SMART ACQUISITION

The Acquisition Handbook

Edition 6 - October 2005

A guide to achieving "Faster, Cheaper, Better and More Effectively Integrated"

The Defence Vision

Defending the United Kingdom and its interests

Strengthening international peace and stability

A FORCE FOR GOOD IN THE WORLD

We achieve this aim by working together on our core task to produce battle-winning people and equipment that are:

- **Fit for the challenge of today**
- **Ready for the tasks of tomorrow**
- **Capable of building for the future**

Foreword

Lord Drayson, Under Secretary of State for
Defence and Minister for Defence Procurement

In striving towards realising the Defence Vision, we continuously seek to improve and reform our Defence acquisition processes. Recently the governance of acquisition has been restructured under the Acquisition Policy Board, which I chair personally; and the Defence Values for Acquisition have been established to shape the behaviour of everyone in the acquisition community including industry.

Smart Acquisition remains our long-term initiative to improve the way we acquire military capability. Through Smart Acquisition we will deliver the right equipment and services fit for the purpose required by the customer, at the right time and the right cost. Its principles apply not only to equipment but to the provision of services, infrastructure and information systems also.

The Major Projects Report 2004, published by the National Audit Office, cites several examples of Smart Acquisition successes but warns of a 'failure to apply consistently the sensible principles underpinning Smart Acquisition'. It is vitally important that all of the Defence community study and apply the good practices described in this Handbook to ensure that we acquire what our men and women in the front line need.

Defence Values for Acquisition

This statement of values is intended to shape the behaviour of all those involved in acquisition, including Ministers, Defence Management Board members, customers at all levels, the scrutiny community, project teams in the various delivery organisations and our private sector partners.

Everything we do is driven by the Defence Vision:

The Defence Vision

Defending the United Kingdom and its interests

Strengthening international peace and stability

A FORCE FOR GOOD IN THE WORLD

We achieve this aim by working together on our core task to produce battle-winning people and equipment that are:

- **Fit for the challenge of today**
- **Ready for the tasks of tomorrow**
- **Capable of building for the future**

Defence Values for Acquisition

By working together across all the Defence Lines of Development (see pages 11-12), we will deliver the right equipment and services fit for the purpose required by the customer, at the right time and the right cost. In delivering this Vision in Acquisition, we all must:

- recognise that **people are the key to our success;** equip them with the right skills, experience and professional qualifications
- recognise the **best can be the enemy of the very good;** distinguish between must have, desirable, and nice to have if affordable
- identify **trade-offs between performance, time and cost;** cases for additional resources must offer realistic alternative solutions
- **never assume additional resources** will be available; cost growth on one project can only mean less for others and for the front line
- understand that **time matters;** slippage costs – through running on legacy equipment, extended project timescales, and damage to our reputation
- think **incrementally;** seek out agile solutions with open architecture which permit "plug and play"; allow space for **innovation** and the application of best practice
- **quantify risk** and reduce it by placing it where it can be managed most effectively; stopping a project before Main Gate can be a sign of maturity
- **recognise and respect the contribution made by industry;** seek to share objectives, risks and rewards while recognising that different drivers apply
- value **openness and transparency;** share future plans and priorities wherever possible to encourage focused investment and avoid wasted effort
- embed a **through life culture** in all planning and decision making
- value **objectivity** based on clear evidence rather than advocacy; ensure that we capture past experience and allow it to shape our future behaviour
- realise that **success and failure matter;** we will hold people to account for their performance

Ministers and members of the Defence Management Board will play their part in working together for Defence by:

- speeding decision taking
- keeping the approval process simple
- empowering teams to deliver

Contents

Contents

Acquisition

The activity of requirement setting, procurement management, support management and termination/ disposal, implying a whole life approach to Defence capability.

Procurement

The activity of acquiring capability, goods and services, from the letting of a contract through to receipt and payment.

Integrated Project Team

A team which includes the core skills necessary to manage a project through its acquisition cycle.

Project

A unique set of co-ordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined time, cost, performance and integration parameters.

The aim of **Smart Acquisition** is

> "To acquire Defence capability faster, cheaper, better and more effectively integrated."

Smart Acquisition is founded on 7 Principles, which apply to the acquisition of all Defence capability, including equipment, services, infrastructure and information systems.

The 7 Principles of Smart Acquisition

1 - a **through life systems approach**, typified by applying Whole Life Costing techniques

2 - **Integrated Project Teams (IPTs) with clearly identified customers**

3 - a better, more open **relationship with industry**

4 - **more investment during early project phases**

5 - **effective trade-offs** between system performance, through life costs and time

6 - **new procurement approaches**

7 - a **streamlined** process for **project approvals**

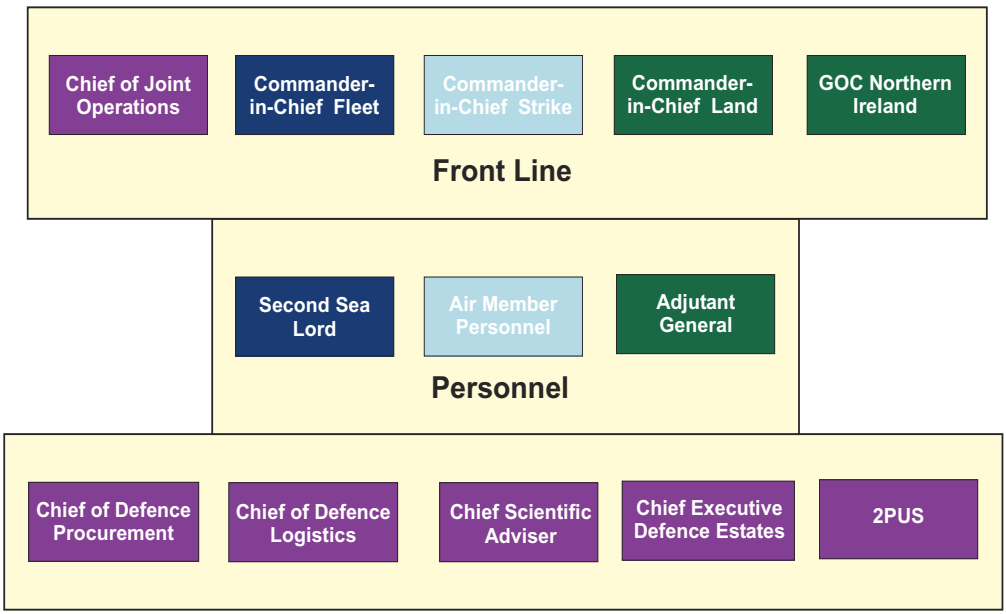
The guidance described in this Handbook is structured around the 7 Principles.

Departmental Governance

The formal legal basis for the conduct of Defence in the UK rests on a range of powers vested by statute and Letters Patent in the Defence Council, chaired by the Secretary of State for Defence. Each of the Services has its own top level board (the Admiralty, Army and Air Force Boards) reporting to the Defence Council.

- the Defence Management Board (DMB) is the executive board of the Defence Council and is responsible for directing a number of key processes, in particular the biennial re-costing of the Defence programme and the Departmental planning process

- 13 Top Level Budget (TLB) holders are responsible and accountable for the delivery of specific outputs, linked to the provision of agreed resources



- a new Business Management System (BMS) provides a high level management framework, that will enable continuous improvement in the delivery of core Defence outputs through clearly understood Head Office functions and high level end to end processess, with single point of accountability for their efficiency and effectiveness. Process Owners are answerable to the DMB for delivery of their objectives.

Acquisition Governance

Within acquisition the **Acquisition Policy Board (APB)** provides strategic direction to the acquisition community; and the **Investment Approvals Board (IAB)** conducts investment decision making :

Acquisition Policy Board

The APB directs the development of Defence acquisition policy and processes, including related skills issues and cooperation with industry; reviews performance targets across acquisition; and directs the development of defence industrial policy and strategy. Its members are:

Minister (Defence Procurement) Chairman

Permanent Under Secretary (PUS)

2nd Permanent Under Secretary (2nd PUS)

Vice Chief of the Defence Staff (VCDS)

Chief of Defence Procurement (CDP)

Chief of Defence Logistics (CDL)

Chief Scientific Adviser (CSA)

Deputy Chief of Defence Staff (Equipment Capability) (DCDS(EC))

Deputy Chief Executive Defence Procurement Agency (DCE/DPA)

The APB may also meet in official session, chaired by PUS. Secretariat support is provided by the Directorate of Defence Acquisition (D Def Acq).

Directorate of Defence Acquisition (D Def Acq)

The D Def Acq provides a central focus for developing and delivering Defence acquisition policy and processes; support to the APB; and provides a central change agent across Defence acquisition.

The APB is supported by the Acquisition 3-Star Group (A3*G).

Acquisition 3-Star Group

Deputy Chief of Defence Staff (Equipment Capability) (DCDS(EC))

Deputy Chief Executive Defence Procurement Agency (DCE/DPA)

Deputy Chief of Defence Logistics (DCDL)

Chief Executive Defence Estates (CE/DE)

DCINC (rotating) representing the Second Customer

The A3*G acts as the 3-Star Executive Group to the APB, sets the strategic direction for Smart Acquisition and ensures the coherent development and application of Smart Acquisition across the MOD.

Second Customer

The single-Service Chiefs, front line, personnel and training commands responsible for converting the asset or service into a Defence capability incorporating all Defence Lines of Development (pages 11-12).

The IAB considers proposals for Defence investment on behalf of the DMB.

Investment Approvals Board

Chief Scientific Adviser (CSA) Chairman

Vice Chief of the Defence Staff (VCDS)

2nd Permanent Under Secretary (2nd PUS)

Chief of Defence Procurement (CDP)

Chief of Defence Logistics (CDL)

Embed a **through life culture** in all planning and decision making

Through Life Management

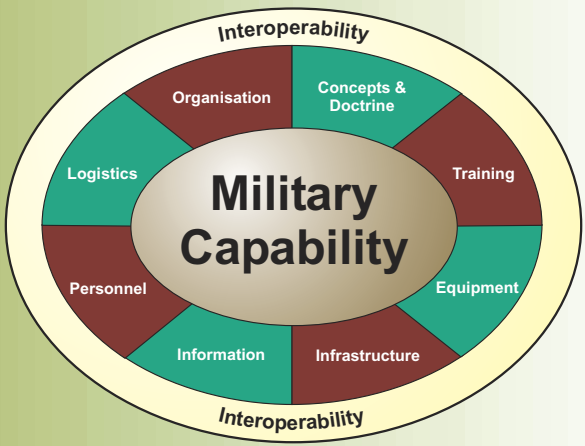
The key features of Through Life Management are:

- developing and using a realistic, costed, whole life plan known as the Through Life Management Plan (TLMP) to manage the project throughout the lifecycle
- using an appropriate acquisition cycle
- the integration of all the Defence Lines of Development (DLODs) which comprise the defence capability
- managing the Whole Life Costs of defence capability. Ensuring that our investment decisions take full account of all the longer term implications of acquisition across all DLODs
- the proactive engagement of customers and stakeholders

Acquisition Management System (AMS)

An on-line 'one-stop shop' website for authoritative guidance, templates, best practice and user expertise relating to Defence acquisition. Available on MOD and some corporate intranets and on the internet at www.ams.mod.uk

Defence Lines of Development



Training - The provision of the means to practise, develop and validate, within constraints, the practical application of a common military doctrine to deliver a military capability.

