

Transforming the U.K.'s
Defence Procurement
System

MINISTRY OF DEFENCE

Final Report

20 FEBRUARY 1998

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1. Executive Summary

1.1 There continue to be serious failings in the Ministry of Defence (MoD) process for developing and purchasing major military systems, despite multiple efforts and a number of notable improvements along the way. The process is generally regarded to be slow, cumbersome and expensive. According to the National Audit Office, in service dates for major projects have on average slipped 41 months compared with initial estimates¹. Based on our own calculations, the current procurement system takes an average of around 21 years to field a new weapon system, often resulting in equipment that is outdated at the time of introduction. Costs have also continued to rise over approved levels, and although the average 10.7 per cent increase is an improvement over past performance, it is hardly acceptable given the disruption caused to the equipment programme. Issues of reliability and maintainability continue to plague new equipment programmes, with stricter acceptance criteria giving rise to further delay. These are symptoms of a system in need of substantial reform.

1.2 Our analysis of the procurement system over the past 10 weeks has identified several root causes of under-performance, and has resulted in the generation of a set of specific recommendations to address these issues.

RECOMMENDED IMPROVEMENTS

1.3 **Revised front-end process.** A revised front-end process should be introduced which delivers robust requirements and increased value for money over the whole life of the equipment. This can be achieved by implementing a revised and clarified risk-reduction process; increasing the proportion of spend at the front-end; ensuring that performance, cost, time trade-offs are made at an appropriate point in the project life-cycle when sufficient information is available; and introducing design to cost principles.

1.4 **Transition from a functional to a project-based organisation focused around Integrated Project Teams (IPTs).** A project-based organisation based around IPTs which include all key internal stakeholders and industry as full members, should be introduced in place of the current, largely functional, organisation. This will provide consistency and continuity of approach throughout the project life-cycle, and ensure close and effective involvement of

¹ National Audit Office, *Major Projects Report 1997 (draft)*.

all major stakeholders in key decisions. The benefits of a project-based organisation have been widely demonstrated in the private sector particularly in the automotive and aerospace industries, U.S. Department of Defense (DoD), and in isolated areas within the MoD.

1.5 Streamlined approvals and oversight mechanisms. A revised oversight framework should be introduced in order to deliver improved scrutiny, whilst reducing delays at a project level. The core of this should be a single EAC approval point at the end of the Assessment phase; with additional ongoing oversight provided by the customer, and by independent technical and financial scrutineers attached to project teams on a full or part time basis.

1.6 Powerful contractor incentives. Capturing savings of the magnitude alluded to in reports from the NDIC across the multitude of projects will require major rewards for co-operation (gain sharing with 30 to 40 per cent of incremental savings going to industry) and major penalties for non-participation (increasing rigour in the withholding of milestone payments and enforcement of liquidated damages on existing contracts).

1.7 Simplified procurement processes for minor projects. A simplified procurement model should be introduced for minor projects, defined as those with total development and production spend of less than £500 million. For these projects, the customer should take full responsibility for the key decisions at the post-Assessment stage gate, only referring projects greater than £100 million for approval at 2 star level.

1.8 Clarified accountabilities, roles and organisational structures. There must be a clear customer for the IPT across the life-cycle of a project, who holds the project budget. This role is performed by two customers during the life of a project; by the centre, making trade-offs across capabilities and equipments, and later in the process by the Single Service as the end user. In order to perform its role effectively as the customer, particularly in the critical front-end project phases, the centre should be organised around 12–15 cross-functional capability groups, each led by a senior Capability Manager who would have significant delegated financial authority. The role of the PE should be that of a supplier of equipment procurement services, a role which requires clear definition of the customer–supplier relationships with the centre and the Single Service, and which allows the Procurement Executive to move to Trading Fund status.

1.9 Enhanced in-service support. The PAOs should restructure equipment support such that risk is managed, as far as possible, within the private sector, implementing best practice supply chain management techniques to decrease stockholdings. Storage and distribution should be rationalised, centralised and outsourced. Purchase of routine support items should be restructured to ensure that the supplier base is fully consolidated, public sector involvement is decreased and full tri-service rationalisation is implemented. Finally, a consolidated IT strategy should be implemented to ensure that required

management information is available to support the PAOs, and drive the implementation of best practice across the three Services.

