

Introduction: Enterprise (SoS) Architecture Viewpoints

Enterprise (SoS) Architecture Viewpoints

Abstract

This paper contains the current Viewpoint Definitions based upon the AFD for the Enterprise (SoS) Architecture Description Framework Viewpoints Definition.

- Link to [the Enterprise \(SoS\) Architecture Description Framework](#)
- Link to [EntSoSADF AVPD PDF](#)
- Link to [Enterprise as a System of System Concepts PDF](#)
- Link to [Organization SD PDF](#)
- [PDF: System Description: Capability as a System, Version 0.16 05-December-2022](#)
- Link to [Current EntSoS AF Model Kinds PDF](#)
- Link to [Systems Description PDF](#)

Author and Version

Bruce McNaughton, Version 0.4 08-August-2022

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Revision History

- V0.4 08-August-2022 Latest Viewpoint Definitions.
- V0.3 27-January-2019 Revised in line with single AFD for Enterprise (SoS).
- V0.2 29-March-2018 Bring into alignment with the Enterprise (SoS) Architecture Viewpoint Definition.
- V0.1 08-October-2017 First alignment with the Enterprise (SoS) Architecture Viewpoint Definition
- V0.0 08-September-2016 Initial Draft of Viewpoints.

Viewpoint Overview

The following viewpoints have been identified for the Enterprise (SoS) Architecture Description Framework. These viewpoints are used to create the views that form part of the Enterprise (SoS) Architecture Description. The Enterprise (SoS) Architecture Description is used like an operating model for the enterprise. See Link to [Enterprise or Organization Operating Model](#).

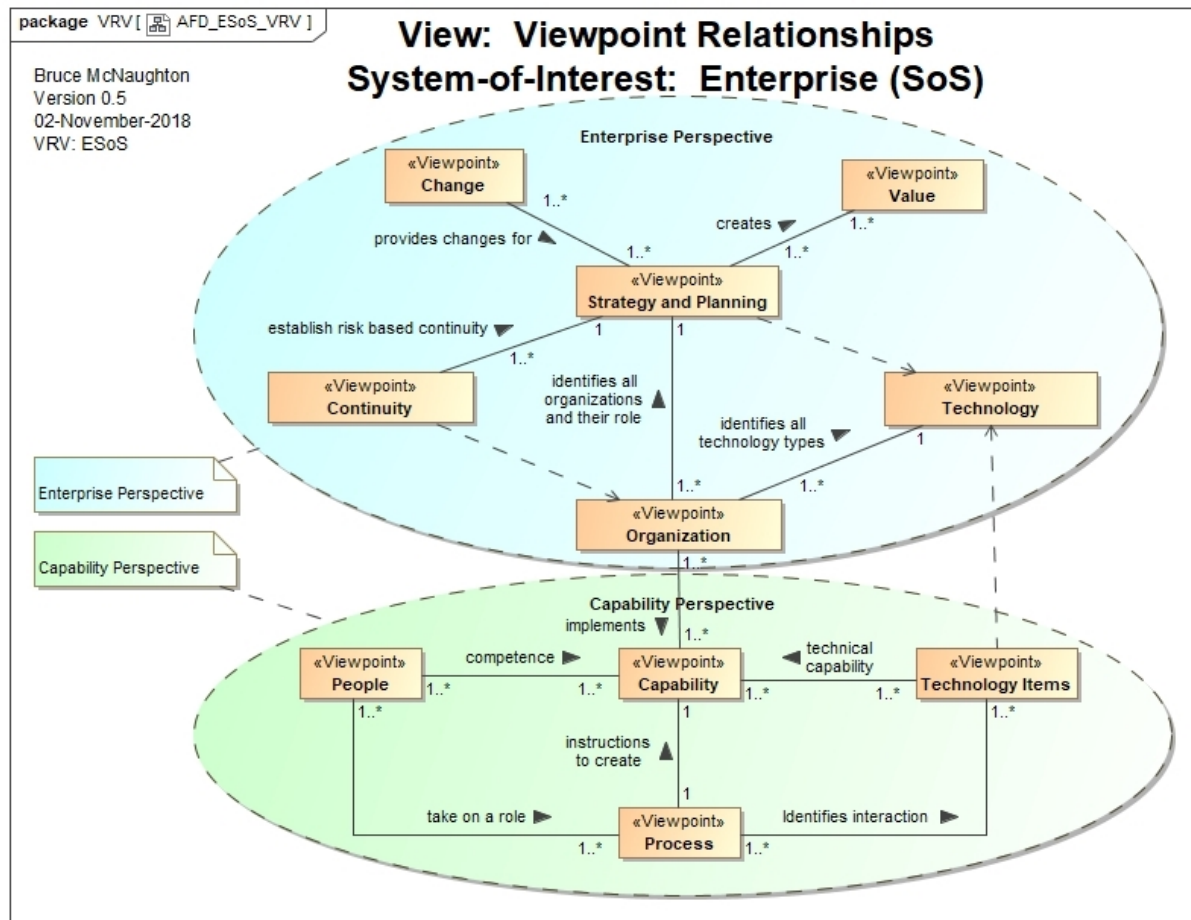
[Overview](#)

[Strategy and Planning](#), [Value](#)

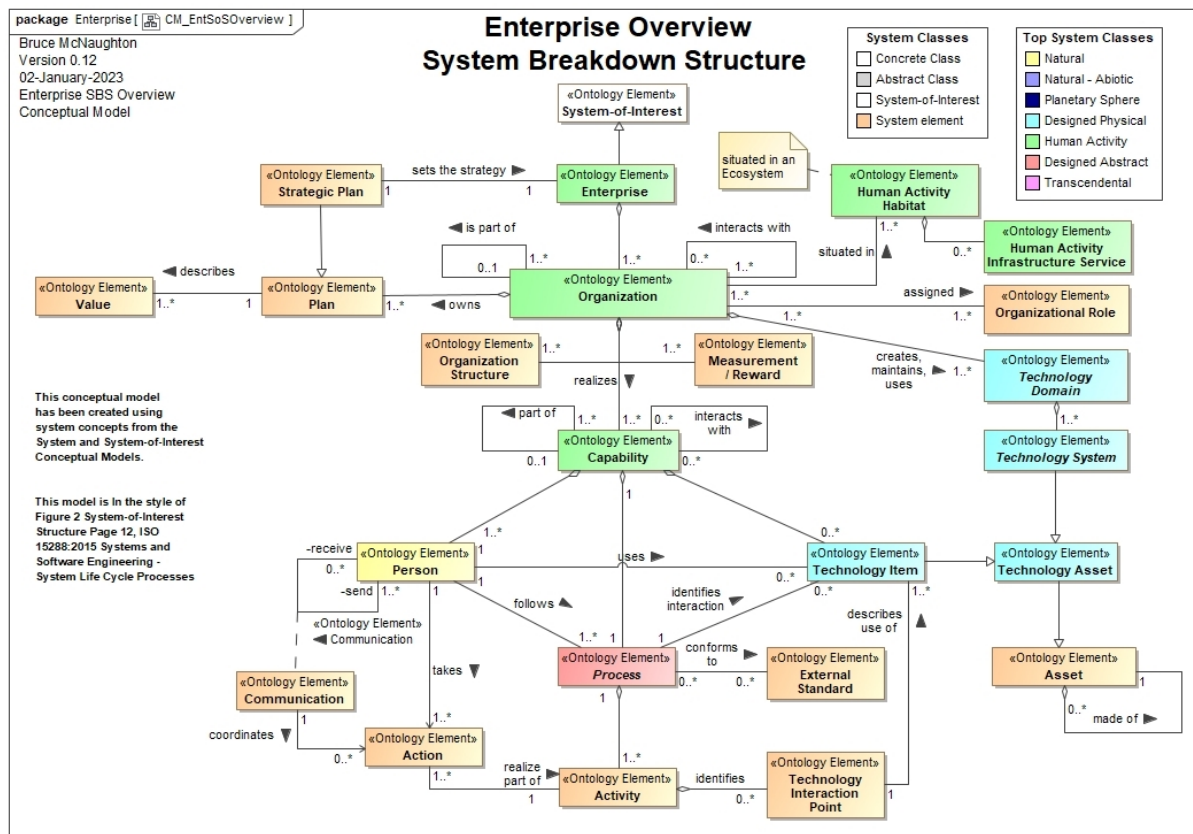
[Organization](#), [Technology](#),

[Capability](#), [People](#), [Process](#), [Technology Items](#),

[Change](#), [Continuity](#)



The Enterprise (SoS) Ontology (Concepts) used to support this Architecture Description Framework is shown below:



Each of the viewpoints describes the way information (Concepts / Principles) is derived from the following sources:

- [Architecture Viewpoint Definition: Enterprise \(SoS\) Architecture Description Framework](#)
- [System-of-Interest: Enterprise \(SoS\)](#)
- [System: Organization](#)
- [System: Capability](#)

Link to [Current EntSoSADF Viewpoints PDF](#)

Link to [Current EntSoS AF Model Kinds PDF](#)

Link to [EaaSoS Website Structure PDF](#) for the Enterprise as a System of Systems (SoS).

Strategy and Planning Viewpoint

Description

The Strategy and Planning Viewpoint describes the approach to creating the Strategy and Planning View for an Architecture Description.

The result of this viewpoint is a fully integrated view of the enterprise through a Strategic Plan.

The strategic plan contains the following five cases that are developed during the development of the architecture description. These cases are:

- Strategic Case
- Economic Case
- Commercial Case
- Financial Case
- Management Case

The set of cases provides an integrated view of the whole enterprise that aligns with the Enterprise [Operating Model](#). This strategic plan is created through collaboration across the whole value system driven from customer needs and expectations.

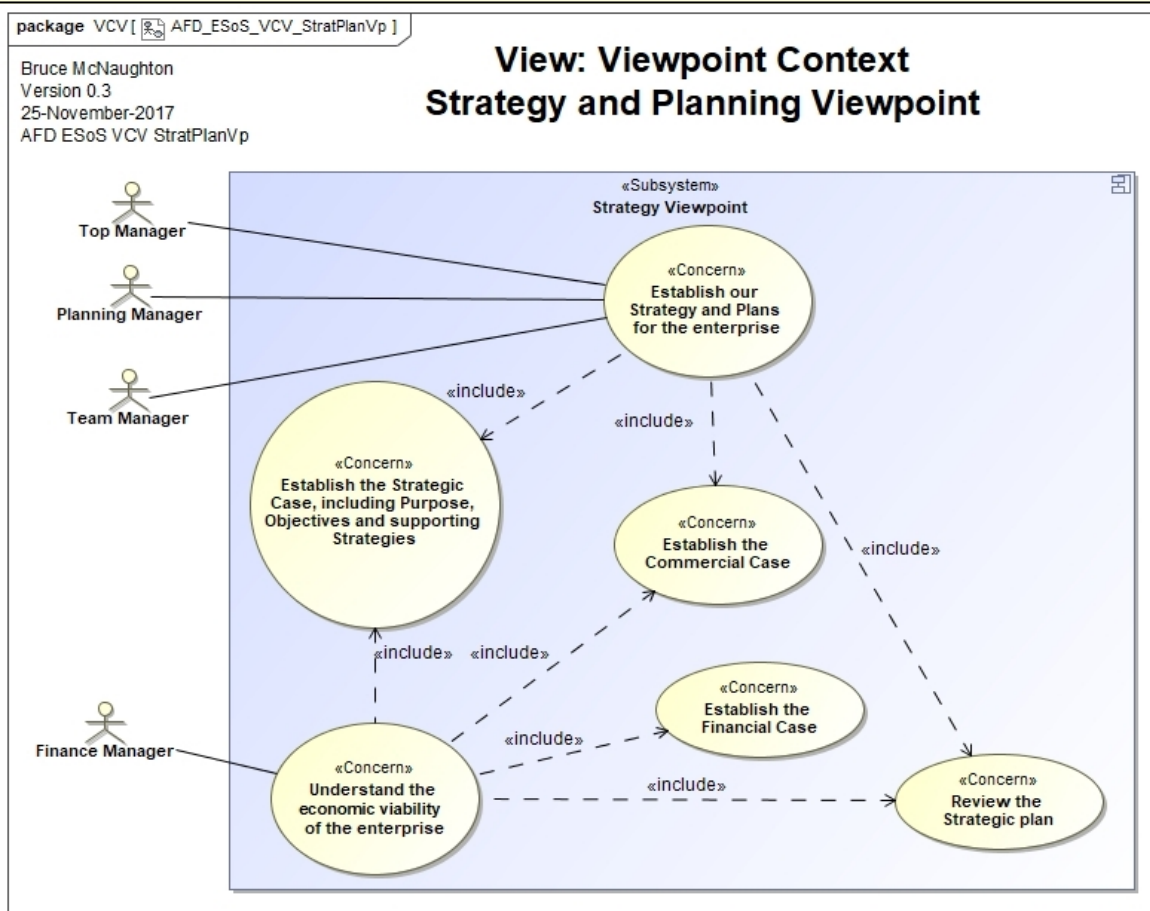
In addition, the planning structure and timing are established and the set of capabilities needed to realize the planning system are identified.