Equipment - The provision of military platforms, systems and weapons, expendable and non-expendable (including updates to legacy systems), needed to outfit/equip an individual, group or organisation.

Personnel - The timely provision of sufficient, capable and motivated personnel to deliver Defence outputs, both now and in the future.

Information - The provision of a coherent development of data, information and knowledge requirements for capabilities and all processes designed to gather and handle data, information and knowledge. Data is defined as raw facts, without inherent meaning, used by humans and systems. Information is defined as data placed in context. Knowledge is Information applied to a particular situation.

Concepts and Doctrine - A Concept is an expression of the capabilities that are likely to be used to accomplish an activity in the future. Doctrine is an expression of the principles by which military forces guide their actions and is a codification of how activity is conducted today. It is authoritative, but requires judgement in application.

Organisation - Relates to the operational and non-operational organisational relationships of people. It typically includes military force structures, MOD civilian organisational structures and Defence contractors providing support.

Infrastructure - The acquisition, development, management and disposal of all fixed, permanent buildings and structures, land, utilities and facility management services (both Hard & Soft facility management (FM)) in support of Defence capabilities. It includes estate development and structures that support military and civilian personnel.

continued overleaf

Logistics - The science of planning and carrying out the operational movement and maintenance of forces. In its most comprehensive sense, it relates to the aspects of military operations which deal with; the design and development, acquisition, storage, transport, distribution, maintenance, evacuation and disposition of materiel; the transport of personnel; the acquisition, construction, maintenance, operation, and disposition of facilities; the acquisition or furnishing of services, medical and health service support.

In addition to the DLODs, Interoperability is included as an overarching theme that must be considered when any DLOD is being addressed:

Interoperability - The ability of UK Forces and, when appropriate, forces of partner and other nations to train, exercise and operate effectively together in the execution of assigned missions and tasks. In the context of DLODs, Interoperability also covers interaction between Services, UK Defence capabilities, Other Government Departments and the civil aspects of interoperability, including compatibility with Civil Regulations. Interoperability is used in the literal sense and is not a compromise lying somewhere between integration and deconfliction.

Through Life Management Plan (TLMP)

The Through Life Management Plan is the strategic Through Life route map and decision making tool used to manage the project across the entire acquisition cycle. It is initiated within the Capability Working Group (see page 24), developed and maintained by the IPT and provides visibility to all customers and stakeholders of the through life management planning process.

Its accuracy is improved through iterative review at each stage, resulting in increasing confidence in the IPT's time, cost and performance targets. The level of effort applied to through life management should be in proportion to the cost, timescale and level of complexity of the project.

A fully effective TLMP:

- provides an audit trail of decisions and a baseline for project reviews and for joint planning by the IPT, customers and stakeholders
- informs all significant decision points, including:
  - approvals,
  - resource commitments,
  - investments,
  - trade-offs,
  - upgrades
- provides an integrated approach to planning and managing the project across all DLODs, enabling better informed decisions and more balanced trade-offs
- focuses on outputs and identifies how they will be achieved

The detail provided in the TLMP should be commensurate with the overall value and complexity of the project. TLMPs may not be required for simple, low value acquisitions where the benefits do not justify the resources required to sustain it: however the same principles apply.

Supporting the TLMP is a range of Strategies and Plans. Examples include the Through Life Information Plan (TLIP); the Learning From Experience Plan (LFEP) and the Integrated Test Evaluation & Acceptance Plan (ITEAP).

For example an effective TLIP will ensure that future information requirements are anticipated. A thorough TLIP will include:

- key information stakeholders
- integration of information requirements with all DLODs
- information processes, standards, competences training and metrics
- requirements for exchange of secure data between collaborative partners

Similarly, an effective LFEP will ensure that the project planning process takes account of learning from experience at all stages, with the aim to anticipate issues and risks and increase the probability of success.

Whole Life Costs

Smart Acquisition includes the need to examine critically and manage the whole life costs of delivering military capability. In order to ensure that investment decisions take full account of the cost of owning as well as procuring equipment, a better understanding of the costs associated with operating, maintaining and disposal of the equipment is essential.

Whole life costing is an integral part of the through life management planning process. By establishing a clear linkage between the Equipment Plan resource requirement and the future Short Term Plan resource provision, an IPT and its major stakeholders are able to identify, and hence develop strategies to manage, future resource peaks. Longer-term initiatives can be considered and agreed between stakeholders based on the corporate objective of reducing whole life costs.

Whole Life Costing (WLC)

A continuous process of forecasting, recording and managing costs throughout the life of an equipment with the specific aim of optimising its whole life costs and military output.

The Acquisition Cycle

At the centre of the through life management approach is the acquisition cycle. It provides the `road map' for getting from a Defence capability gap to the delivery of that capability to the users.

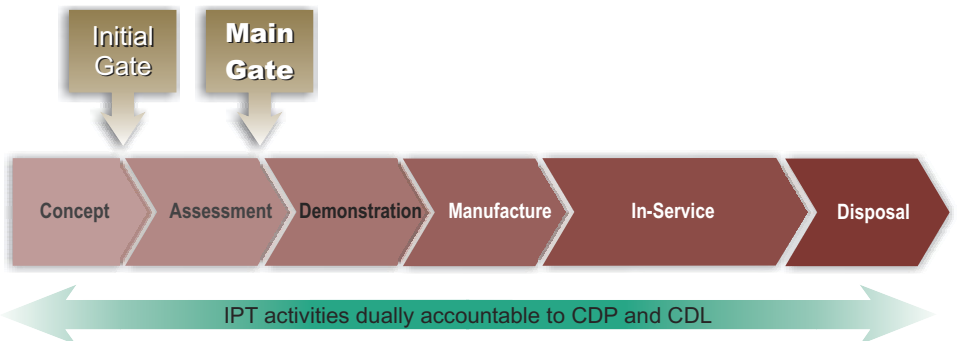
The most common acquisition cycle has two variants:

- the CADMID cycle for the acquisition of equipment capability
- the CADMIT cycle for the provision of services

Although CADMID/T is the most commonly used lifecycle at present, it is not the only option and may not always be the most appropriate. Further guidance is available under `Life-Cycle Selection' (pages 41-42).

The CADMID cycle

For equipment projects, the user requirement is generated by Customer 2, articulated and owned by Customer 1 (see page 23) and the equipment component of the solution to meet that requirement is supplied by an IPT dually accountable to CDP and CDL. The acquisition cycle (often referred to as `CADMID' from the initial letters of its six phases) is characterised by approval points generally at either end of the Assessment phase.



Each of the six acquisition stages involves executing the plan agreed in the previous stage, reviewing the outcome, and planning for the remaining stages. The basic activities of each stage are as follows:

Concept:

- produce a statement of the outputs that users require from the system, framed as a User Requirements Document (URD)
- form the IPT

User Requirements Document (URD)

A structured expression of the user needs for a Defence capability.

- involve industry
- identify technology and procurement options for meeting the requirement that merit further investigation.
- obtain funding and agree plan for the Assessment (in detail) and subsequent stages (in outline), identifying performance, cost and time boundaries within which it is to be conducted
- initiate the TLMP
- continuously monitor concept maturity and, when appropriate, construct and submit an Initial Gate Business Case seeking approval for the Assessment Stage within time, cost and performance boundaries

Assessment:

- produce the System Requirements Document (SRD), defining what the system must do to meet user needs as stated in the URD
- establish and maintain the linkage between user and system requirements
- identify the most cost-effective technological and procurement solution
- develop the SRD, trading time, cost and performance to identify the technological solution
- reduce risk to a level consistent with delivering an acceptable level of system performance to tightly controlled time and cost parameters.
- refine TLMP, including detailed plans for the Demonstration phase
- continuously monitor project maturity and, when appropriate, construct and submit a Main Gate Business Case seeking approval for the project within tightly defined performance, time and cost boundaries

Demonstration:

- eliminate progressively the development risk and fix performance targets for manufacture, ensuring there is consistency between the final selected solution and the SRD and URD
- place contract(s) to meet the SRD
- demonstrate ability to produce integrated capability

Initial Gate

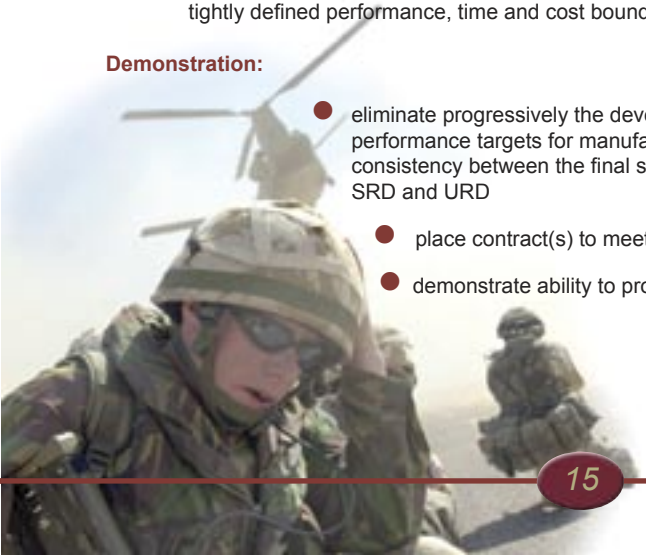
The first approval point in the acquisition cycle, being a relatively `low hurdle'.

Systems Requirements Document (SRD)

The SRD defines, in output terms, what the system must do to meet user needs as stated in the URD.

Main Gate

The major decision point in the acquisition cycle, at which the solution and the "not-to-exceed" figures for the project are approved.



Integrated Logistic Support

Integrated Logistic Support (ILS) provides the disciplines for ensuring that supportability and cost factors are identified and considered during the design stage of an equipment so that they may influence the design, with the aim of optimizing the Whole Life Cost. DEF STAN 00-60 defines the MOD requirements for the application of ILS principles for through life management of equipment. It is intended to be used, whenever relevant, in all future designs, contracts, orders etc. and whenever practicable by amendment to those already in existence.

