

MINISTRY OF DEFENCE



MOD Architectural Framework Executive Summary

Draft 0.2

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Prepared by:- **MODAF**
partners

Approved by:-

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RECORD OF CHANGES

This page will be updated and re-issued with each amendment. It provides an authorisation for the amendment and a checklist to the current amendment number.

Issue No.	Date	Revision Details
Draft 0.1	20 July 2005	First Draft
Draft 0.2	22 July 2005	Changes incorporated following a MODAF partners internal review

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1. Foreword

(Generic foreword - championing the use of MODAF, covering mandation issues and policy, emphasis of the benefits of MODAF and an architectural approach – to be written by MOD)

2. MODAF Framework

The MOD Architectural Framework (MODAF) is a framework for developing architectures that provide a means to model, understand, analyse and specify Capabilities, Systems, Systems of Systems (SoS) and Business Processes. MODAF may be applied across a wide variety of MOD processes including: capability management, acquisition, operational analysis, planning and through-life management.

MODAF has been developed from the US Department of Defense Architectural Framework (DODAF)¹. MODAF keeps compatibility with the core DODAF viewpoints in order to ensure the ability to exchange architectural information with the US, for example in conducting international interoperability analyses. However, MODAF has supplemented DODAF with two new viewpoints that better support MOD processes and lifecycles. Therefore, MODAF consists of six viewpoints as shown in Figure 2-1 - these cover all of the main perspectives and dimension that are required in order to conduct the core MOD processes around acquisition and operations.

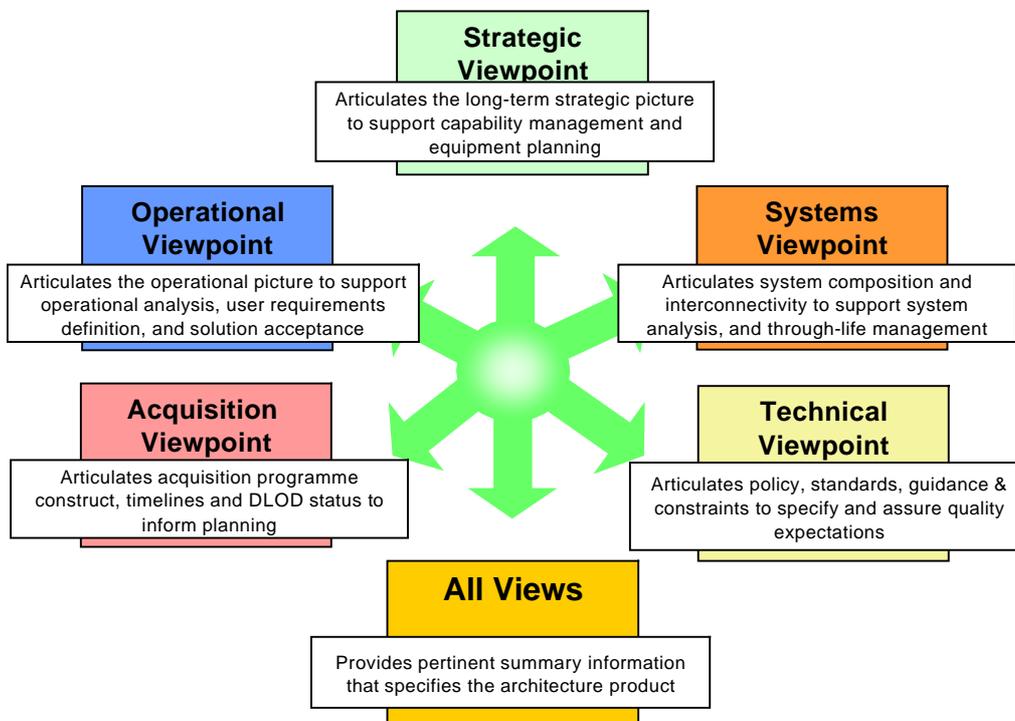


Figure 2-1: MODAF Viewpoints

The new elements of MODAF that are not included in DODAF are the Strategic and Acquisition Viewpoints. These have been added to MODAF in order to better contribute to MOD processes and lifecycles, specifically the analysis of the strategic issues and dependencies across the entire portfolio of military capabilities.