EXPECTED BENEFITS

1.10 We have found strong evidence that the model we propose will result in substantially faster development and lower cost – with improved performance in fielded military equipment.

- This model will reduce the average time that it takes to bring affordable, reliable major defence systems into service to 11–14 years, representing a 30–45 per cent reduction in cycle time compared with the current 20 year time horizon.
- Through-life costs should ultimately be driven down by up to 30 per cent. Overall, we believe a saving of 4.4–8.2 per cent of the 10 year total is achievable, with ongoing annual savings of £0.7–1.1 billion from year 11.
- £150–290 million in annual savings can be achieved through improved purchasing of parts and services used for maintenance, repair and overhaul spares and the use of third party providers to conduct third and fourth line repair.
- Specific improvements in the purchase of non-operational common user items should deliver £33–51 million in annual savings, representing a reduction of 5–11 per cent in the areas addressed in this study.
- Finally, we believe that operating costs for the procurement function can be reduced by 20 per cent, representing £35–50 million in savings. Although we have not studied the issue in detail, we believe that significant operating cost savings could be identified in procurement areas of PAO and the Centre as well.

1.11 In total this represents £0.9–1.5 billion of ongoing annual savings from year 11.

MAKING CHANGE HAPPEN

1.12 Transforming the acquisition system requires a major multi-year change programme, which, if executed to appropriately demanding standards, will deliver enormous financial benefits. Prior efforts systematically to implement similar recommendations have yielded disappointing results. Ensuring that this effort does not falter will require attention in four areas:

- Continuous and visible commitment of top management, supported by clear and frequent communication around the need for change and the benefits that it will deliver both to individuals and to the organisations they represent.
- Selection of a senior, full time, change team led by a high calibre individual at 3 star level, and including industry involvement.
- Definition and development of clear improvement targets with key performance measures that will enable progress to be tracked and reviewed over time.
- Development of a clear and comprehensive implementation plan, with activities prioritised and phased over time, aimed at building momentum with early successes.

1.13 Capturing this potential will require significant internal effort and leadership, the willingness to share some of the benefit with industry, and focused external help on a number of critical dimensions. Clearly, change of this magnitude cannot be achieved without some financial investment, much of which will come in the form of effort behind the change programme.

1.14 Whilst some aspects of implementation can be initiated while the organisational solution is being fully defined, the definition of a clear customer at the centre is crucial, and the expected savings will not be delivered without this issue being resolved.

2. Background and Introduction

BACKGROUND

2.1 There is compelling evidence that the U.K.'s defence procurement system needs fundamental change. Numerous internal and external reports have catalogued the shortcomings of the current system and processes – with particular emphasis on pervasive cost overruns and missed target dates. Although many initiatives have been taken to improve the performance of the acquisition system, these efforts have failed to deliver fundamental changes because of internal barriers, disagreements about pivotal issues, and the failure to take a comprehensive 'system level view'.

2.2 In early December, you asked McKinsey & Company to undertake an intensive review with two objectives: to diagnose the underlying weaknesses in the present procurement process and organisation; and to develop and cost alternative models that would, if fully implemented, lead to a significant improvement in the performance of the overall system as measured by through life programme costs, in-service dates and performance to requirements.

2.3 The Phase 1 Diagnostic Report² concluded that the historic under-performance of the procurement system could in large part be explained by five root causes:

- Current front-end processes (up to full development) fail to achieve an effective balance between cost, time and performance.
- Lack of sufficiently flexible, differentiated procurement strategy both within the PE and the PAOs.
- Lack of delegated authority in the management of projects.
- Inefficient and ineffective procurement processes.
- Misalignment and ineffectiveness of contractor and staff incentives.