Rationale

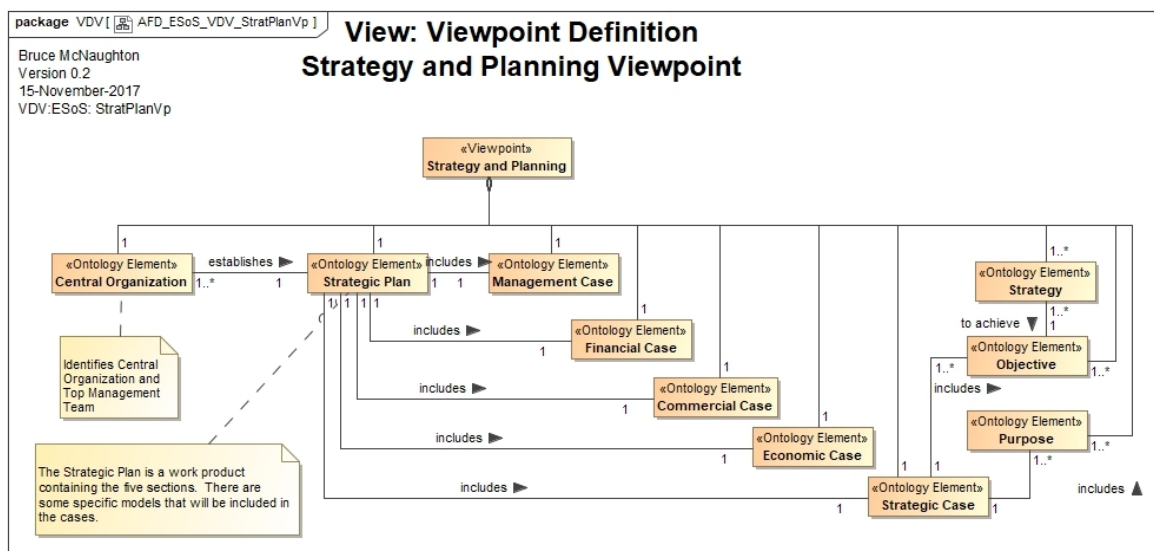
The Strategy Viewpoint is an integrating viewpoint across the entire Enterprise. The main result from the use of this viewpoint is an integration of the architecture description with the Strategic Plan. This means that as each of the other viewpoints are created there will be an update to the models and diagrams created along the way.

This Strategic Plan is also aligned very closely to the Enterprise [Operating Model](#) or the Enterprise (SoS) Architecture Description created from this Architecture Description Framework. The operating model can be seen in 3 dimensions. This Strategy and Planning Viewpoint provides an integrating framework for all 3 dimensions.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Enterprise, Organization, Integrated Management System. Planning System**Models**

- [Stakeholder Model](#) (Identifies all of the Enterprise Level Stakeholders)
- [Enterprise Structure Models](#) (Identifies the types of systems in the Enterprise)
- [Benefits Model](#) (Identifies all of the benefits and their impact on outcomes)
- Supply Capability Model (identifies candidate capabilities to acquire externally)
- Financial Cost Model (Revenue and Cost forecasts: operations and change)
- [Organization Chart](#) (Enterprise Level Organization Chart)
- Strategic Risk Model (Strategic Risks and Responses).

Steps to Create the View

1. Create a stakeholder model
2. Create an Enterprise Structure Model and Organization Chart
3. Initial Draft of the Strategic Case and include:
 - Purpose (reason for being), Vision, Values (Core Ideology)
 - contribution to the economy, society and the individual (What is our Business?)
 - Identify the customer needs and the elements necessary to satisfy those needs.
4. Initial Draft of the Economic Case and include
 - The Benefits Model
 - The impacts on society and the customers
5. Initial Draft of the Commercial Case
 - Identify any initial supplier requirements
6. Initial Draft of the Financial Case
7. Initial Draft of the Management Case (based upon capability models and org charts)
8. Review of the Strategic Plan Draft
9. Revise following each View Review.
10. Finalize the Strategic Plan as the last step in the creation of the Architecture Description

Correspondences

- Strategic Plan Draft produced as first View completed.
- Strategic Plan reviewed along with each viewpoint
- Strategic Plan Reviewed and Approved as last view to complete

Examples

See the UK Green Book for an example .

Sources**Notes**

Started first and completed / approved last.

Value Viewpoint

Description

The Value Viewpoint describes the approach to creating the Value View for an Architecture Description.

The Value Viewpoint provides a view from the outside looking into the organization. The customer is delighted by the products and services the organization provides. They may pay for the products and services.

Without customers that consume the products and services, the organization will not be viable or sustainable.

This viewpoint focuses on the customer and the value they receive and their needs for a product or service.

Understanding these needs and expectations ensures that the right products and services are developed. Integrating customers into the definition and acquisition of products and services is key.

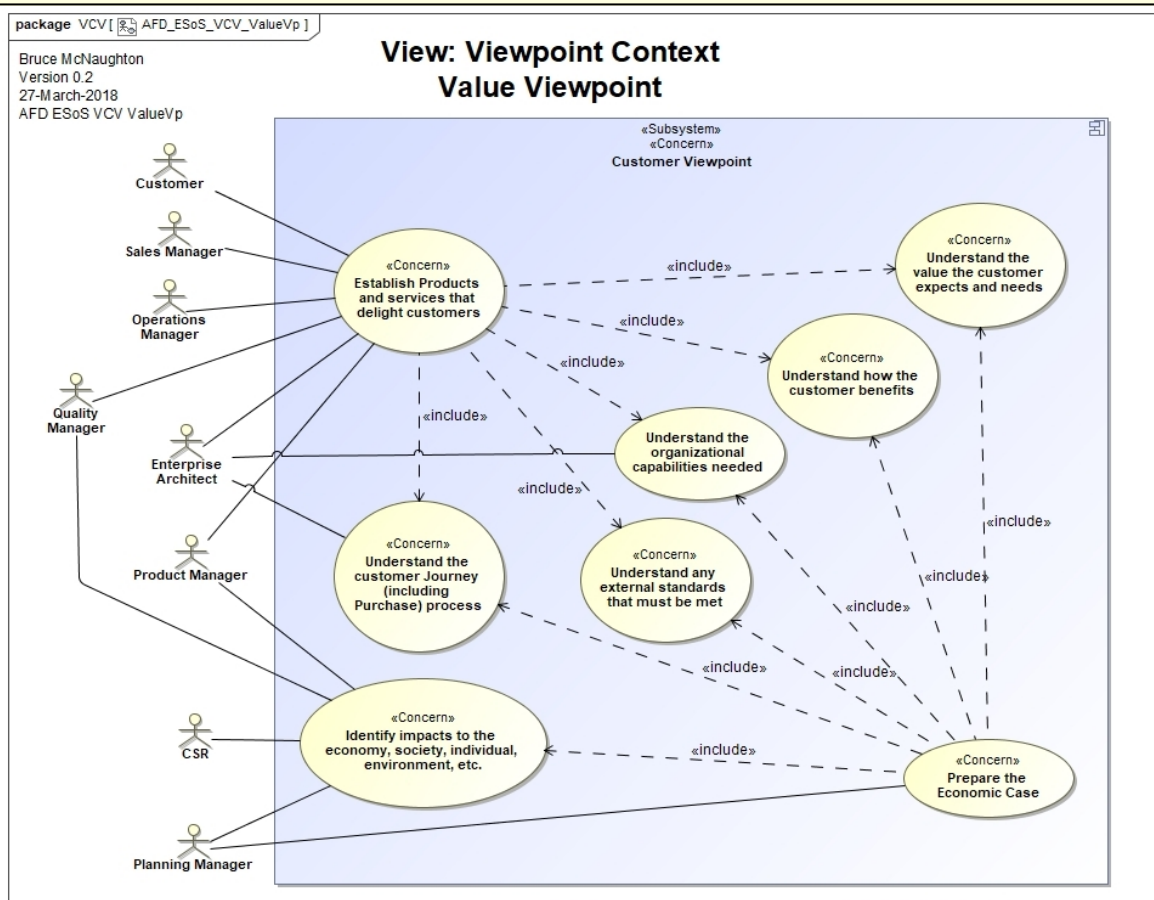
Customers interact with the three top level capability areas.

- [New Product / Service Development and Innovation](#) ([Improvement and Innovation Capabilities](#))
- Production, Delivery and support of products / services ([Delivery and Support Capabilities](#))
- Customer Complaints and feedback ([Management Capabilities](#))

Rationale

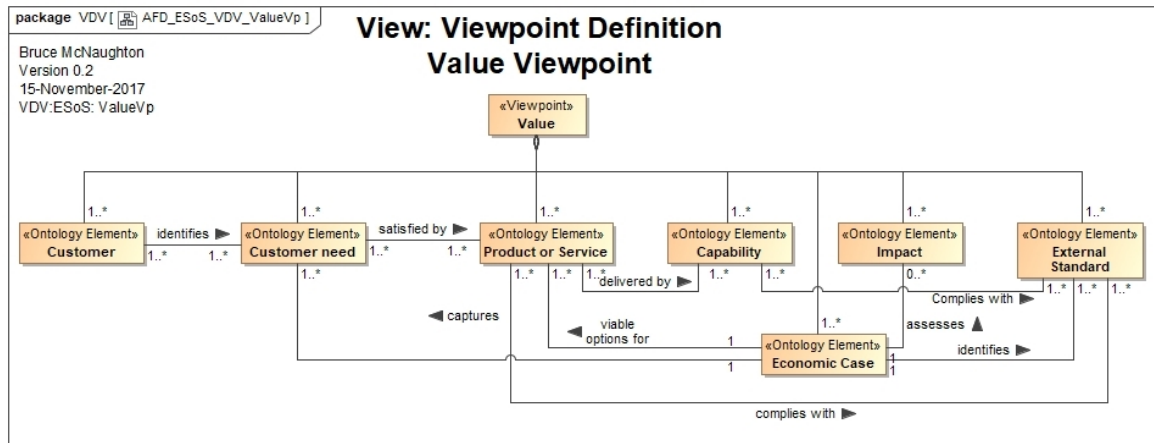
- This viewpoint allows the whole organization to be seen from the customer's perspective. People in the organization need to step out of their view and see what the customer experiences and the value they receive. This experience may not be what is desired.
- The customer also needs to have reassurance that the organization will continue to deliver products and services into the future. This comes from any demonstrated performance in all areas of the organization.
- This view provides inputs to the definition of the entire value system in the organization view.
- This value view is the basis for the value dimension of the [Operating Model](#). This dimension focuses on the business units or product lines that deliver value to customers.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Enterprise, Organization.



Models

[Business Model](#), [Customer Journey](#)

Product / Service Catalogue

Product / Service Roadmap

Steps to Create the View

- Understand market / customer needs / value
- Understand the Customer Journey (buying and use process)
- Understand the competitive / future market potential
- Identify the organizational capabilities required to:
 - Develop products and services
 - Produce, deliver and support products and services
- Establish or update a [Business Model](#) / Plan
- Establish a [product / service portfolio](#) / catalogue

Correspondences

- CR01: Separation of Business Plans (target operating models)
- CR02: Overhead Calculations (based upon contribution and budget).
- CR03: Align with the Strategic Plan.

Examples

- Customer Journey
- Product / Service Portfolio / Catalogue.

Sources

Notes

This provides an integrated view across:

- [Management Capabilities](#)
- [Design, Develop and Change Capabilities](#)
- [Product and / or Service Provision Capabilities](#) or operational capabilities

Objects produced by processes in the organization.

- Product Service Catalogue
- Product Service Portfolio
- 5 year P/L by product / service

Organization Viewpoint

Description

The Organization Viewpoint describes the approach to creating the Organization View for an Architecture Description.

The Organization Viewpoint provides the instructions to create a [Value System Model](#) of the entire Enterprise and the [Organization Chart](#) for the Organization taking on the Central Organization role. This provides an end to end view of the Supply Chain, the central organization and the channel partners to deliver products and services. The [Organization Chart](#) provides the organizations within the Central Organization.

This viewpoint ensures that is a consistent way to make informed decisions about allocating capabilities across the Value System and within the Central Organization.

