

# The MODAF Strategic Viewpoint

## Viewpoint Summary



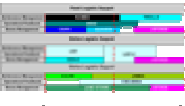



The Strategic Viewpoint defines the desired business outcome and the capabilities that are required to achieve it; i.e. it provides a means to align an enterprise's strategy with the capabilities required to deliver that strategy, identifying any capability gaps that may exist.

It provides a set of Strategic Views (StVs) which capture the enterprise vision, goals, policies and concepts related to the capability requirements. It enables decomposition of capabilities into a capability taxonomy which, supported by appropriate measures of effectiveness, can be used for capability audit and gap and overlap analysis.

The StVs further detail the dependencies between capabilities, thus enabling capability options to be built to support effective trade-off.

## Views

There are 6 StVs that make up the Strategic Viewpoint:

- |   |                                                                                     |                                                                                                                                                                                                                             |         |
|---|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 1 |    | <p><a href="#"><u>StV-1 - Enterprise Vision</u></a></p> <p>Provides the high-level scope of the architecture and a strategic context for the capabilities it contains.</p>                                                  | Page 2  |
| 2 |   | <p><a href="#"><u>StV-2 - Capability Taxonomy</u></a></p> <p>Models capability taxonomies in the context of an Enterprise Phase.</p>                                                                                        | Page 5  |
| 3 |  | <p><a href="#"><u>StV-3 - Capability Phasing</u></a></p> <p>Provides a representation of the available capability at different points in time or during specific periods of time associated with the Enterprise Phases.</p> | Page 10 |
| 4 |  | <p><a href="#"><u>StV-4 - Capability Dependencies</u></a></p> <p>Describes the dependencies between capabilities.</p>                                                                                                       | Page 13 |
| 5 |  | <p><a href="#"><u>StV-5 - Capability to Organisation Deployment Mapping</u></a></p> <p>Shows the planned capability deployment for a particular Enterprise Phase.</p>                                                       | Page 17 |
| 6 |  | <p><a href="#"><u>StV-6 - Operational Activity to Capability Mapping</u></a></p> <p>Specifies standard (e.g. doctrinal) activities, and traces them to the capabilities they support.</p>                                   | Page 21 |

## StV-1 - Enterprise Vision

The StV-1 provides the high-level scope for the architecture and a strategic context for the capabilities the architecture contains. In essence it describes the end-state for any business transformation activity.

### Background

The purpose of an StV-1 is to provide a strategic context for the capabilities described in the architecture. It also provides a high-level scope for the architecture which is more general than the scenario-based scope defined in an OV-1, High Level Operational Context Graphic.

The Views are high-level and describe the vision, goals, enduring tasks and capabilities using terminology that is easily understood by non-technical readers, which may include the use of terminology and acronyms routinely used by the business, (which will need to be clearly defined in the AV-2, Integrated Dictionary).

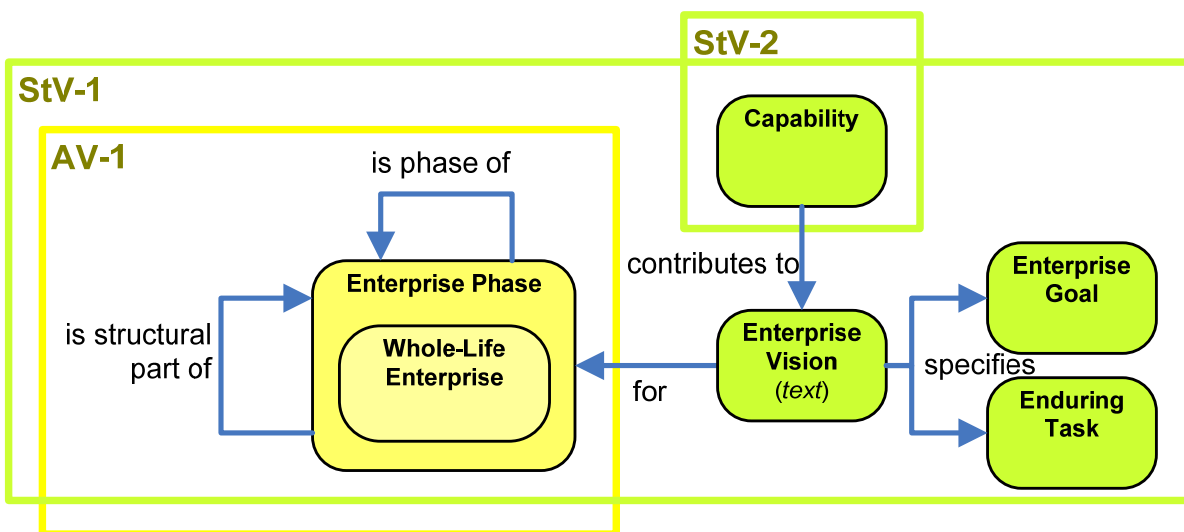
### Usage

- 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 (cf StV-3, Capability Phasing, which provides a summary of when projects are estimated to deliver capability).
- Identify any enduring tasks the enterprise performs.

### Data objects

The data in an StV-1 can include:

- Enterprise Vision.
- Enterprise Phase.
- Enterprise Goals.
- Capability.
- Enduring Task.



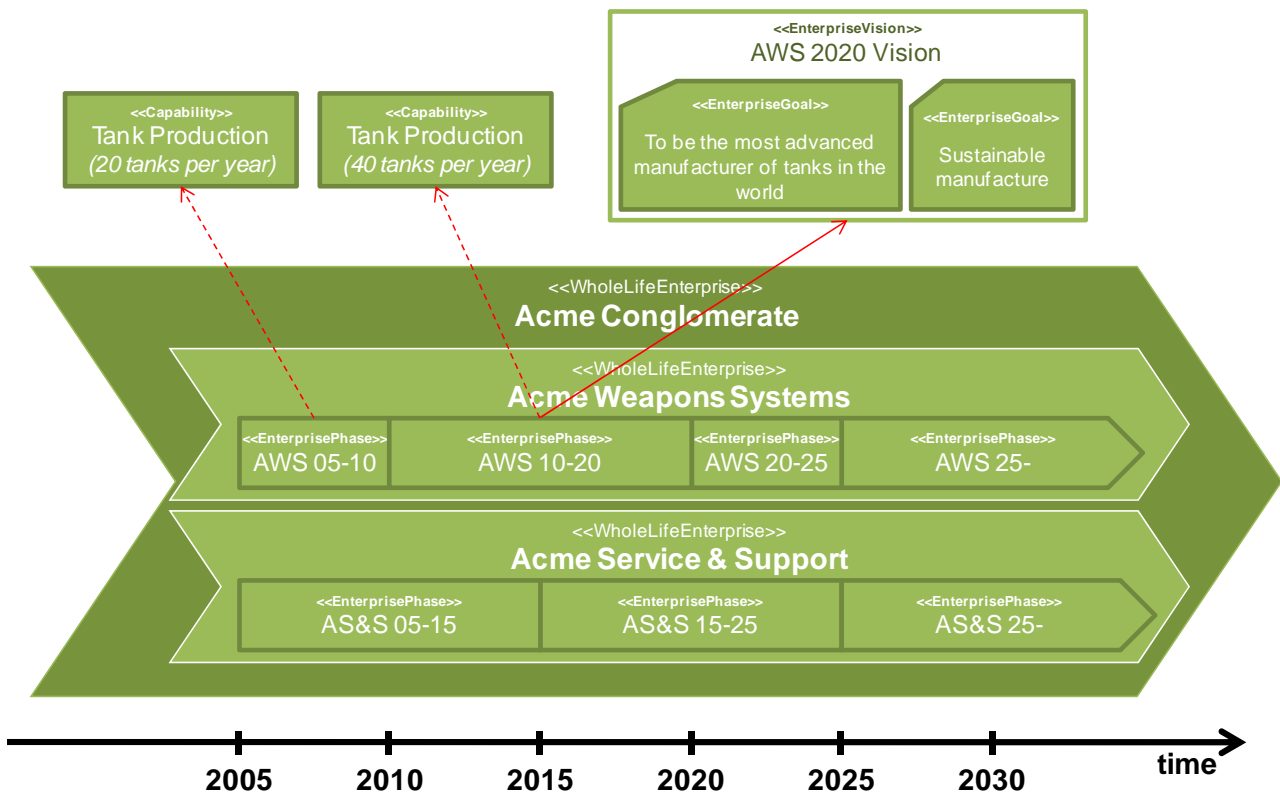
*Relationships between Key Data Objects (Simplified from M3)*

## Representation

- Structured Text.
- UML Composite Structure Diagram.
- SysML Structural Diagrams.

