecture Description.
- provide a consistent mechanism for people who need to know how the enterprise works

The Enterprise as a System of Systems (SoS) Architecture Description provides the unifying context for the development of other specialist architecture descriptions within each of the organizations. These are:

- one or more technology Architecture Description Frameworks for specific technology systems depending upon the type of technology used.
- specific Reference Architecture Descriptions for a class of Enterprise (SoS)

This System Description (SDSF) uses the Structuring Formalism for this set of Architecture Description Frameworks. [See Structuring Formalism](#)

Structuring Formalism: System Description (SDSF)

A Structuring Formalism provides a way to organize and gain insights from AD Elements for a system-of-interest Architecture Description Framework (System-of-Interest ADF). This Structuring Formalism uses a two step approach aligned to the early life cycle processes found in ISO 15288:2015. These steps are to create:

- A System Description that captures the basic structure, behaviour and properties of a system-of-interest to establish a common language and understanding within the team.
- A System-of-Interest ADF that provides stakeholders with specific viewpoints and views of the system-of-interest based upon a whole system understanding of the system-of-interest.

The System Description is created using a SysDesc ADF that allows the System Description to be considered as an AD Element in the scope of the SysDesc ADF. This allows correspondences to be identified that promote re-use of AD Elements across a wider set of system-of-interests.

The concept of a System Description is used as the basis for this Structuring Formalism: System Description (SDSF). This document contains a description of the System Description (SDSF) that is used to gain insights about the AD Elements (including other System Descriptions) to structure the System-of-Interest ADF. This Structuring Formalism contains the following:

- A conceptual model of the Structuring Formalism: System Description (SDSF) used to organize and gain insight from the AD Elements for the System-of-Interest ADF.
- The various steps for creating and using System Descriptions when gaining insight and enhancing reuse of the AD Elements .
- The Structural Categories that allow sharing and reuse of AD Elements using correspondences.
- Various links to examples and results from using the two step approach.
- The types of benefits that can be achieved using the System Description as an AD Element.

[PDF: Structuring Formalism: System Description \(SDSF\), Version 0.4, 07-February-2023](#)

used to create System Descriptions and related System-of-Interest ADF:

Link to [the System Description Architecture Description Framework](#)

and the example Enterprise (SoS) Architecture Description Framework

Link to [the Enterprise \(SoS\) Architecture Description Framework](#)

Context: Fit within the early ISO 15288:2015 life cycle processes

This System Description (SDSF) is used within the context of the life cycle of a system-of-interest identified in ISO 15288:2015. The early technical processes of the life cycle provide an opportunity to engage stakeholders about their concerns and needs for the system-of-interest. Establishing a common language and vision require conversations and co-creation of information. This can be seen as a two step process:

- Shaping the system-of-interest using a System Description (6.4.1, 6.4.2, 6.4.3) [Blue Rectangle](#)
- Creating the system-of-interest Architecture Description Framework based upon the system-of-interest System Description (6.4.4) [Green Rectangle](#)

The following picture shows the two areas where these conversations can occur:

activity: CM_B015288_ConceptEarlyProcess | CM_B015288_ConceptEarlyProcess | Outcomes of Early Life Cycle Processes in ISO 15288:2023 (extracted by Bruce McNaughton, v0.0)

	6.4.1 Business or Mission Analysis	6.4.2 Stakeholder Needs and Requirements Definition	6.4.3 System Requirements Definition	6.4.4 Architecture Definition	6.4.5 Design Definition	6.4.6 System Analysis
Stakeholders	<ul style="list-style-type: none"> the problem or opportunity space is defined Preliminary Operational Concepts Defined and other concepts in the life cycle stages are identified traceability of strategic problems and opportunities and the preferred alternative solution classes is established 	<ul style="list-style-type: none"> Stakeholders of the system are identified Stakeholder needs are defined stakeholder agreement that their needs and expectations are reflected adequately in the requirements is achieved traceability of stakeholder requirements to stakeholders and their needs is established 	<ul style="list-style-type: none"> the system requirements are analysed traceability of system requirements to stakeholder requirements is developed 	<ul style="list-style-type: none"> problem space is refined with respect to key stakeholder concerns, context, and perspectives alignment of the architecture with applicable policies, directives, objectives, and constraints is achieved 		<ul style="list-style-type: none"> system analyses needed are identified
Requirements	<ul style="list-style-type: none"> the solution Space is Characterised Alternative Solution Class(es) are analysed the preferred alternative solution class(es) are selected enabling systems or services needed for business or mission analysis are available Consistent concepts and relationships (encompass all of the outcomes of 6.4.1, 6.4.2, 6.4.3) 	<ul style="list-style-type: none"> Constraints on a System are identified prioritised stakeholder needs are transformed into Stakeholder Requirements required characteristics, context of use of capabilities, operational concepts, and other life cycle concepts are defined Critical performance measures and quality characteristics are defined enabling systems or services needed for stakeholder needs and requirements are available 	<ul style="list-style-type: none"> system requirements (functional, performance, process, quality, and interface) and design constraints are defined critical performance measures are defined enabling systems or services needed for system requirements definition are available the system description, including system external interfaces, functions, and boundaries, for a system solution is defined 	<ul style="list-style-type: none"> traceability of system architecture elements to key architecturally-relevant stakeholder and system requirements is established; concepts, properties, characteristics, behaviours, functions, or constraints that are significant to architecture decisions of the system are allocated to architectural entities identified stakeholder concerns are addressed by the system architecture architecture views and models of the system are developed enabling systems or services needed for system architecture definition are available 		
System-of-Interest					<ul style="list-style-type: none"> Provides the understanding of the physical characteristics / models system requirements are allocated to the system design or its elements traceability of the design is established 	<ul style="list-style-type: none"> system analysis assumptions and results are validated system analysis results are provided for decisions or technical assessment needs enabling systems or services needed for system analysis are available traceability of the system analysis results is established includes mathematical analysis, modelling, simulation, experimentation, and other techniques
System Elements				<ul style="list-style-type: none"> system elements including their interfaces with each other are defined 	<ul style="list-style-type: none"> design alternatives for system elements are assessed interfaces between system design elements comprising the system are defined design characteristics of each system element are defined enabling systems or services needed for design definition are available design enablers necessary for design definition efforts are defined system design is evaluated 	<ul style="list-style-type: none"> Establishes the performance characteristics (based upon logical and physical models for selected options)

Shaping the system-of-interest (Blue Rectangle)

The first three processes (6.4.1, 6.4.2, and 6.4.3) build an understanding of the system-of-interest through identifying stakeholders and their needs and concerns, identifying stakeholder and system requirements and understanding the language (Ontology) and structure, behavior and system properties (capabilities) of the system-of-interest. The system-of-interest row (third row from the top) co-creates an understanding of the whole system through the creation of a System Description. The system engineering role or the system architect role is generally working to build this understanding across the team. One of the outcomes from the process 6.4.3 System Requirements Definition is a System Description. This step is similar to the process "Architecture Conceptualization" in ISO 42020:2019. The System Description is created using the SysDesc ADF as an Architecture Description.

Also during this period, insights can be gained through the identification and reuse of other system descriptions. This reuse is captured through correspondences across the various AD Elements, including other System Descriptions.

Creating the system-of-interest Architecture Description Framework (Green Rectangle)

The System-of-Interest ADF provides viewpoints and views that address the full set of stakeholders and their concerns based upon the system description created in 6.4.3. The System Description provides a strong foundation for the creation of the additional AD elements needed for the System-of-Interest ADF. This step is very similar to the "Architecture Elaboration" process in ISO 42020:2019.

The insights gained from the System Description through identification of correspondences provides a way of reusing AD Elements across other Architecture Description Frameworks, such as viewpoints, model kinds, ADLs, etc.

This System Description (SDSF) Document

The Structuring Formalism consists of three key parts:

- [The conceptual model of the System Description \(SDSF\)](#)
- [The approach to create a Sol ADF based on the System Description \(SDSF\)](#)
- [The System Classification Framework for identification and use of existing systems and system descriptions.](#)

Each of these parts are described in this System Description (SDSF).

System Classification Framework

System Classification Framework

A System Classification Framework provides a way to position a system-of-interest in a wider context of systems. This System Classification Framework is used to:

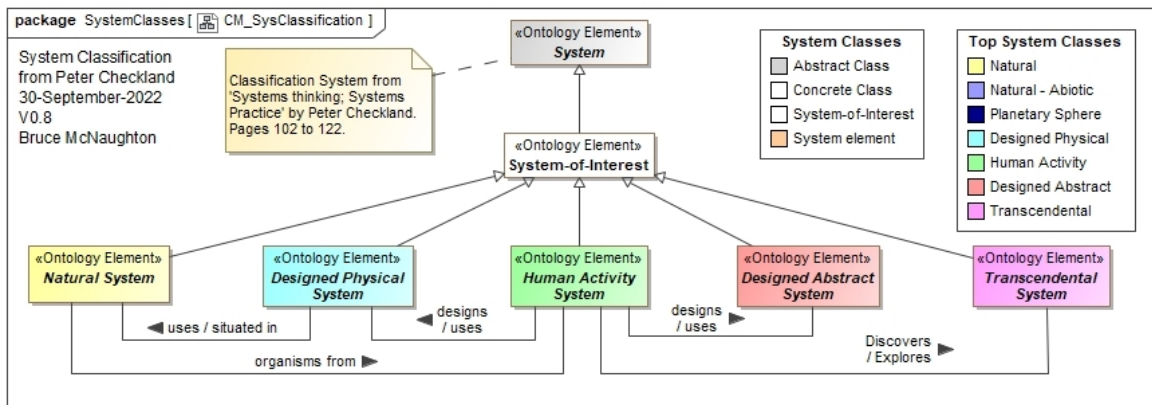
- Identify types of systems.
- Promote reuse across a set of systems and system types

- Ensure alignment of similar types of systems and reduce duplicate definitions.

The System Classification Framework provides the following benefits:

- A top level set of system types that can be used for any system-of-interest.
- A way to reuse aspects of systems using generalizations that allow inheritance of the key elements of a system.
- A way to integrate across systems based upon consistent references to defined systems using a single abstract system class..
- A way to reuse AD Elements across the full set of defined systems (e.g. viewpoints, views, view components, other system descriptions, etc).

The top level System Classification Framework is based upon Peter Checkland's system classification model. Peter Checkland includes a system classification approach in his book [Systems Thinking, System Practice](#). The following form the top level set of systems in this classification scheme:



The top level System Classification Framework is described in the [book](#) from page 102 to page 122. Figure 4, page 112 highlights the 5 system classes. These classes are used as a top level classification for system types. Link to [the Top System Classifications PDF](#)

Russell Ackoff's System Classification

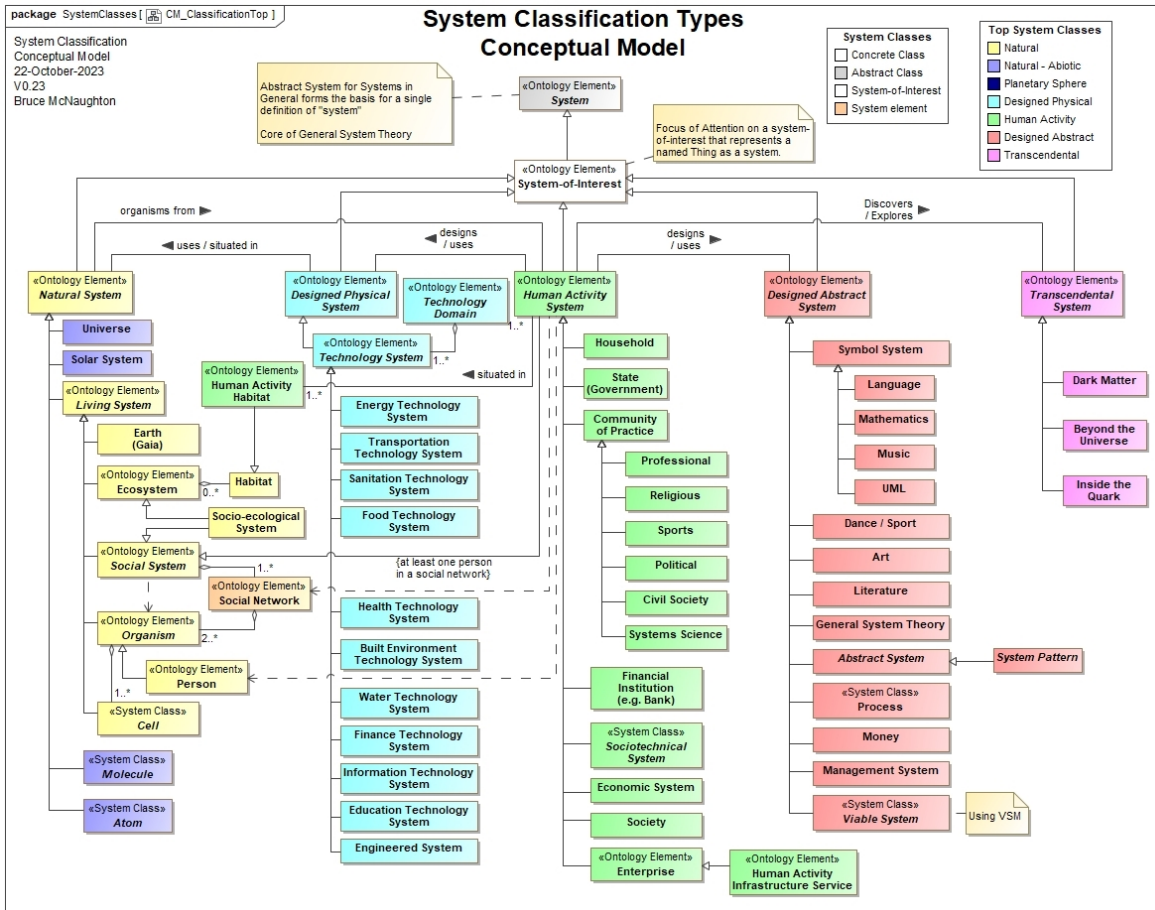
Russell Ackoff's System Classifications were also considered. The following types of systems comes from [Re-Creating the Corporation](#)

- Deterministic System
- Animated System
- Social System
- Ecological System.