Manufacture

- deliver the solution to the military requirement within the time and cost limits
- conduct System Acceptance to confirm that the system satisfies the SRD and the URD, as agreed at Main Gate
- for equipment, transfer the lead customer function to the Second Customer

In-Service:

- confirm the Defence capability provided by the system is available for operational use, to the extent defined at Main Gate, and declare the In-Service Date
- provide effective support to the front line
- maintain levels of performance within agreed parameters, whilst driving down the annual cost of ownership
- carry out any agreed upgrades or improvements, refits or acquisition increments

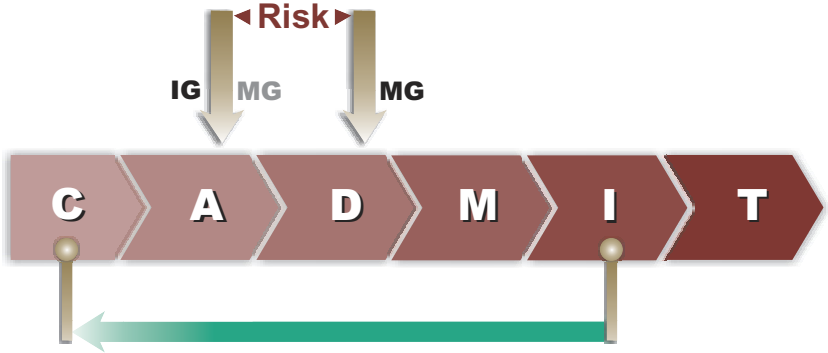
In-Service Date

In-Service Date is declared when the Defence capability provided by the system is assessed as available for operational use.

Disposal:

- carry out plans for efficient, effective and safe disposal of the equipment

The CADMIT cycle



During the in-service phase, concept phase preparations for contract renewal will commence

In the CADMIT cycle the approval points occur later, in order to manage the risks better.

- `M' now stands for Migration, rather than Manufacture
- `T', for Termination, replaces Disposal
- IG and MG may be coincident in cases where risk has been comprehensively reduced, for example when a new requirement is added to an existing contract

Concept

- produce a statement of the users required outputs framed as a URD
- identify the team who should undertake the acquisition, and if necessary form an IPT
- involve industry through informal market sounding
- identify procurement options that merit further investigation
- start to identify the acquisition boundaries of performance, cost and time
- agree the Assessment plan (in detail)
- agree subsequent stages (in outline)
- initiate the TLMP

#1 - A Through Life Systems Approach

Assessment

- produce the SRD, defining what the system, service or asset must do to meet user needs as stated in the URD
- establish and maintain the linkage between user and system, service or asset requirements
- refine the TLMP, including detailed plans for the Demonstration phase
- identify availability of funding for the whole programme
- secure funds for the demonstration phase
- identify the most appropriate procurement strategy
- continuously monitor project maturity and, when appropriate, construct and submit an Initial Gate Business Case seeking approval for the Demonstration phase within time, cost and performance boundaries

Demonstration

- identify the most effective solution by formally engaging industry through the issue of an ITT/ITN. Evaluate bids and recommend a bidder
- develop the SRD, trading time, cost and performance parameters necessary to identify the solution
- reduce risk to a level consistent with delivering an acceptable level of system, service or asset performance to tightly controlled time and cost parameters
- fix performance targets for migration ensuring there is consistency between the final selected solution and the SRD and URD
- negotiate and place contract(s) to meet the SRD
- demonstrate ability to produce the required capability
- continuously monitor project maturity and, when appropriate, construct and submit a Main Gate Business Case seeking approval to proceed to Migration within tightly defined performance, time and cost boundaries
- negotiate and place contract(s) to meet the SRD

ITT/ITN

Invitation To Tender / Invitation To Negotiate. Formal MOD commercial processes to ascertain industry participation.

Migration

- migrate to the new service
- manufacture/build assets if appropriate
- deliver the solution to the requirement within the time and cost limits
- handover the services/assets to the user/customer
- confirm the acquired capability is available for operational use, to the extent defined at Main Gate, and declare the In-Service Date

In-Service

- provide effective support to ensure delivery of the service/capability
- maintain levels of performance within agreed parameters
- where cost of ownership features, drive down the annual cost
- conduct agreed upgrades or improvements, refits or acquisition increments
- prepare for the timely replacement of the service

Termination

- carry out the termination/closure of the estate, service, or business information system contract in accordance with the TLMP. Dispose of any assets, migrate data to follow-on systems

Support Solutions Envelope (SSE)

The provision and sustainment of operational capability require delivery of integrated support solutions to the front line through a coherent support chain. Support solutions must be effective, give value for money, must not cause unacceptable operational risk to the front line commands and must be coherent with Defence policy.

The SSE is an approach for 'managing' the support solution throughout the CADMID cycle. It is:

- a set of guidance notes for IPTs that aid the design of support solutions
- a process used to analyse support solutions to inform business case scrutiny and the DPA/DLO governance regimes
- the impetus for future change as circumstances change

The SSE is structured into a number of Key Support Areas (KSAs):

Logistic Support / Sustainability to provide logistic support / sustainability to conduct operations (generate, deploy, operate and recover contingent forces)

Engineering & Asset Management (E&AM) is the procurement and through life support process that facilitates the design, management and delivery of safe, available assets for use by front line commands. In service, E&AM is the effective allocation and scheduling of assets configured to task, supported through the planning, scheduling and implementation of maintenance, repair, modification and overhaul.

Materiel Flow is the process which integrates all activities associated with the two-way flow of goods and relevant information from industry to the end-user to sustain military capability. It includes forecasting, receipting, storage, distribution, delivery and return of stores and equipment available or required for an undertaking.

Contractors Support to Operations The use of contractors to support operations.

IKM & Logistic C4I is the exploitation of effective Information and Knowledge Management (IKM) and a reliable, secure and coherent approach to Logistic Command, Control, Communications, Computing and Information (C4I), to maximise the availability of logistic information, and improve asset visibility and logistic decision-making. This seeks to maximise the availability of logistic information, enable asset visibility and improve logistic decision making.

People & Training The timely provision, retention and sustainment of the optimum mix of support personnel, correctly trained and resourced.

Industry & Innovation All support solutions should consider their effect on the Defence industrial base, particularly with reference to maintaining essential national industrial capability and security of supply in time of conflict. Such considerations may in some cases conflict with a pure value for money assessment.

Environment & Safety Secretary of State's Policy Statement for Safety and Environmental Protection requires compliance with the law and Departmental policy except where specific exemptions or derogations have been obtained and approved by ministers.

Resource Management The management of financial processes in order to ensure optimum utilisation of resources with due regard to propriety, regularity and value for money.

Sustainable Development (SD)

We are committed to deliver the UK Government Sustainable Development strategy 'Securing the Future' 2005. This means that all MOD programmes, policies and projects have to consider the environmental, social and economic effects of their operations.

SD and sustainable procurement are considered as an integral part of the acquisition cycle commencing at the outset of Smart Acquisition and maintained throughout the TLMP. JSP 418, the MOD Sustainability and Environment Manual, contains advice on sustainable procurement and sustainability and environmental appraisal.

The principal steps that should be taken to address SD within projects are:

- appoint a SD focal point within the project team and ensure they have the correct training/ awareness to undertake the role
- ensure that the SD focal point seeks advice and guidance from the appropriate TLB Safety and Environment Policy Group at the outset of the project
- ensure that the SD focal point makes the IPTL and project staff aware of any SD requirements in order to enable the implications of SD on the project to be fully understood, assessed, funded, and included in the TLMP
- recognise that SD will need to be addressed as part of the IAB Business Case
- recognise that SD will need to be addressed as part of the project risk management process from the outset of the project lifecycle, with a clear audit trail maintained of why key decisions were taken and what those decisions were
- ensure that relevant SD policy is understood and adopted, and any statutory obligations to use appraisal tools throughout the life of the project are met
- inform Defence Estates at the outset of all projects and initiatives that may impact on the estate (eg. toxic and/or hazardous materials, storage and use of equipment, testing, training and infrastructure)

Useful Reading

Through Life Management Guidance
Through Life Management Maturity Model
Whole Life Costing
Support Solutions Envelope
JSP 418 The MOD Sustainabilty and Environment Manual

available as downloads

Through Life Management Team: available as a web page

both via the AMS at www.ams.mod.uk

Defence Estates web site at www.defence-estates.mod.uk

#2 - IPTs with clearly identified Customers

Realise that **success and failure matter;** we will hold people to account for their performance

Smart Acquisition is built on the integration of relationships between customers and suppliers. Characteristics of a Smart Acquisition approach are clearly identified customers and the formation of IPTs to supply the requirement.

The Customer

The customer must:

- be clearly identified and fully empowered to carry out the task
- provide a clearly stated URD on behalf of the project's users
- prioritise individual requirements within the URD
- agree a performance, cost and timescale envelope with the team leader
- have a clear relationship with the IPT Leader and SRO/SPA (see page 24)
- agree the acceptance criteria and accept the project into service
- secure the funding for the project deliverable

Best practice indicates that the customer should:

- chair a group to capture requirements and form an acceptance board
- have a written agreement with the IPT Leader on roles and responsibilities
- be jointly responsible with the IPT Leader for preparing business cases
- not have line management responsibility for the IPT Leader

The Customers for Military Capability

Over the life of a project there are two customers, known as Customer 1 **(Equipment Capability Customer)** and Customer 2 **(Second Customer)**

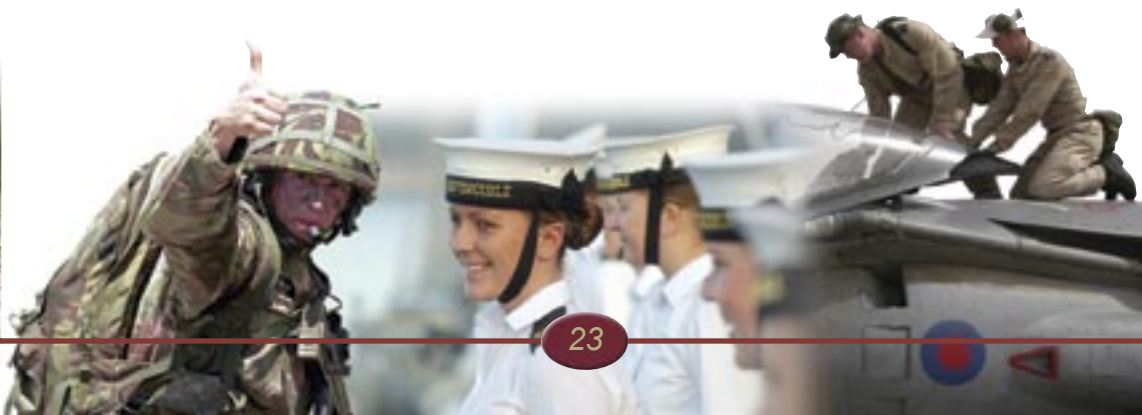
Customer 1 has responsibility for identifying the capability required to meet the UK's Defence objectives, for translating those requirements into an approved programme and for acting as lead customer until the capability is delivered into service. Directors of Equipment Capability **(DsEC)** act as the Single Point of Accountability for the delivery of new and enhanced military capability (see page 24). As part of this wider responsibility they act as Customer 1 for one or more IPTs that are concerned primarily with the procurement of new equipment. The DEC tasks the IPT through a **Customer Supplier Agreement (CSA)**, agreeing boundaries for time, cost and performance, and the trade-offs between them. The DEC is responsible through a Capability Manager to the Joint Capability Board (JCB).