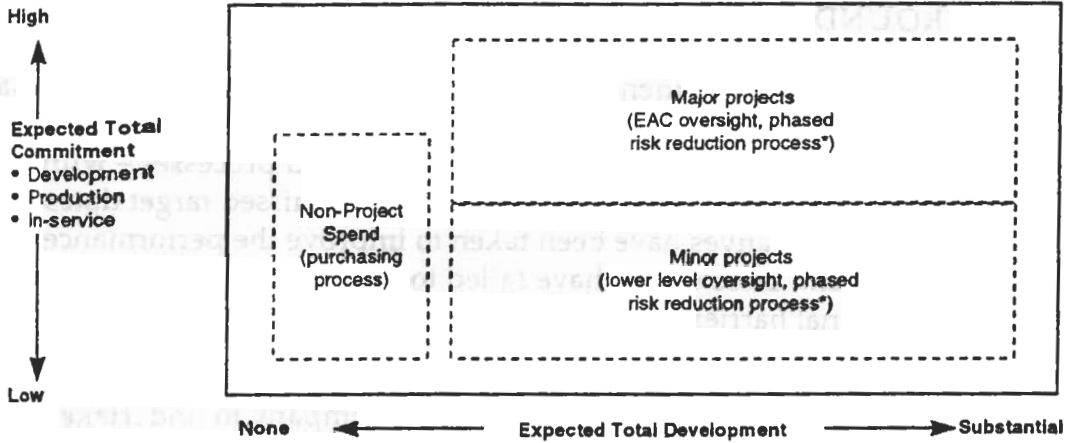
2.4 Phase 2 of the work set out with the intention of developing a comprehensive and integrated 'system level' solution to resolve these issues, reflecting both the complexity and also the magnitude of change required. It has been conducted by joint MoD, industry and McKinsey teams and has included

² *Transforming U.K. Defence Procurement: Summary of Diagnostic Findings, 8 January 1998.*

Exhibit 2.1

FRAMEWORK FOR SEGMENTING MOD SPEND

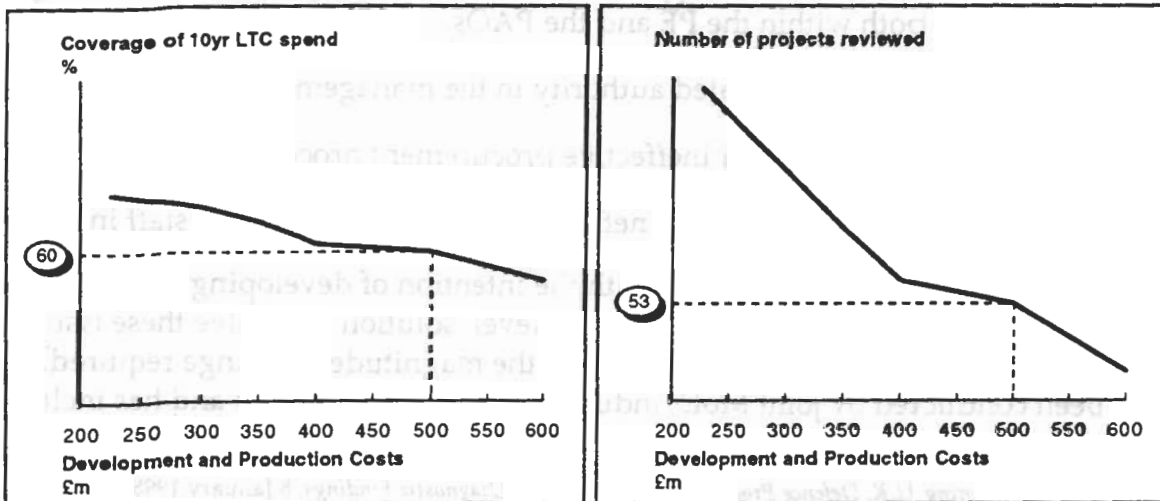
ILLUSTRATIVE



* Where limited development is involved, streamlining of risk reduction process may be possible

Exhibit 2.2

PROPOSED COVERAGE OF LTC 10 YEAR SPEND AND NUMBER OF PROJECTS BY FULL EAC



Source: MoD Project database

extensive desk-based analysis, workshops involving a wide range of stakeholders, and an extensive programme of interviews and visits both within and beyond the MoD.