These classifications were considered; however, they use are use "Purposeful System" as a differentiator between system types and was considered too narrow for this System Classification Framework.

Current Systems in the System Classification Framework

. The current systems that have been identified using the top level classification types are shown in the diagram below:

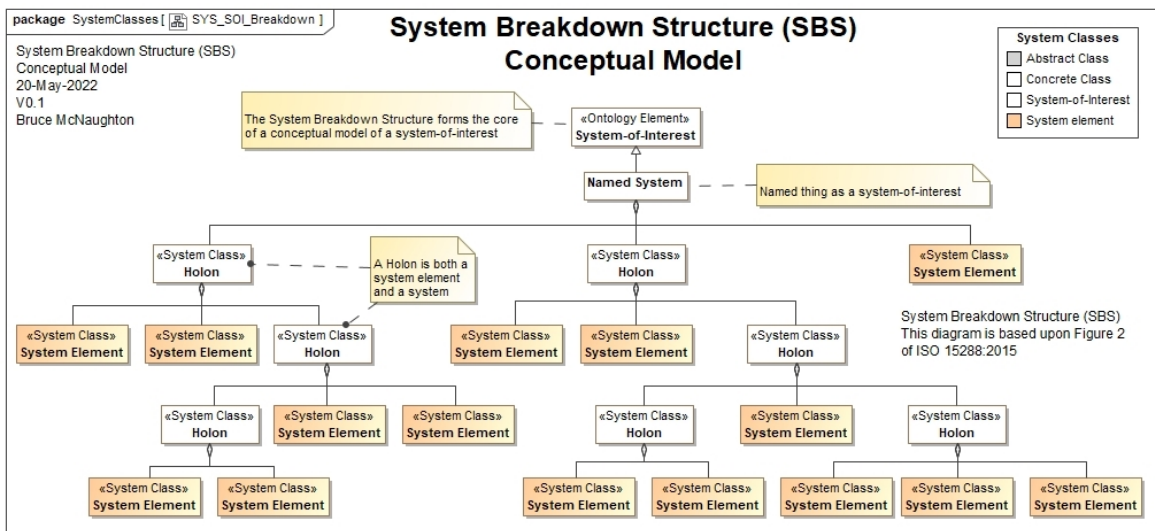


Note: that all of the types of systems are based upon a single definition and model of an abstract system. Each system inherits the single definition of system. This provides a consistent way to describe each type of system using a System Description based upon the SysDesc ADF.

System Classes

Given the consistent inheritance of a single definition of System (Abstract), any of the systems in the System Classification Framework can provide a generalization / inheritance path to retain the essence of the System Description (AD Element).

The identification of the above types of systems allows a consistent breakdown of systems. Here are some examples of further exploration of these systems: The system Breakdown Structure (equivalent to Figure 2 in ISO 15288:2015) is shown below:



Each holon can be considered a system-of-interest and may have an associated System Description and / or System-of-Interest ADF. The top named system should be the primary candidate for the Architecture Description.

tion Framework. All holons can have a System Description. These holons can also be a mix of top level system types.

The Enterprise (SoS) System Description is a good example of multiple systems in a system description that mirrors the SBS.

[PDF: System Description: Enterprise as a System of Systems \(SoS\), Version 0.17, 24-June-2023](#)

Correspondences

In addition, the correspondences section of any System Description can also provide relationships between AD Elements where an AD element can also be a system Description. This allows [correspondences across systems](#) to be documented. This also allows for the sharing of system description AD Elements such as viewpoints, model kinds, correspondences or other AD Elements.

View: Architecture Description Framework Context

Answers the question: What is the purpose of the Enterprise (SoS) Architecture Description Framework?

The system-of-interest for this Architecture Viewpoint Definition (AVPD) is the Enterprise as a System of Systems (SoS).

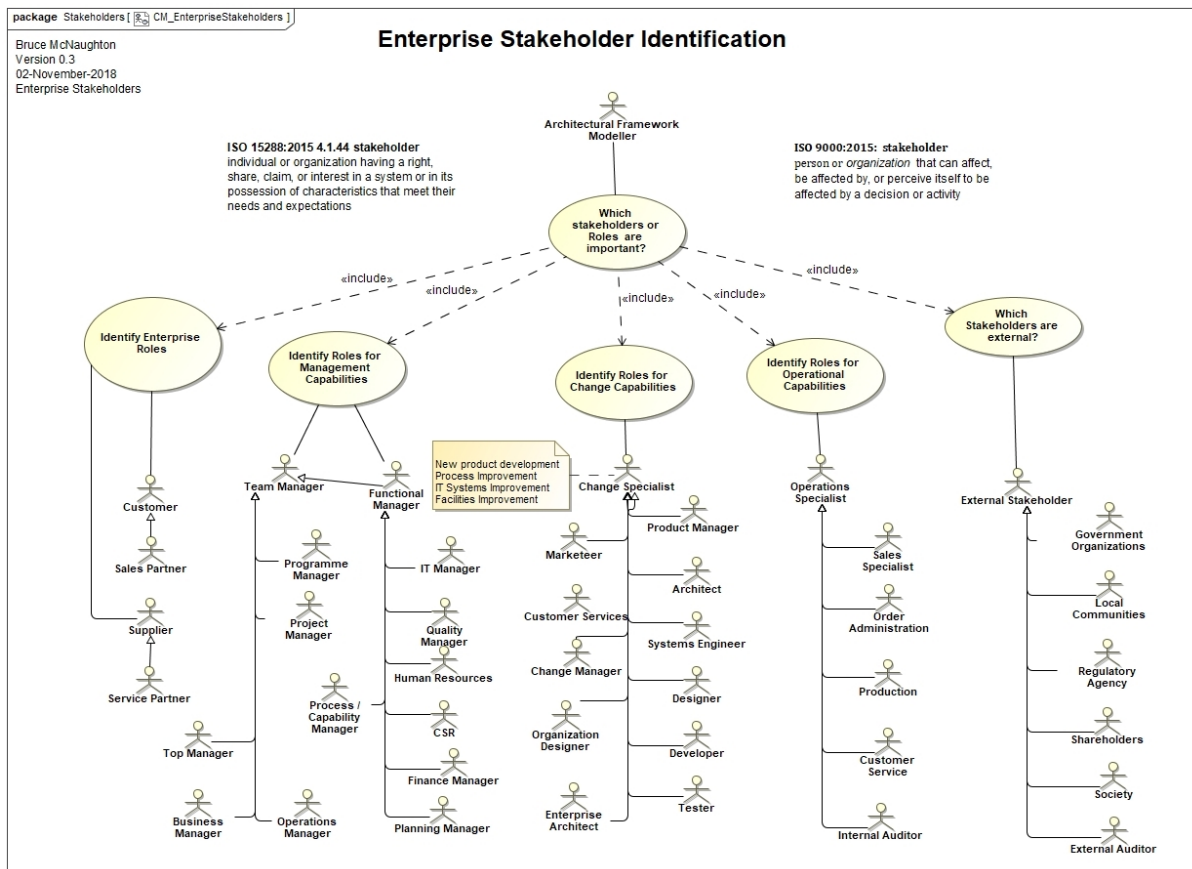
This context view uses a Use Case Diagram to highlight the concerns and needs of the stakeholders of the Enterprise as a System of Systems (SoS). The key stakeholders of the Enterprise as a System of Systems (SoS) represent the following domains:

- Top Management.
- Organizational design
- Team Management.
- Business Management.
- Product Management
- Systems thinking and systems engineering (ISO 42010, ISO 15288, ISO 15704)
- Quality Management. (ISO 9000, ISO 9001 and others with the same pattern / design)
- Programme and Project Management.
- Finance Management
- Human Resource Management
- Capability / Process Management.
- Information Technology Management.
- Business Change

The Enterprise as a System of Systems (SoS) is a people intensive system that is derived from a [Social System](#) integrated with technology which is also known as a [sociotechnical system \(STS\)](#).

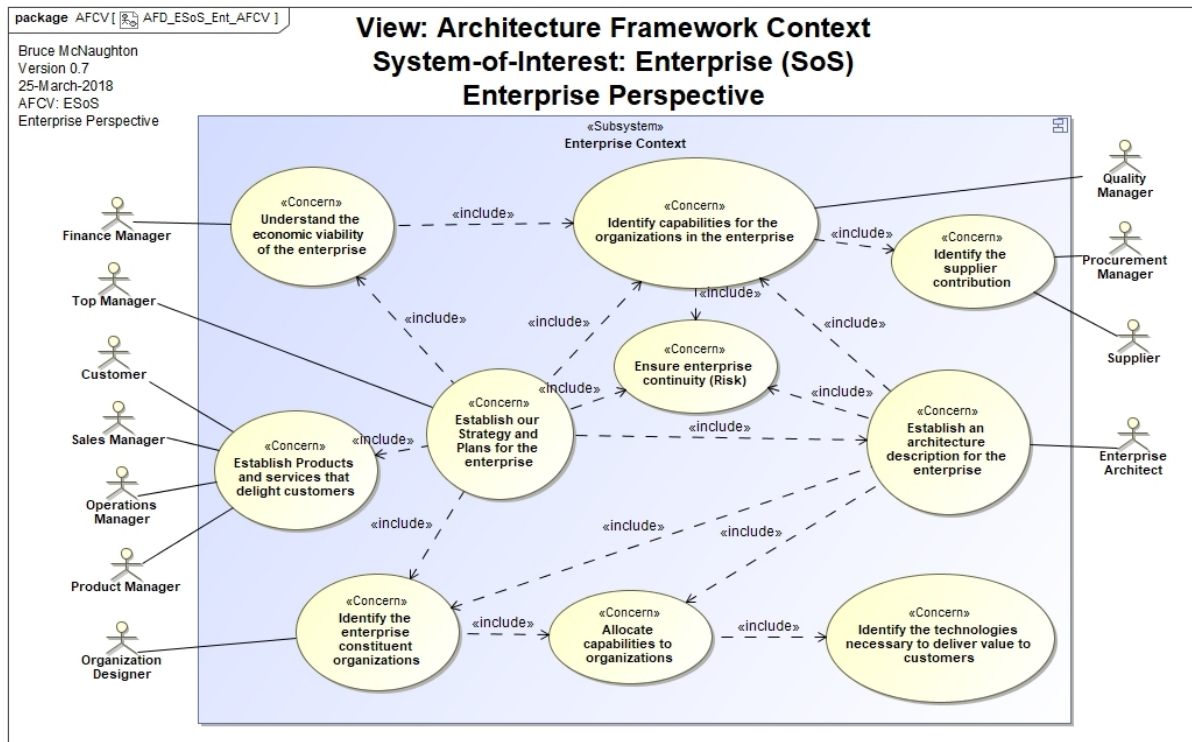
As a result of this type of system, stakeholders are both internal and external to the systems.

For the Enterprise (SoS) Architecture Viewpoint Definition, the following stakeholders have been identified.