## Detailed Product Description

The StV-1 defines the strategic context for a group of capabilities described in the architecture by outlining the vision for an enterprise over a bounded period of time. It describes the high level goals and strategy for the enterprise, and the level of capability the enterprise is expected to achieve over time.



StV-1 Enterprise Structure & Goals Example

An StV-1 can provide the blueprint for a transformational initiative, by showing the expected capabilities that phases of an enterprise will exhibit.

StV-1s may also be textual descriptions of the overarching objectives of the transformation or change programme that the Enterprise is engaged in. Of key importance is the identification of Enterprise Goals, together with the desired outcomes and measurable benefits associated with these.

The StV-1 only shows the capabilities exhibited by enterprises; it does not show how the enterprise is structured in order to deliver those capabilities. OV-2, Operational Node Relationship Description, is used to define the logical structure of the enterprise, and the individual logical nodes in the enterprise that deliver the capability. SV-1, Resource Interaction Specification, and OV-4, Organisational Relationships Chart, are used to show the physical and organisational structure of the enterprise.

**UNCLASSIFIED**

**THE UK JOINT HIGH LEVEL OPERATIONAL CONCEPT**

**CAPPING PAPER**

101. Fighting power comprises conceptual, moral and physical components. The conceptual component of joint fighting power was articulated in UK Joint Vision, where the importance of the enduring nature of the Principles of War was endorsed. The Vision provided broad guidance for future capabilities in the form of a joint High Level Operational Concept (HLOC), an effects based framework for operations and a description of capability as seven discrete but closely interlocking components. However, UK Joint Vision did not develop the conceptual components in detail. Using the Defence Capability Framework, this Analytical Concept describes the components of capability in sufficient detail to inform Joint Operational Concept Committee stakeholders, particularly the single Services, who are developing their own high level operational concepts in parallel. The three components of capability, Command, Inform and Operate, form the capability backbone of the HLOC around which considerations for the remaining four components — Prepare, Project, Protect and Sustain — have been woven to form the complete concept. The concept addresses the 2020 timeframe, assessed as the best compromise between the need to break free from the dominance of current systems without venturing into the purely speculative. It has also been harmonised with US joint concepts, noting the clear guidance from COS that we must be able to operate *with* but not necessarily as our close allies.

**OPERATE CORE CONCEPT**

An agile task-oriented joint force with freedom of action to synchronise effects throughout the Battlespace and with maximum potential to exploit fleeting opportunities.

*StV-1 Text-Based Example*

## StV-2 - Capability Taxonomy

The StV-2 presents capabilities and the hierarchical relationships between them.

### Background

The StV-2 presents a hierarchy of capabilities. StV-2 specifies all the capabilities that are referenced throughout one or more architectures – i.e. one StV-2 may provide the definitive list of capabilities for a number of logical and physical architectures. In addition it can be used as a source document for the development of high level use cases and Key User Requirements (KURs).

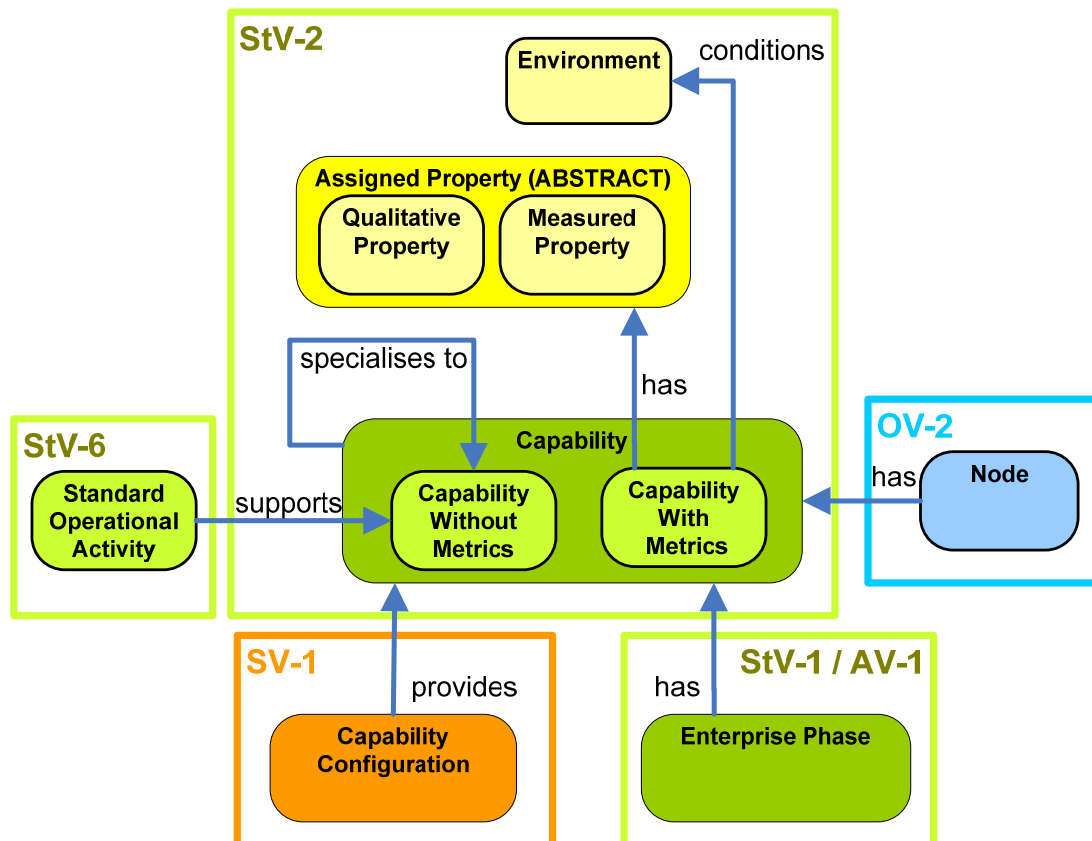
### Usage

- Identification of existing and required capabilities.
- Codifying required capability elements.
- Source for the derivation of cohesive sets of KURs.
- Providing reference capabilities for multiple architectures.

### Data objects

The data in an StV-2 can include:

- Capability.
- Capability Specialisation (super-subtype relationship between capabilities).
- Capability Composition (whole-part relationship between capabilities).



*Relationships between Key Data Objects (Simplified from M3)*

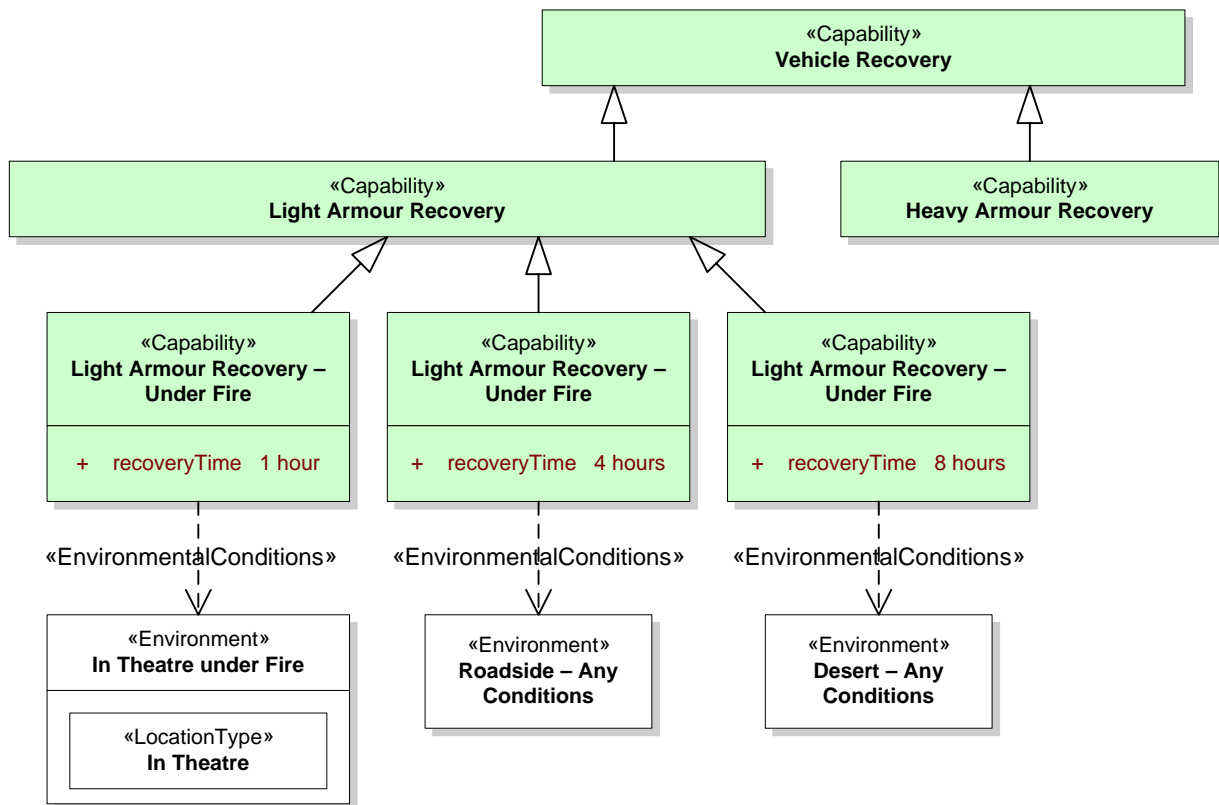
## Representation:

- Tabulation.
- Hierarchical (Connected Shapes).
- UML Class Diagram (with generalization and aggregation relationships).

## Detailed Product Description

The StV-2 specifies a hierarchy of capabilities. A capability taxonomy persists over time (an architect may wish to specify historical, current or future capability) and may be referenced by multiple architectures. The capabilities specified in an StV-2 are extensively re-used in operational, service-oriented, system and acquisition views; in this way the concept of capability is integral to any MODAF architecture.

In MODAF, a capability is a description of an ability to do something. In StV-2, the capabilities are only described in the abstract – i.e. StV-2 does not specify how a capability is to be implemented. An StV-2 is most commonly structured as a specialisation hierarchy of capabilities, with the most general at the root and most specific at the leaves. At the leaf level, capabilities may have a metric specified, along with an environmental qualifier for the metric:



StV-2 Example with Leaf Metrics

Note that capabilities with a metric specified may not be further specialised. When capabilities are referenced in operational or systems architectures, it may be that a particular Node (from OV-2, Operational Node Relationship Description) or Capability Configuration (from SV-1, Resource Interaction Specification) meets more than one level of capability.

StV-2 is a capability taxonomy view. The view that describes dependencies between the capabilities shown in the StV-2 taxonomy is the StV-4, Capability Dependencies.

The capabilities in an StV-2 are structure using two types of relationships; specialisation and composition. A capability specialisation relationship asserts that one capability is a special case of another (e.g. *ground-based ISTAR* is a specialisation of *ISTAR*). A capability composition relationship asserts that one capability is a necessary component of another (e.g. *intelligence* is a component of *intelligence-led-policing*).

In MODAF, Capabilities are 'enduring', that is they are intended to provide an enduring framework across the lifetime of one or more enterprises. This means that it is feasible to develop a capability taxonomy that will apply to all Enterprise Phases listed in an StV-1, Enterprise Vision, and an StV-2 may even cover more than one architecture.

The StV-2 View has no mandated structure although the format selected must be able to support the representation of a structured/hierarchal list and clearly

differentiate between specialisation and composition relationships. This structure may be delivered using textual, tabular or graphical methods. The associated attributes and metrics for each capability can either be included on the main StV-2 or in tabular format as an appendix if the inclusion of the attributes and metrics would over complicate the presentation of the view.

It should be noted that UML can be used to develop capability taxonomies; its object-oriented approach naturally includes the concept of specialisation (generalization in UML) and composition (aggregate relationships).

### **Command Battlespace Management**

#### **A. Decision Support**

1. Operational Planning
2. Operational Analysis
3. Mission Rehearsal
4. Situational Awareness
5. Intelligence

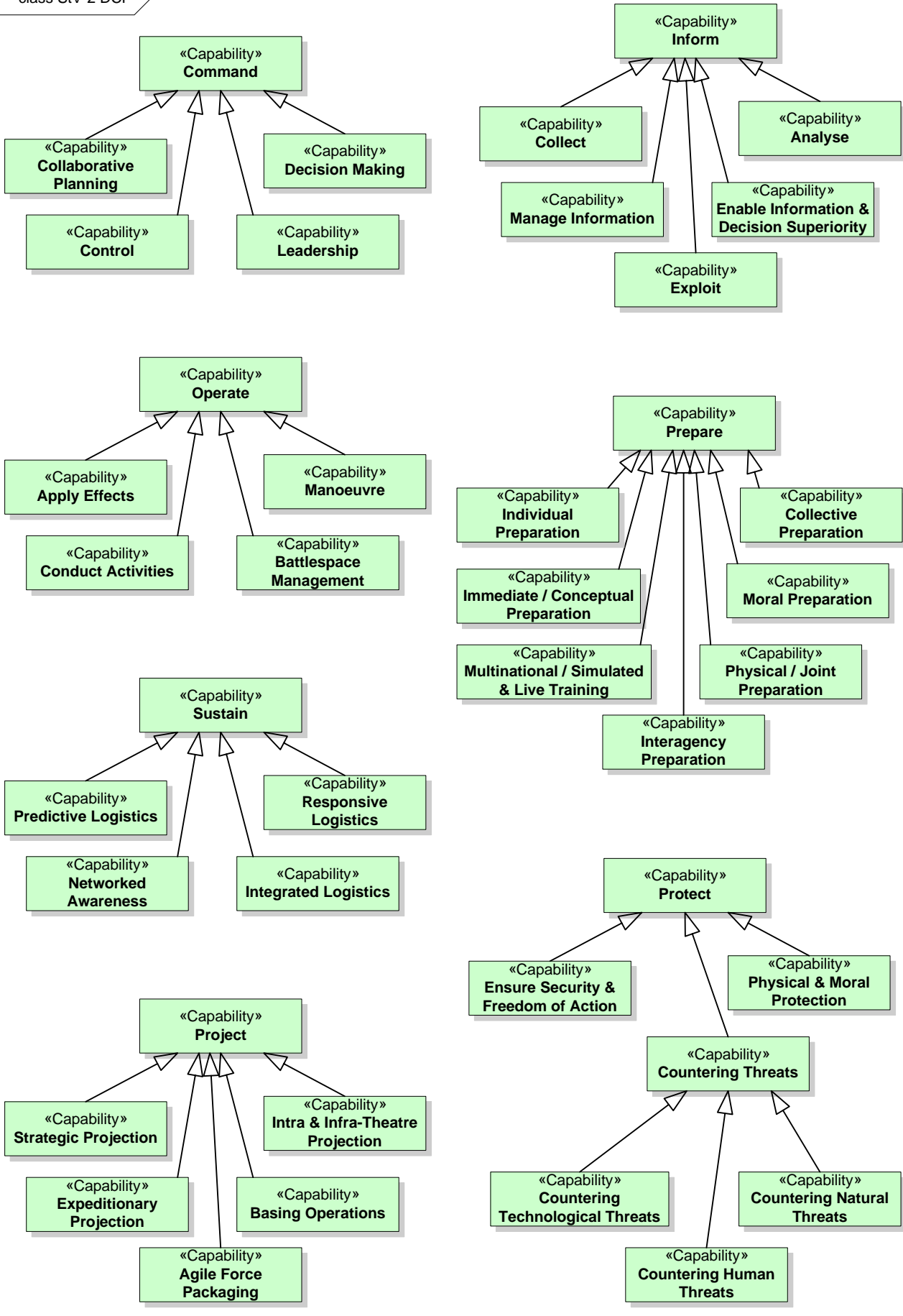
#### **B. Information Management and Acquisition**

1. Information Management
  - a. Analysis
  - b. Fusion
  - c. Quality Assurance
  - d. Dissemination
2. STAR

#### **C. Effects**

1. Targeting
2. Plan Engagement
  - a. Effects Selection
  - b. Resource Allocation
  - c. Synchronisation
3. Conduct Engagement

*Example StV-2*







## StV-3 - Capability Phasing

The StV-3 provides a representation of the actual or estimated availability of capabilities over a period of time (derived from capability delivery milestones in acquisition projects).