The six MODAF viewpoints are not separate models of different things but are a means of viewing the same architectural problem from different perspectives - for instance, that of the operational user, the policy setter, or the system architect. This is illustrated in Figure 2-2 below². The architectural model is contained within the

¹ DOD Architectural Framework, version 1.0, February 2004

² Adapted from an architectural modelling approach developed in DCBM(A)

cube and the different faces of the cube provide different perspectives represented by the MODAF viewpoints – in this case operational, system and technical. Furthermore, there are a number of separate openings on each face of the cube that represent the number of different views available within each MODAF viewpoint.

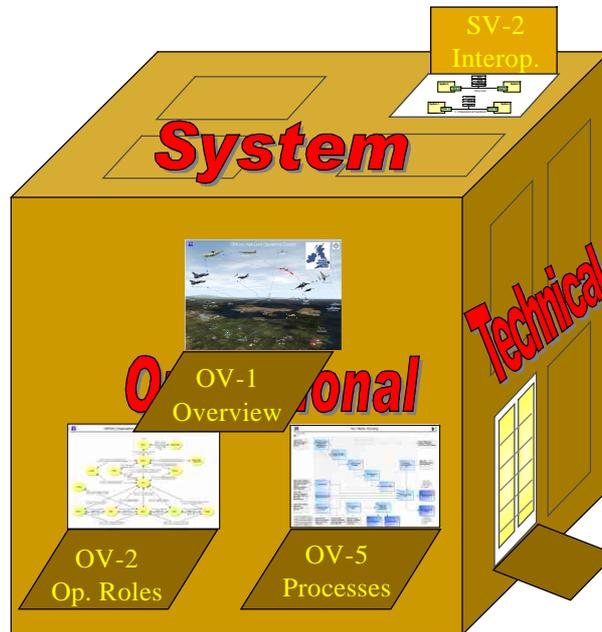


Figure 2-2: Relationship between MODAF Views

Using MODAF certified tools will ensure that the user is complying with the MODAF views and associated meta-model / taxonomy. Since the MODAF tool certification scheme is still being developed at the time of this MODAF baseline issue, definitive guidance as to tool availability and fit with different COIs is not currently available. Therefore, interim guidance has been issued on the availability of MODAF convergent tools³.

³ Interim NEC, CBM and BMS MODAF Modelling Policy, DEC (CCII) File ses 046-05, 1/3/05.

3. The MODAF Documentation Suite

This MODAF Executive Summary forms part of the overall suite of MODAF 1.0 baseline documentation as shown in Figure 3-1.