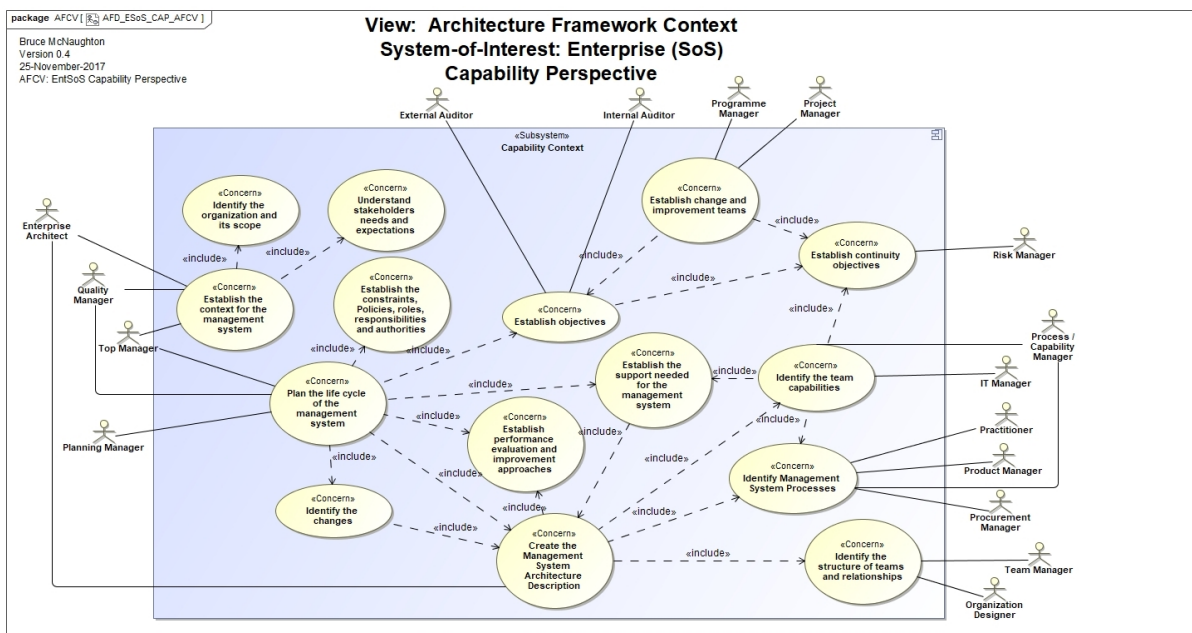


Each of the stakeholders has a [concern or interest](#) in the Enterprise as a System of Systems (SoS). These interests are written as requirements using a user story style.

The Enterprise (SoS) Architecture Description Framework Context Model for the Enterprise Perspective is shown below:



The following establishes the context for the Capability Perspective:

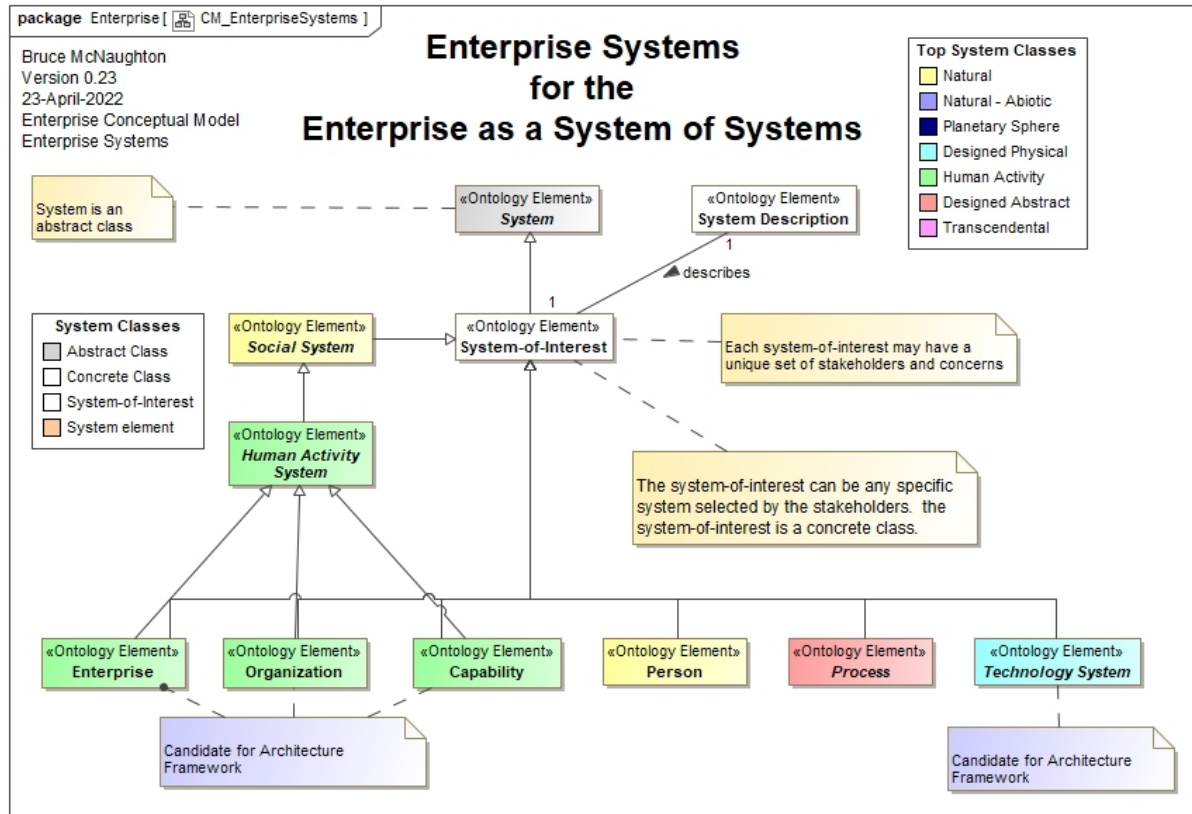


The Architecture Description Framework Context View provides the key purpose and objectives for the Enterprise (SoS) Architecture Description Framework:

- To provide a holistic view of the architecture of the Enterprise as a System of Systems (SoS)
- To provide views that use the terminology of the various domains working within the Enterprise (SoS) Architecture Description Framework.
- To use a consistent set of terminology across the whole Enterprise as a System of Systems (SoS)
- To identify a repeatable process (model kinds) for creating the views from the viewpoints
- To provide a basis for architecture led transformation and change.
- To establish links to customers and their needs from the start.

The specific concerns will be mapped to each of the identified viewpoints. The summary of the requirements is listed below:

- Establish and agree the purpose of the enterprise.
- Identify customer needs and expectations.
- Provide a whole enterprise view of the enterprise as a system of systems
- Establish the organizational approach and allocation of ownership / contribution
- Identify the core capabilities necessary to achieve the purpose
- Identify the external standards that the enterprise must meet.
- Identify the full set of technology needed for the enterprise and its ownership.
- Establish the supply / demand balance and capacity to meet customer needs.
- Mechanisms to assess customer satisfaction
- Establish enterprise continuity approaches.



The Enterprise (SoS) has been selected and includes System Descriptions for each of the systems identified above.

System Description: System (Abstract)

Please see the following Links for the System Description: *System (Abstract)*.

- [PDF: System Description: System \(Abstract\), Version 0.30, 27-December-2023 \(working draft\)](#)
- Link to [the System Description Architecture Description Framework](#)
- Link to [the System \(Abstract\) Architecture Viewpoint Definition](#)
- [PDF: Structuring Formalism: System Description \(SDSF\), Version 0.4, 07-February-2023](#)
- Website: sysdesc.info: System

The System Description includes the following sections representing views of the system-of-interest:

- System Name and Class
- System Purpose
- System Properties
- System Stakeholders and their concerns
- System Environment (Context)
- System Structure (Pattern of Organization)
- System Behavior (Structural Changes)
- Correspondences
- Decisions and Rationale
- References

The following links help create a System Description

- [Link to the System Description Template](#)
- [Link to the System Description Validation Template](#)

The following are links to the COMPASS Project and the CAFF:

- Link to [D21.5b Compass Architectural Framework Framework \(Local\)](#): CAFF Viewpoint Definitions

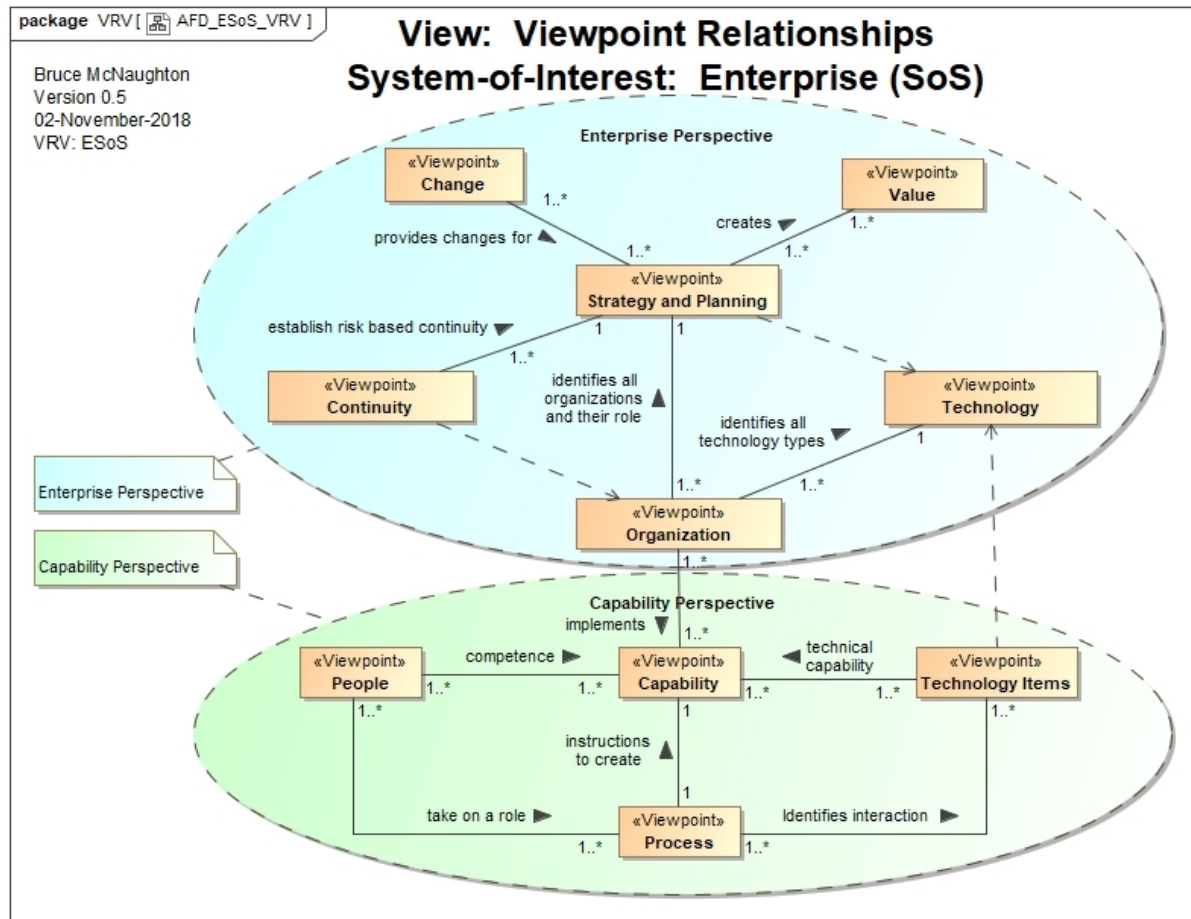
View: Viewpoint Relationships

Answers the question: What viewpoints are required?