2.5 This study has a number of interfaces with other related projects. Where those projects have been directly related to procurement or purchasing activities and organisation, we have attempted to reflect relevant recommendations in this report and have referenced them accordingly. This is particularly the case for *Smart Procurement*, *Strength Through Partnerships* and a number of other studies commissioned as part of the *Strategic Defence Review*.

2.6 The purpose of this report is to outline the findings and recommendations from Phase 2, to link these specific solutions to the root causes identified in Phase 1, and to present an integrated solution which addresses every aspect of the current procurement system.

METHODOLOGY AND APPROACH

2.7 Our view is that organisation must be dictated by the procurement process or processes required. These in turn are determined by the major segments which can be identified within the MoD's overall procurement spend. Our approach to Phase 2 has therefore been to drive processes and supporting organisational structures from a segmentation of the MoD's procurement spend.

2.8 Our analysis of MoD spend has shown that there are two primary attributes which should drive segmentation. The first is technical risk, which determines the extent to which a progressive risk-reduction process should be followed. The second is financial risk, which determines the nature and extent of financial oversight required.

2.9 Based on this approach, we have identified two main segments, each of which require different processes and oversight mechanisms (Exhibit 2.1):

- **Project-based spend**, where technical risk exists and a phased risk-reduction process is therefore required. This includes both *rational programmes* and *collaborative programmes* and can be divided into 2 sub-segments:
 - **Major projects**, defined as those with total development and production costs³ greater than or equal to £500 million, which demand EAC oversight because of the size of the commitment involved. These account for 60 per cent of programme spend (Exhibit 2.2).

- **Minor projects**, defined as those with total development and production costs less than £500 million, where lower level oversight is appropriate given the smaller size of commitment involved.
- **Non-project-based spend**, covering spares, repairs and routine purchases, where technical risk is limited and thus no phased risk-reduction process is required.

2.10 Based on this segmentation, we have developed a range of specific recommendations, set out in detail in following chapters:

- First, we have designed processes required to reflect this segmentation:
 - For project-based spend, we have developed a redesigned process for **major projects** which are *national programmes*. We have also developed differentiated processes, derived from this basic model, for both *collaborative projects* and for *minor projects*.
 - For in-service spend, we have also developed a range of recommendations covering process and other issues.
- Secondly, we have defined the top level accountabilities, roles and organisation structure required to ensure that these processes operate effectively.

³ Ideally, this segmentation should be defined in terms of through life costs; but given that these are currently not available in a consolidated database within MoD, we have used total development and production costs as a proxy.

3. Recommended Changes to the U.K.'s Defence Procurement System

ENHANCED PROCESS FOR MAJOR PROJECTS

Revised Front-end Process Delivering Robust Requirements

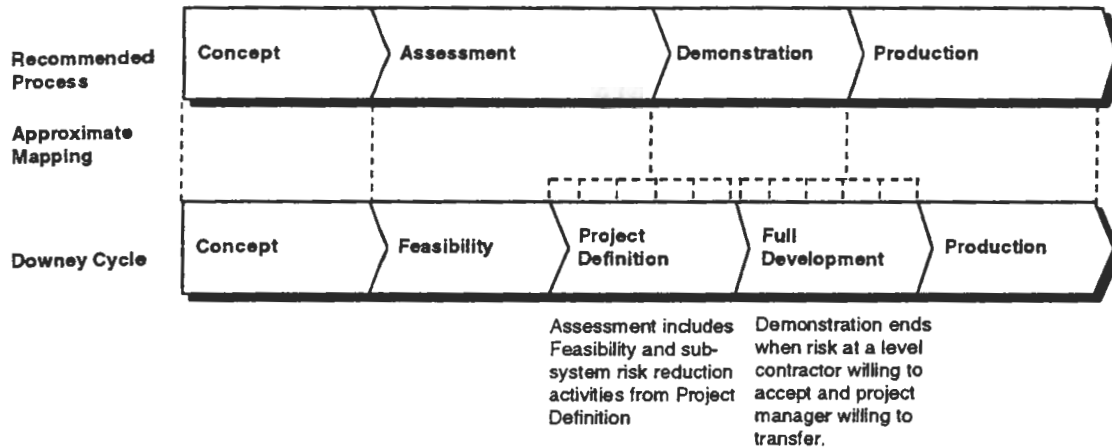
3.1 The current front-end process does not permit effective trade offs between performance, cost and time:

- The current 7 stage Downey Cycle (Concept, Feasibility, Project Definition, Full Development, Production, In Service, Disposal) fails adequately to reduce risk, in part because of a failure to invest sufficient funds up front. This often results in significant risk remaining at late stages in development. This view is substantiated by the fact that the MoD spends around 11 per cent of total procurement spend before full development, compared with U.S. DoD and commercial best practice spend levels of 15 per cent.
- In practice, key trade-offs are made very early in the project life-cycle when insufficient information is available to make informed decisions. For example, on cost, an LTC funding line must be obtained during the Concept phase before a Staff Target is developed and feasibility studies are undertaken; once set, these numbers are extremely difficult to increase downstream.
- The decision making approach does not provide a mechanism for making systematic and informed trade-offs between performance, cost and time with the result that the optimal value for money solution is often not achieved.

3.2 A revised front-end process should therefore be introduced which delivers robust requirements and increased value for money over the whole life of the equipment. This can be achieved by implementing a revised and clarified risk-reduction process; increasing the proportion of spend at the front-end; ensuring that performance, cost, time trade-offs are made at an appropriate point in the project life-cycle when sufficient information is available; and introducing design to cost principles:

Exhibit 3.1

COMPARISON OF RECOMMENDED PROCUREMENT PROCESS WITH EXISTING DOWNEY CYCLE



121

Exhibit 3.2

RECOMMENDED PROCUREMENT PROCESS FOR MAJOR PROJECTS

	Concept	Assessment	Demonstration	Manufacture	In Service	Disposal
Objective	<ul style="list-style-type: none"> Identify which options for a given mission should be evaluated further 	<ul style="list-style-type: none"> Downselect to a single technological option for demonstration 	<ul style="list-style-type: none"> Downselect to a single contractor 	<ul style="list-style-type: none"> Deliver solution to military task 		
Criteria for moving to next stage	<ul style="list-style-type: none"> Elimination of options not worthy of further investigation 	<ul style="list-style-type: none"> Technical risk from sub-systems reduced to acceptable levels 	<ul style="list-style-type: none"> Technical risk from integrated solution reduced to a level contractor willing to assume, and project manager willing to transfer 	<ul style="list-style-type: none"> Equipment performance is acceptable 		
Activities	<ul style="list-style-type: none"> Survey and demonstrate technologies (ongoing research programme) High level operational analysis Preliminary through-life costing 	<ul style="list-style-type: none"> Demonstrate* technologies for all sub-systems (integrated from ongoing research programme) Operational analysis (including alternatives) Through-life costing 	<ul style="list-style-type: none"> Demonstration* of integration capability (to degree required) Full development (as required) Operational trials (in field or synthetic environment) 	<ul style="list-style-type: none"> Remaining full development Production Trials of equipment against acceptance criteria 		
End products	<ul style="list-style-type: none"> Draft Statement of Mission Needs and shortlist of viable options to launch project team 	<ul style="list-style-type: none"> EAC submission <ul style="list-style-type: none"> Performance requirement Cost, time boundaries Procurement strategy Plan for managing remaining risk 	<ul style="list-style-type: none"> Contract for production and remaining development 	<ul style="list-style-type: none"> Equipment acceptance 		

* Demonstration can rely on physical models and prototypes, computer models, or proven contractor capability