### Background

StV-3 Views support the Capability Audit process and similar processes used across different communities of interest by providing a method to identify gaps or duplication in capability provision.

The view indicates capability increments, which are derived from delivery milestones within acquisition projects.

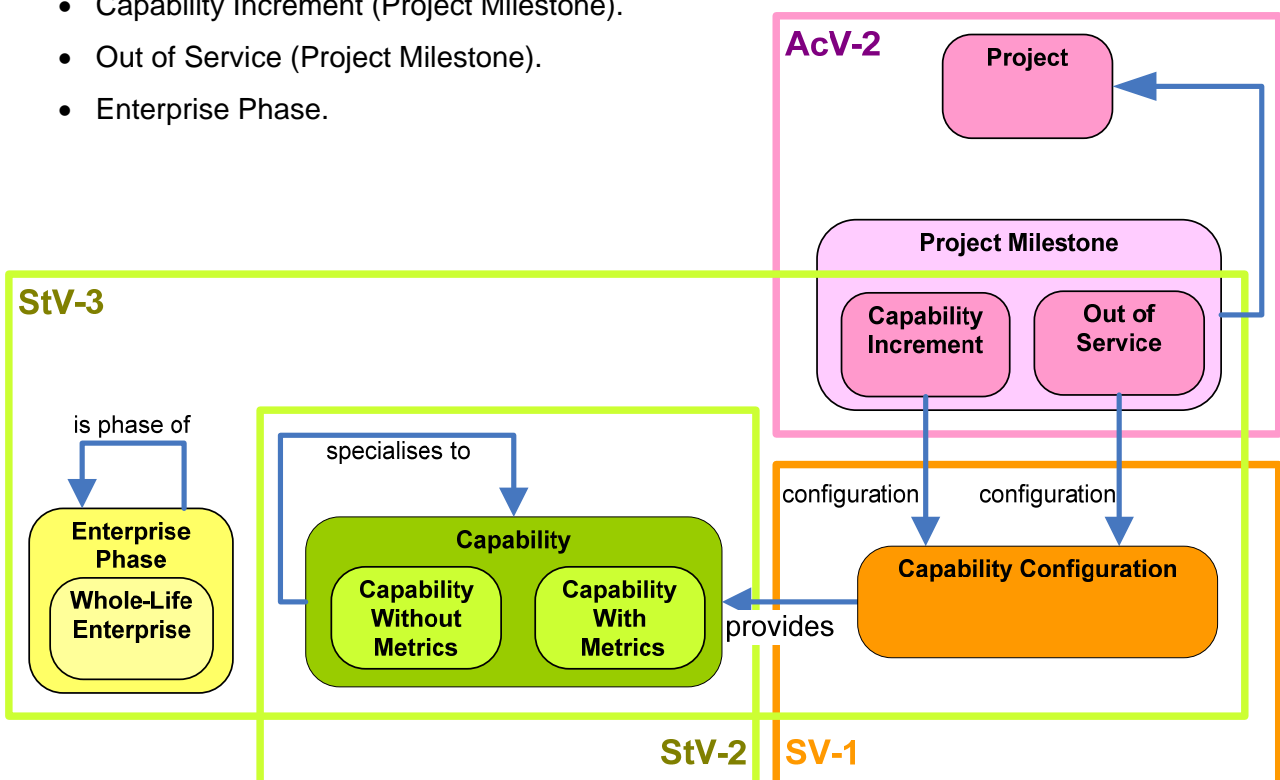
### Usage

- Capability planning (capability phasing).
- Capability integration planning.
- Capability gap analysis.
- High-level dashboard for acquisition management.

### Data objects

The data in an StV-3 can include:

- Capability.
- Capability Configuration.
- Capability Increment (Project Milestone).
- Out of Service (Project Milestone).
- Enterprise Phase.



*Relationships between Key Data Objects (Simplified from M3)*

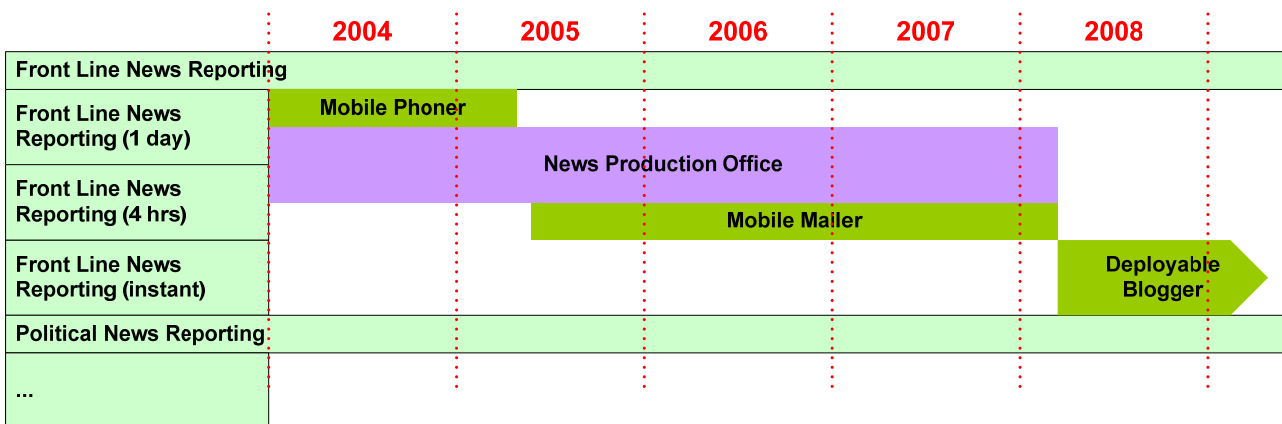
## Representation

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

## Detailed Product Description

The StV-3 provides a representation of the available capability levels at different points in time or during specific periods of time (associated with the Enterprise Phases – see StV-1, Enterprise Vision).

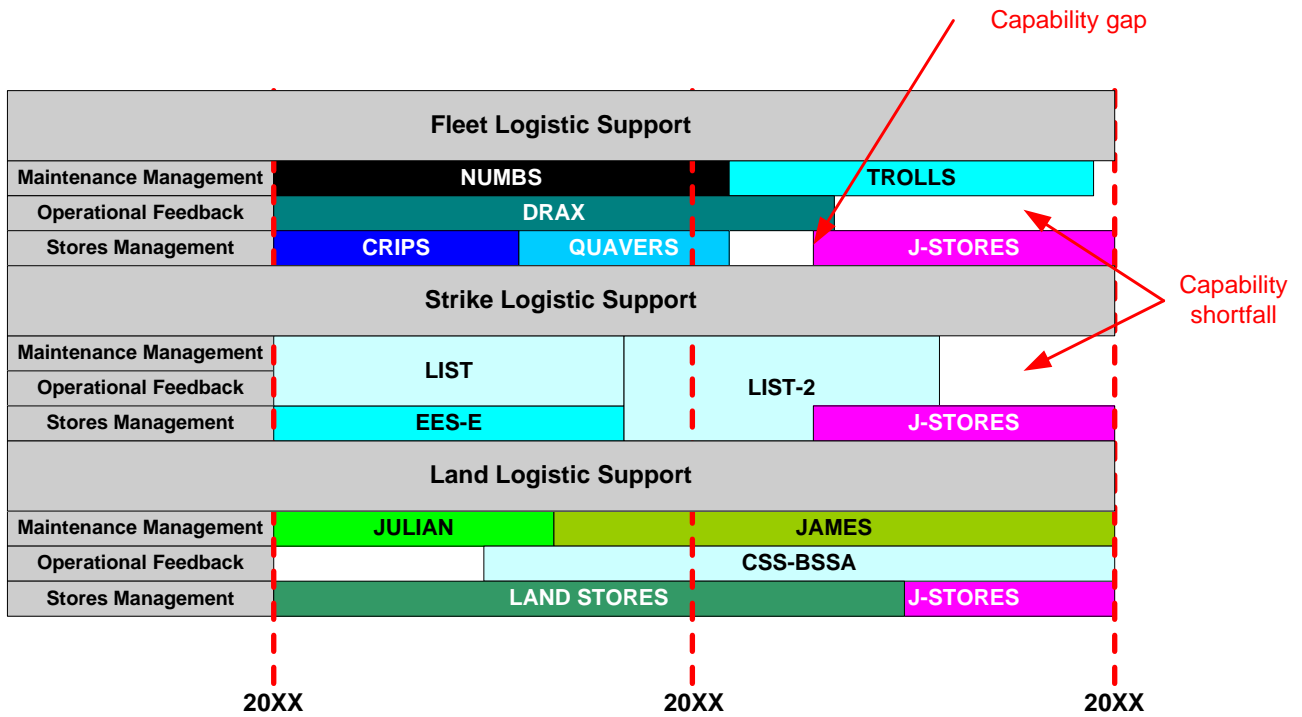
The StV-3 is presented as a timing chart showing capabilities on the vertical axis and time on the horizontal axis. Active capability configurations are shown as bars against the capabilities they provide, with the start and end of the bars corresponding to the capability configuration coming into and going out of service. Where nothing meets a particular capability at a particular time, whitespace is shown so as to highlight capability gaps.