The viewpoints have been grouped into two perspectives:

- Enterprise Perspective
- Capability Perspective

These two perspectives provide the set of viewpoints for the Enterprise (SoS) Architecture Description Framework



The viewpoints that have been identified for the Enterprise as a System of Systems (SoS) are:

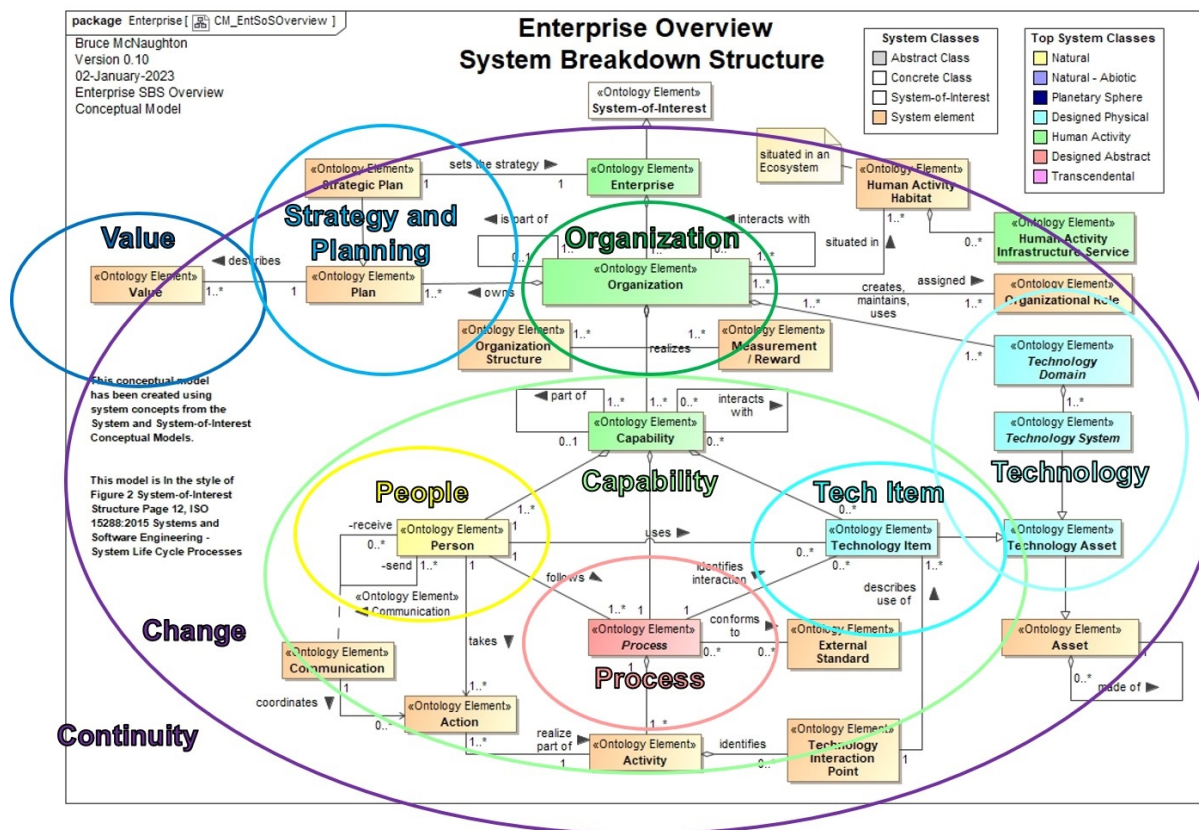
- **Enterprise Perspective.**
 - **Strategy and Planning:** Establishes the strategies and plans
 - **Value:** Establishes 'what is our business?' and products and / or services based upon customer needs.
 - **Change.** Establishes the approach to change
 - **Continuity** Establishes the enterprise continuity in the areas of risk related to security, environmental, operational, other disruption, etc..
 - **Organization** Establishes a view of the organizational value system and organizational roles.
 - **Technology** Identify all of the types of technology needed for the enterprise and allocates ownership.
- **Capability Perspective**
 - **Capability** Identifies capabilities and capability systems.
 - **Process** Identifies all of the processes used within the enterprise
 - **People** Identifies the competencies needed to realise the capabilities
 - **Technology Items** Identifies all of the types of technology needed to support specific capabilities..

Link to [Current EntSoSADF Viewpoints PDF](#)

Link to [Current EntSoSADF Model Kinds PDF](#)

The viewpoints are based upon the underlying systems generally contained within an Enterprise as a System of Systems (SoS)

The viewpoints are related to the mapping of the Ontology Models to the possible viewpoints. Here is the mapping to the Enterprise Overview SBS.

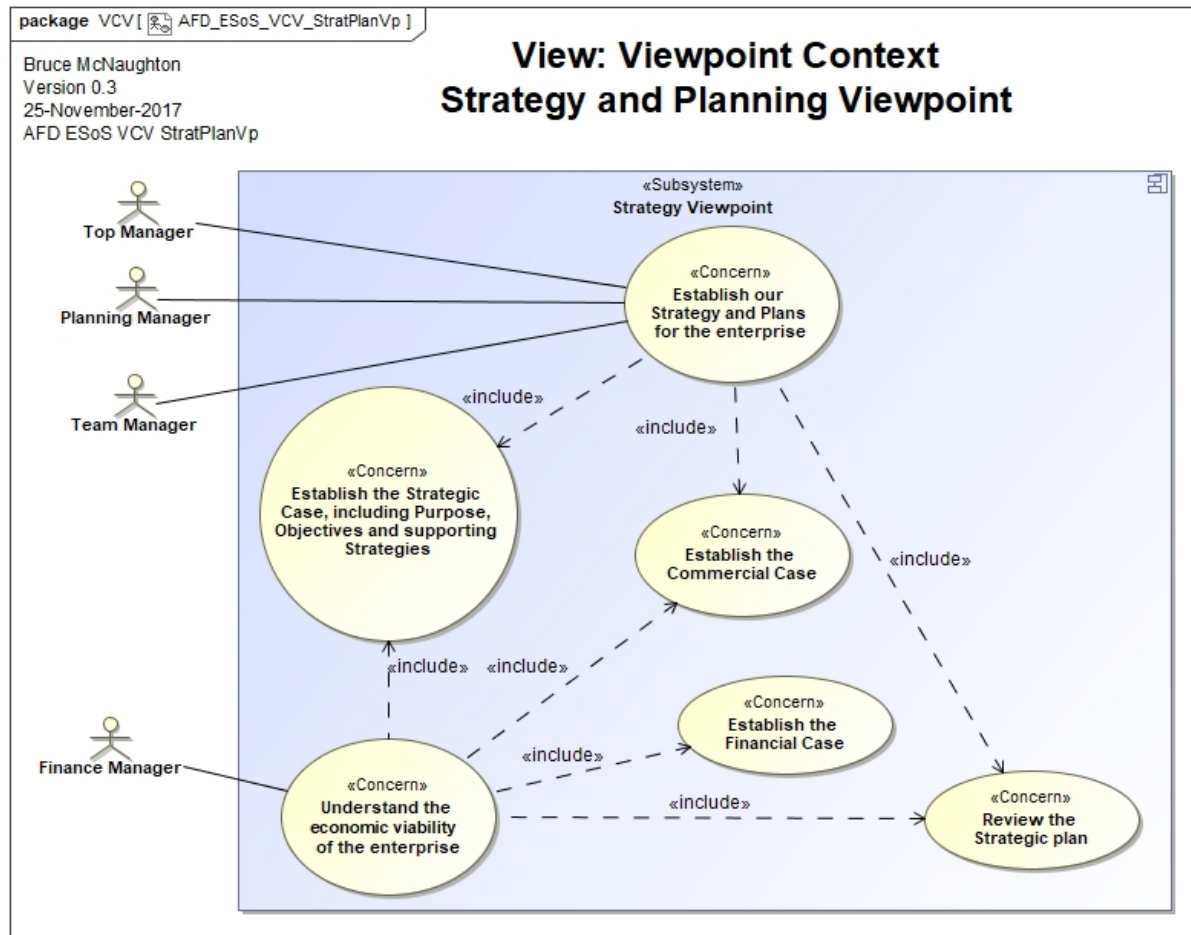


Views: Strategy and Planning Viewpoint

View: Viewpoint Context

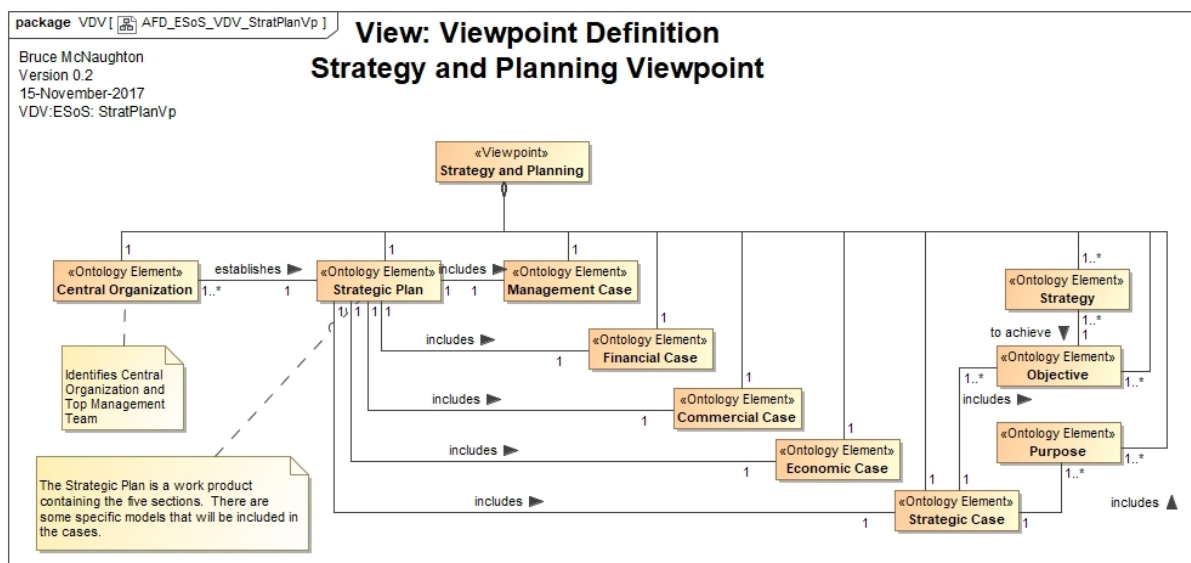
Answers the question: What is the purpose of this Viewpoint?

The main artifact produced to support the View is the Strategic Plan. This strategic plan is produced according to the [Planning and Review process](#). The Strategic View will include a summary of each Case within the Strategic Plan plus the supporting model kinds.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Models and Examples

This viewpoint is uses the following Model Kinds:

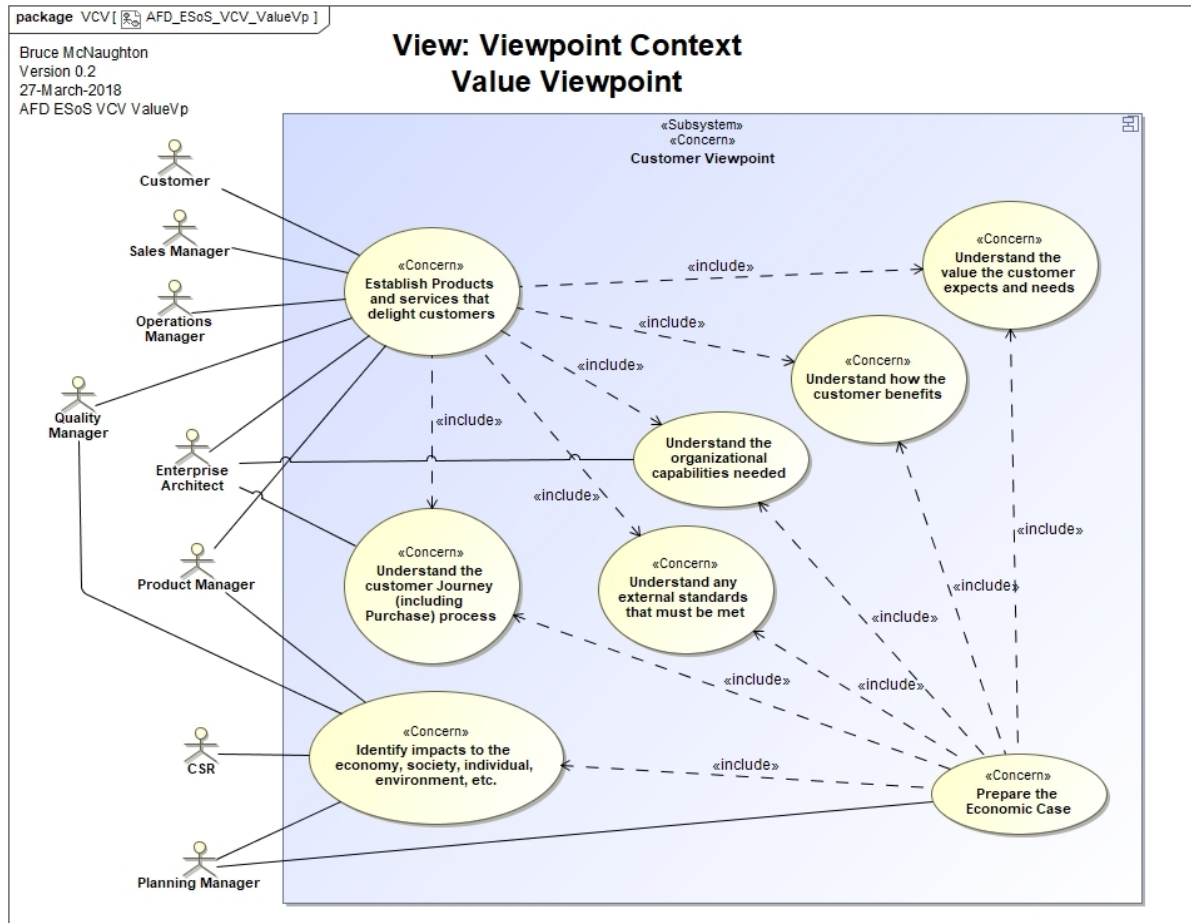
- Top Objectives and Goals (Strategic Case)
- Functional Model (Management Case)
- Operational Model (Management Case)
- Benefits Map and Model (Economic Case)
- Supplier Identification Model (Commercial Case)
- Financial Cost Model (Financial Case)
- Organization Chart (Management Case)
- Strategic Risk Model (Management Case)