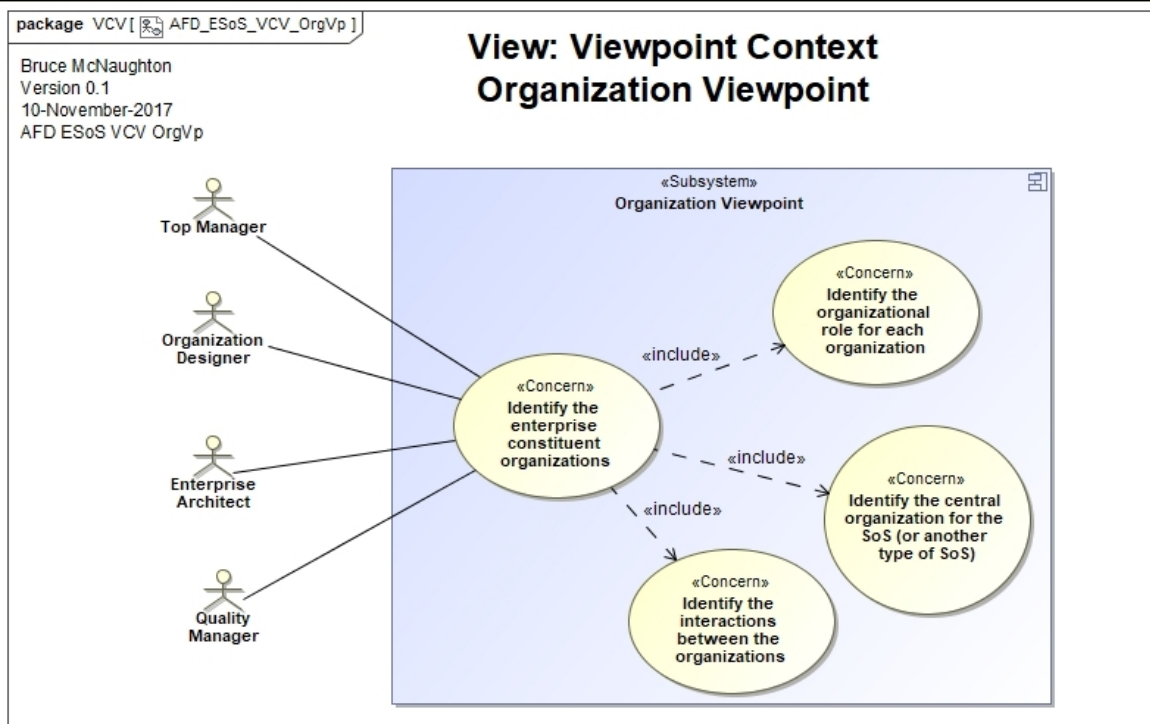
Capability Models created in the [Capability Viewpoint](#) can also be referenced from the capability viewpoint to highlight core capabilities needed.

The Organization View is one of the dimensions of an [Operating Model](#).

Rationale

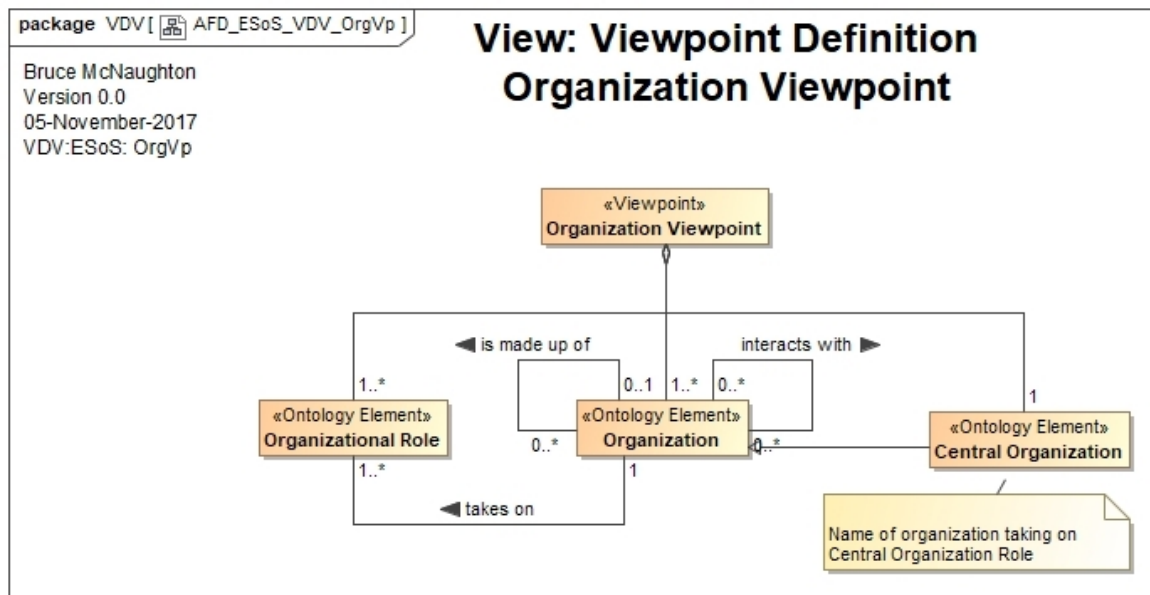
- The [Value System](#) provides a holistic view of the how products and services are delivered to customers. This provides a basis for normal operations and how to handle disruptions.
- The [Organization Chart](#) for the Central Organization provides the ability to understand where capabilities interact along the value system.
- The Viewpoint allows for a modular approach to organization design and allocation of resources. See [multi-dimensional organization design](#) and the [operating model](#) dimensions.
- Establish a full value system set of capabilities necessary to achieve the Enterprise objectives.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Description: Enterprise, Organization, Organization Capability



Models

[Value System model](#)

[Organization Chart](#)

Reference [Capability Models](#) from Capability View / Viewpoint

Steps to Create the View

- Identify the organizational roles needed to describe the value system.
- Identify the organizations that are needed to deliver products and services.
- Create the [value system model](#).
- Create an [Organization Chart](#) for the Central Organization.
- Review the model and check alignment with the other views.(e.g. Capability View).
- Identify the set of capabilities needed across the full value system. This uses capability models at a higher level than a full value chain. The capability view adds the additional details for organizations.

Correspondences

CR01 Each Role is unique (Customer, Supplier, Central Organization, etc)

CR02 Where there are product lines or divisions, each product line or division may have their own [Value Chain](#) and Business Plan. These may be shown as separate Value System Models as they can be considered a separate enterprise. The other views consolidate across value streams. The organization should highlight these business units within the Central Organization.

Examples

These correspond to some of the operating models in Enterprise Architecture as Strategy.

Sources

Notes

This provides a way to see the enterprise as a [multi-dimensional organization](#) (See Galbraith and Ackoff). This provides a way to minimise disruption when changes are required.

The Organization Chart can also be prepared as a multi-dimensional organization chart.

See the various organizational designs in the Enterprise as a system of systems site.

Technology Viewpoint

Description

The Technology Viewpoint describes the approach to creating the Technology View for an Architecture Description.

The Technology viewpoint creates a view of all of the technology types used by the enterprise to deliver the products and services to customers.

The resulting technology view contains 100% of the technology needed to support the enterprise.

Some of the technology areas may require their own architecture description framework and corresponding architecture descriptions. This will become visible as the architecture views are developed for the enterprise.

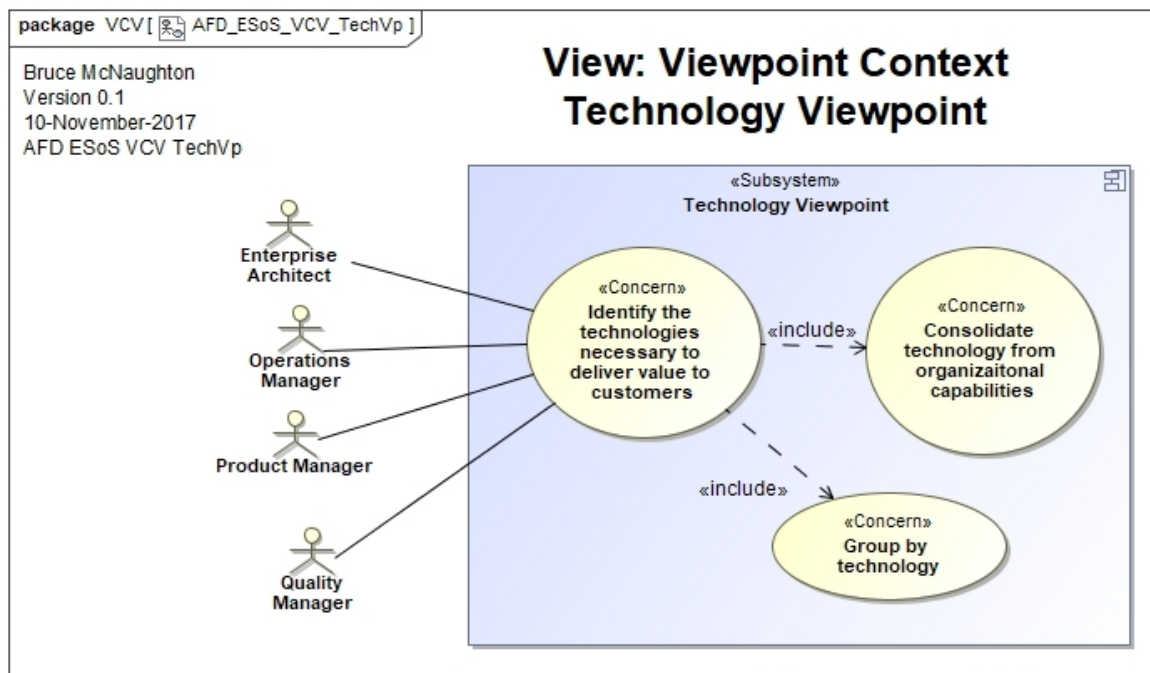
See the system description for Technology as a System of Systems:

[PDF:: System Description: Technology as a System of Systems \(SoS\), Version 0.2, 31-May-2021](#)

Rationale

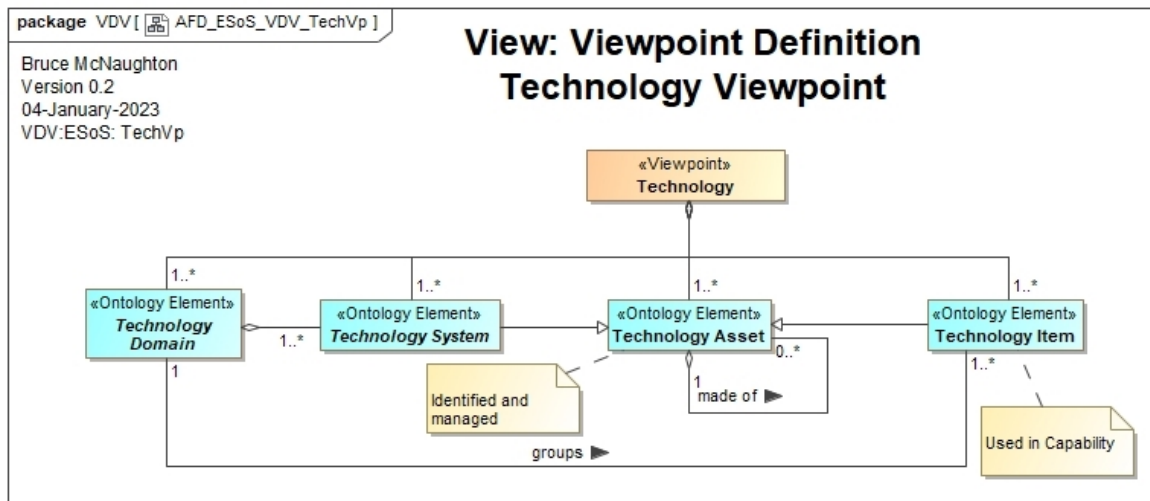
- The technology view provides a holistic view of all of the technology needed to deliver products and services to customers and achieve the enterprise objectives / goals.
- Each of the technology areas will be investigated to determine if a separate architecture description framework is required for this technology area. There are some areas that will generally require technology. These are:
 - Information Technology.
 - Workspace Technology (the places where people work)
- Some technology areas are outsourced. This viewpoint helps enable better decisions on the choice to out-source.
- Some technology areas may require their own Architecture Description Frameworks.
- Some technology areas may require unique development and maintenance capabilities.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Information Technology System



Models

Technology Model (Consolidated view of all technology for the enterprise)

Technology to Organization Matrix (mapping of technology to organizations).

Steps to Create the View

- For each organizational capability identified in the organizational capability view
 - Identify any unique technology items that support this capability (e.g. production technology (e.g. food production) or product or service (e.g. Aircraft).
 - Consolidate and eliminate duplication
- Prepare a system description for each technology system required. (highlight the status and any risks associated with the technology)
- Prepare a technology model that identifies relevant technology domains and technology systems within the domain. Multiple domains may be identified.
- Review the technology model.

Correspondences

CR01: Reference Architecture Description Frameworks if they exist.

CR02: Ensure risks and development costs are aligned with strategic plan.

Examples

Technology System Descriptions are included in the following document. These will be used to create architecture description frameworks for technology.

[PDF:: System Description: Technology as a System of Systems \(SoS\), Version 0.2, 31-May-2021](#)

Sources

Notes

Technology includes all technology used within the enterprise that directly relates to the enterprise produces and services.. Other technology (e.g. full information technology architectures will be developed as part of the next level of architectural work.

Management

- Create, acquire, use, release technology.
- Establish requirements and policies for technology management (configuration management).
- Ensure the technology used in the organization is protected.