Customer 2 is responsible for integrating the capability provided by Customer 1 into an operational Defence capability, for managing the assets when in-service and for providing relevant advice and expertise to support Customer 1's remit to optimise future capability. There are two dimensions to this role, Core Leadership and Pivotal Management.

- Core Leadership (CL) is undertaken by single-Service Chiefs who provide overall strategic management of the individual Services and their professional direction. They provide advice to Customer 1 on the full range of factors contributing to military capability across the DLODs.

- Pivotal Management (PM) is undertaken by those who use the equipment in service, primarily the front line and training commands.

Equipment is accepted for Service when Customer 1, as Acceptance Authority, supported by relevant stakeholders from his/her CWG, agree that it has met the requirements: this acceptance may be staged where all the requirements have not yet been met but a useable capability exists. When all DLODS are in place to support an agreed quantity of the equipment that represents a deployable capability, the Customer 1 will recommend that the appropriate Single Service Chief declare the ISD. At ISD the status of lead MOD Customer transfers from Customer 1 to Customer 2 (PM).



Capability Working Groups (CWGs)

The Capability Working Group is an adaptive, flexible and social process aimed at providing the advice from which the empowered DEC makes decisions. It brings together the right people, with the right expectations, in the right format, to deliver the right output.

The 3 key points are:

- a CWG is a process, not simply a set of meetings.
- the DEC is the responsible decision-maker drawing on advice from CWG stakeholders
- it is not a prescriptive process that can be standardised across all DEC areas.

A description of the full process can be found on the AMS.

Programme Management

In all major projects or programmes relative or absolute failure can threaten the achievement of key operational and business objectives. The National Audit Office (NAO) and the Office of Government Commerce (OGC) have identified the common causes of failure:

- lack of a clear link between the project and the organisation's key strategic priorities, including agreed measures of success
- lack of clear senior management and Ministerial ownership and leadership
- lack of effective engagement with stakeholders
- lack of skills and proven approach to project management and risk management
- too little attention to breaking development and implementation into manageable steps
- evaluation of proposals driven by initial price rather than long-term value for money (especially securing delivery of business benefits)
- lack of understanding and contact with the supply industry at senior levels in the organisation
- lack of effective project team integration between clients, the supplier team and the supply chain

These are addressed in part by vesting overall responsibility for programmes in a single person. For the relatively few programmes that involve substantial change, significant complexity and/or demanding integration across boundaries a Senior Responsible Owner (SRO) is appointed by PUS at or above 2* level. The SRO is accountable to the DMB, for integration of the total capability within the overarching programme of change; for fully exploiting the potential of the business or capability change; and for the benefits delivered through life.

OGC

The Office of Government Commerce (OGC) is an independent Office of the Treasury reporting to the Chief Secretary. Its website is www.ogc.gov.uk

SROs are vested with the necessary authority to ensure the success of the programmes for which they are responsible and are accountable for achieving them. They will pay particular attention to all aspects of programme management and will act as the primary advocate for the change. They should focus on achieving capability change: once this change is complete and the benefits proven the role should finish. An important part of their remit is to define the point at which the programme has reached sufficient maturity for the role of the SRO to be deemed complete, including assurance of benefits delivery.

Most major change/new capability programmes cross TLB and other organisational boundaries. Unless specifically authorised by the DMB, the establishment of SROs will not interfere with established lines of accountability, either for day-to-day output delivery or process ownership. In particular, TLB holders remain accountable to the DMB – in some cases through the relevant Service Chief of Staff – for the delivery of outputs, as laid down in Service Delivery agreements.

Summary of SRO Responsibilities

- ensuring that the projects/programme reflects MOD priorities and is worth pursuing
- ensuring that the project has the right characteristics for success
- ensuring that the project is subject to review at appropriate stages
- development of the project or programme brief and business case
- development of the project or programme organisation, structure and governance
- managing risk across all DLODs
- monitoring and driving progress
- delivering the benefits
- formal project closure
- post implementation review
- problem resolution and referral
- building MOD skills
- MOD-level programme management

Single Point of Accountability

For the great majority of capability programmes in Defence the size and complexity does not merit the appointment of an SRO. In these cases it will be appropriate for an individual below 2* level to be appointed as the Single Point of Accountability with the responsibility for ensuring the delivery of the capability inherent in an investment decision across the DLODs.

Within the ECC each DEC is already appointed as the Single Point of Accountability (SPA) for ensuring the delivery of new/enhanced military capability in their area. The SPA identifies boundaries, critical dependencies, potential trade-offs, balance of investment issues, risk mitigation and improved processes in order to develop and then oversee a pragmatic and agreed campaign plan for the delivery of new and enhanced military Capability across the DLODs.

The Integrated Project Team

The IPT has the following characteristics:

- a clearly identified team leader
- a clear customer/supplier relationship
- is empowered, within the framework of departmental policy, to make performance, cost and timescale trade-offs within defined boundaries
- is integrated to the extent that the team leader is able to access the appropriate staff and resources when required and that these staff are responsible to the team leader (rather than their line manager where different) for their work on the project

Best practice indicates that:

- the team should have the appropriate skills and experience for the task
- the team should strive for innovation and continuous improvement
- staff continuity should be ensured to prevent loss of corporate knowledge and to maintain a consistent interface with the private sector
- the team should collate best practice and share it with other IPTs
- the team should include project management, requirements management, commercial, financial and support roles within the core team; and the Financial Controller role in all project teams

Core and Associate Members

Core members of an IPT are staff who provide at least 50% of their effort to that team. Associate members are staff who provide specialist skills or core skills for less than 50 % of their time.

Cluster IPT

Many projects are not large enough to require an IPT of their own. In such cases, an IPT will be responsible for a group of related projects and is referred to as a Cluster IPT

The Team Leader

IPT Leader must:

- be clearly identified and fully empowered within the framework of departmental policy to carry out the task
- have control of the core team (with an operating cost budget), be able to access shared resources and be responsible for team outputs

- be answerable to the customer for the acquisition of the agreed requirement but be permitted to make performance, cost and timescale trade-offs within an agreed envelope
- have a clear relationship with the project customer and/or SRO
- be accountable for conducting a Post Project Evaluation

Accountability and Answerability

Smart Acquisition draws a clear distinction between accountability and answerability. Accountability describes the relationship with line management or the person from whom one receives ones delegations whereas answerability is the relationship with the person to whom one delivers, usually by means of an agreement (such as a Customer Supply Agreement) or contract. Thus equipment IPTLs are accountable to CDP/CDL but answerable to their customers in the ECC and the Commands.

Best practice indicates that:

- the use of acquisition behavioural competences should be considered when selecting new Team Leaders
- there should be a written agreement between the customer and the team leader on roles and responsibilities
- the team leader should be jointly responsible with the customer for preparing business cases
- the team leader should not have the customer as line manager

Specialist Areas

IPTs require support from a number of specialist areas which provide policy direction, advice or services to allow IPTs to deliver their outputs effectively and efficiently. They cover a wide range of policies including commercial, supplier relations, financial and technical. A number of technical specialist groups, drawn from the DLO Technical Directorates and DPA technical support groups, have now been brought together under **Technical Enabling Services (TES)**, which is dual accountable to both CDL and CDP for the provision of technical advice and assurance to the acquisition community.

Useful Reading

Capability Working Group Processes
Senior Responsible Owners
Joint & Single Service Second Customer Handbooks
IPT Model
IPT List

All are available as downloads from the AMS at www.ams.mod.uk

#3 - Relationship With Industry

Recognise and respect the contribution made by industry; seek to share objectives, risks and rewards while recognising that different drivers apply

SA SMART ACQUISITION

Value **openness and transparency;** share future plans and priorities wherever possible to encourage focused investment and avoid wasted effort

SA SMART ACQUISITION

Experience within Government and the private sector has demonstrated the benefits of a relationship in which both parties work closely from the earliest stage of a procurement to achieve mutually agreed objectives. A partnering relationship promotes effective communication , openness and trust, better management of risk and early identification of problems. Proactive attitudes and contributions will obtain improved performance in the partners and greater shared benefits.

Defence Industrial Policy

We need a competitive, sustainable Defence industrial base able to meet our capability requirements through life.

The globalisation of the defence business means that nowadays it is less understandable to talk of a 'national industry'. Many UK companies have growing operations abroad. Conversely, an increasing number of international companies of foreign parentage now have UK boards and workforces. The Government is committed to a strong and healthy Defence industry in the UK owing to the economic value that the industry brings to the UK, by creating employment, technology and intellectual property in this country. This value can be created by any industry which chooses to invest in the UK, regardless of its nationality. The value can also be realised by UK companies investing abroad, but only if the technology and economic benefits which are created flow back into the UK.

What we mean by UK industry is therefore less about ownership than about considering:

- whether investment is being undertaken in the UK
- whether intellectual property will be created and retained within the UK
- the number and quality of jobs sustained and created within the UK
- whether skills and expertise are utilised or developed within the UK

The MOD Defence Industrial Policy, published in 2002, provides the framework for our relationship with the Defence industry. It states that, above all, the relationship must be rooted in project performance, delivered within time and price constraints.

Open and fair competition remains the bedrock of MOD acquisition policy, both at prime and subcontract level. It is the mechanism by which MOD secures the best value for money solution to its acquisition requirements. But we use competition intelligently. We do not run competitions unless there are a number of suppliers in the field suitably qualified to tender, nor do we include in competitions suppliers we do not believe have a reasonable chance of winning the work on offer. If there are industrial factors which would influence the outcome of the intended competition these will be declared at the outset.