Example StV-3

The view is created by analysing project data to determine when projects providing elements of military capability are to be delivered, upgraded and/or withdrawn (this data may be provided in part by a AcV-2, Programme Timelines, and the mappings from capability to resources that is provided in SV-1, Resource Interaction Specification, and SV-8, Capability Configuration Management).

The output from this iterative approach is a chart that represents the required capability phasing. Normally, an StV-3 will not include the project information, however, there is a variant view in which the table is overlaid with the names of the projects that will deliver the capability increments. An example of this can be found on the following page.



Example StV-3

The essence of this variant view is the relationship between projects, capabilities and time. The view may be used to determine the need for interventions in projects (to fulfil a capability gap) or to represent current plans (the availability of capability according to their delivery timescales).

An StV-3 can be used to assist in the identification of capability gaps/shortfalls (i.e. no fielded capability to fulfil a particular capability function) or capability duplication/overlap (i.e. multiple fielded capabilities for a single capability function).

*Note that StV-1 specifies the requirement for capability at each Enterprise Phase, whereas StV-3 reflects the output of capability programmes (e.g. acquisition, training, etc.) over time. The requirement specified in StV-1 may or may not be met by those programmes. StV-3 is strictly-speaking an Acquisition View (AcV) as it is presenting programmatic information rather than strategic intent.*

## StV-4 - Capability Dependencies

The StV-4 describes the dependencies between capabilities.

### Background

The StV-4 is intended to provide a means of analysing the dependencies between capabilities, including those within capability compositions (sometimes called “capability clusters”), in order to guide capability management.

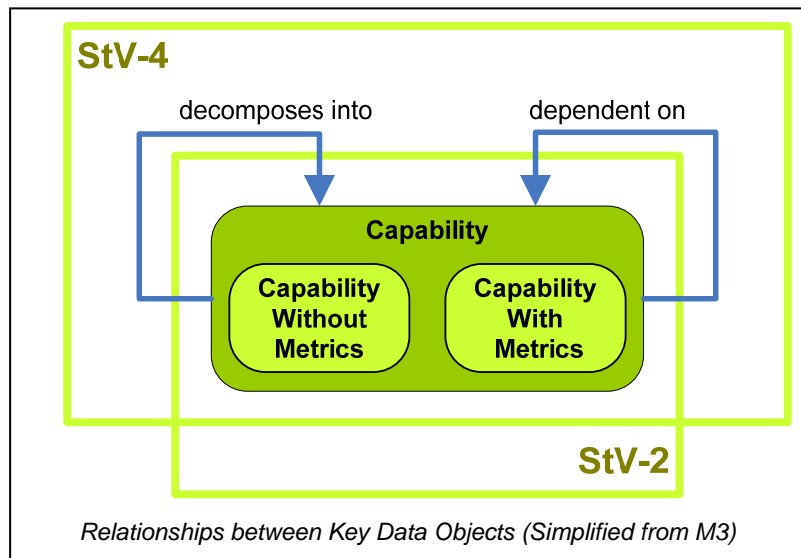
### Usage

- Identification of capability dependencies.
- Capability management (impact analysis for options, disposal etc).

### Data objects

The data in an StV-4 can include:

- Capability.
- Capability Dependency (relationship).
- Capability Composition (relationship).



### Representation

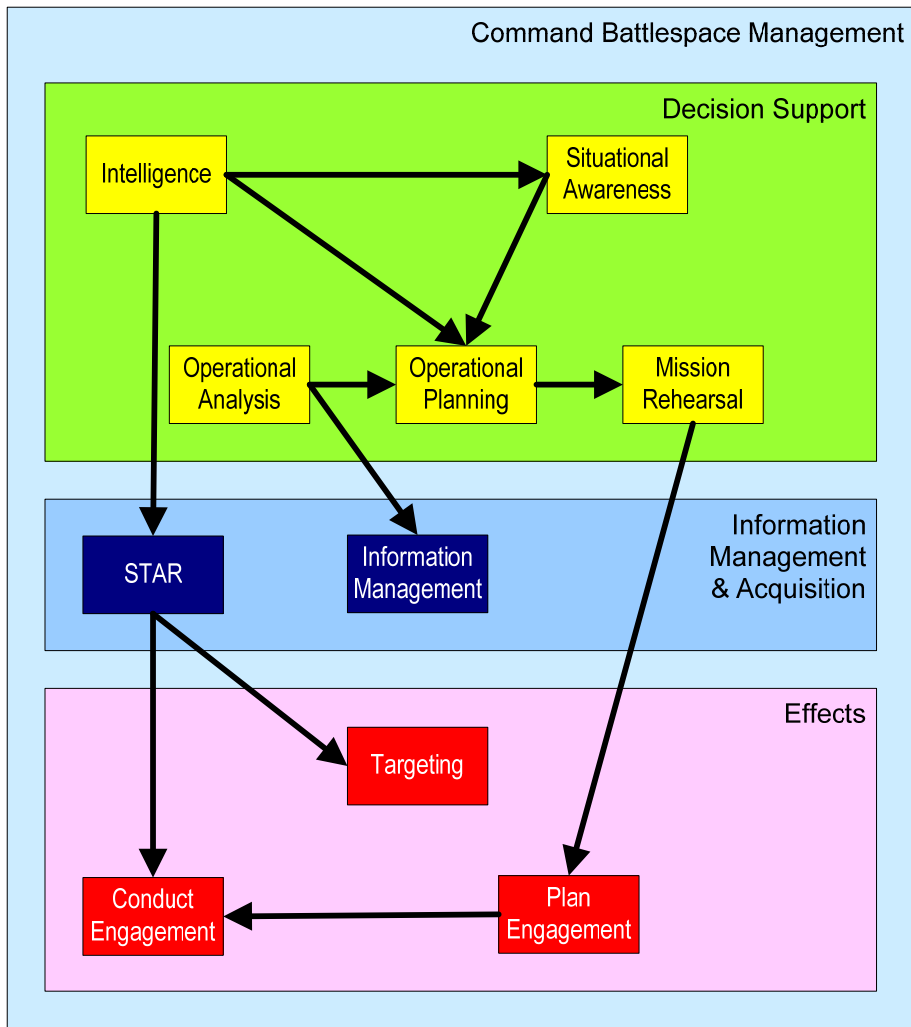
- ‘Nested box’ Diagram.
- UML Class Diagram.
- UML Composite Structure Diagram.
- SysML Structural Diagrams.

### Detailed Product Description

The StV-4 describes the relationships between capabilities. This contrasts with StV-2, Capability Taxonomy, which also deals with relationships between capabilities, but StV-2 only addresses specialisation and composition relationships.

The StV-4 is intended to provide a means of analysing the dependencies between capabilities and between capability clusters. In particular, it will highlight potential integration requirements and the interactions needed between acquisition projects in order to achieve the overall capability.

The recommended notation for StV-4 is a functional dependency diagram which shows how functions are clustered together and the relationships between the individual functions or clusters of functions. It may also be useful to supplement the functional dependency diagram with a functional n-squared diagram. Examples of the StV-4 follow.