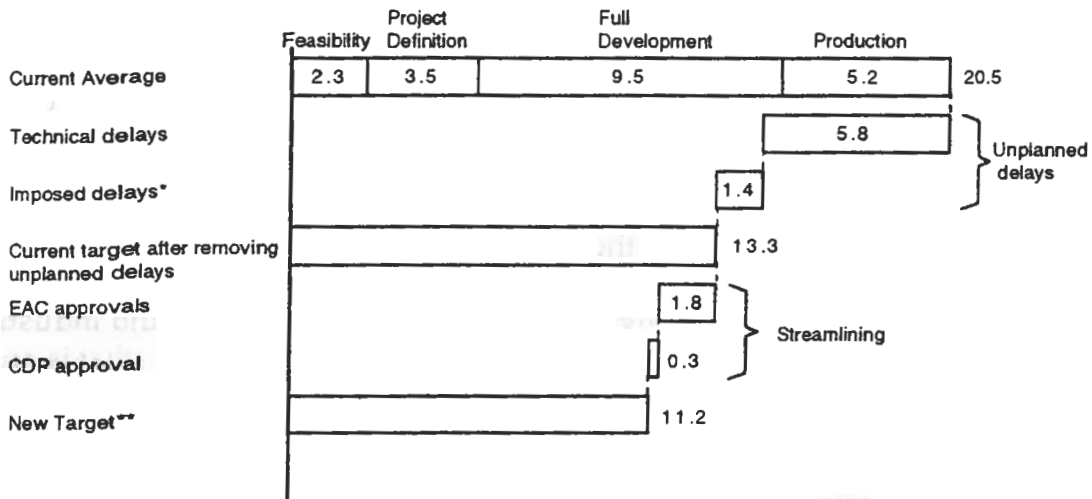
- A revised procurement process for major projects should be introduced, consisting of 6 stages: Concept, Assessment, Demonstration, Manufacture, In Service and Disposal (Exhibits 3.1 and 3.2). This process will ensure that required risk-reduction activities are undertaken at the appropriate time in the project cycle. Implementation of this revised process, and the additional recommendations outlined below, should result in a reduction in the typical length of the procurement cycle – from around 21 years at present to 11 to 14 years for a major project (Exhibit 3.3). Specific changes identified below (for example reducing the number of formal approval points) will also facilitate the introduction of concurrent engineering⁴.
- To support this, the proportion of spend in the early stages of the project life-cycle should be increased from the current 11 per cent to 15 per cent to align with best practice in the DoD and industry. This implies a total annual spend of around £1.1 billion, that is an increase of £300 million (Exhibit 3.4).
- To ensure that key trade-offs on performance, cost and time can be taken at an appropriate point in the project life-cycle, greater flexibility should be introduced into the current LTC procedures:
 - *A single aggregated budget should be created for project-specific expenditure during Concept and Assessment.* Individual projects would receive only provisional funding at this stage. Taking account of the increase in early stage spending outlined above, the appropriate size of the Concept and Assessment budget should be around £700 million. Responsibility for allocating the budget should be delegated to the customer (described in detail in below). This approach would increase the customer's flexibility to launch appropriate candidate projects, in the knowledge that those which do not demonstrate a satisfactory performance, cost and time profile will be terminated prior to the Demonstration phase. **In addition**, the Applied Research Programme should **continue as a separate budget, managed by the customer.**
 - *Firm funding for individual projects should be decided following the Assessment Phase.* **For any given project, a specific** expenditure line should only be entered into the LTC **for the post-Assessment** phases. **When** the project is still in Concept and Assessment, this post-Assessment expenditure should **be indicative** only, with firm funding levels only being finalised **once the project** has reached the end of the Assessment phase, **when sufficient**

⁴ As recommended by *Smart Procurement*.