The four key factors taken into account in acquisition decisions are:

- cost and operational effectiveness, taking account of whole life costs and the evaluation of risk
- affordability
- long-term value for money
- national security considerations

Laid on to the assessment of these key factors is a consideration of the wider Defence and national interests to be taken into account in acquisition decisions. OGDs, especially HM Treasury, Department of Trade and Industry and the Foreign and Commonwealth Office will be involved in significant acquisition decisions. These wider factors are:

- security of supply
- key technologies
- export potential
- industrial participation
- wider MOD policy framework
- industrial capabilities
- foreign and industrial policy

Implementing Defence Industrial Policy

Guidance on the implementation of industrial policy wider factors is available on the AMS. This guidance sets out how and when to consider and analyse industrial issues and wider national interests in Defence acquisition. It is particularly relevant at the main decision points for a project – typically but not exclusively at Initial Gate and Main Gate - and also to the development of acquisition strategies, the placement of research and technology contracts, and the harmonisation of requirements (with potential collaborative partners). It is aimed primarily at the authors of business cases (e.g. DECs and IPTs), but is also relevant to Customer 2 staff, and approving authorities and their representatives.

Work on a Defence Industrial Strategy will fill the gaps in Defence Industrial Policy relating to industrial capabilities and will identify clearly the relative priority that we expect to attach to retaining different technical and industrial capabilities in the UK, resources permitting. The Strategy will identify the industrial capabilities we would wish to retain in the UK for national security, long-term value for money, or wider economic reasons. The value of this work is that it will enable both MOD and industry to make better informed long-term investment decisions.

Codes Of Practice

The MOD/Industry Codes of Practice, published in 2001, encourage a positive, fair and co-operative approach between MOD and its suppliers. They establish principles to enable improvements in quality, efficiency, timeliness and supply chain relationships in the Defence acquisition business. Three Codes cover the relationship between the MOD and its suppliers, the involvement of the MOD in the selection of sub-contractors by prime contractors and the relationship between Defence contractors and their suppliers.

The benefits of this approach are:

- a better understanding of our requirement by industry, enabling reduced 'time to market'
- a clear understanding of the required Defence capability by industry, through membership of an IPT, allowing early, positive participation in the key process of trade-offs between time, performance, whole life costs and integration
- a joint approach to risk reduction throughout the acquisition cycle
- a joint consideration of opportunities for gainshare and incentivisation

Gainshare

A critical examination of current contract arrangements and working practices to see how they can be improved to provide value added benefits to both MOD and industry.

Incentivisation

A critical examination of proposed contract arrangements and working practices to see how they can be improved to provide value added benefits to both MOD and industry.

Working Together

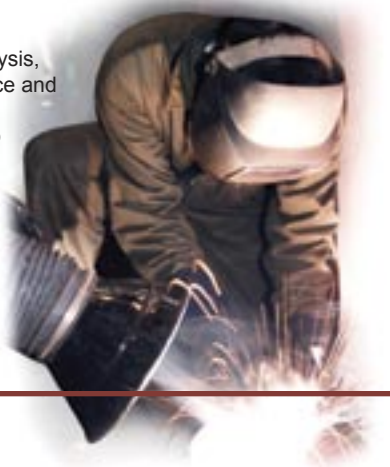
The National Defence Industries Council (NDIC) is the most senior forum for consultation between the Government and UK defence industry and is chaired by the Secretary of State for Defence. Its remit includes issues relating to the development and implementation of defence industrial policy and defence industrial strategy; provision of strategic direction to the continuous improvement of acquisition policy, processes and performance; and coordination of developments in the field of research and technology.

We have established Joint MOD/Industry Working Groups (JWGs) which are engaged in working together to improve acquisition in areas such as increased visibility of MOD's capability needs, developing joint practices, effective contracting strategies and analysis of joint skills development with increased joint training opportunities.

Key Supplier Management

The MOD is adopting a more focused approach to Key Supplier Management in order to enhance the Department's intelligent customer status in obtaining the right goods and services. Key Supply Engagement Managers (KESMs) have been appointed at senior level to interface with our largest suppliers. The KSEMs will provide the MOD with an improved knowledge and understanding of the Defence supplier base by developing a consolidated strategic view of our business and building strong working relationships with the selected suppliers and their MOD customers. The OGC also provides guidance on key suppliers to Government.

KSEMs will assess key supplier's overall performance and provide analysis, support and recommendations to stakeholders. The KSEMs will influence and challenge behaviours of both supplier and MOD and improve mutual understanding at a strategic level. They will also facilitate discussions to help key suppliers align their capabilities with MOD's current and future requirements, thus helping to improve efficiency and value for money.



Private Sector Relationships

All acquisition IPTs should identify how they can build on existing relationships with industry in a way that can help improve the delivery of the capability.

There are several partnering methods that have been cited as best practice which IPTs can use to help build relationships with industry and ultimately improving delivery. These are:

- focusing on 'soft' issues: this can be a particularly useful tool during bid evaluation
- utilising the various types of partnering strategies to help capture the behaviours and techniques between industry and the MOD
- effective communication between industry and the team to help avoid ambiguities. Encouraging open and honest exchanges of views should lead to improved business understanding
- embedding industry within the IPT to help facilitate information flow and help improve customer/supplier relationships; particularly in larger projects
- co-locating industry with the IPT, particularly during the in-service phase
- engaging industry during the first stages of the project cycle is important, for example by seeking industry's views on initial procurement strategies and their help during the early stages of an evolving requirement
- use of incentivisation and gain sharing encourages both industry and the MOD to think imaginatively about improving performance
- developing the customer/supplier relationship during the management of the contract phase through the use of tools such as SCRIA, with particular focus on continuous improvement

SCRIA

Supply Chain Relationships in Action. The SCRIA programme, which operates across the UK Defence sector, promotes a Code of Practice for working in a co-operative supply chain geared to adding value at every stage. It recognises that developing the right behaviours, culture and skills of our people is fundamental to success.

Partnering, Outsourcing and Other Service Provision Contracts

With industry increasingly involved in providing long-term services to the MOD, we have recognised that a partnering approach - building reliable and trusted links with our suppliers - is often the best way of achieving the required performance and securing the best value for money. This does not mean creating privileged or monopoly suppliers: selection of a long-term partner is competitive whenever possible. Such contracts embrace:

- the Private Finance Initiative (PFI), where the private sector creates or acquires a capital asset and uses it to deliver a stream of services to MOD, such as accommodation, training, equipment, logistics, communications and utilities. The asset is procured by the service provider using bank finance. PFI offers the MOD the potential to transfer risks to the private sector when it is best placed to manage them and where this offers the best value for money. Because payments are made to the partner only when satisfactory service is received, there is a strong incentive on the partner to deliver.

MOD Private Finance Unit

The MOD Private Finance Unit (MOD PFU) promotes best practice in PFI acquisition across MOD and offers corporate assurance about individual PFI projects to the IAB and HM Treasury.

The MOD PFU provides a strong central focus for PFI policy and support within the Department. Its role is to provide project support to IPTs and key stakeholders; engage with industry; liaise with TLBs, HM Treasury and Partnerships UK on private finance policy matters; and to support the IAB on PFI acquisitions.

All project teams that have the potential to involve private finance must liaise closely with the MOD PFU.

- outsourcing for services. Outsourcing contracts are often bundled together into a multi activity contract (MAC). The duration of outsourcing contracts is typically 5 - 7 years. Other forms of service provision contract will be more appropriate when a longer-term relationship is envisaged or capital investment is needed
- marketing of irreducible spare capacity, under the Government's Wider Markets Initiative. MOD business areas are encouraged to exploit spare capacity in their assets on a commercial basis
- Defence Estates' Prime Contracting ("Smart Construction"). In some instances, acquisition of new buildings or facilities through PFI is not practicable or value for money. Under Defence Estate's prime contracting programme, the Department retains ownership and responsibility for the full capital and running costs of new facilities but it looks to a single contractor to take responsibility for the integration and management for the entire design and construction supply chain, including the delivery of the completed project
- partnership agreements between MOD and key suppliers. The partner is given opportunities to achieve innovation and value for money. If he is successful and demonstrates he can meet the Department's needs efficiently and cost-effectively, the business of the partnership can expand

Useful Reading

Defence Industrial Policy Paper No 5
Implementing Industrial Policy
Commercial Awareness Guide
Commercial Toolkit (CMT)
MOD Supplier Development Scheme Performance Standard
Joint Working with Industry
Smarter Partnering
Private Finance Initiative (PFI)
Wider Markets Initiative
MOD Private Finance Unit

All are available as downloads from the AMS at www.ams.mod.uk

The Defence Manufacturers Association www.the-dma.org.uk
The Society of British Aerospace Companies www.sbac.co.uk

#4 - More Investment During Early Project Phases

Quantify risk and reduce it by placing it where it can be managed most effectively; stopping a project before Main Gate can be a sign of maturity

A key element of Smart Acquisition is the need to invest sufficient resources in the early stages of a project to derisk it before major investment decisions are taken. Recent NAO reports have reinforced this message and noted a link between successful delivery of projects to time and cost and the percentage of total procurement cost invested prior to Main Gate.

Smart Acquisition set a target figure for 15% of the total procurement costs to be invested pre-Main Gate and the bulk of this would be expected to be spent on derisking. The appropriate level of pre-Main Gate funding will inevitably be highly project-specific. The IAB will now use this metric as one means of judging the maturity of a project at Main Gate. All Main Gate business cases should estimate the percentage of total procurement costs invested prior to Main Gate and, if less than 15%, should provide detailed assurance that the project has been sufficiently derisked.

Timing of Main Gate

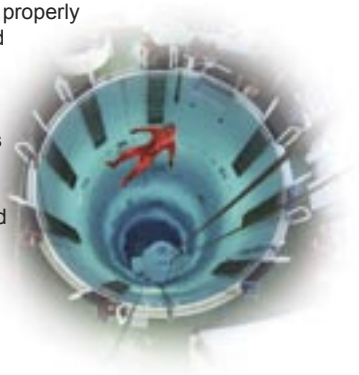
The APB and the IAB are determined to ensure that, in future, all projects coming forward for Main Gate approval are appropriately derisked and this will be **the** overriding factor in determining both the timing of Main Gate and whether final approval is granted.