Views: Value Viewpoint

View: Viewpoint Context

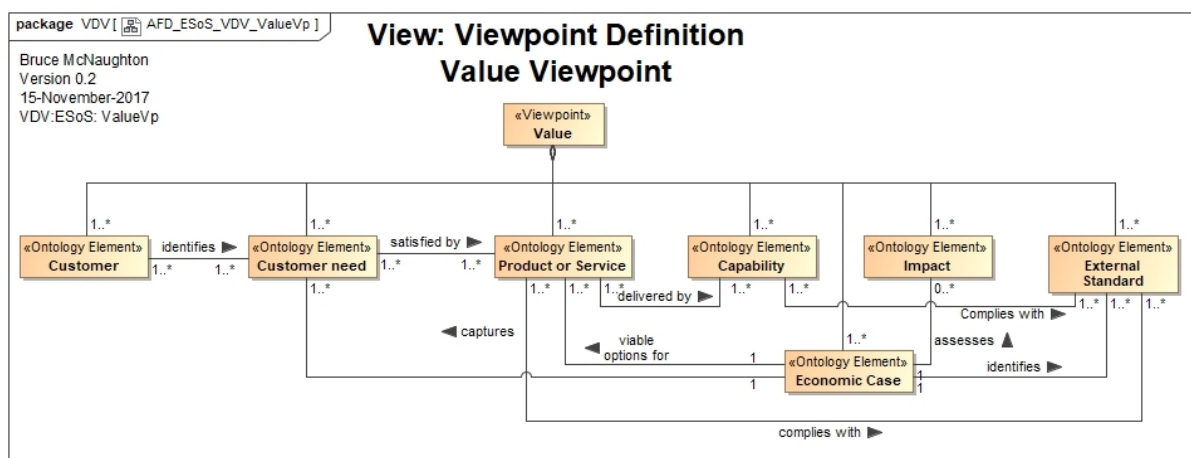
Answers the question: What is the purpose of this Viewpoint?

This viewpoint provides focuses on understanding the customer needs, the customer journey (including purchasing), the products and services needed to meet the needs, the underlying organizational capabilities and economic benefits.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The model kinds supporting this viewpoint are:

- The Benefit Map and Model
- The Customer Journey Model

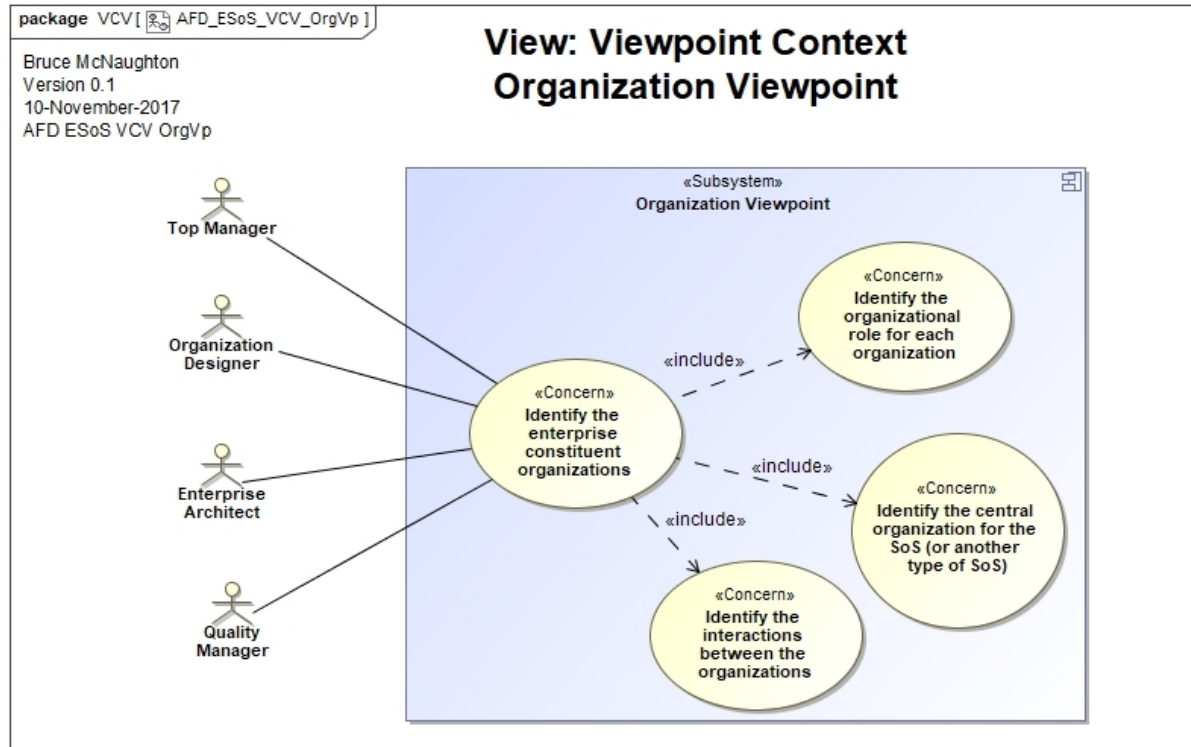
- The Requirements Model
- The Organizational Capability Models (New Product Development and Operations).
- The supporting financial and benefit models.

Views: Organization Viewpoint

View: Viewpoint Context

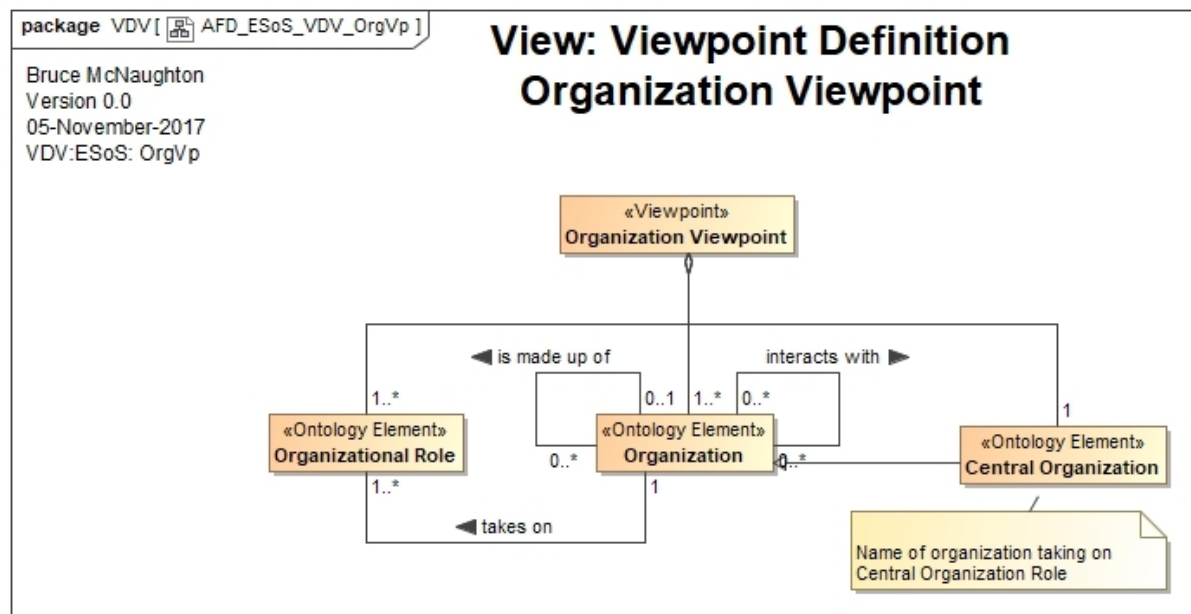
Answers the question: What is the purpose of this Viewpoint?

This viewpoint establishes a complete model of the entire value system used in the enterprise. This shows the organizational roles and the various organizations in both the supply chain and the channels to the customer for the network.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

This viewpoint uses the following model kinds:

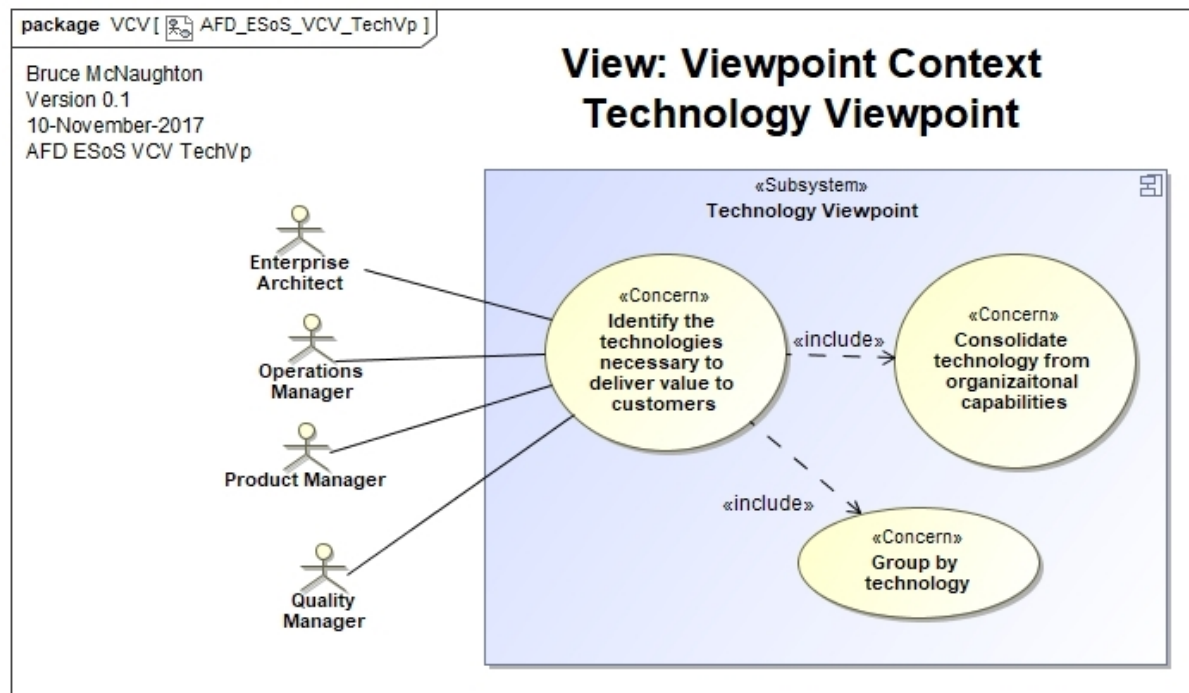
- Value System Model
- Organizations by Role Matrix

Views: Technology Viewpoint

View: Viewpoint Context

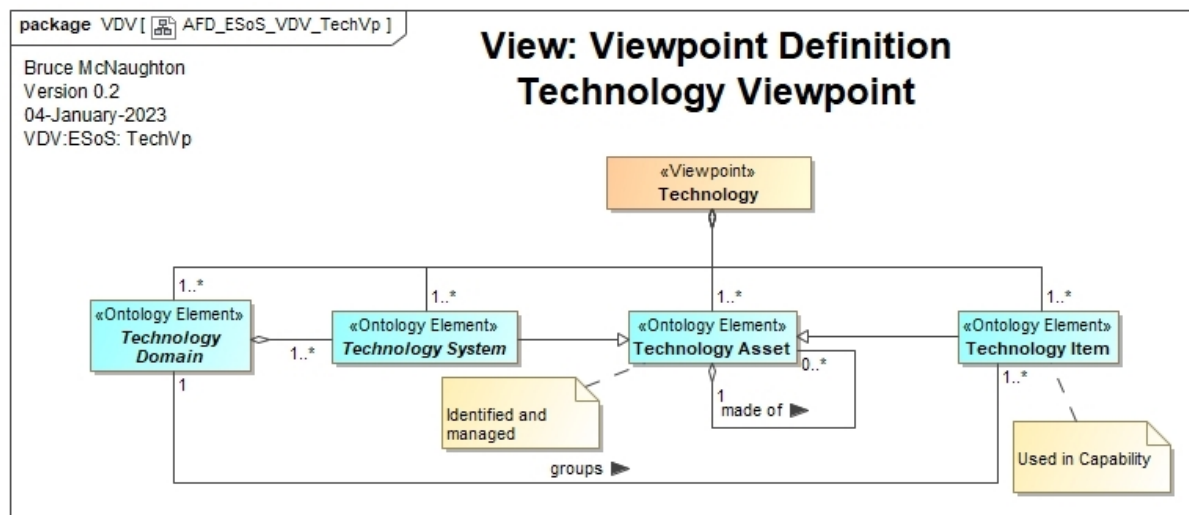
Answers the question: What is the purpose of this Viewpoint?