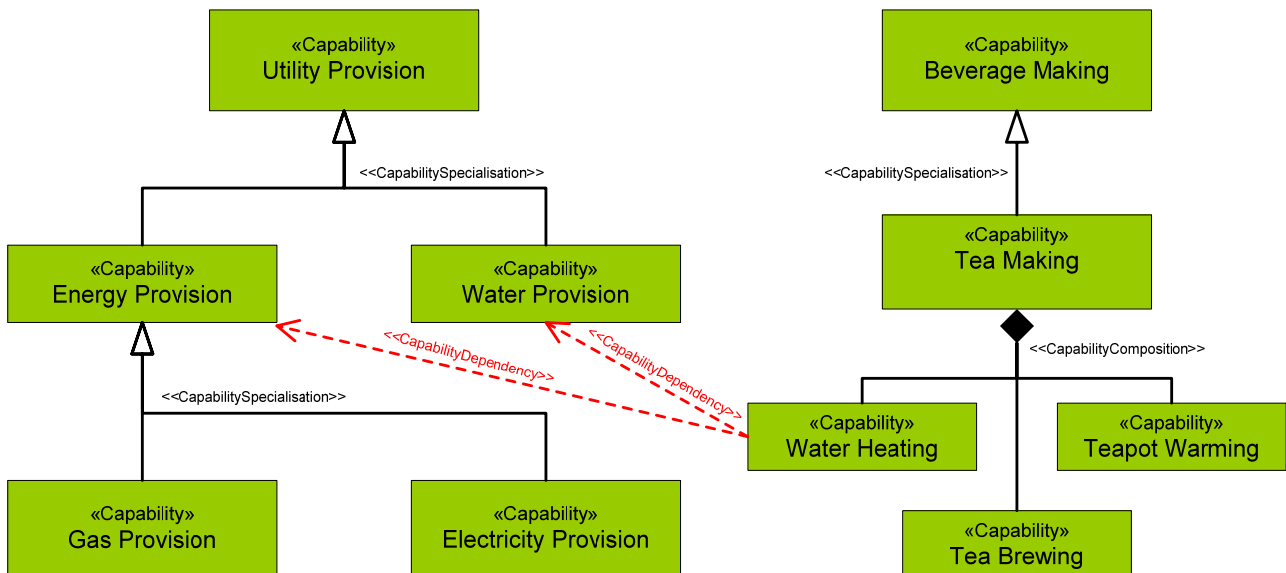
Example StV-4 (Graphical Format)

	A	B	C	D	E	F	G	H	I	J
A										
B										
C	X	X		X						
D	X									
E			X							
F	X									
G		X								
H						X				
I					X					
J						X			X	

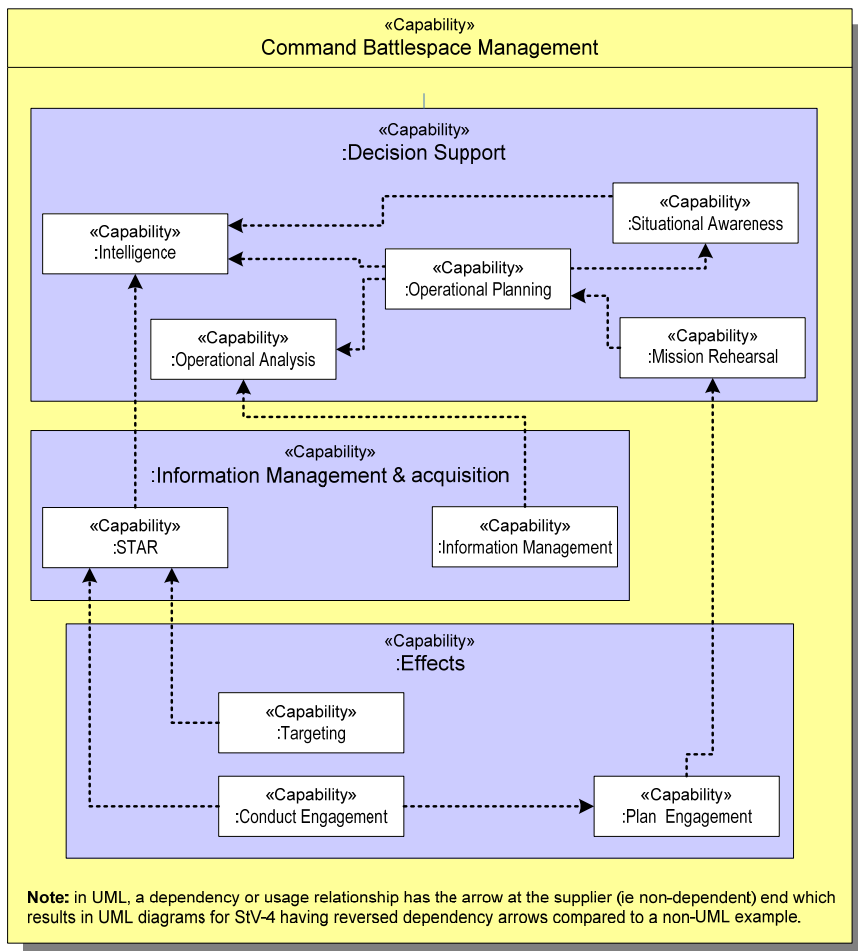
- A = Intelligence
- B = Operational Analysis
- C = Operational Planning
- D = Operational Awareness
- E = Mission Rehearsal
- F = STAR
- G = Information Management
- H = Targeting
- I = Plan Engagement
- J = Conduct Engagement

Example StV-4 (N-squared Format)

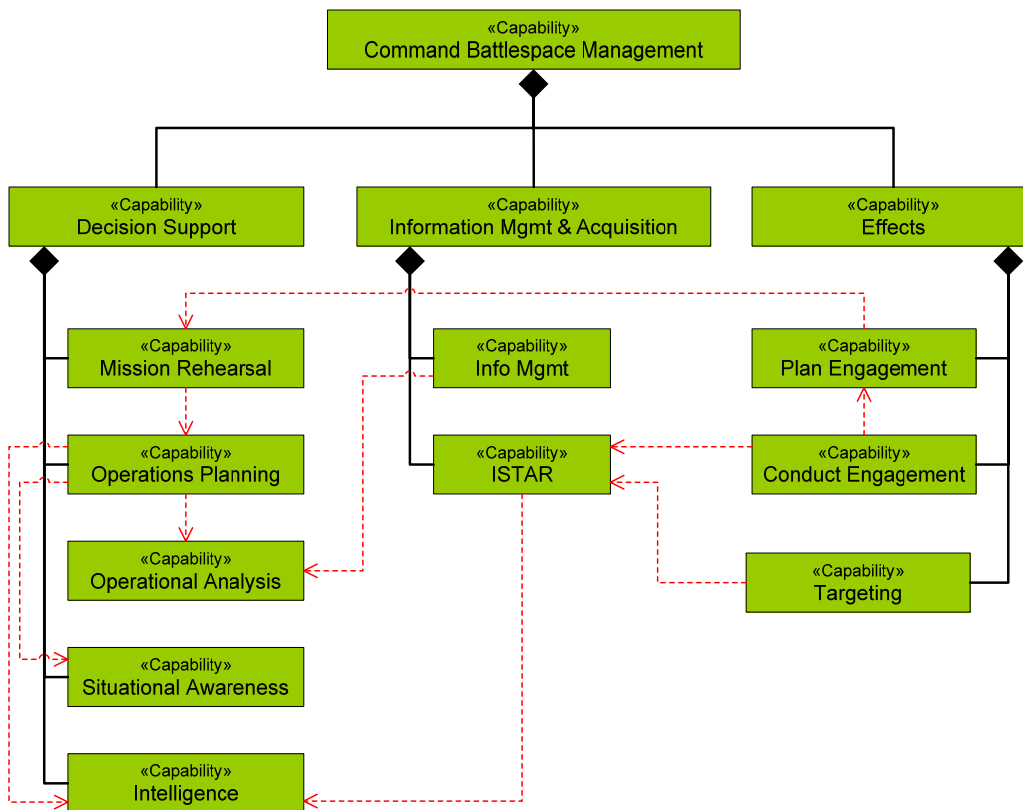
In some cases it may be important to distinguish between different types of dependency in the StV-4. Graphically this can be achieved by colour-coding the connecting lines, or by using dashed lines. UML can be used to define capability dependency view products as illustrated below.