Innovation:

- Create, acquire use and release technology needed to create new or improved products and services.
- Ensure that any intellectual property is protected.

Delivery:

- utilize the technology of the organization to produce, deliver, and support the products and services ordered by the customers.
- Ensure that the technology provided by the customer and the organization are protected.

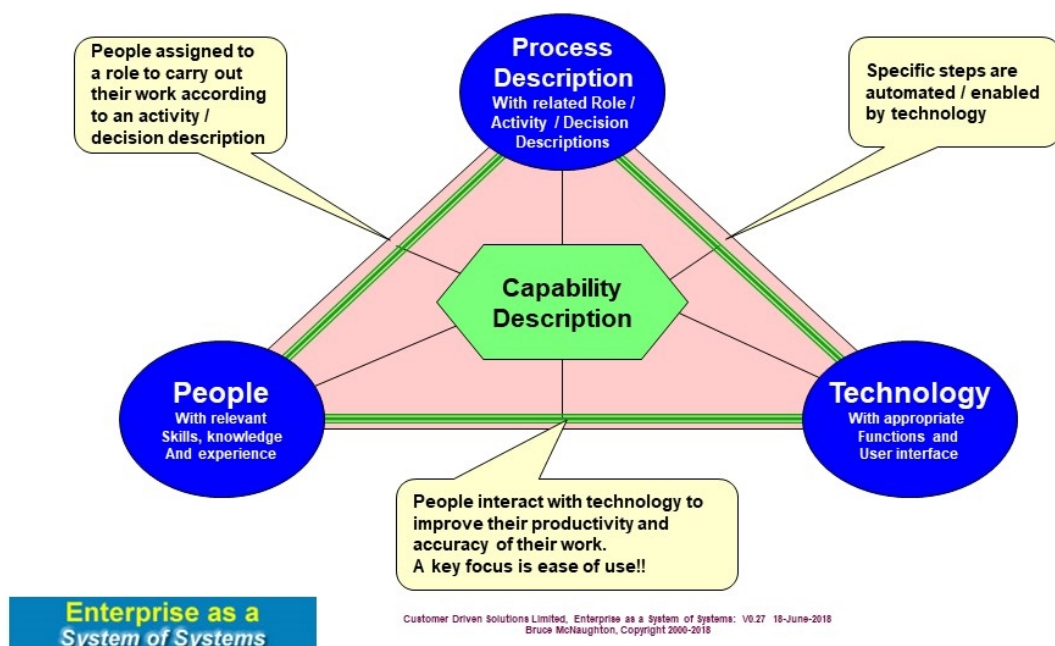
Capability Viewpoint

Description

The Capability Viewpoint describes the approach to creating the Capability View for an Architecture Description. The Capability Viewpoint provides a view of the 'System-of-Interest' in terms of the Capabilities necessary to achieve the overall purpose of the organization.

The concept of [Capability](#) is used throughout this Architecture Description Framework. Capabilities are defined and are realised through the interaction of people, process and technology within an Organization. The following pictures shows the relationships.

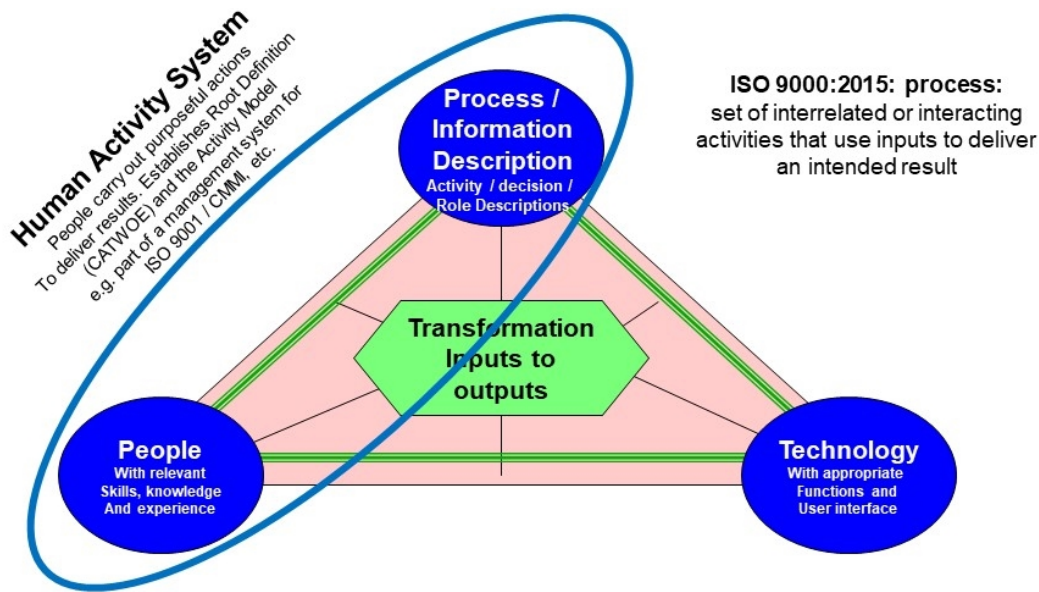
A Capability is Realized through the appropriate interaction of People, Process and Technology



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and

Human Activity System



Enterprise as a System of Systems

Customer Driven Solutions Limited, Enterprise as a System of Systems: V0.26 28-September-2017
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When capabilities are allocated to organizations or teams they form sub-systems that realise the capabilities (See [Adaptive Enterprise](#)) or are Capability Systems (See [The Essential Advantage](#)). The following picture shows the relationship of capabilities to teams:

A Team

A manager and team members contributing a needed result according to a plan.



Enterprise as a System of Systems

Customer Driven Solutions Limited, Enterprise as a System of Systems: V0.3 19-November-2016
Bruce McNaughton, Copyright 2000-2016

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This viewpoint provides the information needed for the next levels of design, development, test, and deployment of the capabilities used within an organization:.

- The interactions and relationships between capabilities are identified and understood
- The capabilities can be grouped into sets that demonstrate how external standards will be met or provide descriptions of internal capabilities requiring set of capabilities (asset management, planning, new product development, etc).
- The capability allocation to teams is understood.

[Capabilities are identified](#) and defined using a [capability template](#). This template describes a capability that can be allocated to any team for implementation.

Capabilities are developed and managed by a [Capability Innovation Team](#) using the [Capability Innovation Life Cycle](#).

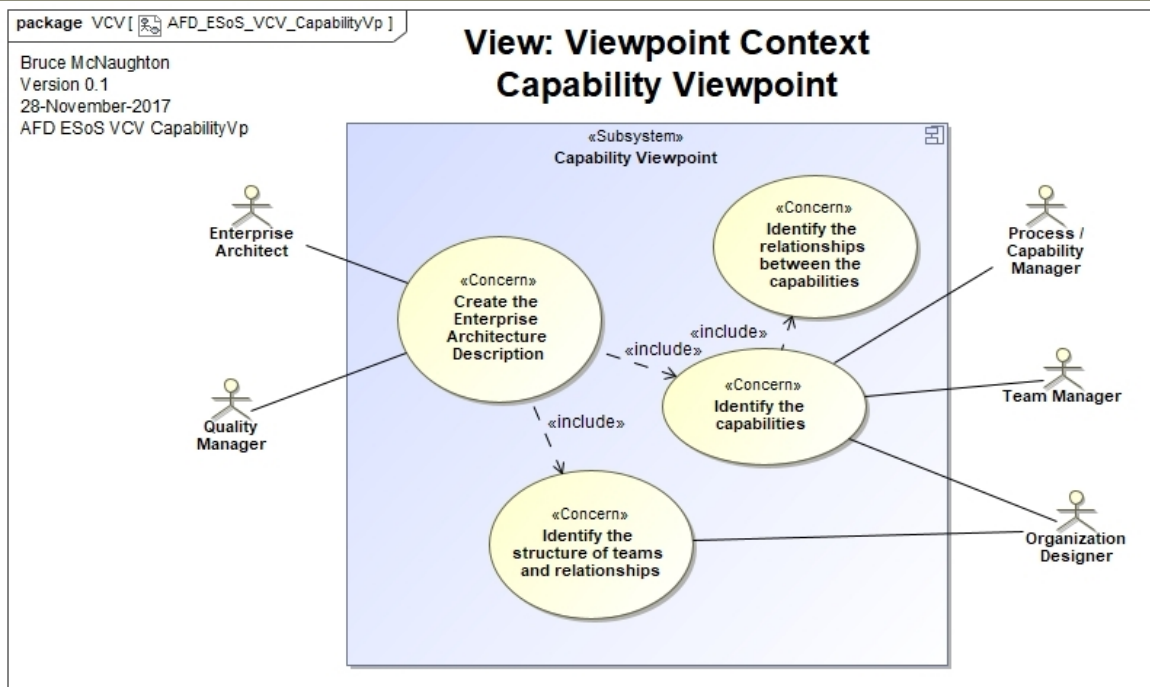
[PDF: System Description: Capability as a System, Version 0.16 05-December-2022](#)

The capabilities are documented in a [Capability Model](#)

Rationale

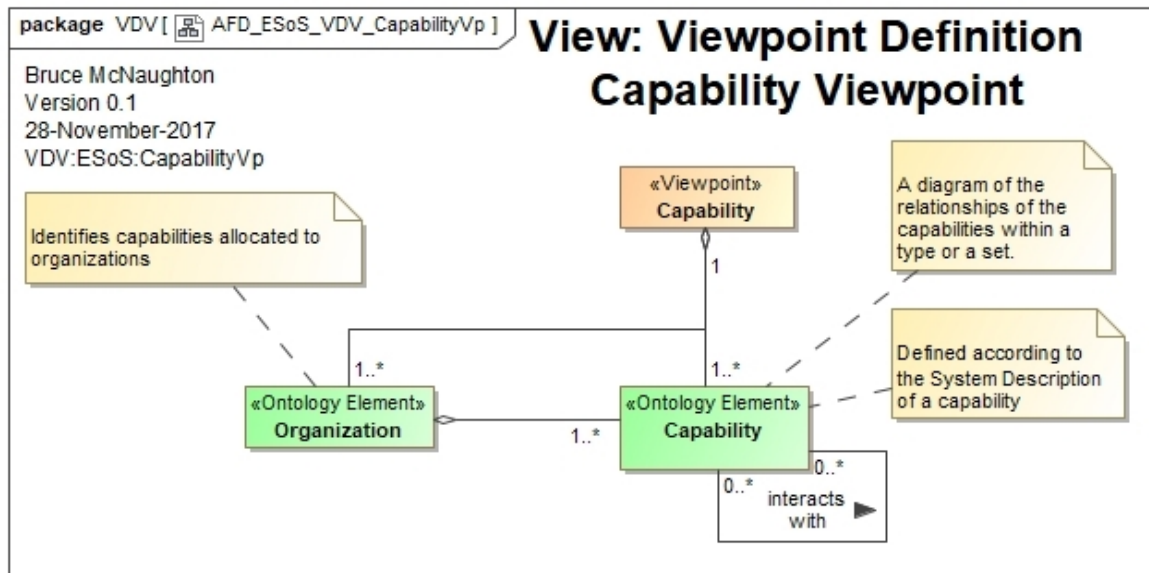
- [Capabilities](#) contribute to the delivery of the purpose and performance of the organization.
- Capabilities are an essential element of an [Integrated Management System](#) that meets multiple standards or regulations.
- Capabilities form one of the dimensions of the [Operating Model](#).
- Organizations identify the critical capabilities they need to carry out their purpose.
- 100% of the critical capabilities that can be used by or allocated to teams are identified in this view. Other views are looking at specific elements of the capability across the entire organization.
- Consistent implementation and replication of capabilities where appropriate establishes consistency and cost effectiveness across the organisation.
- [Capability Innovation Team](#) will use this architecture view to manage their development and implementation of the [Capabilities](#).
- Capabilities provide a view of where skills, knowledge, experience and technology are allocated throughout the organizations.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Management System, Team, Team Capability



Models

[Capability Model](#). There may be 3 capability models for an organisation: Management, Design, Develop and Change, Provision of Products and services. Other capability models may identify sets of capabilities that demonstrate compliance with external standards or provide wider capabilities to the organization (e.g. planning, asset management, new product development, etc).

Steps to Create the View

- Identify the scope of the management system and the purpose, objectives and goals that are to be achieved.
- Identify any organizational capabilities that are relevant to this management system.
- Using the scope, identify the set of team capabilities necessary to achieve the objectives
- use various reference [Capability Models](#) to ensure that some are not missed
- Only establish the capabilities by name unless there is a history of capabilities in use.
- Create a [Capability Model](#) for the set of team capabilities
- Review the capability model.

Correspondences

CR01: Capabilities provide the initial lists of processes to be defined for the management system..

Examples

Examples of typical capabilities found in organisations can be seen here. See [Capability Model](#)

Sources

Notes

Process Viewpoint

Description

The Process Viewpoint describes the approach to creating the Process View for an Architecture Description.