Project Maturity

In future we need to invest more during early project phases in a much broader sense than just procurement costs prior to Main Gate. Project maturity comprises several key elements, all of which must to be addressed in the Main Gate Business case:

- a **fully mature requirement:** backed up by properly researched operational analysis, with realistic and deliverable KURs, clear evidence of the scope for cost v. capability trade-offs and an indication of the relative priority the Customer attaches to the project
- **technical maturity:** technological risks are fully understood with robust costed plans to bring relevant technologies, across all DLODs, fully to maturity; and fall-back plans should technical challenges be insurmountable. Technology Readiness Levels together with System Integration Readiness Levels, if used properly, provide useful tools in this area

- **financial maturity:** robust three point estimates (10/50/90% confidence levels) to include a "not to exceed" cost for the project are developed and the project is fully affordable. Evidence based on historic data analysis should be used to provide assurance that project costs and time lines are credible. Clear plans are set out to manage the programme within approvals by trading cost for capability in the event of unforeseen cost growth
- a **fully mature procurement strategy:** including a robust TLMP, properly assessed whole life costs and support risks, clear acceptance and disposal arrangements
- **supplier maturity:** assurance that the industrial base has the appropriate capability and capacity and is able to manage its risks
- **coherence:** assurance that the proposition is coherent with other requirements to deliver capability across all DLODs and integrated with other strategic planning including international collaboration
- **interoperability:** assurance that the interoperability requirements have been defined, with planning to maintain them through life



Managing Risk

Risk management allows an informed judgement to be made on the degree of risk in project proposals. It provides confirmation that the balance struck between performance, whole life cost, timescale, and risk represents value for money. The level of effort and resources applied to risk management should be in proportion to the cost, timescale and level of complexity of the project.

Quantitative risk analysis can be used to aid and inform decision making in a number of acquisition processes. These include:

- project planning and schedule management
- performance management (e.g. capability/requirements trade-off)
- investment appraisal
- Combined Operational Effectiveness and Investment Appraisal (COEIA)
- Business Case submissions to the IAB
- cost forecasting
- costing the TLMP
- estimates of contractors' costs for pricing purposes

Risk

Risk is the combination of the probability of an event occurring and its consequences on objectives.

Business Case

The documentation submitted to the Approving Authority at Initial Gate or Main Gate, making the case for proposed expenditure on the next stages of the project.

#4 - More Investment During Early Project Phases

Quantitative risk analysis is not a one off activity: robust information will only be generated through iteration. Throughout the acquisition cycle the quality of input data, the validity of assumptions and the understanding of integration with DLODs will all increase, allowing a more realistic analysis to be built up.

As a minimum, quantitative risk analysis should be performed or reviewed for both cost and schedule every 6 months but an IPT following best risk management practice will be using the technique on a more regular basis to prioritise and focus management actions (e.g quarterly for formal reporting purposes, and on an 'as required' basis to test 'what-if' scenarios and support decisions on risk handling).

Best practice for risk management indicates that:

- the level of effort and resources applied to risk management should be in proportion to the cost, timescale and level of complexity of the project
- risk ownership should be assigned to the party best able to manage the risk
- the risk management process should include activities of Identify, Analyse, Plan and Manage
- acceptable levels of risk should be agreed at all major decision points
- risk information, in conjunction with project data, should be used to generate the 10%, 50% and 90% confidence for time and cost. These figures should inform decisions on whether to proceed with a project and are required for project approvals in conjunction with 'not to exceed' data.
- MOD and industry should, when appropriate, operate a common risk management process that utilises common risk information and terminology

Useful Reading

Technology Management
Modelling, Simulation & Synthetic Environments
Risk Management

available as a download from the AMS at www.ams.mod.uk

NAO Major Projects Reports: available as downloads from www.nao.org.uk

#5 - Effective Trade-offs

Recognise the **best can be the enemy of the very good;** distinguish between must have, desirable, and nice to have if affordable

Identify **trade-offs between performance, time and cost;** cases for additional resources must offer realistic alternative solutions

Never assume additional resources will be available; cost growth on one project can only mean less for others and for the front line

Understand that **time matters;** slippage costs – through running on legacy equipment, extended project timescales, and damage to our reputation

A Structured Approach to Setting Requirements

A structured approach to requirement setting should introduce a whole system/service, whole life, evolutionary requirements process that involves all stakeholders and delivers effective and sustainable capability. It covers the URD, the SRD, the roles of the customer and the IPT.

The URD consists of a complete set of individual user requirements. URDs are the means by which the customer develops, communicates and maintains the user's requirement throughout the life of the system/service. The SRD is a complete & consistent definition of the whole system to be provided in response to User needs in the URD. It specifies the functionality & performance required of the system/service being procured and the 'Acceptance Criteria', by which the system/service is to be accepted.

Best practice indicates that:

- the customer takes the lead on the production, refinement and maintenance of the URD drawing on the support of stakeholders as necessary
- the customer ensures that verification criteria are identified against each user requirement and that requirements are prioritised
- the customer seeks endorsement of the URD from all the stakeholders both against their specifically flagged requirements and as an integrated whole
- the team leader ensures the production of the SRD
- any change of operational need should be reflected in the URD. The SRD shall be achievable. Any resulting capability gap shall be managed
- the team leader should ensure that acceptance criteria are identified against each system/service requirement

URDs and KURs

Within the URD those requirements which are assessed as key to the achievement of the Defence capability will be identified as Key User Requirements (KURs). Typically an overall capability will be characterised by no more than ten KURs.

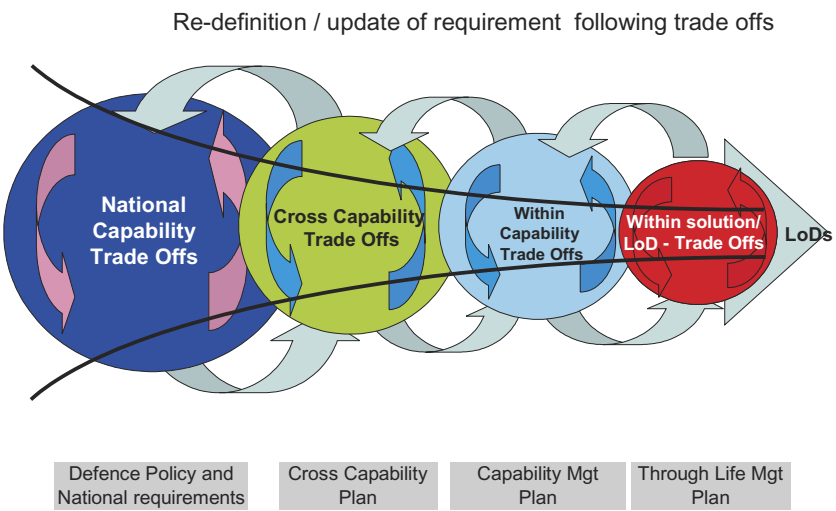
The SRD defines, in output terms, what the system must do to meet user needs as stated in the URD. Together with the URD, it provides the basis for advising industry of MOD's requirements. The linkage between individual requirements within the URD and the SRD is maintained to show the origin of every demand placed on the system and how each user requirement is met.

The SRD is produced by the IPT. It is updated to reflect trade-off decisions and approved system enhancements in response to changes in the URD. It is baselined as necessary to allow the approval of the planned system, or system upgrade, and progressive development of solutions.

Trade-Offs

Trade-offs occur through life with the aim of delivering the most cost effective solution to one or more capability gaps by seeking opportunities to optimise system performance, cost and time. This involves a structured evaluation and comparison of a range of potential solutions against defined objectives and constraints.

Trade-offs can take place at a variety of levels from defence policy and national requirements, through the trades which take place in the delivery of one or more capabilities, to those which take place within the boundary of a defined project.



All acquisition projects should be empowered to trade-off within a performance, cost or time envelope. The ability to trade-off is particularly needed because of evolving user requirements, not only in the light of changing external events, but also as a result of further risk reduction activities and technology developments.

Trade-off is a key tool to enable a customer and IPT to deliver an acceptable capability within its performance cost and time envelopes. The Customer, in consultation with other stakeholders and the Team leader, will trade the requirement off either against a requirement in another project or against time and cost in the same project.

Best practice indicates that:

- the URD is able to provide the benchmark against which analysis of trade-offs is conducted
- the IPT Leader has the authority to trade-off between the three dimensions of a project's time, whole life cost and performance parameters, staying within the boundaries set by the customer
- trade-offs outside the boundaries set by the customer, but within the wider bounds of validity set by the Approving Authority, need the agreement of the customer
- additional resources should not be assumed – cases for additional resources must offer realistic alternative solutions
- many trade-offs take place before Main Gate but whenever a decision is taken it must be supported by the use of cost- effectiveness analysis and must be recorded within the SRD and URD

Analysis and Experimentation

Operational analysis (OA) is the application of scientific methods to aid decision making. OA supports the trade-off process by providing an open, explicit and objective assessment of the capability provided by a proposed course of action. OA also provides the foundation of cost-effectiveness evidence as part of the basis on which the MOD subsequently explains and justifies its decisions to third parties, including Parliament, the NAO and other Government departments.

Analysis is based on objective data about equipment, its human operators, and their operational environment. By an auditable, quantitative process, these data are combined with explicit assumptions (e.g. about the political constraints under which operations, on both sides, are being conducted) and with explicit expert judgements (e.g. about tactics) to produce estimates of effectiveness. The measures of effectiveness often relate to the outcome of operations such as the size of enemy force destroyed, size of own force reaching a particular objective or quantity of logistic support delivered.

Analysis embraces the complementary strengths of modelling and experimentation. Modelling can expose important effectiveness and cost drivers across a wide range of potential operational situations. In so doing, the results of modelling identify areas of uncertainty and enable prioritisation of time and resource committed to experimentation. Experimentation immerses operators in an operational environment (whether real or synthetic) to gather key data, including derivation of appropriate concepts of operation and an improved understanding of human factors, which in turn supports the assessment of potential acquisition options. Good practice strikes a balance through a model-experiment-model approach to acquisition decision making.

Simulation and Synthetic Environments

Simulation and Synthetic Environments provide a powerful aid to visualisation throughout the acquisition lifecycle and have a useful role to play in reducing risk.

- during requirements definition, operational analysis and virtual prototyping reduce risk and facilitate capability/cost/time optimisation
- synthetic test, evaluation, acceptance and integration can reduce acquisition time-scales and cost

- synthetic training often makes possible training that is otherwise impractical or unaffordable
- simulation can assist in the understanding and optimisation of the dynamics of manufacturing processes and support chains
- visualisation improves communication and understanding, particularly in distributed or multi- national teams

Setting and achieving targets

Team outputs are driven by hard and stretch targets. Hard targets are for outputs that can be envisaged now. Stretch targets are 'over the horizon' at this point but encourage teams to think radically: they can only be achieved through change. Hard and stretch targets form an essential part of a continuous improvement culture and encourage teams to innovate.