Example StV-4 (UML Aggregation Format – allows simpler combination of composition and specialisation)



Example StV-4 (UML Composite Structure Form)



Example StV-4 (UML Aggregation Form)



## **StV-5 - Capability to Organisation Deployment Mapping**

The StV-5 shows the deployment of capability to specific organisations over time.

### **Background**

This view shows the planned capability deployment related to the organisations fielding it for a particular period of time (Enterprise Phase). Multiple StV-5s are used to show how the deployment of new capability propagates through organisations over time.

The StV-5 should be seen as a summary of the delivery schedules for capabilities and can, therefore be used to support the capability management process and, in particular, assist the planning of fielding.

To prevent constraining the solution space, StV-5 should not be produced at the time of developing capability / user requirements. Like StV-3, Capability Phasing, it is more of an informative programmatic view – i.e. a “dashboard”.

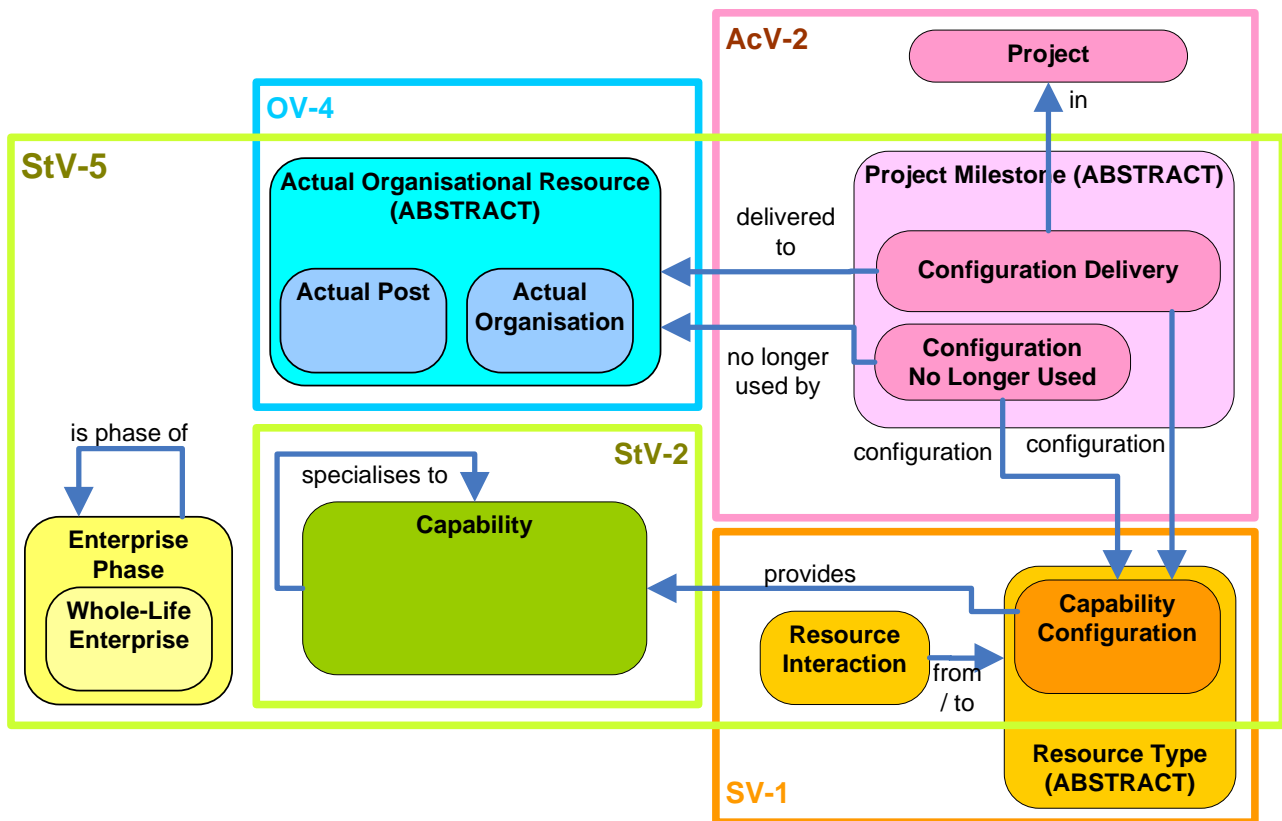
### **Usage**

- Fielding planning.
- FE@R and Operations planning.
- Capability integration planning.
- Capability options analysis.
- Capability redundancy/overlap/gap analysis.
- Identification of deployment level shortfalls.

### **Data objects**

The data in an StV-5 can include:

- Capability.
- Capability Configuration.
- Resource Interaction (between Capability Configurations or their components).
- Actual Organisational Resource (Actual Post, Actual Organisation).
- Capability Delivery (Project Milestone).
- Capability No Longer Used (Project Milestone).



Relationships between Key Data Objects (Simplified from M3)

## Representation

- Tabulation.
- Structured Timeline View.

## Detailed Product Description:

The StV-5 shows deployment of capability configurations to specific organisations during a specific Enterprise Phase. The information used to create the StV-5 is drawn from other MODAF views:

- AcV-2, Programme Timelines;
- StV-2, Capability Taxonomy;
- OV-4, Organisational Relationships Chart;
- SV-1, Resource Interaction Specification.

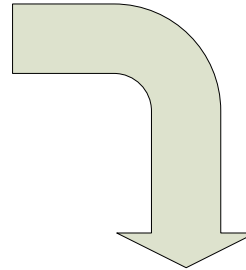
The timing is based on project milestones from AcV-2 which indicate when a capability configuration will be delivered to an organisation and, in addition, the point at which the organisation stops using a particular capability configuration.

In order to conduct a comprehensive analysis, multiple StV-5s can be created to represent the different Enterprise Phases. In addition, the StV-5 can be compared with the StV-3, Capability Phasing, and the SV-8, Capability Configuration Management, to provide a better understanding of the temporal aspects of the architecture.

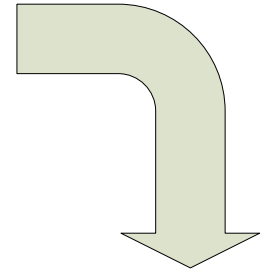
The StV-5 may also show interactions between capability configurations, where these have been previously defined in an SV-1.

The StV-5 is usually presented in a tabular form with the organisational structure represented along one axis, with the capabilities along the other axis. Graphical objects representing capability configurations are placed in the relevant positions relative to these axes.

ENTERPRISEPHASE MOD News & PR 2005-2007	CAPABILITY Front Line News Reporting		
	CAPABILITY Front Line News Reporting (1 day)	CAPABILITY Front Line News Reporting (4 days)	CAPABILITY Front Line News Reporting (instant)
ACTUALORGANISATION xx Air Assault Brigade		CAPABILITY CONFIGURATION Mobile Mailer	
ACTUALORGANISATION yy Armoured Brigade	CAPABILITY CONFIGURATION Mobile Phoner		
ACTUALORGANISATION zz Armoured Brigade	CAPABILITY CONFIGURATION Mobile Phoner		
ACTUALORGANISATION xy Mechanised Brigade	CAPABILITY CONFIGURATION Mobile Phoner		
ACTUALORGANISATION xz Light Brigade		CAPABILITY CONFIGURATION Mobile Mailer	