A process¹ is a set of *interrelated or interacting activities* that use *inputs* to deliver an *intended result*. ISO 9000:2015.

Activities: descriptions of two or more activities to be carried out by people in the organisation. The activities also identify the Technology Interaction Points.

Inputs: The work products to be used or conditions necessary to carry out the activity

Interrelated or interacting: The activities within the process work together to produce the intended results required to achieve the objectives and goals of the process.

Intended Result: The intended result can be an output of a process, a product or service from the organisation. Other terms used are work product, outcome, etc.

Processes are a critical / essential element of any [Capability](#). The processes identify the work (activities / decisions) needed to be carried out by a person assigned to a role to deliver the capabilities to contribute to the purpose of the management system.

The process viewpoint provides a view across all of the work performed in the management system. . The [Process Model](#) is used to identify the processes and their relationships for the whole organization . These processes also align to the [Capability Model](#).

The following are the main types of processes found in the Integrated Management System:

- [Management Processes](#).
- [Innovation and Development Processes](#).
- [Product and / or Service Delivery Processes](#).

Each process is fully defined using the [Work Product: Process Description](#). This work product describes all of the interrelated activities and their interactions, inputs and outputs. The Process Description also references all of the supporting process documentation. The entire set of process documentation provides the knowledge base for the use of this process.

Once the processes have been identified in the Process Model, a Process Top Level Design is created for each process identified in the Process Model.

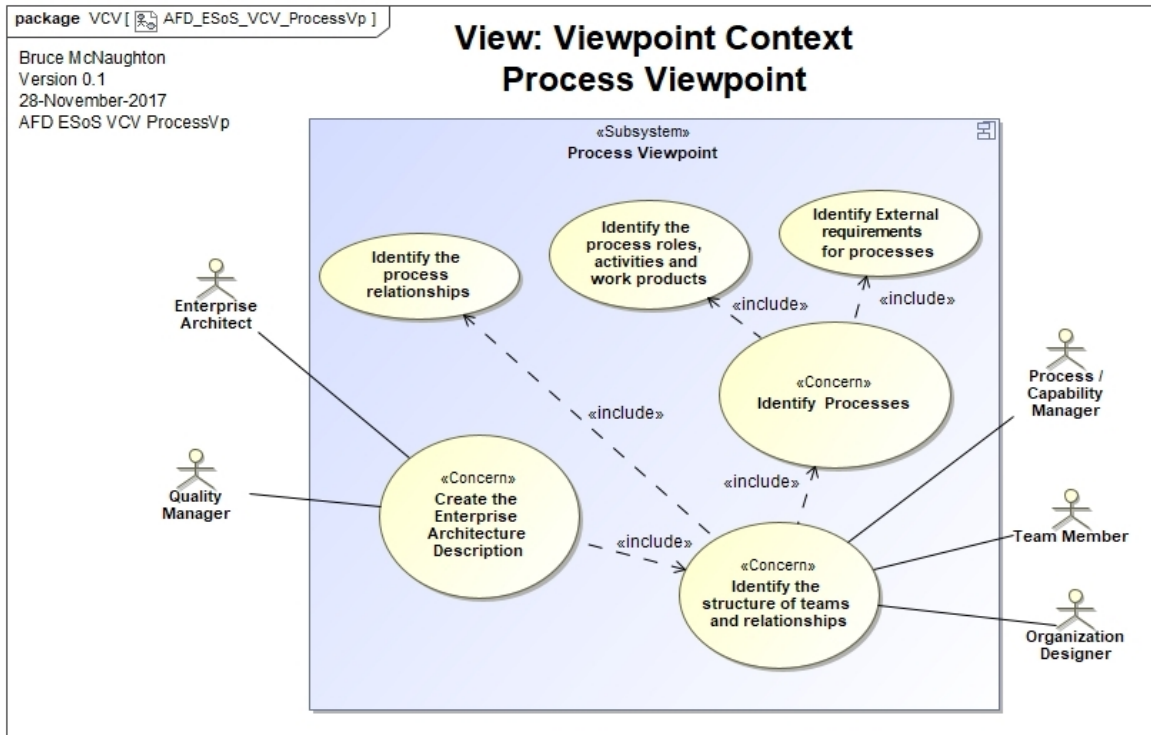
Each [Capability](#) has a Capability Owner and a supporting [Capability team](#). The Capability team is generally formed using the 'project management process' and is responsible for the process, competency and technology of the capability. Improvements are identified using an approach to GAP Analysis.

Rationale

- The managers understand the work necessary to delight customers and contribute to society and the individual as described in a Process Description.
- All people in the team are developed to their full potential to carry out the work of a specific capability in the management system.
- With a process description and document defined once for a capability, the capability can be replicated in many teams within the organization.

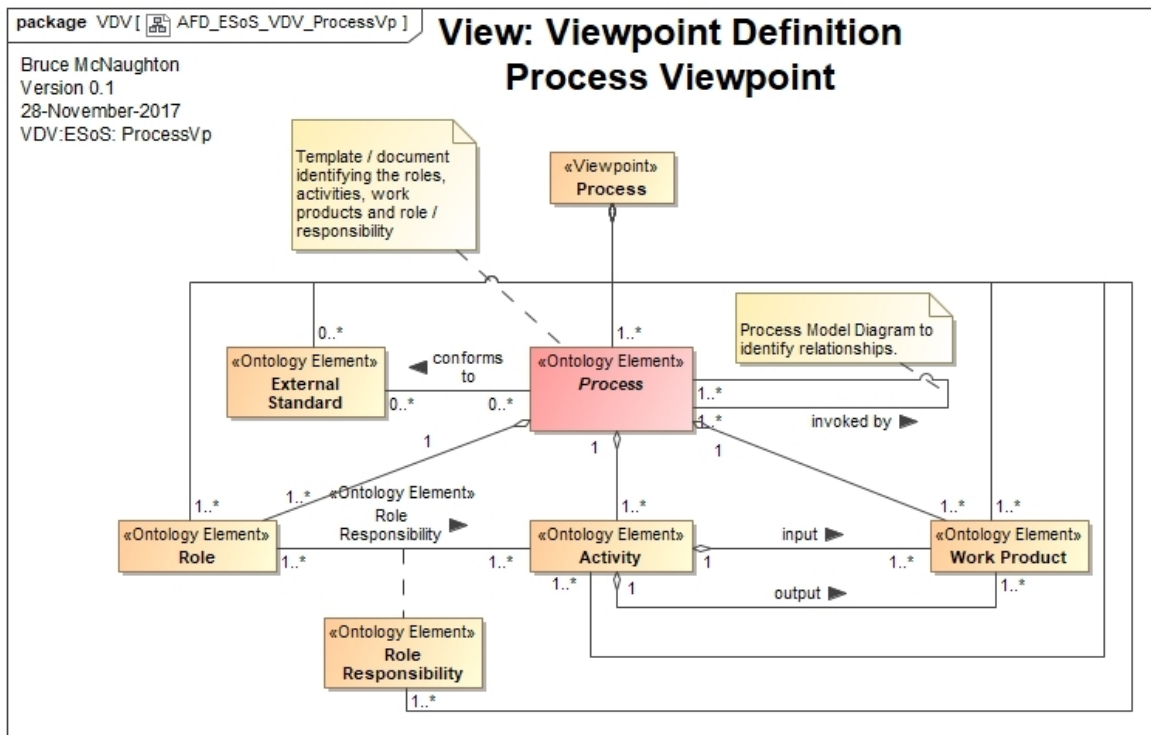
Stakeholders and their Concerns

¹set of interrelated or interacting activities that use inputs to deliver an intended result. ISO 9000:2015.



Ontology Concepts and System Descriptions

System Descriptions: Team Capability



Models

[Process Model](#), [Information Model](#), [Data Model](#)

[External Requirements Indicator Map \(ERIM\)](#)

[Process Top Level Design Model](#), [Process Design Patterns](#),

Steps to Create the View

- Understand the [capabilities](#) that are needed to achieve the purpose
- Identify the processes necessary to realise the capabilities
- Create a [Process Model](#) with the identified processes and their relationships.
- Revise or create the [External Requirements Indicator Map](#) if appropriate.

- Create a [Process Top Level Design Model](#) for each Process in the Process Model.
- Create an [Information Model](#) based upon the inputs / outputs of the various processes.
- Identify process owners to confirm the model.

Correspondences

- CR01: Each Process identified in the [Process Model](#) has a corresponding [Process Top Level Design Model](#).
- CR02: Process Design Patterns are created using the [Process Top Level Design Model](#)
- CR03: Processes and their activities can [map to one or more external standards, regulations or best practice](#).

Examples

The following are example process design patterns that may be used to develop the Process Top Level Design Model for each process identified in the [Process Model](#).

Sources

Notes

A Process focuses on the work (activities / decisions) in a related area. All roles that need to work together are brought together in a [RASCI style diagram](#) to look at the roles and responsibilities related to the activities. These processes also include any related governance or compliance activities and decisions. This ensures that the whole process is seen and can be assessed in its work context.

These Processes work in a very similar way to an application in software. They are the 'software' for people providing guidance and knowledge about how to carry out some work. They are written for people to use assuming they have the appropriate levels of skills knowledge and experience.

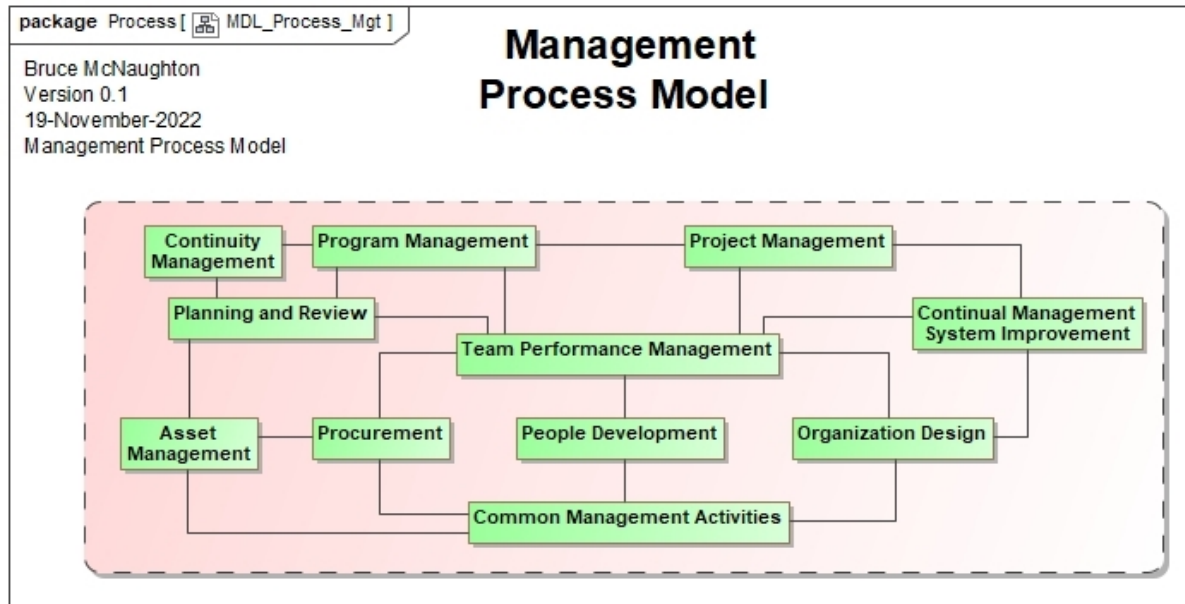
In a software sense, processes are like a class module with attributes (information), operations (activities) and events. Many of the design disciplines to create software may be used to create business processes.

Here are some laws of Process from Microsoft

[Laws of Process, Microsoft](#)

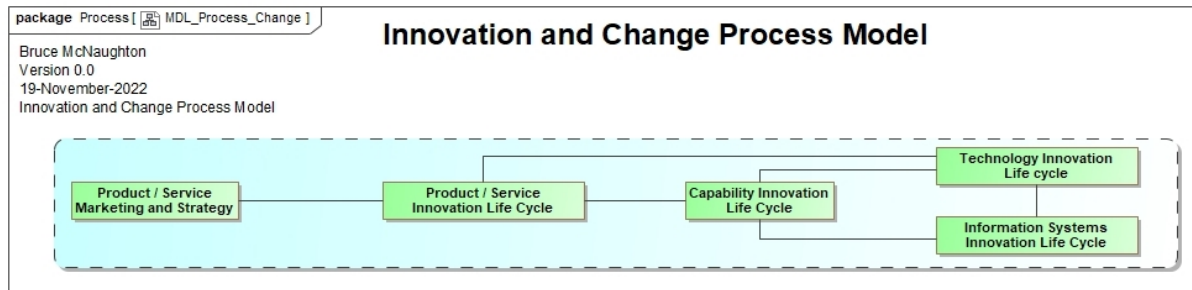
Process Set: Management

The following are the processes that normally define the set of management processes within the management system.