This viewpoint provides a consolidated view of all of the technology required by the enterprise to achieve its purpose, objectives and goals.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint:

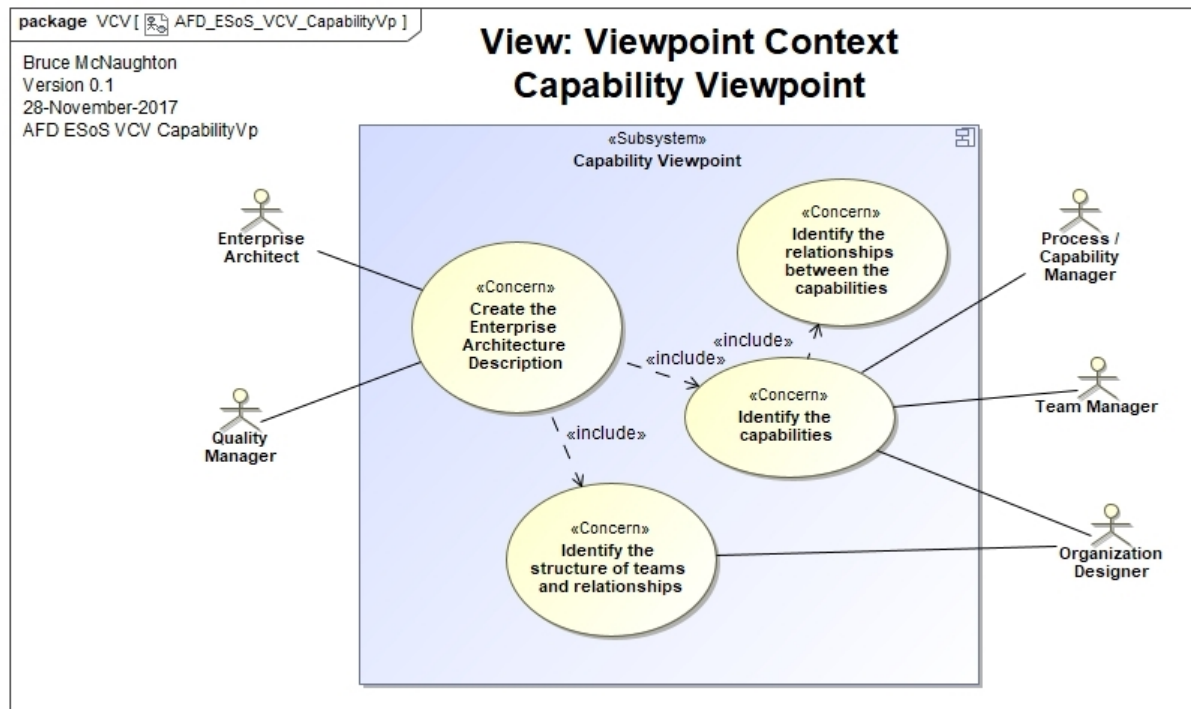
- Technology Identification Matrix

Views: Capability Viewpoint

View: Viewpoint Context

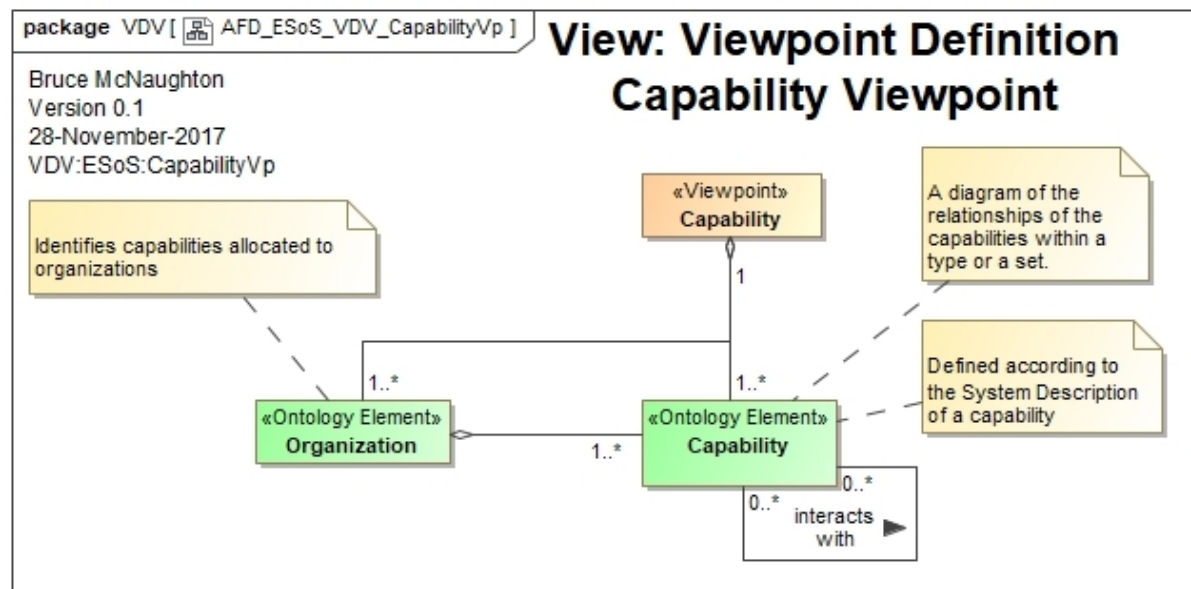
Answers the question: What is the purpose of this Viewpoint?

This viewpoint provides a model to understand the relationships between the teams that use the capabilities and how these team capabilities are allocated.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint:

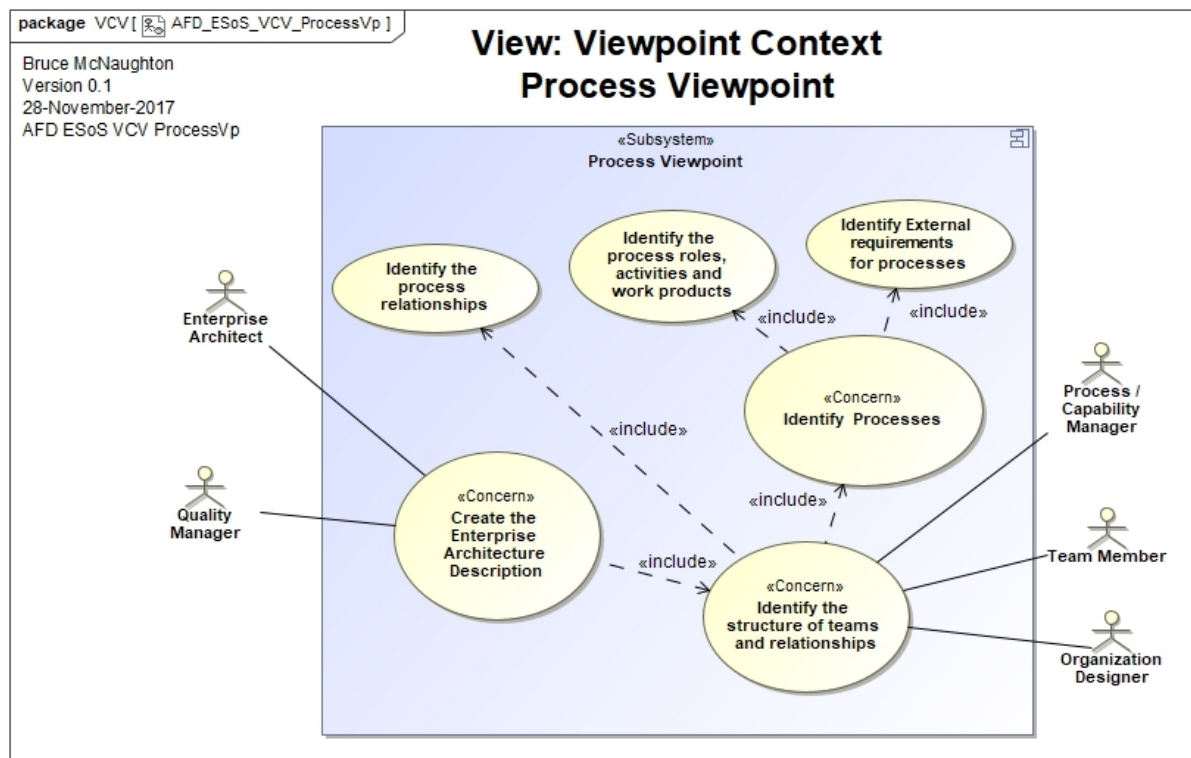
- Team Capability Model
- TC > TC Interaction Matrix
- TC to Team Allocation Matrix

Views: Process Viewpoint

View: Viewpoint Context

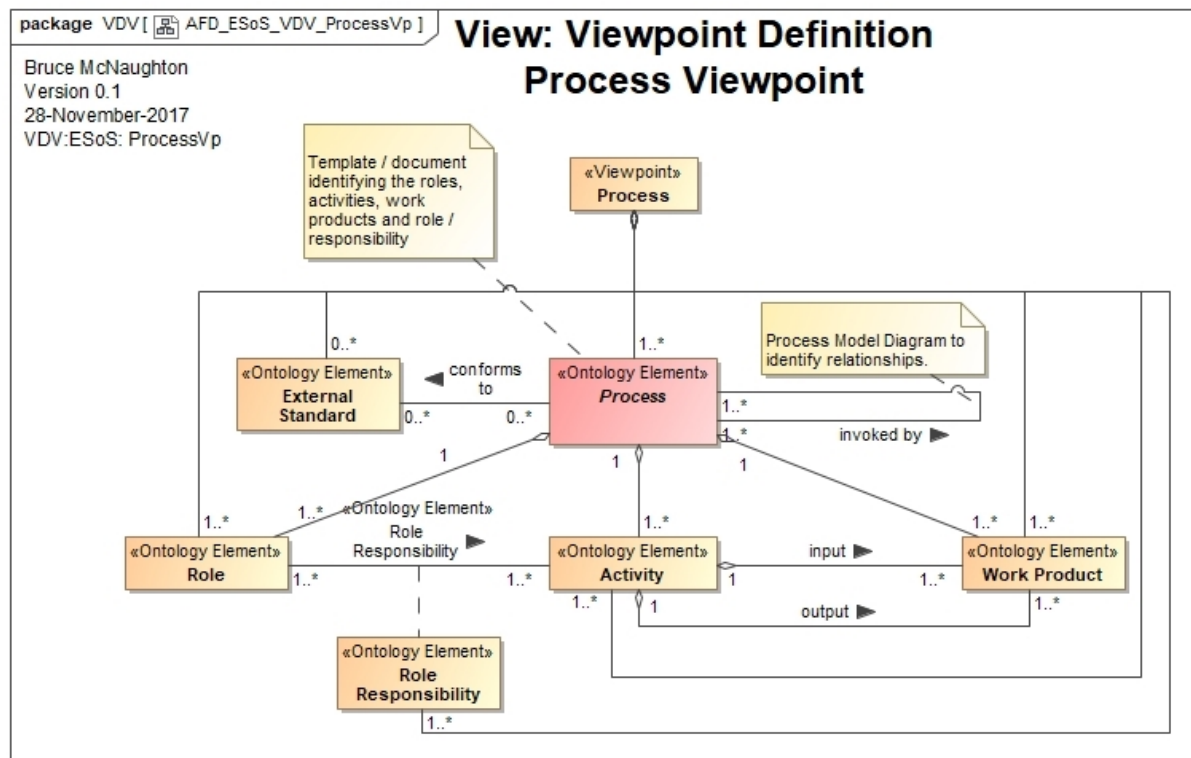
Answers the question: What is the purpose of this Viewpoint?

This viewpoint provides a consolidated view of the processes needed to support the management system. .