Exhibit 3.3

SCOPE FOR DECREASING DURATION OF MAJOR PROJECTS
Years

ESTIMATE



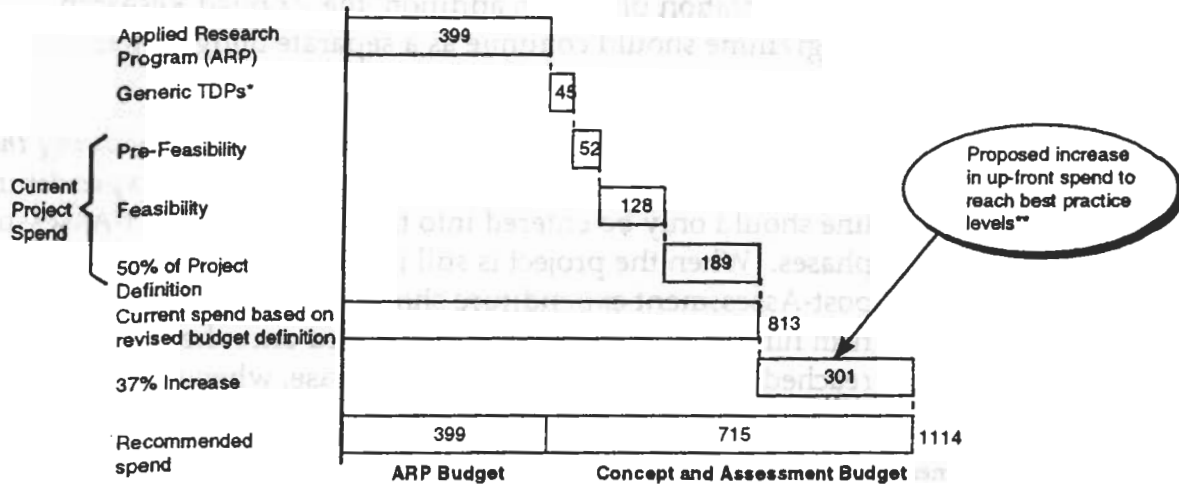
* Mainly due to LTC rebalancing
 ** New process will still include some technical delays: estimated actual duration 11-14 years

Source: Survey of 20 major project phases; Project Manager workshop

Exhibit 3.4

BUDGET FOR CONCEPT AND ASSESSMENT
£m (LTC 97/98)

APPROXIMATE



* Technology Demonstration Programmes

** Based on the 15% ratio of spend before full development (or equivalent) to total procurement (or to total sales) for the U.S. DoD and the civil aerospace industries

Source: MoD Project Database; U.S. Government budget FY99; McKinsey Product Development Practice

information should be available to make a robust decision on balance of capability and appropriate performance, cost, time parameters (Exhibit 3.5).

- *The 10 year LTC should be divided: in years 1–4 the focus should be on firm cash management, more in line with industry practice and Public Expenditure Survey requirements. For years 5 to 10, the focus should be on balancing the timing of major projects, with flexibility to allow the sum of individual lines to exceed the total budget. Implementation of this proposal is possible through the Resource Accounting and Budgeting framework (Exhibit 3.6).*
- **Design to cost principles should be introduced:**
 - **Design to cost techniques should be systematically applied at the front-end of the process to force time and performance to be traded off against specified cost targets. Indicative unit price and life-cycle cost should be set at the start of the Assessment phase. During Assessment, operational performance trade-offs should be undertaken on an iterative basis to determine the optimal balance between cost, performance and time. Ceiling unit price and through life costs, together with a firm LTC funding line, should then be established at the end of Assessment, when an informed judgement on the solution offering optimal value for money can be made. Further performance trade-offs should be undertaken throughout the Demonstration phase to refine and finalise the solution, and establish a firm unit price and support cost warranties. Such design to cost techniques have been successfully used by the private sector as well as the U.S. DoD. (Exhibits 3.7 and 3.8).**
 - **To facilitate rigorous trade-offs of this kind, requirements should be performance based, and should be developed in a structured and evolutionary manner using a common database from mission need to contract (in line with the approach currently being piloted by DOR (Sea)). To eliminate costly and unnecessary over-specification of the technical solution, contractors should take responsibility for developing technical specifications to meet the requirement (Exhibits 3.9 and 3.10).**

Transition from a Functional to a Project-based Organisation Based on Integrated Project Teams (IPTs)

3.3 The current functional organisation fails to deliver timely decisions reflecting the full range of necessary inputs:

Exhibit 3.5

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EXAMPLE PROJECTS USING RECOMMENDED CASH MANAGEMENT AND CAPITAL EXPENDITURE TOOLS