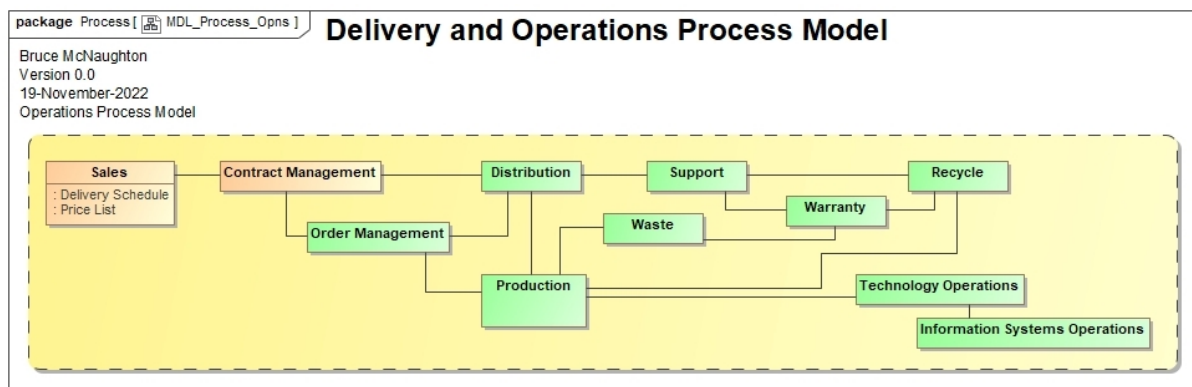
Process Set: New / Revised Product and Service Development and Innovation

NOTE: There may be some additional processes that are specific to the product or service that is being delivered. These may relate to manufacturing (Production) or customer service.



Process Set: Product and Service Delivery and Operations

NOTE: The set of Product and Service Delivery and Operations Processes will vary depending upon the type of organization. A Hospital, Charity, or Church will have a very different set product and / or service delivery processes from a Publisher or High Tech Manufacturer. These Processes are generally designed and developed by the New / Revised Product and Service Development / Innovation Processes.



People Viewpoint

Description

The People Viewpoint describes the approach to creating the People View for an Architecture Description.

People are the active elements of a management system. A person

- Is an integral part of the capabilities of the organisation
- Contributes to the organisation through their work
- Uses technology to improve their productivity and reduce errors
- Create and use information to support their decisions and produce results
- Interact with other people across the organization in formal and informal social networks.
- Uses a process to guide their work

People bring or develop the following:

- skills, knowledge, experience, attitudes, behaviours and beliefs
- a wider understanding of the organisation and how it works
- Understanding of how they learn and change
- their physical and mental processing capabilities.

This viewpoint also looks at the capacity and competency of the people allocated to the teams

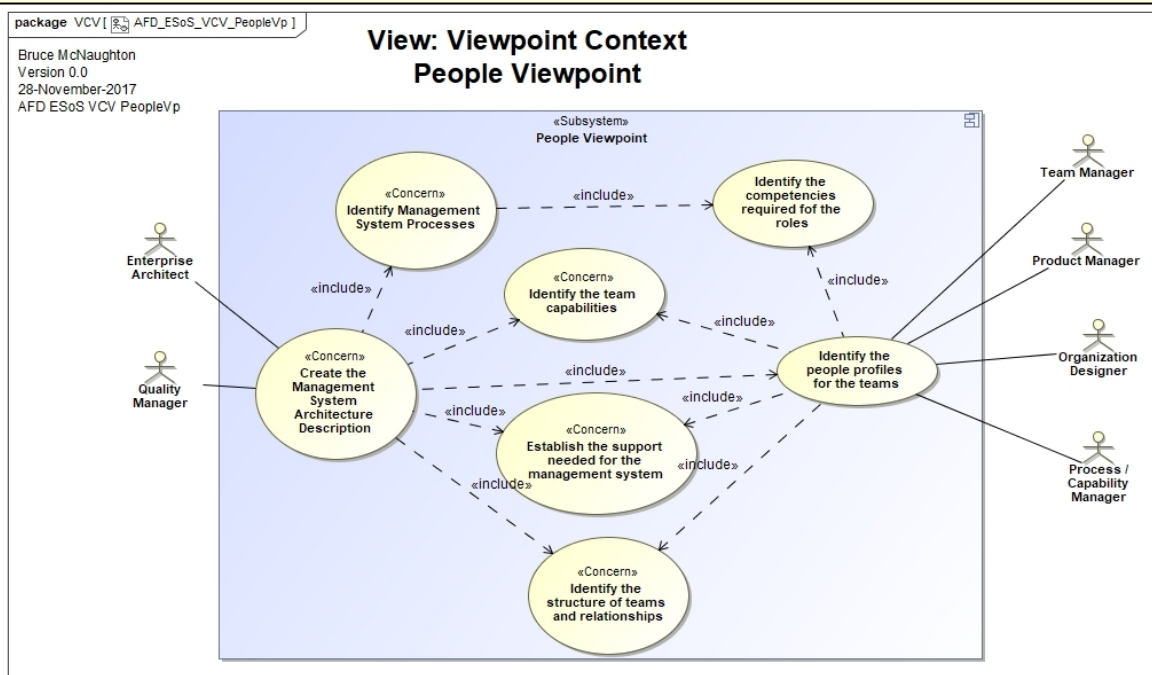
This viewpoint also identifies the various 'User or Customer personas' that are key to the delivery of products or services. These user personas represent a class of people and identify unique profiles of skills, knowledge, experience, attitudes, behaviours, beliefs and physical attributes. These customer and user personas help ensure that the appropriate user or customer experience is achieved and the expected capabilities (internal and external) are realised.

This people view identifies all of the stake holders types and key roles for the enterprise and the organization.

Rationale

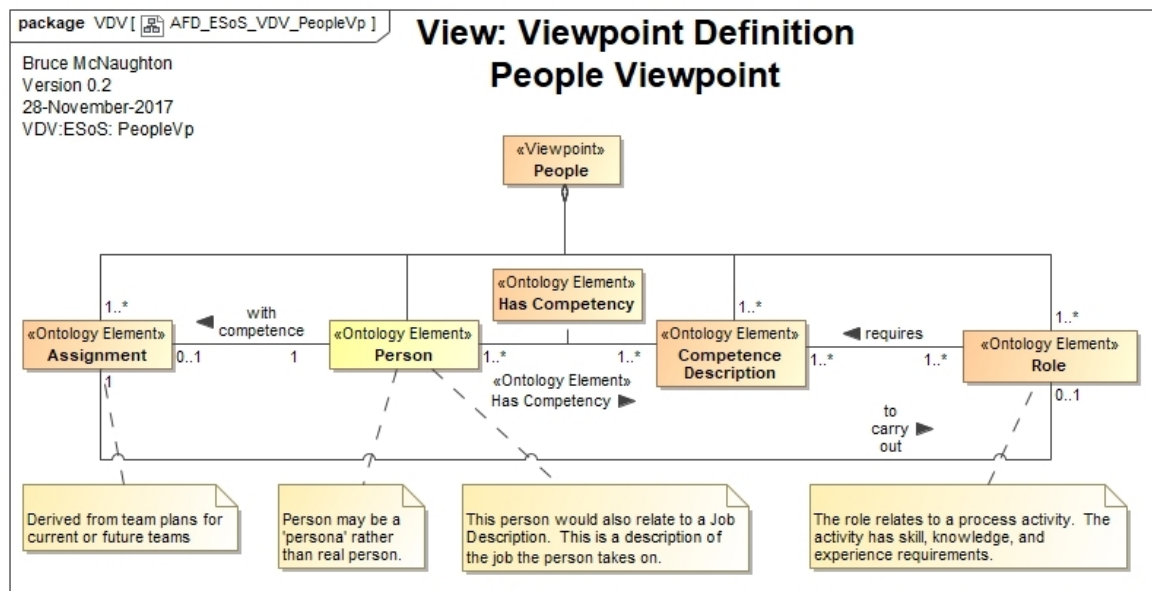
- People are an essential part of the organization. Managers create the environment for people to be successful. People bring their skills, knowledge, experience, attitudes, behaviour and beliefs to their team to contribute to the purpose of the organization.
- Managers are a subset of the people in the organisation and create the environment for their teams success.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Person, Team, Team Capability



Models

[Jobs / Role Model](#), Job / Skill Model, Succession Planning Model, [Responsibility Chart \(RASCI¹\)](#)
Target People Survey results., Social Network Model, User Persona Model and profiles.

Steps to Create the View

- Identify the critical skills, knowledge and experience needed for the critical capabilities
- Create a job / role model to highlight the key skills, knowledge and experience
- Identify the typical job / role progression within the [Job / Role Model](#).
- Identify the capacity for the selected state in terms of critical job / roles
- Identify the attitudes, behaviour and beliefs necessary to carry out this work
- Create a social network model (formal relationships) using the process descriptions.
- Identify customer or user personas (internal or external) to help ensure that the capabilities will be fit for purpose.

Correspondences

CR01:

Examples

Skills Framework for the Information Age (SFIA)

Sources

Notes

- SFIA like model of the career paths / progression
- Skills Capacity models
- Permanent / Contract / Outsourced Mix
- Responsibility Charts
- Customer and User Personas used in agile development and business process design. These personas help ensure that the customer / user journey is fit for purpose.

This people view also looks at the culture that emerges from the organization and the implications across the various models to enable a culture in line with stated vision and values for the organization. This may relate to the design of measurements and analysis of cultural changes on other aspects of the people or the capabilities.

See [Cultural Web](#).

¹RASCI represents the various responsibilities that a Person can take when carrying out an Activity and Role. RASCI means: {Responsible, Accountable, Support, Consult, Inform}.

Technology Items Viewpoint

Description

The Technology Items Viewpoint describes the approach to creating the Technology Items View for an Architecture Description.

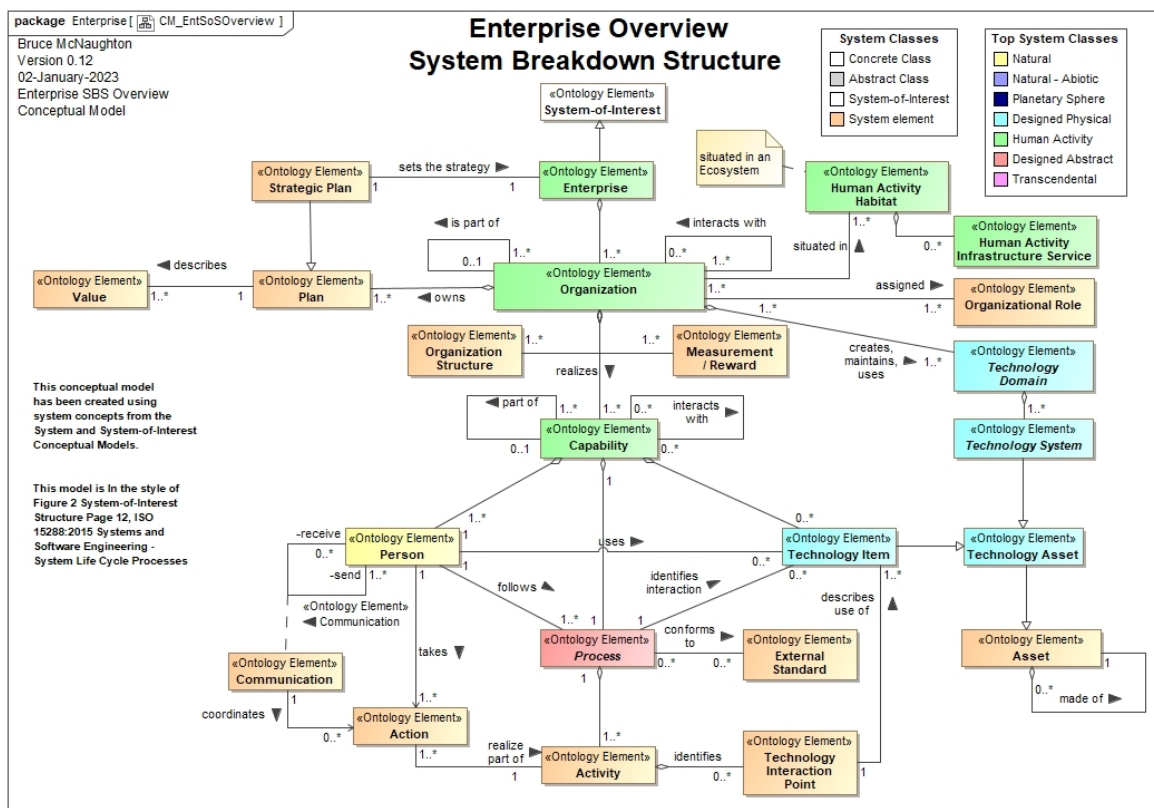
Organisations use technology to support the people carrying out their work described by the process activities supporting a Capability.

The process activities identify "Technology Interaction Points. These Technology Interaction Points identify the point a Role interacts with a technology system.

The resulting integration of technology into a capability creates a socio technical systems focus. These Technology Interaction Points may only identify the relevant part of a Technology System that the Role interacts with (e.g. specific application within a IT System)..