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint:

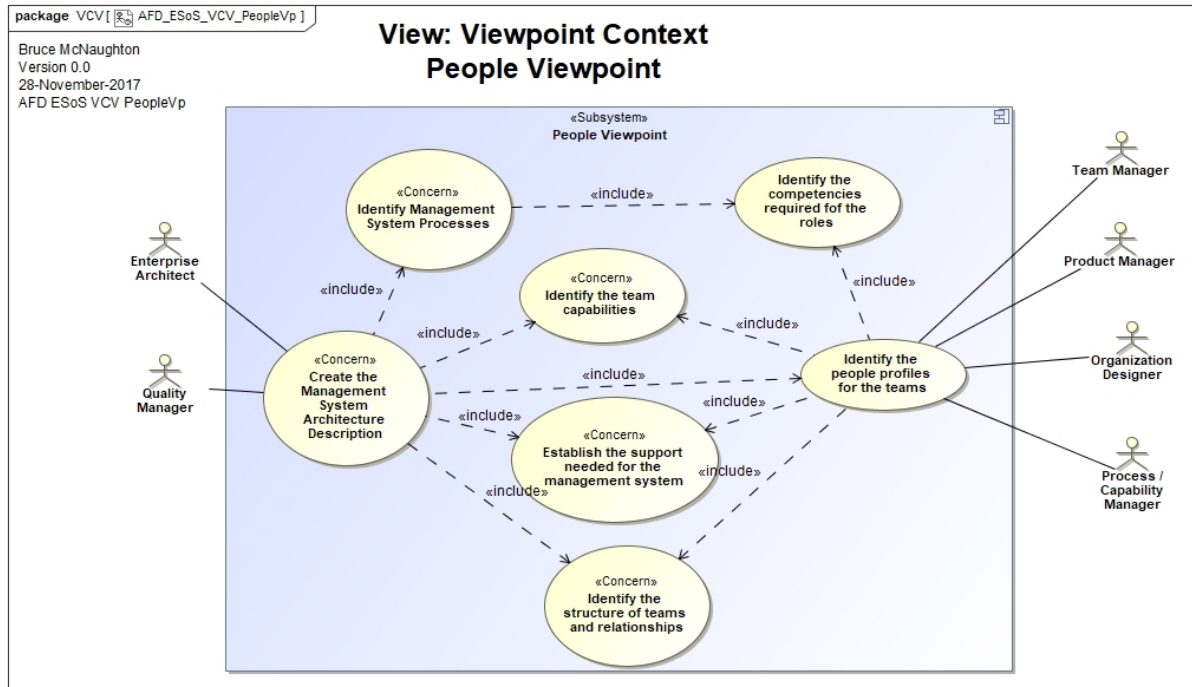
- Process Model
- Role / Responsibility Model
- Process by Work Product Matrix
- Process Activity Models
- Information Model
- Information Object Matrix
- External Standards to Process Matrix
- Roadmap for Audits and Changes.
- Change Specifications (products).

Views: People Viewpoint

View: Viewpoint Context

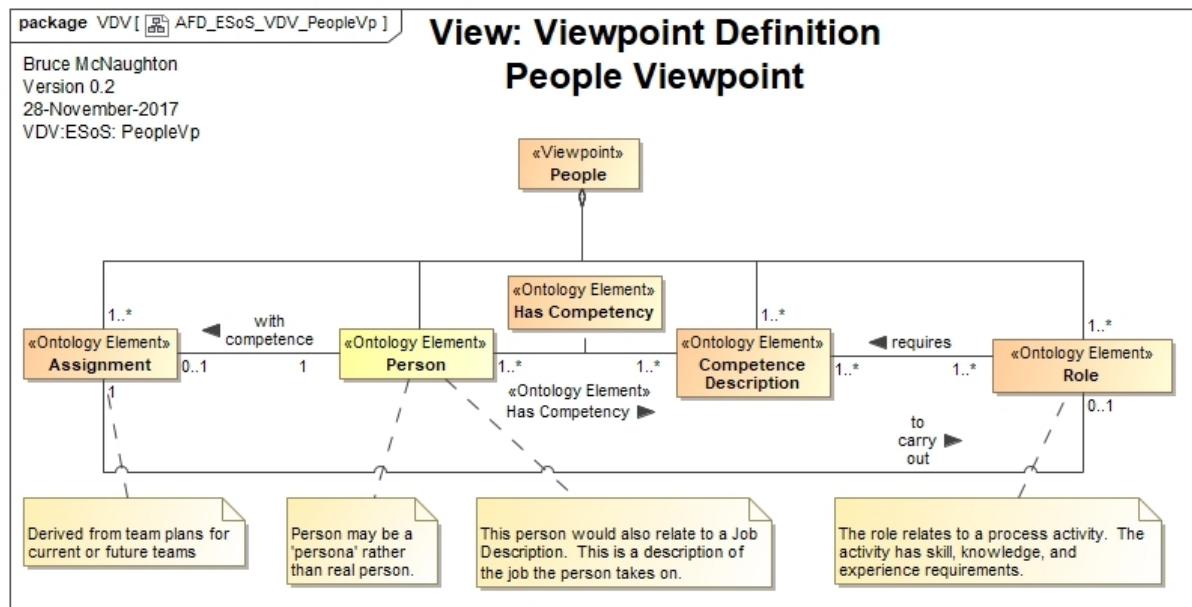
Answers the question: What is the purpose of this Viewpoint?

The people viewpoint provides a clear indication of the key jobs / roles used within the management system. This viewpoint also highlights the number related to a critical competencies identified in the relevant competency frameworks.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint:

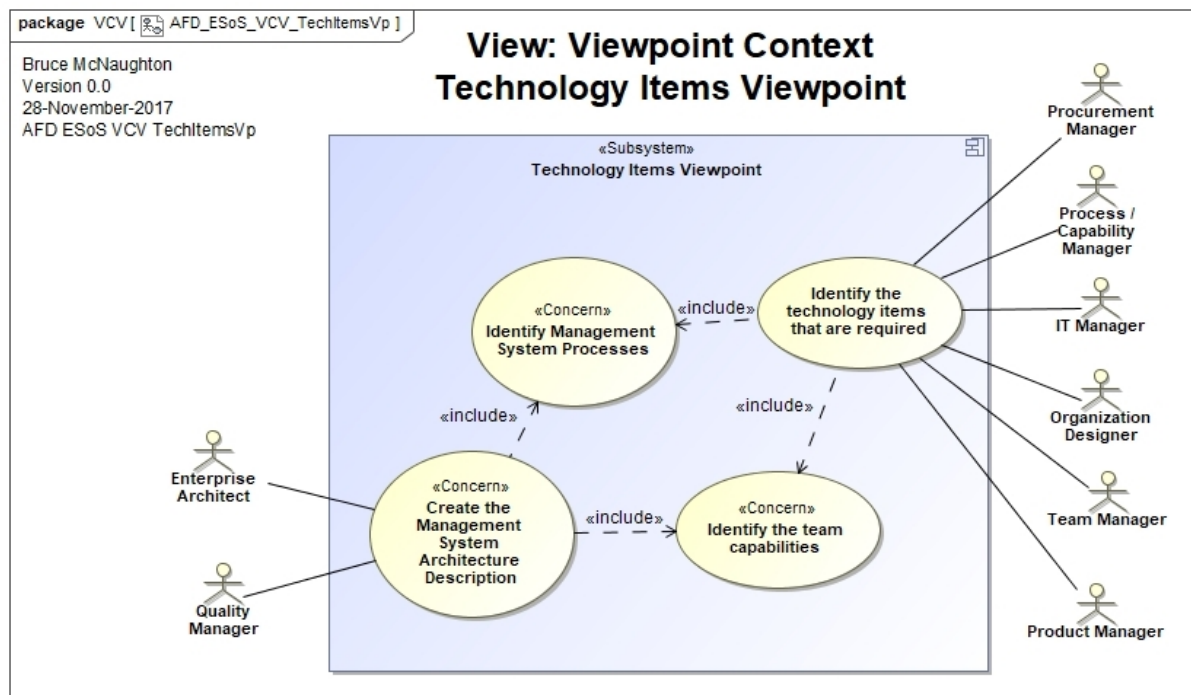
- Competency Framework Models
- Job / Role Matrix (mapped to quantity at levels)

Views: Technology Items Viewpoint

View: Viewpoint Context

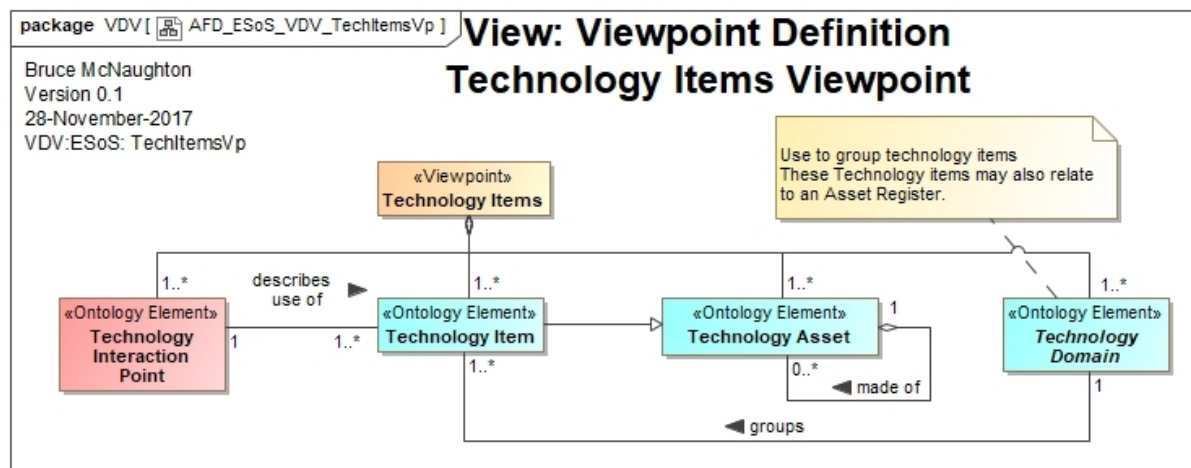
Answers the question: What is the purpose of this Viewpoint?

This viewpoint establishes a consolidated view of the technology used within this management system.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint: Techn

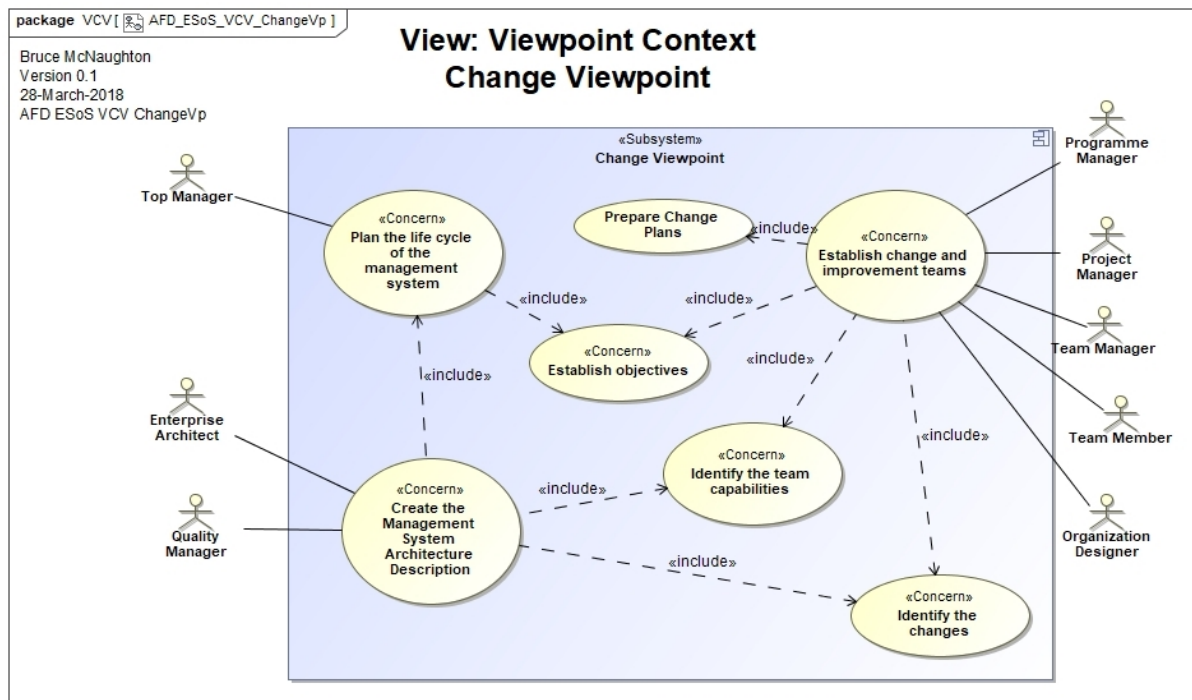
- Technology Matrix (grouped by type)
- Technology to Teams Matrix

Views: Change Viewpoint

View: Viewpoint Context

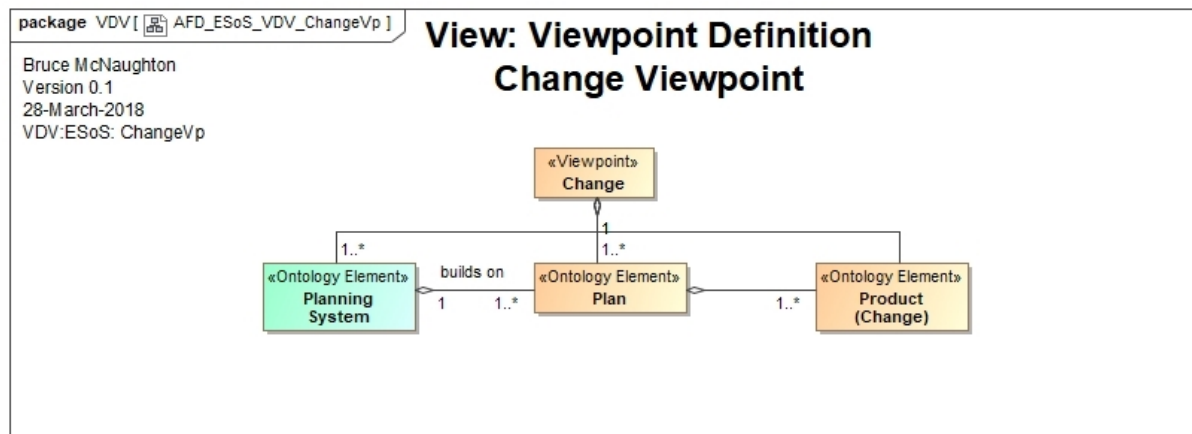
Answers the question: What is the purpose of this Viewpoint?