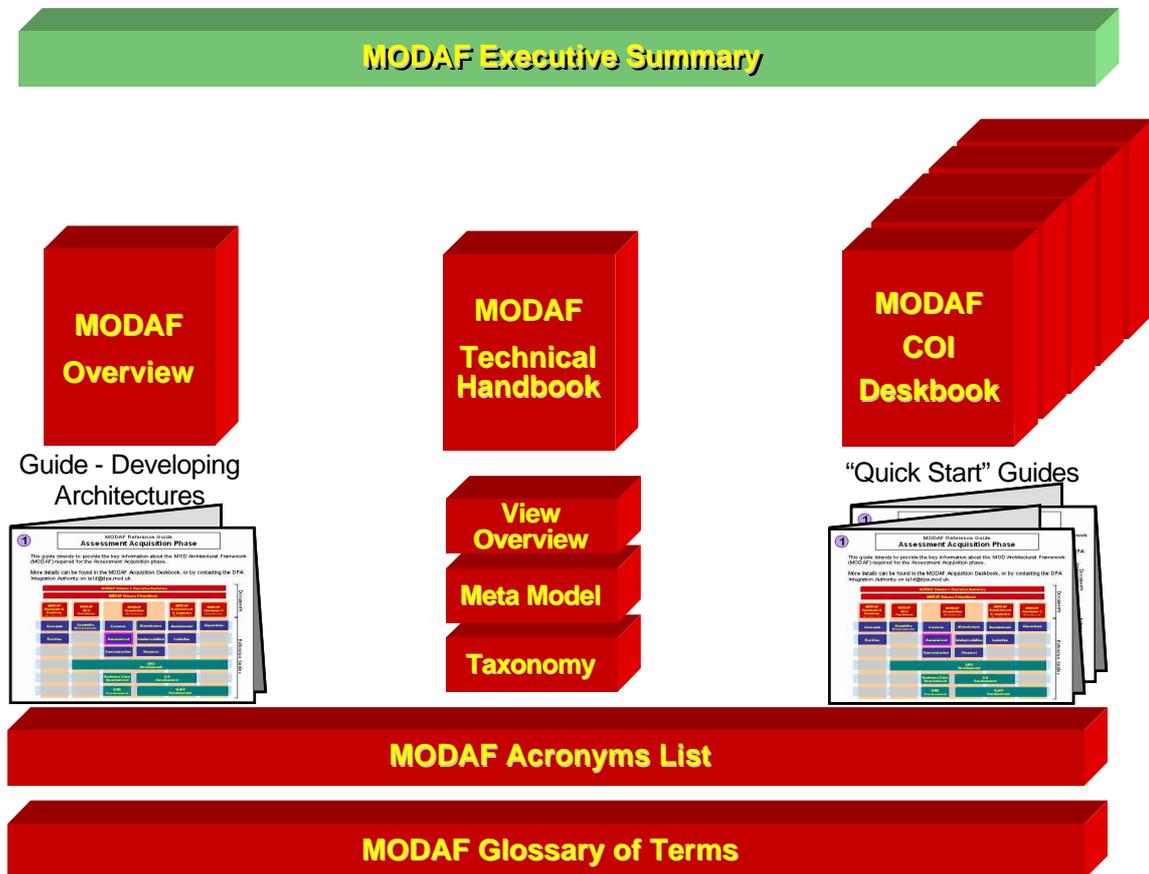


Figure 3-1: MODAF 1.0 Baseline Products

The main elements of the MODAF baseline are:

- Executive Summary – provides a brief summary of the entire MODAF baseline
- MODAF Overview – describes what MODAF is, why it should be used and details the process for developing architectures
- MODAF Technical Handbook – provides details of the construction of MODAF views and their relationship to the MODAF meta model (M³). This is supported by:
 - View Overview – a short summary of each view intended for quick reference by MOD users
 - Meta Model – used to define the architectural objects that are permitted in MODAF views and their relationships with each other
 - Taxonomy – provides the approved names and definitions for architectural objects to be used within the MOD’s architectures
- MODAF Deskbooks – describe how users within particular communities in the MOD are expected to utilise MODAF architectures to support their processes. Each of the Deskbooks has one or more “quick start guides” that provide an easy

reference summary of the relationship of MODAF views to the community's processes

The high level scope of these COIs is:

- **Concepts and Doctrine** – the development of analytical concepts (eg Joint HLOC), applied concepts (eg Carrier Strike Concepts) and in-service doctrine, SOPs and TTPs
- **Customer 1** – the monitoring of capability gaps against future needs, building the Equipment Programme (EP) and ownership of URDs for new capabilities
- **Acquisition** – the development and fielding of new military capabilities, the primary focus is up to the acceptance into service of a fully operational capability
- **Sustain** – the processes to maintain and upgrade a military capability throughout its operational life
- **Customer 2** – the Front Line Commands planning and conducting their operational activities including their Core Leadership and Pivotal Management roles as defined in Smart Acquisition⁴

Having read this MODAF Executive Summary most readers will probably then want to digest the more detailed MODAF Overview and the details appropriate to their processes within the relevant MODAF COI Deskbook(s).

⁴ See Smart Acquisition Handbook, available on the Acquisition Management System (AMS) at <http://www.ams.mod.uk>

4. Benefits of Developing MODAF Architectures

Some of the key benefits of implementing MODAF are that it provides good visibility of strategic portfolio management and programme integration issues – between multiple projects and across the Defence Lines of Development (DLODs). In this sense MODAF is an enabler of a more coherent enterprise architecture that is capable of better aligning all activities and capabilities across the MOD. It has been estimated⁵ that the savings on risk and rework through making the acquisition programme more coherent could be between £0.75B and £3B.

Although it is not feasible to unpack the individual contribution of MODAF towards these overall savings, the impact that the collective approach of MODAF, AfNEC, IX and other IA services would make across the acquisition portfolio is shown schematically in Figure 4-1. In complex enterprises with large capital-intensive infrastructures similar to the MOD it is not uncommon for there to be 30 to 40% of the total portfolio value in risk and rework across the acquisition portfolio associated with integration and interoperability issues. Not all of this risk and rework will have been budgeted for within contingencies (ie within the EP) – therefore, if this risk does mature it will adversely affect the affordability of downstream projects ie delaying the availability of future military capability. However, if the enterprise was to adopt a more coherent approach to managing across the entire portfolio and using good practice systems engineering / architectural approaches this risk and rework element could be significantly reduced⁶ – with less downstream affordability impact on the rest of the future portfolio.