Each Technology System may represent a technology 'system-of-interest' within the organisation.

The following picture highlights the overall structure of an Enterprise as a System of Systems:

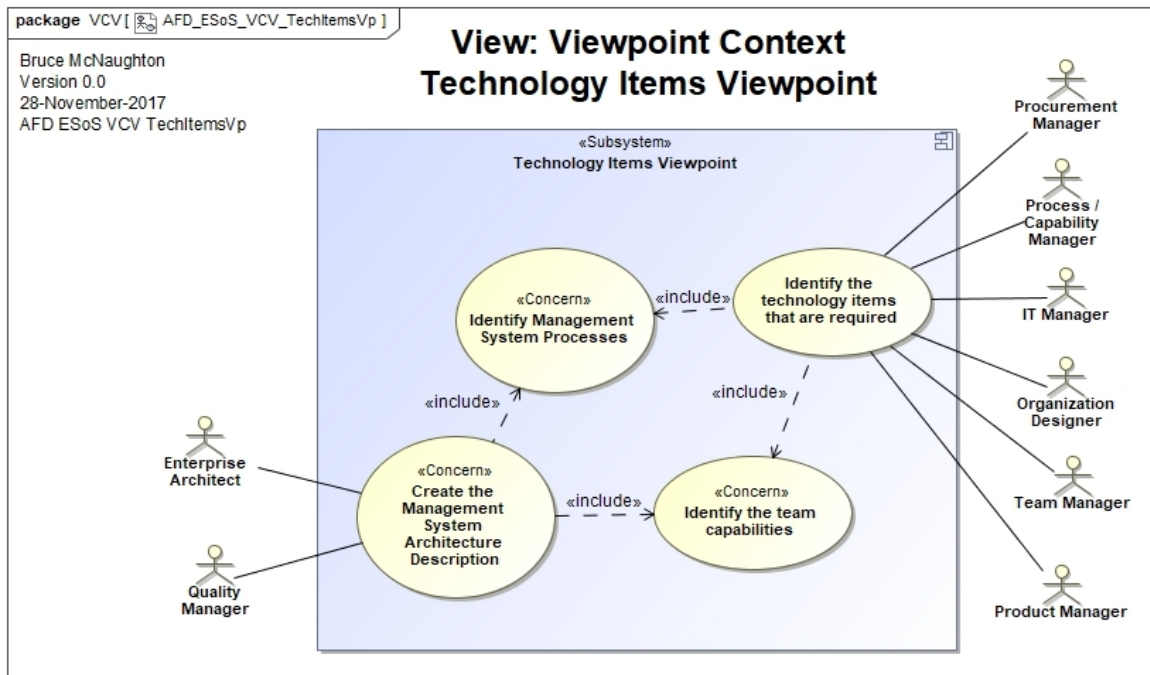


Teams create, acquire, use, release technology at all levels. This viewpoint looks at all of the technology across the whole organization and any human factors considerations that may be relevant.

Rationale

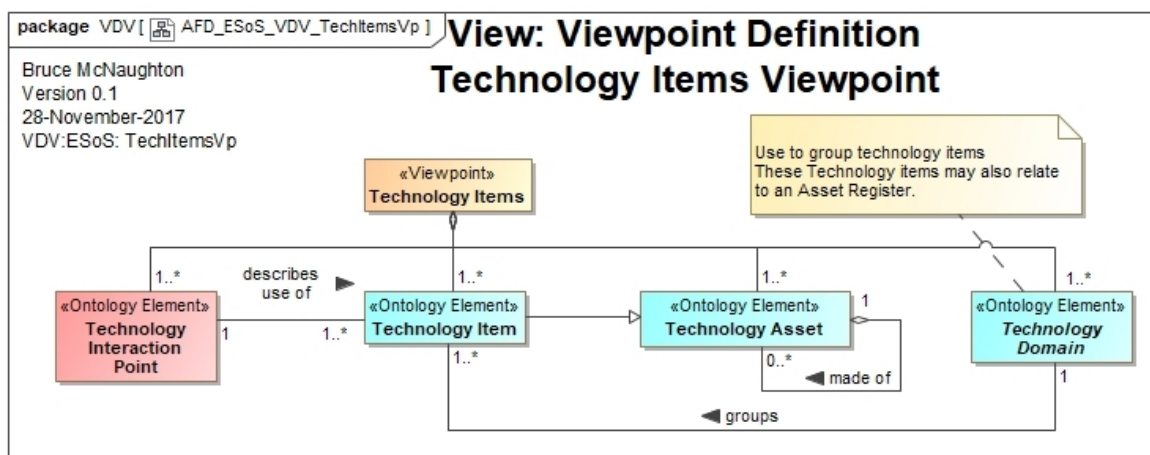
- Technology is critical to the productivity and performance of an organisation and the people carrying out their work. Many of the product and services are dependent on specific technology.
- Technology is a critical component of a capability
- Technology may cover many technology domains (not just IT).
- Technology items directly relate to the performance of a process.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Information Technology, Management System



Models

Use Case Model (what is the Technology Interaction Point purpose of this interaction).

Interaction / Sequence Models to show the interaction with the user.

Data Models may further clarify the content of the interactions based upon process activity needs.

Competency notes may also be included in any of the areas to help with training development or user information

Steps to Create the View

- Identify Technology Interaction points by process.
- Identify and create the relevant Use Cases for the various roles related to a process. (note: at an appropriate role level of detail)
- Consider data models to identify the contents of the interactions.
- Consider competency and user interaction notes to help establish requirements for technology items.
- Group and eliminate duplicates across the technology items.
- Revise the process Technology Interaction Points in the process as necessary.

Correspondences

CR01: Technology Items identified through Technology Interaction points in process / activity descriptions.

CR02: Technology Interaction Points also relate to the competency levels for the process role.

CR03: Training materials and user technology item documentation relate to the technology items.

Examples

Examples of technology used in Engineering organizations:

- Design (CAD Systems)
- Architecture and Modelling (MBSE Systems)
- Airline Checkin (Checkin Systems)

Sources

Notes

Change Viewpoint

Description

The Change Viewpoint describes the approach to creating the Change View for an Architecture Description. Every organization has a management system. This management system can be either:

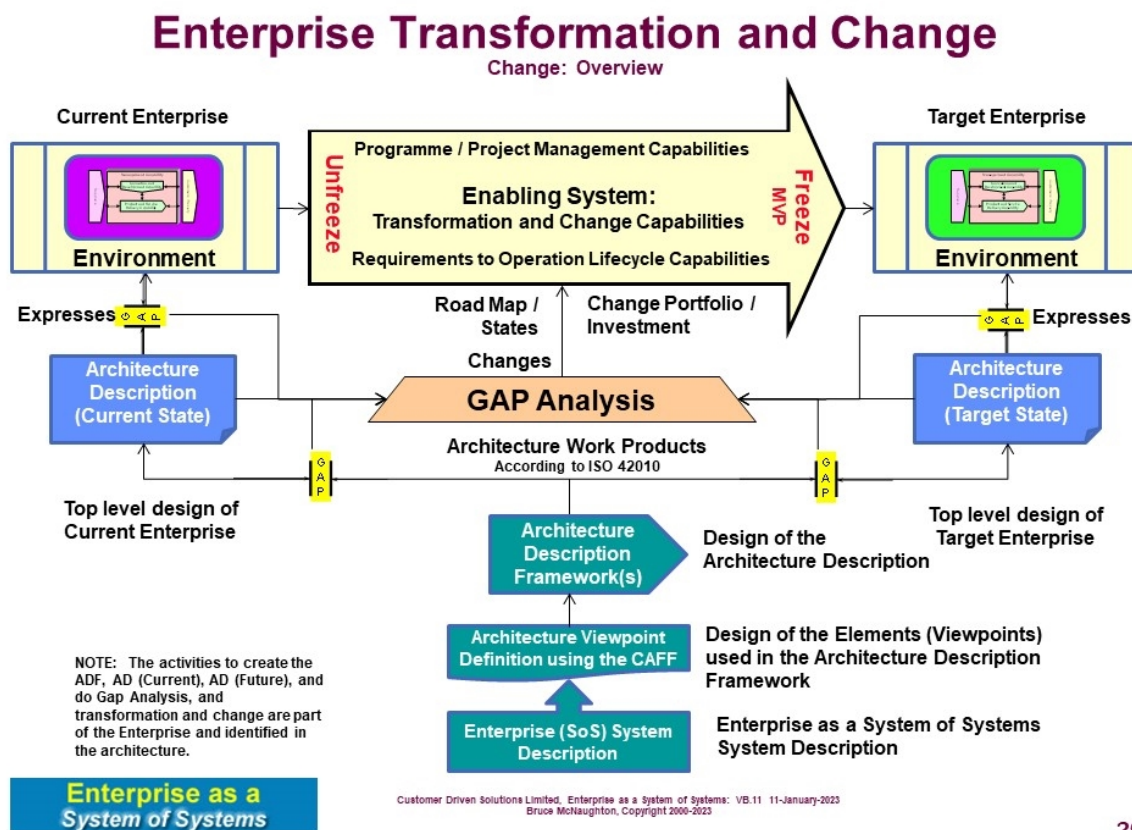
- ad hoc or not coherent (low maturity)
- designed and capable of continual improvement or major improvement (high maturity)

These differences relate to management system maturity. Ad hoc management systems are not aligned and require extra work to change and achieve benefits. Some high performing organizations have established a culture of performance and improvement where change is valued and benefits are achieved as planned.

The most effective approach to management system maturity is to establish an Integrated Management System that can meet all relevant standards and regulations and can be implemented / replicated in a coherent way across the Enterprise (SoS).

[PDF: System Description: Integrated Management System, Version 0.17, 10-October-2023](#)

Every management system has an architecture. A future or target architecture description expresses the architecture of the management system at some future time. The change viewpoint describes the mechanism for moving from the current state of the management system to an intermediate state or the Target state of the enterprise or organization expressed by future architecture descriptions. The following picture shows the movement from the current state to the future or target state.



20

The activities to create a future architecture work closely with the activities to create the plans and strategies for the management system.

Gaps between the current AD and the intermediate state or target AD are identified. The Gaps represent investments that must be made to improve the way the management system works. These investments need to be prioritised and then delivered as part of the approved strategy and plan. The requirements are allocated to teams to make the changes to the management system. At the conclusion of the change, the parts that have been changed will now be described as part of the current architecture.

The Architecture is essentially the Top Level Design of the management system. Each architectural gap between 'how the management system works today' and 'How the management system wants to work' is trans-

lated into the live management system through a number of distinct steps: design, implement, integrate and operate. The steps create the Team capabilities necessary to carry out the new work.

The initial creation and implementation of the architecture description moves forward in small increments of creating the architecture elements and then implementing the elements to form a foundation for further development. This process is called an [architecture bootstrap](#). This bootstrap process essentially creates management capabilities that create innovation and development capabilities and then create the delivery capabilities. These steps apply to a startup management system or an existing live management system that needs to understand and improve its own architecture.

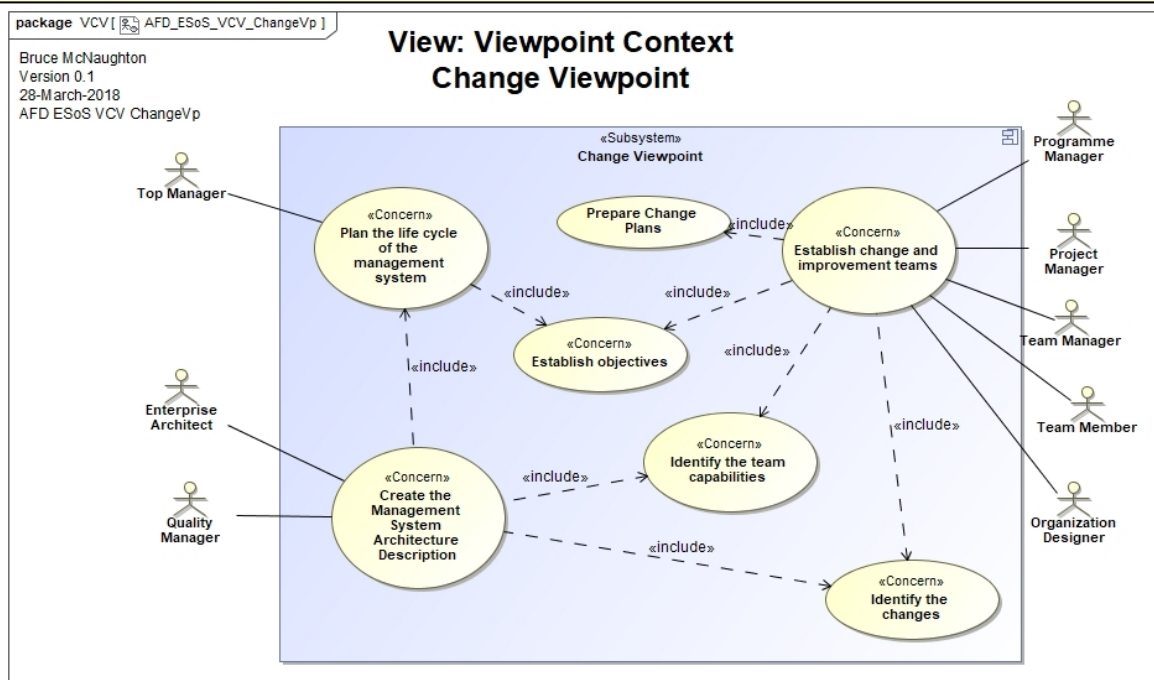
All change creates, improves or releases team capabilities and teams which may also include changes to Information System capabilities. Any change to the management system is a business change.