Hard Targets	Stretch Targets
• Testing but achievable • Work as a true team to overcome barriers and share ideas • Team required to adopt novel approaches to identify savings • If the team can easily achieve these targets then they are too low	• Encourage team to "think out of the box" • Target is out of reach but not out of sight • Stretch targets are significantly harder to meet than hard ones • Stretch target gives a requirement and mandate to address all boundaries and constraints, even "impossible" ones to uncover all possible savings areas • Team must determine what needs to come true for the stretch target to be met, and then make it happen

Approvals Targets

There is a specific process for setting approvals targets for IAB consideration whereby project sponsors suggest single "not-to-exceed" figures for cost and time in a submission containing key risk information with a rationale showing the derivation of these figures. The essential steps in this process are:

- the project team produces a schedule to include core programme activities and planned risk mitigation activities, with cost and time three point estimates of uncertainty for each activity; cost and time three point estimates for each risk; and a clear indication of which risks would impact the individual activities
- Monte Carlo simulation is used to produce graphs of cost and time versus probability
- the sponsors suggest approval figures based on the graphs, together with suggested stretch targets
- the approval figures should normally be in the range of 60 – 80% confidence levels, with larger projects towards the lower end of the range and smaller projects towards the upper end
- to support the graphs and figures information must be provided on the key risks, the proposed treatment of the risks, and the plans and procedures the project team will use to keep the project within its approval limits and strive to meet its stretch targets

Monte Carlo Simulation

A technique in which a large quantity of randomly generated numbers are studied using a probabilistic model to find an approximate solution.

The IAB will wish to continue to note the 10%, 50% and 90% confidence levels for time and cost, so that they may be satisfied that the rationale for the specific approval sought is consistent with the spread of those levels and the shapes of the graphs. The IAB has also asked that projects contrast expected costs to historical project costs for comparable national or international programmes.

Acceptance, test and evaluation

Acceptance is the process of confirming that user needs have been met by the systems supplied. Test and evaluation provides auditable evidence that actual system performance conforms with that expected, and as such the system under test meets the system requirement and acceptance criteria. Test and evaluation augments evidence provided through other analytic, experimental and judgemental methods to establish a traceable linkage between system implementation and user requirement, and in particular to confirm that all DLODs have been adequately de-risked. The acceptance process should ensure that any system entering service is tested in a sufficiently challenging range of operational environments and in a broader system-of-systems context to support the verification of compliance with the user requirement.

Useful Reading

3 Point Estimating
Requirements Management
Targets – Baseline, Hard and Stretch
Foundation for the business case – operational analysis

available as a download from the AMS at www.ams.mod.uk

Think **incrementally;** seek out agile solutions with open architecture which permit "plug and play"; allow space for **innovation** and the application of best practice

SA SMART ACQUISITION

Life-Cycle Selection

Acquisition has to become agile – ie. more responsive to customer needs in upgrading capability – across all DLODs, not just equipment. It involves directing the limited Defence budget to best meet the customer needs for enhanced capability and making hard decisions regarding priorities for Defence spending. Acquiring a capability upgrade does not necessarily mean acquiring new equipment - it may hinge on being able to use what we have in a more productive way.
A capability upgrade project could therefore be led by any of the DLODs, taking account of the remainder.

There are four basic variants on the acquisition cycle: Sequential, Incremental, Evolutionary, Combination. Selection of the appropriate life-cycle is a key factor in determining the long term success of a military capability. Effort in the analysis should lead to providing the required capability to the user when he needs it.

Sequential Acquisition is currently the most common type of life-cycle adopted in the MOD, epitomised by CADMID/CADMIT described earlier. A project is managed as a series of life cycle processes, each with deliverables which enables evaluation of progress, analyses and minimises risks, estimates life cycle costs, controls changes and checks for consistency between user and system requirements, design and tests.

Incremental Life-Cycle follows the sequential approach to produce a complete architectural design but then the system is implemented in stages, with those elements providing the most benefits or at an acceptable risk (in PTC terms) being introduced first. Increments are planned with the requirements set being established early in the life-cycle.

The incremental life-cycle is advantageous for programmes where:

- full funding is not immediately available
- time to In-Service (for a limited user community) is important (and short)
- there is a smaller initial demand (or a smaller initial delivery is justified)
- it is necessary to delay the delivery of system components until technology maturity has reached an acceptable level.

Evolutionary Acquisition provides rapid acquisition of mature technology for the user. It delivers capability in increments, recognising the need for future capability improvements. It balance needs and available capability with resources and puts improved capability into the hands of the user quickly. Success depends on consistent and continuous definition of requirements through active user feedback (across all DLODS) and the exploitation of mature technology. The requirements set for the first or next enhancement block are known but it is accepted that later requirements will arise due to technology maturity and the continuing change in user needs. Capability improvement/enhancement steps will occur during the life of the system at varying intervals, dependent on user feedback and the changing technology maturity.

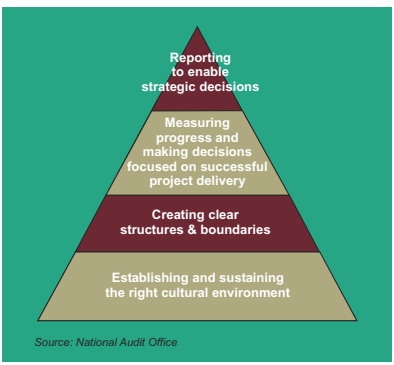
The advantages of adopting an evolutionary life-cycle are:

- enables the IPT to operate flexibly.
- offers opportunity to capitalise on the most recent (mature) technology.
- earlier delivery of partial functionality (but increased capability).
- meets evolving user needs.
- potential earlier delivery of full capability.
- earlier and more realistic customer feedback.
- encouragement to project or programme team members (quick delivery into service).
- decrease in development costs.

Combination Acquisition It may be considered feasible to adopt a 'Combination Acquisition' approach where a combination of acquisition strategies is employed. For example, it may be decided that a Sequential or Incremental Acquisition policy is relevant to the base platform but that Evolutionary is more applicable to the acquisition of certain system sub-elements (across all DLODs).

An example might be where a ship's hull and propulsion system (where the requirements are not expected to change for the life of the equipment) is delivered using a Sequential approach whilst the Command and Control system and/or weapon systems are delivered using an Evolutionary approach.

Effective Project Control



Irrespective of the life cycle selected, effective project control is essential. The NAO has analysed the complex cultural and systemic drivers which need to be managed if military capability is to be delivered faster, cheaper and better. The recommendations are published in its report referenced below.

The NAO has developed `gold standard' good practice criteria for project control within four main levels of a project control pyramid, all of which must function as a coherent whole if projects are to progress towards successful conclusions.

Useful Reading

Life-Cycle Selection

available as a download from the AMS at www.ams.mod.uk

Driving the Successful Delivery of Major Defence Projects: Effective Project Control is a Key Factor in Successful Projects - NAO Report HC 30 Session 2005-2006 dated 20 May 05 © NAO 2005

available from www.naodefencevfm.org

#7 - Streamlined Project Approvals

Value **objectivity** based on clear evidence rather than advocacy; ensure that we capture past experience and allow it to shape our future behaviour

SA SMART ACQUISITION

The IAB Secretariat, reporting to the Director General Scrutiny & Analysis, manages the approvals process on behalf of the Chief Scientific Adviser, the approvals process owner. The purpose of the 'approval process' is to provide a framework that ensures Ministers and the Accounting Officer (PUS) are provided with non-advocate advice when discharging their responsibilities to Parliament and the tax-payer for investments for which central approval is required (ie. all major equipment, information systems, infrastructure projects, and all PFI projects). The fundamental output from this process is the decision whether or not to proceed with a project.

The Smart Approvals Process seeks to ensure that Smart Acquisition is embedded within projects seeking approval - which we can only achieve if good projects are pushed forward and the wrong projects are stopped short or helped to improve. A decision to cancel a project should not necessarily be taken as a sign of failure.

In the interests of MOD corporate governance, the approvals process:

- ensures that there is appropriately rigorous (but proportionate) scrutiny, external to the ownership of the project, of the key issues
- provides, as required, the best available advice to enable Ministers and senior officials to make decisions, and
- must be sufficiently 'joined up' across Defence, to ensure that the project takes proper account of the wider context, such that:
  - opportunities for integration with other projects are picked up
  - that potential conflicts are resolved and that best practice is spread

The approvals process involves consideration by the Approving Authority of a business case for the investment, submitted jointly by the project's 'Customer' and 'Supplier' or its SRO. The case recommends investment, either to meet a planned (and funded) requirement, or an assessment of potential solutions, within defined performance, cost and time parameters – the 'PCT envelope'. The PCT 'envelope' is thus at the heart of the approval. Breaching the 'envelope' or implementing a major change in the requirement, procurement/support strategy, or another major aspect of the project requires a timely 're-approval'.

Project Customer and Supplier jointly, or the SRO of the project, are accountable for the information they submit in business cases and for compliance with approval procedures and approvals granted. Although both Customer and Supplier should agree all submissions, the Customer or SRO is responsible for seeking all approvals required for the project. The approval process does not detract from the responsibility of Customer or SRO for justifying the project requirement, and the cost of meeting it, or the responsibility of the project team for the management of their projects and cost-effective delivery including the realisation of business benefits.

#7 - Streamlined Project Approvals

The Approving Authority needs to be satisfied that the investment proposed is:

- fully justified and coherent with long term Defence investment strategies and plans
- designed to meet a capability or business requirement in a way that is appropriately flexible and adaptable to future needs
- a cost-effective means of delivering optimised military capability or business benefits that offers value for money through life
- affordable within existing and foreseeable future budget provision, taking account of Whole Life Costs
- deliverable through effective acquisition management and commercial arrangements
- soundly based, with key risks to performance, cost and timescale identified, and actions planned to monitor, mitigate and control those risks and
- coherent across Defence and integrated with other initiatives and projects within the Department

'Approval' of a project is dependent on the 'scrutiny' of the project by other than the project team, to determine whether it meets the criteria listed. The MOD's corporate governance requirements can only be met if at least once (before the main investment decision) every investment project is subject to scrutiny, external to (or independent from) the project's management, undertaken against common criteria, to consistent 'standards of proof'. The scale of that scrutiny should be proportionate to the scale of the investment, the risks involved and the complexity of the issues raised by the proposed acquisition.

Projects should only come forward for approval when there is reasonable confidence that the requirements for gaining approval can be met. Hence the importance of early and constructive engagement by projects with scrutineers. Scrutineers have a responsibility to ensure that during this engagement they raise any concerns as fully and early as possible to ensure that they can be given full consideration. 'Internal project scrutiny' should also be a regular process.