When considered from an overall perspective such as this there is not any burden associated with conducting MODAF architectures. Quite the contrary, there is a large reduction in overall cost / resources, although with a small shift in the resource profile early in the lifecycle toward early investment in de-risking the remainder of the lifecycle.

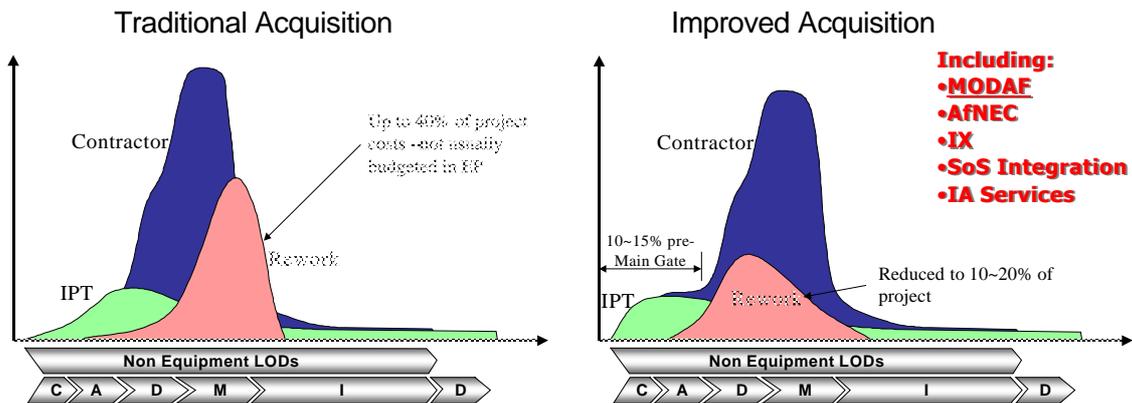


Figure 4-1: Potential Benefits in Acquisition Risk / Rework

More specifically, the nature of the potential benefits from MODAF by COI is detailed below.

⁵ As part of the AfNEC study.

⁶ See Figure 6 in NASA SP6105, June 1995 and Systems Engineering Centre of Excellence report 01-03, 2003 (on www.incose.org)

(a) Benefits to Concepts and Doctrine COI

- Improved articulation of the process from concepts development to identified defence capabilities
- Improved identification and management of cross-capability dependencies
- Better support for concept generation and capability development and assessment
- Ensure better capability selection, endorsement and integration across all DLODs.

(b) Benefits to Customer 1 COI

- Improved definition of both capability and user requirements; by providing a integrated set of Views to support requirements development
- More effective cross-DEC working; by bringing commonality to the articulation of data across options, plans and analyses
- Reduced risk to the Equipment Programme through improved delivery assurance; by providing traceability of requirements into the activities of Acquisition, Sustainment and Customer 2.

(c) Benefits to Acquisition COI

- Improved clarity of the context within which a new capability will operate
- Clearer and more comprehensive requirements documents
- Improved ability to resolve interoperability issues between systems
- Better understanding of the mapping of system functions to operational needs and hence the ability to conduct improved trade-offs.

(d) Benefits to Sustainment COI

[Awaiting visibility of Sustainment COI deskbook]

(e) Benefits to Customer 2 COI

- Improved military decision-making through a better, joined-up, coherent and holistic understanding of relationships between all the elements of the military landscape (eg capabilities, activities, systems and roles). This will result in improved military effect and reduced risk
- Improved clarity of the context within which a new capability will operate
- Improved efficiency through easier identification of opportunities for rationalisation of activities, roles and equipment, and faster, more effective feedback.
- Improved interoperability between systems
- Reduction in risk for introduction of equipment.

5. Document Maintenance

It is intended that the MODAF product suite will evolve through time in order to reflect learning from experience, changes to the MOD's processes and the evolution of architectural best practice. A change control process will be established for all MODAF products and suggestions upon the refinement / improvement of this and related products are welcome. The formal MODAF change control process will be published in due course (see www.modaf.com). In the interim, suggestions should be forwarded to the MODAF project manager:

EC CCII I2b

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- DCBM(Army)
- DCSA
- DG Info
- DLO
- DSTL

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