Where possible, the Target Architecture Description should be the 'idealized' architecture description or a 'realistic' alternative. (See Recreating the Corporation or Idealized Design)

Rationale

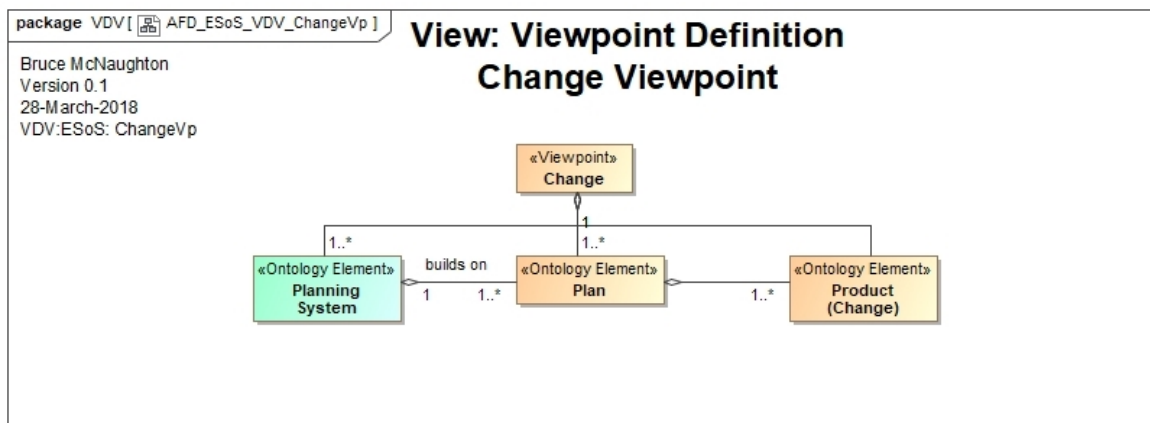
- Change is critical to the enterprise or organization remaining sustainable in the long term. This view demonstrates how the objectives and strategies that relate to changing capabilities and teams are translated into appropriate actions (manager actions, task teams, programmes or projects).
- Where necessary, suppliers in the supply chain are also identified to support the transformation and change.
- The change approaches are built into a well designed and implemented Integrated Management System. This supports:
 - Continual improvement (regular and responsive)
 - Major changes (planned and architected)

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Descriptions: Management System, Team, Change and Transformation.



Models

[Roadmap](#), Requirements, Risk

Product Breakdown Structure, Product Flow Diagram

Life cycle model (e.g. Process for improvement or transformation).

Improvement Model (e.g. process for Capability Improvement).

Steps to Create the View

- [Initial Bootstrap of the organizational architecture.](#)
- Use the planning process to identify gaps and strategies to close the gaps.
- Select the requirements and changes that deliver the highest value to the stakeholders.
- Monitor and track the changes (via the selected method to achieve the objective).
- Confirm that the changes have been completed and the benefits will be delivered
- Close when the benefits have been delivered.

NOTE: these steps can all be managed as a programme or project.

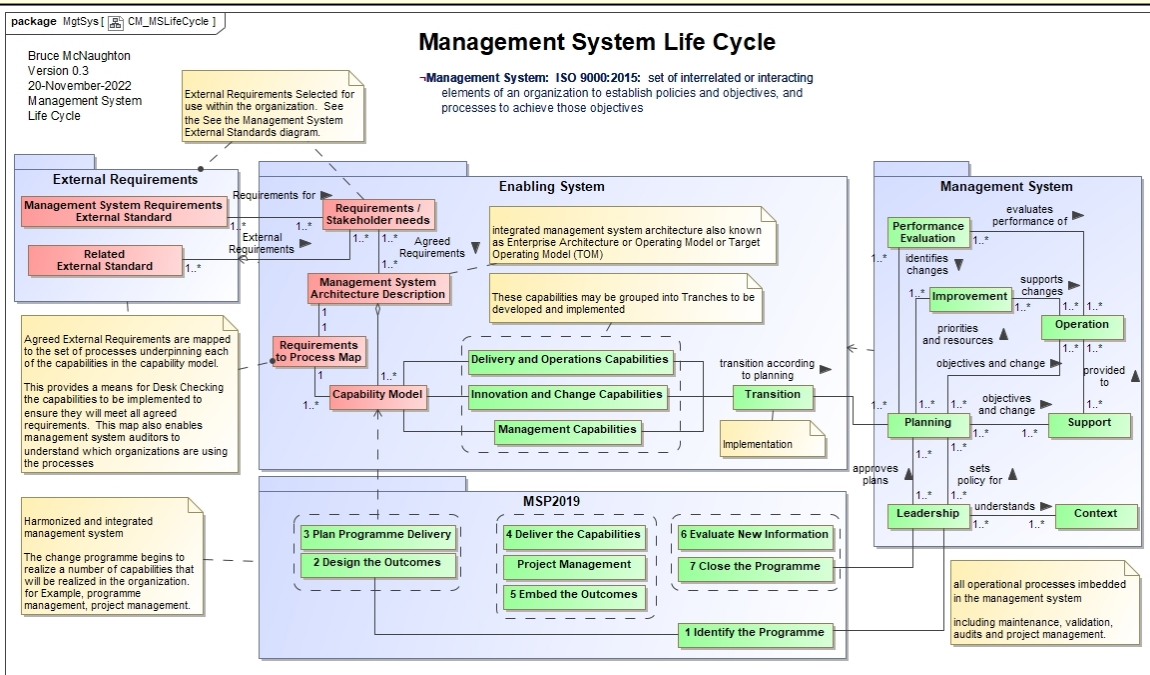
NOTE: A plan is a unique process. See ISO 9000 definition of project.

Correspondences

CR01: The Target Architecture Description becomes the Current Architecture Description once a change is complete.

CR02: Each system being changed will have its own system life cycle and architecture.

Examples



[PDF: System Description: Integrated Management System, Version 0.17, 10-October-2023](#)

Sources

Notes

Reference the Transformation and Change section of the Eaasos.info website.

Continuity Viewpoint

Description

The Continuity Viewpoint describes the approach to creating the Continuity View for an Architecture Description. The Continuity Viewpoint ensures that enterprise wide continuity strategies and plans are prepared within the architectural development and all of the aspects of the enterprise are considered.

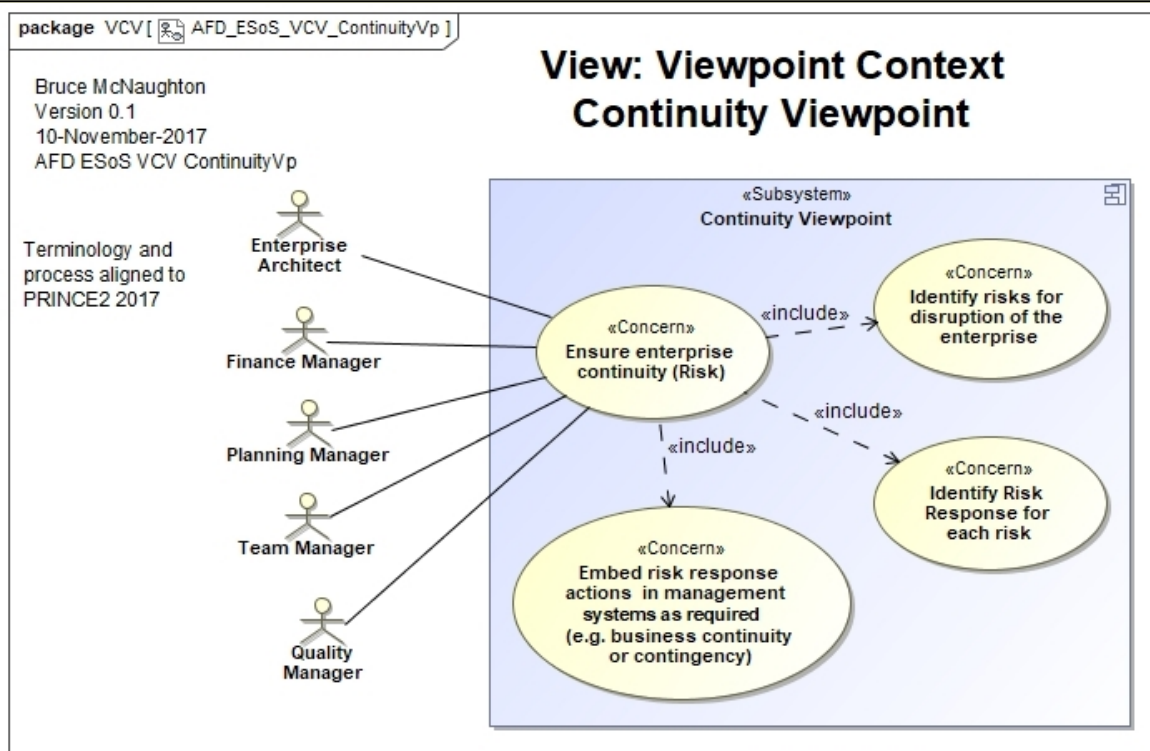
This viewpoint looks across all of the risk areas identified during the architectural work and identifies any risks that require a coordinated and managed response.

See ISO 22301:2012 for a description of a Business Continuity Management System and the Business Continuity Plan.

Rationale

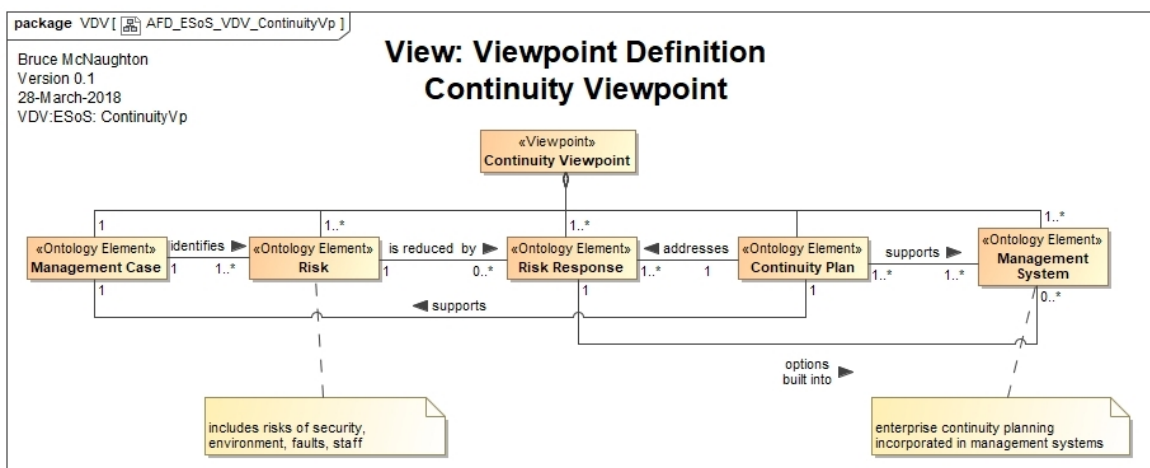
- Continuity and Resilience are key attributes of an organisation.
- [Business Continuity Planning](#) is a key aspect of maintaining customer satisfaction.
- Ensure that business continuity is considered and integrated into the development of the architecture description.

Stakeholders and their Concerns



Ontology Concepts and System Descriptions

System Description: Management System,



Models

Continuity Model (Trigger steps to initiate the continuity plans).

Revisions to other models based upon additional continuity capability requirements.

Steps to Create the View

- Review the strategic risk model, value stream model, Organizational capability model
- Understand the supply risks and options
- Identify the Risk Responses that require continuity planning.
- For each risk response, identify
 - The actions and resources required
 - The timing and sequence of the actions
 - The roles and responsibilities of individuals when responding.
- Consolidate the information into a consolidated continuity plan.
- Ensure the financial models in the Strategic Plan incorporate the required costs.
- Ensure that the supplier capabilities also include continuity plan requirements.
- Final review of the continuity plans.

Correspondences

CR01: Ensure continuity plan financial costs are in the financial cost model

CR02: Ensure that the Strategic Risk Model includes indications of continuity plans and triggers.

CR03: Ensure that supplier contracts include any requirements for continuity planning and actions.

Examples

Examples of typical continuity planning found in organisations can be seen here.

Sources**Notes**

Continuity planning to be integrated into management systems as a natural part of the system.