#7 - Streamlined Project Approvals

Scrutiny and approvals processes should add value. The process of scrutiny by others should help to bring wider perspectives to bear and enable expert advice to be given and knowledge of best practice to be shared. It is likely to be a 'learning experience' for the project – and should be approached as such.

The scrutiny community will wish to satisfy themselves on the following points:

- **Accordance with Defence policy and plans** - Is the investment fully justified and coherent with long-term Defence investment strategies and plans and integrated with other initiatives and projects within the department
- **Flexibility** - Is the requirement designed to meet a capability or business requirement in a way that is appropriately flexible and adaptable to future military tasks
- **Value For Money** - Do the recommendations represent the most cost-effective means of delivering optimised military capability or business benefits that offers through life value for money
- **Affordability** - Is the investment affordable within existing and foreseeable future budget provision, taking account of the anticipated Cost Of Ownership profile
- **Ability to deliver** - deliverable through effective acquisition management and commercial arrangements
- **Risk Management** - are the recommendations soundly based, with key risks to performance, cost and timescale identified and actions planned to monitor, manage and mitigate those risks

Peer Review

Programmes and projects are subject to independent peer review at key points in their lifecycle, in accordance with central government and the wider public sector policy. The OGC Gateway™ Process is used to support the policy, and in central government this is managed by departmental Centres of Excellence (COE) for Programme and Project Management (PPM). The MOD COE for PPM is Director General Management and Organisation (DGMO).

The OGC Gateway™ Process examines a programme or project at critical stages in its lifecycle to provide assurance that it can progress successfully to the next stage. The process is based on well-proven techniques that lead to more effective delivery of benefits together with more predictable costs and outcomes. It is designed to be applied to delivery programmes and procurement projects, including those that procure services, infrastructure, IT-enabled business change and procurements using framework contracts.

Peer Review

An independent review procedure conducted at pre-determined points in the acquisition process to ensure that a project has met the original business need, the criteria for its current phase and to authorise progress of the project to the next stage.

#7 - Streamlined Project Approvals

Peer reviews are sponsored by the programme or project's SRO or SPA and/or the IPTL. The SRO or SPA is responsible for addressing and implementing the recommendations of a peer review, normally in conjunction with the IPTL.

MOD's review processes, including Key Stage Peer Review (KSPR) as used in the equipment capability area and estates, are closely aligned to OGC Gateway™ and specifically tuned to the key decision points in the acquisition cycle. MOD policy requires that:

- for programmes or projects defined as 'Mission Critical' MOD will invite OGC to undertake reviews using the standard Gateway™ process using independent non-MOD reviewers
- for reviews of 'High Risk' programmes or projects MOD will use mixed teams of MOD and independent non-MOD reviewers with the review team leader being independent of MOD
- for reviews of 'Medium Risk' programmes or projects, teams will use MOD reviewers that are independent of the 2* management area and/or TLB.

'Mission Critical' are those top 10-20 programmes, agreed between MOD's COE and OGC, that are subject to additional reporting by OGC to the Government. Their progress is regularly reported to the Prime Minister. 'High' and 'Medium' risk are measured by the Risk Potential Assessment (RPA), which is part of the Gateway™ process.

Useful Reading

Smart Approvals, General Instructions and Guidance on IAB and Delegated Approvals for All Investment Projects

available as a download from www.defence.mod.uk/iab

Project Review and Assurance

available as a download from the AMS at www.ams.mod.uk

What is an OGC Gateway™ Review ?

available from www.ogc.gov.uk

Recognise that **people are the key to our success;** equip them with the right skills, experience and professional qualifications

SA SMART ACQUISITION

Acquisition Competence Framework

The Acquisition Competence Framework (ACF) is a virtual framework that brings together in a single, comprehensive source all the competences that support acquisition. It consists of Behavioural Competences together with those Functional Competences relevant to Acquisition.

It provides a common benchmark for everyone in the acquisition community, whether they are military staff, civil servants or members of industry. It underpins personal development, training and selection processes in acquisition. We encourage its use in job descriptions and job advertisements.

The acquisition behavioural competences are in six clusters covering:

- Applying a Systems Approach
- Applying Strategic Direction
- Initiating and Managing Change
- Managing People and Working in a Team
- Managing Performance
- Stakeholder Management

Project Delivery Skills

The APB is working to ensure the development, over time, of the right quality and quantity of project delivery skills amongst both civilian and military staff. These skills have been identified as being key to the successful delivery of Defence capability.

The planning is based on a strategy of skills assessment, development, attraction and retention, and subsequent assurance of improved business performance; and is being managed within the overall civilian workforce and Service personnel planning processes.

Acquisition Stream

The Acquisition Stream (AS) is a personal development scheme for those who have selected acquisition as one of their career anchors. Membership is voluntary and open to all military and civilian staff and members of industry on secondment to MOD. Members assess themselves against the Acquisition Competence Framework and complete a Personal Development Record. They can discuss their findings with their line manager, personnel manager or Service Secretary. They can then identify suitable training or development opportunities from the Acquisition Training Development Directory (see page 50) or career opportunities from Route Maps. Members are encouraged to participate in the AS mentoring scheme.

Competence to Job Profiles

The generic Competence to Job Profiles aim to provide existing or prospective IPT members, as well as those working elsewhere in acquisition, with a broad awareness of the acquisition competences, both behavioural and functional, and the levels (Awareness, Practitioner & Expert) relevant to key IPT jobs. The profiles are intentionally generic and should be used as a guide for personal development purposes and also to provide an indication of the competences and levels for jobs within a particular function. The profiles are representative for a function and should be interpreted flexibly to take account of specific needs of individual IPT posts. Whilst the profiles have been based on management positions within an IPT, they can be used for identifying the level of competences required for other posts in that function.

The benefits to individuals include:

- a structured approach for career development and training – and greater job satisfaction that arises
- better knowledge of personal strengths and weaknesses and greater control in achieving personal ambitions
- understanding of competences required in posts and how to attain them
- the ability to move freely in the wider acquisition community, taking advantage of opportunities such as interchanges and shared training
- the chance to plan for IPTL and other senior posts in acquisition through the Acquisition Leadership Development Scheme
- a formal development record which can be used to support job applications and membership applications to professional institutions. Individuals and their line managers can use the AS tools during their mid-year and annual reviews

The benefits to the acquisition community include:

- a highly motivated workforce, more focussed and better trained, delivering better output
- better planning for the future, as perceived skill gaps can be identified and addressed through AS tools
- a more flexible workforce, able to interchange with industry better and share training
- a more stable workforce, with less turnover and easier recruitment and retention

Acquisition Leadership Development Scheme

The Acquisition Leadership Development Scheme (ALDS) seeks to develop existing and future leaders in acquisition. It is open to all civilian and military personnel across the MOD irrespective of grade or discipline. In addition, industry representatives working on secondment in the MOD may also join.

We select members by competition on an annual basis, using a similar process to that for selecting leaders in acquisition. We use a structured interview based on the Acquisition Behavioural Competence Framework. You must be a member of the Acquisition Stream to apply and keep a Personal Development Record.

ALDS is divided into three stages: Foundation, Core and Expert. As members progress they graduate from one level and continue their self-development before entering the next through competitive selection. The difference between the stages is the competence levels that the member has attained against ALDS Route Maps before entering the next level through competitive selection.

The key features of ALDS are:

- an induction day
- a leadership course. Expert and Core members attend a residential leadership course specially designed to focus on the Acquisition Behavioural Competence clusters. Foundation members attend a one-day non-residential leadership course
- ALDS Route Maps to aid individuals in identifying the types of job experiences and competences that they are likely to have acquired and developed before entering the next stage of the scheme
- Learning Sets meet up to three times a year
- Mentoring. Members are encouraged to have a mentor. Core members are encouraged to mentor Foundation members and Expert members are encouraged to mentor Core members. Experienced senior leaders are asked to mentor expert members. All Foundation members are given the opportunity to mentor Acquisition Stream members
- Feedback. All members of the ALDS are required to submit their AS Personal Development Record for an annual review from which they will receive feedback on their development

Acquisition Training and Education

Having people with the knowledge, skills and experience to undertake their roles effectively is essential for the success of Smart Acquisition. Equipping people with the competence to perform effectively in their roles is an essential element in enabling the delivery of military capability.

Acquisition Training is primarily provided by Defence Procurement Management Training (DPMT) and dblearning although in some cases courses are delivered by external sources. An MSc in Defence Acquisition Management is now available at the Defence Academy; and an Undergraduate Acquisition Diploma Qualification Programme, based on existing DPMT and dblearning courses, is also available.

An Acquisition Training and Development Directory (ATDD) communicates acquisition learning opportunities and is hosted on the AMS. The ATDD provides information on an extensive range of courses, recommended reference text, distance/e-Learning and practical on-the-job advice that directly supports the development of acquisition competences. It is regularly updated with inputs from competence sponsors, training providers and users.

Guidance, training and consultative support is available for acquisition training sponsors and a process for the evaluation of acquisition training published on the AMS.

Interchange

Interchange of acquisition team members between the MOD and industry is mutually beneficial because it:

- shares good practice
- strengthens a vital link in the supply chain
- improves communication
- improves the understanding of each other's business

There are three interchange processes available:

- Twinning
- Attachment
- Secondment

Twinning is an opportunity for you to get together with a counterpart (in MOD or industry) and learn more of the other's skills. It can involve occasional meetings, emails or telephone calls and can be ended mutually at any time. You can choose a twin with any skills you wish and can have up to two twins at any one time. You can make the connection yourself and no formal approval is necessary.

Attachments allow you to move to a similar job in the opposite organisation for up to 3 months. It gives you the opportunity to observe the other organisation and provides hands on experience without considering long-term changes. You will need the approval of your line manger and HR manager.

Secondment is a formal arrangement where you move into a role in the other organisation for between 4 months and 3 years. You will need the approval of your line manager and HR manager.

Recognition

People perform better if they know that a job well done will be recognised. Individual achievement is recognised through the performance review process but team recognition is also important. The Minister (Defence Procurement) Awards are held annually. They recognise the achievements of those in highly performing teams in acquisition. Typically around eight teams are selected from the nominations that reach the final selection stage. The selection criteria are consistent with the Defence Values for Acquisition and certificates of achievement are presented at a ceremony held in the House of Lords. Many TLB Holders also have their own team recognition schemes.

Useful Reading

The Acquisition Training and Development Directory: available as a download

Acquisition Educational Opportunities: available as a web page

both via the AMS at www.ams.mod.uk

List of Images

Photographs

Front cover images: SKYNET5's in orbit
Royal Marine
HMNB Portsmouth
Challenger II
Harrier GR7

Photographs courtesy of TES 1 TI5 Media Photographic Section, Bath,
and The British Army Picture Library.