This viewpoint provides a view of the capabilities to change and adapt the management system.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The following model kinds support this viewpoint:

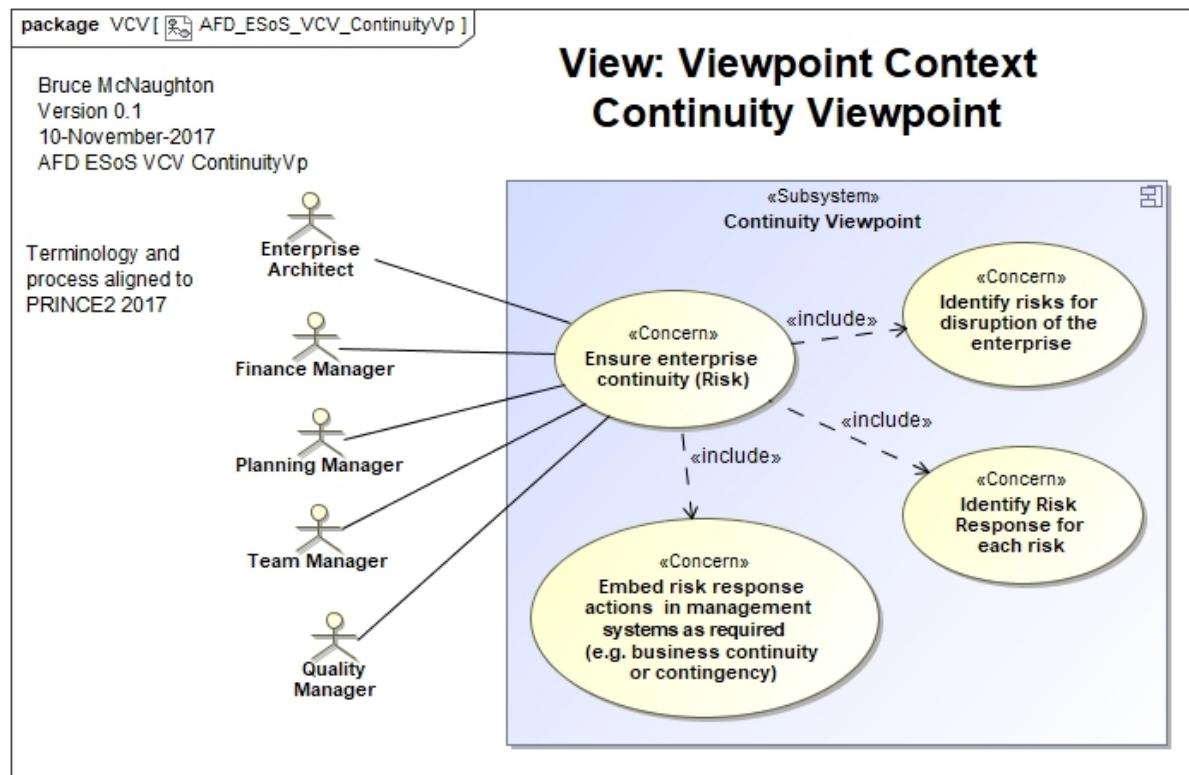
- Roadmap Model
- Dependency Map / Matrix
- Change Specifications (products).

Views: Continuity Viewpoint

View: Viewpoint Context

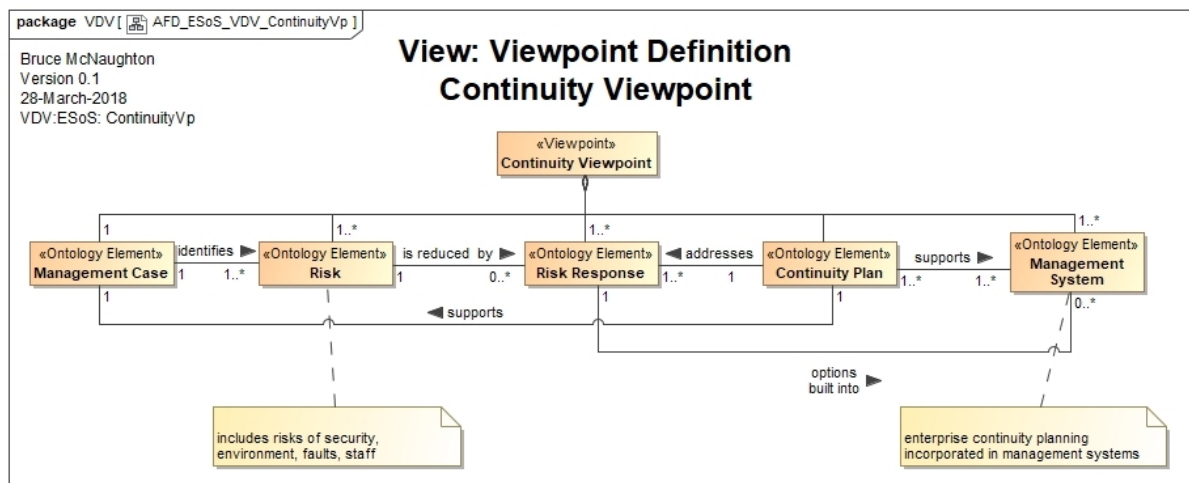
Answers the question: What is the purpose of this Viewpoint?

The purpose of this viewpoint is to provide a view of the events and continuity plans that will ensure business continuity through identified incidents.



View: Viewpoint Definition

Answers the question: What is the definition of this Viewpoint in terms of the identified domain concepts?



Examples and Models

The process design patterns that support this viewpoint are:

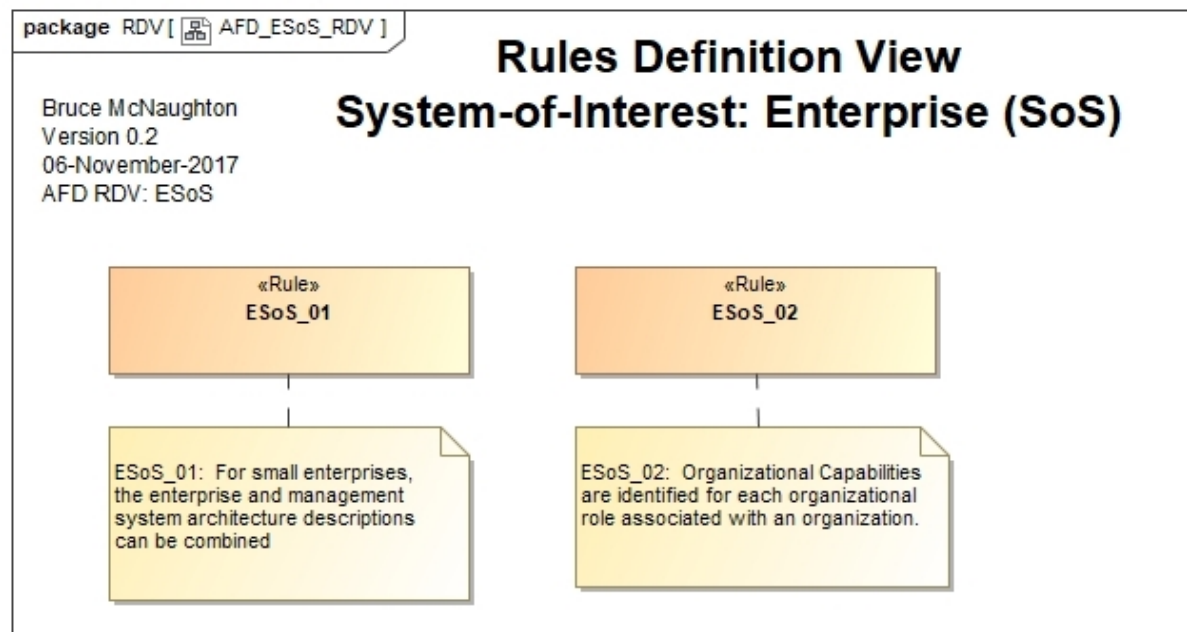
- Common Management Activities.
- Team Performance Management.
- Organizational Planning and Review (consolidated Business Continuity Plan).
- Business Management.

The key model kinds that are needed for the architecture are the cross-organizational response to risks and the identification of any enabling systems (management systems) necessary for invoking business continuity plans.

- Response Models (cross-organization)
- Enabling Management Systems (Systems established during response)

View: Rules Definition

Answers the question: What rules constrain the use of the Architecture Description Framework?



Only a few rules will be established until pilot Enterprise Architecture Descriptions have been prepared.

The following rules have been identified:

- The Strategy and Planning Viewpoint is the first view to be created
- The Organization Viewpoint establishes the types of organizations and their relationships as identified in a value system model.
- The Capability Model is used to identify the key processes, technologies and people competencies needed for the organization. The same model for capabilities is used at the capability level.

Architecture Decisions and Rationale

The following decisions and rationale are recorded for this Architecture Viewpoint Definition (AVPD).

1) Why the Enterprise (SoS) Architecture Description Framework was created?

The original scope of the Enterprise Architecture Description was focused on an equation with the sum of each of the supporting architecture descriptions being equivalent to the Enterprise Architecture Description. This implied that the scope of the current Enterprise (SoS) Architecture Description Framework was sufficient to provide the glue across all of the other architecture descriptions.

As the enterprise system System Description (SDSF) continued, the number of perspectives and the scope of these perspectives started showing a need to find a way to separate the viewpoints.

The need for a single Enterprise Architecture Description became apparent based upon the following:

- A single place to identify the top level enterprise elements
- To identify the core competencies or organizational capabilities critical to the success of the enterprise.
- Provide a single source for the entire architecture of the enterprise
- To provide a single ownership of the enterprise architecture description
- To establish both an economic system and continuity to ensure a sustainable enterprise is realized.
- Use management models to support the terminology.

As a result, the Enterprise (SoS) System Description (SDSF) was formed by separating the enterprise level elements from those that either define one or more specific technology Architecture Description Framework / descriptions. The Enterprise Architecture Description approach has been updated to reflect this split..

The final reason for the split: The concept of the equation represented the whole is the sum of its parts. Upon further research, the Enterprise is a system of systems that requires a full understanding of the enterprise emergent properties, system element (organization) structure and behavior, and clear roles for the development of this architecture description. **In this case, the Enterprise is more than the sum of the individual system elements and needs a well defined definition of the properties, parts and interactions.**

2) Economic System and Continuity Viewpoints moved to Enterprise level

The basic elements of the economic system and continuity (e.g. response to events such as security or environmental incidents) needs to be visible at the highest level of the architecture of the enterprise.

3) Organizational capabilities or core competences need to be visible

A number of management references (Teece, Haeckel, etc) identify dynamic capabilities as a key aspect of the enterprise

Team capabilities are very different from organizational capabilities and an organizational capability model can provide great insight into the structure of the enterprise and key decisions arising from any change.

Organizational Competencies provide a basis for the Economic System and the Continuity Viewpoints.

4) A value system is a system of systems

The Enterprise is an example of Michael Porter's Value System. This Value System actually meets the criteria established by the COMPASS Project for a System of Systems.

5) A Strategic Plan with an Enterprise Architecture Description are needed to describe the whole Enterprise

The Strategic Plan describes how the whole enterprise works. This strategic plan uses a five case model to bring together all of the elements for the enterprise. This is used as a key input to the planning system. The Enterprise Architecture Description provides the detail needed to complete a strategic plan. Both of these documents are developed together.

6) Create a single Enterprise System Description (SDSF) based upon new Enterprise Model

The new Enterprise SoS Model provides an opportunity to simplify the System Description (SDSF). This new approach provides a minimum set of elements needed to describe a whole Enterprise. In addition, the concept of Capability Systems allows for any number of extensions to be added as a natural part of the Architecture Description Framework rather than a part of the base model.

7) Revise the ADF based upon ISO 42010:2022 requirements

Update the Enterprise (SoS) Architecture Description Framework based upon the new ISO 42010:2022 Requirements. This includes:

- Changing the name of the AFD to AVPD
- Changing the name of the Enterprise AF to Enterprise ADF

- Including the Structuring Formalism
- Revising the correspondences.