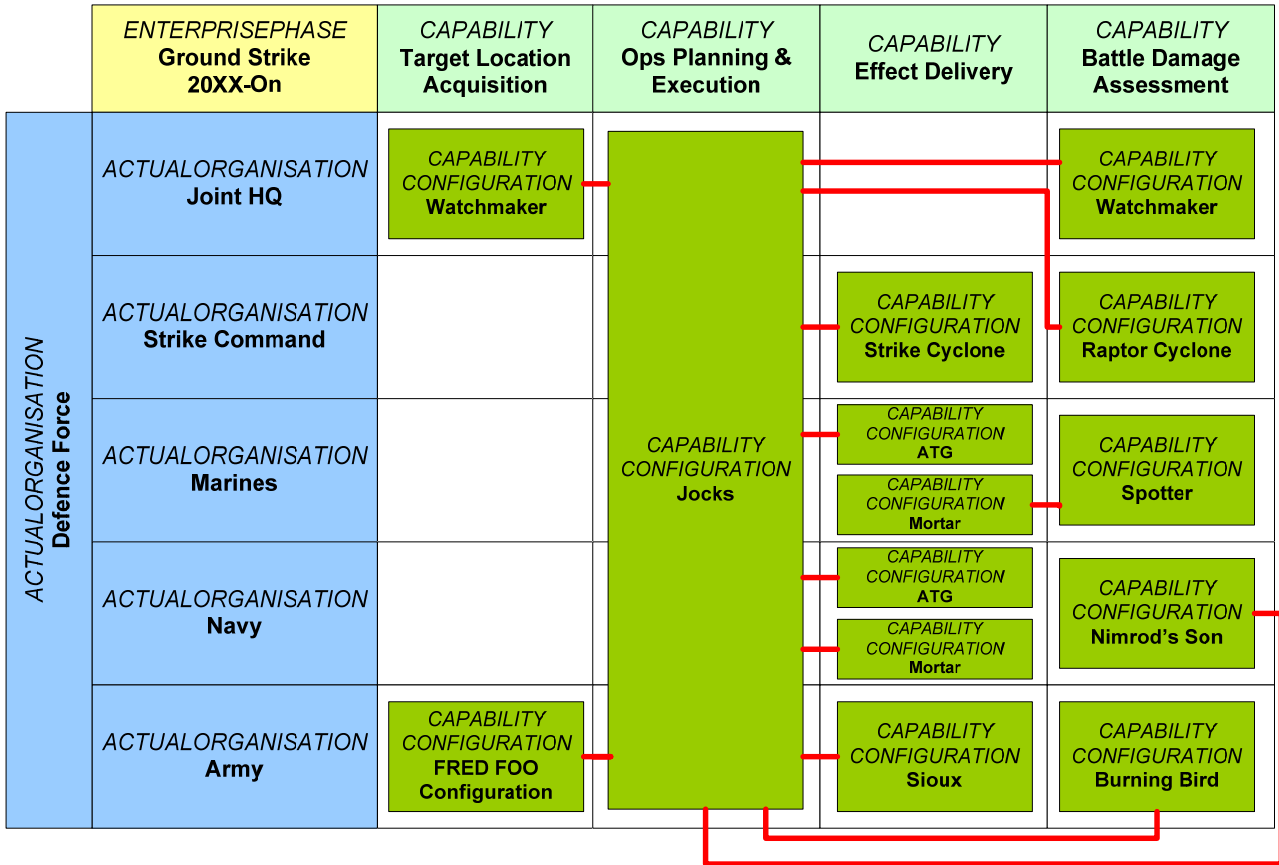
ENTERPRISEPHASE MOD News & PR 2007-2009	CAPABILITY Front Line News Reporting		
	CAPABILITY Front Line News Reporting (1 day)	CAPABILITY Front Line News Reporting (4 days)	CAPABILITY Front Line News Reporting (instant)
ACTUALORGANISATION xx Air Assault Brigade			CAPABILITY CONFIGURATION Deployable Blogger
ACTUALORGANISATION yy Armoured Brigade		CAPABILITY CONFIGURATION Mobile Mailer	
ACTUALORGANISATION zz Armoured Brigade		CAPABILITY CONFIGURATION Mobile Mailer	
ACTUALORGANISATION xy Mechanised Brigade		CAPABILITY CONFIGURATION Mobile Mailer	
ACTUALORGANISATION xz Light Brigade			CAPABILITY CONFIGURATION Deployable Blogger



ENTERPRISEPHASE MOD News & PR 2009-On	CAPABILITY Front Line News Reporting		
	CAPABILITY Front Line News Reporting (1 day)	CAPABILITY Front Line News Reporting (4 days)	CAPABILITY Front Line News Reporting (instant)
ACTUALORGANISATION xx Air Assault Brigade			CAPABILITY CONFIGURATION Deployable Blogger
ACTUALORGANISATION yy Armoured Brigade			CAPABILITY CONFIGURATION Deployable Blogger
ACTUALORGANISATION zz Armoured Brigade			CAPABILITY CONFIGURATION Deployable Blogger
ACTUALORGANISATION xy Mechanised Brigade			CAPABILITY CONFIGURATION Deployable Blogger
ACTUALORGANISATION xz Light Brigade			CAPABILITY CONFIGURATION Deployable Blogger

Three Sequential StV-5s for Different Enterprise Phases, Showing Delivery of News Reporting Capability

Resource Interactions (from an SV-1) can also be shown on an StV-5. In addition, where a Capability Configuration is deployed across a number of Organisations, a parent Organisation should be created for context purposes, and the Capability Configuration stretched across the domain of the parent Organisation. In the example below, the Resource Interactions are the red lines, and “Defence Force” is the parent organisation that provides the domain for “Jocks”:



StV-5 Example Showing Capability Deployed Across Organisations, and Interactions between Capability Configurations

## StV-6 – Standard Operational Activities to Capability Mapping

The StV-6 specifies standard (e.g. doctrinal) operational activities, and optionally traces them to the capabilities they support.

*(Note: the name of this MODAF view was changed from ‘Operational Activity to Capability Mapping’).*

### Background

Some processes are standard across the whole enterprise, or even more than one enterprise. The StV-6 specifies Standard Operational Activities that can be re-used across multiple logical architectures (i.e. the MODAF Operational Viewpoints).

An StV-6 can also show which capabilities the standard operational activities support

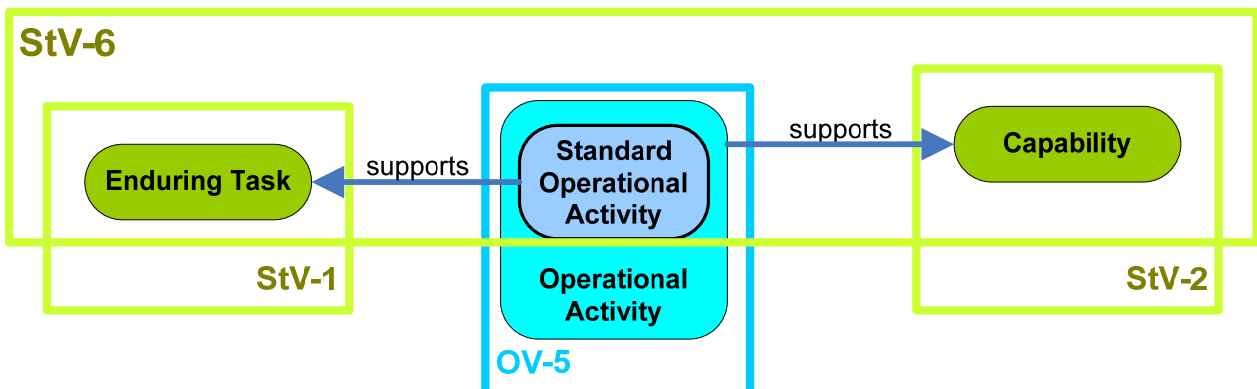
### Usage

- Specification of doctrine
- Tracing capabilities to enduring tasks.
- Tracing capabilities to standard operational activities
- Capability audit.

### Data objects

The data in an StV-6 can include:

- Capability.
- Standard Operational Activity.
- Enduring Task



*Relationships between Key Data Objects (Simplified from M3)*

### Representation

- Table.
- Tracing Diagram.

## Detailed Product Description

The StV-6 view specifies the Standard Operational Activities, and the enduring tasks and capabilities they support.

It is created with the Strategic Architecture (i.e. before the creation of supporting Operational Views), and will consist of a library of pre-defined functions taken from Doctrine<sup>1</sup>. Consequently, the OV-5, Operation Activity Model, should contain activities that are generalisations of the Standard Operational Activities from the StV-6.

An StV-6 is usually shown in the form of a table, optionally listing the supported capabilities and enduring tasks.

Standard Operational Activities	Capabilities Supported	Enduring Tasks Supported
Recce	Information Acquisition	Military Intelligence Conduct Operations
Collate Intelligence	Information Management	Military Intelligence Conduct Operations
Conduct Estimate	Information Management	Conduct Operations
Coordinate Plan	Information Acquisition Information Management Effects	Conduct Operations
Attack	Information Acquisition Information Management Effects	Conduct Operations
Recuperate	Information Management	Conduct Operations

*StV-6 Tabular Example*

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<sup>1</sup> The Joint Essential Task list is an example of a source for such functions.