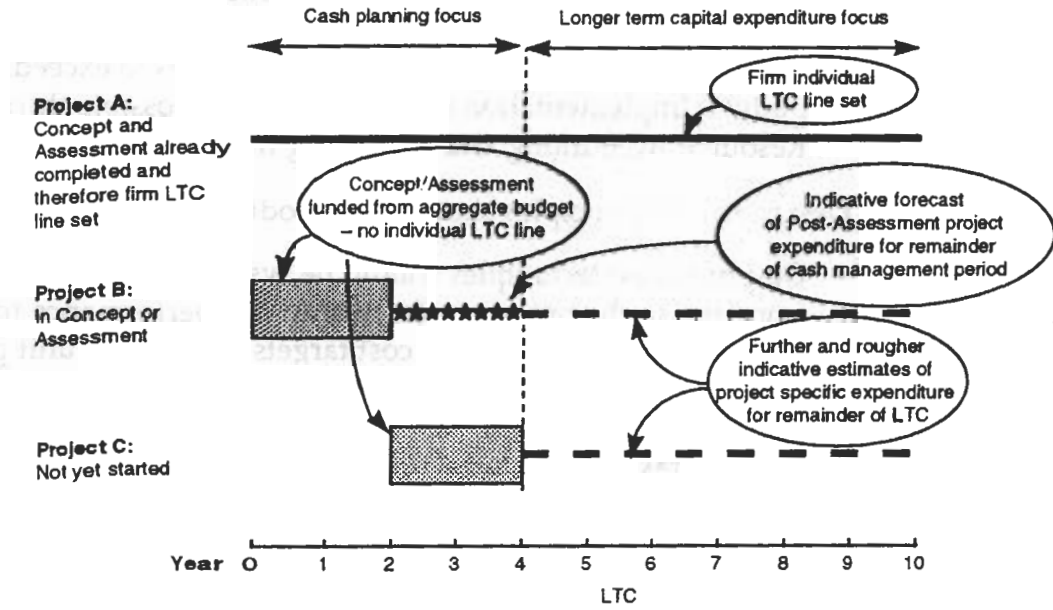


Exhibit 3.6

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ILLUSTRATIVE PROCUREMENT LTC UNDER PROPOSED SYSTEM
% of procurement budget

ILLUSTRATIVE

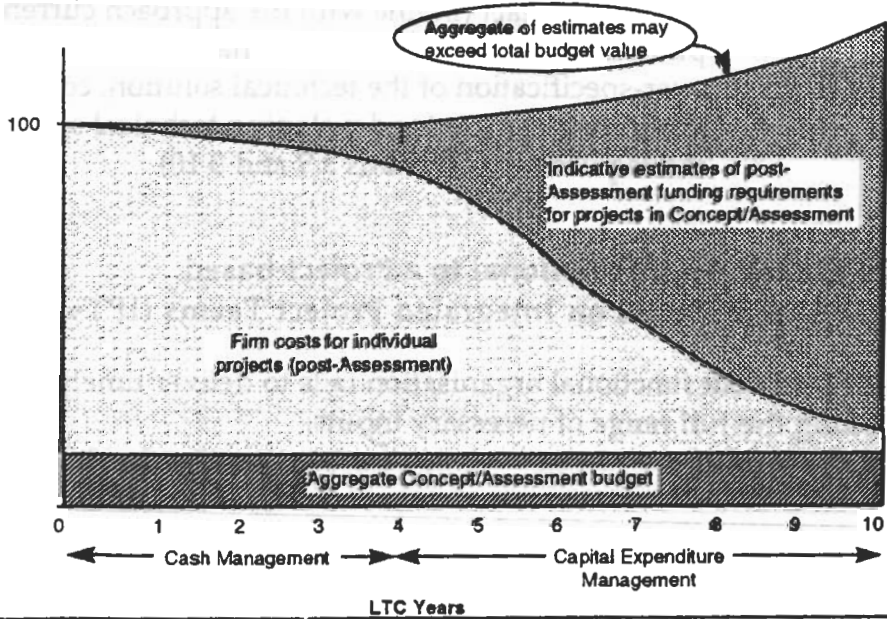
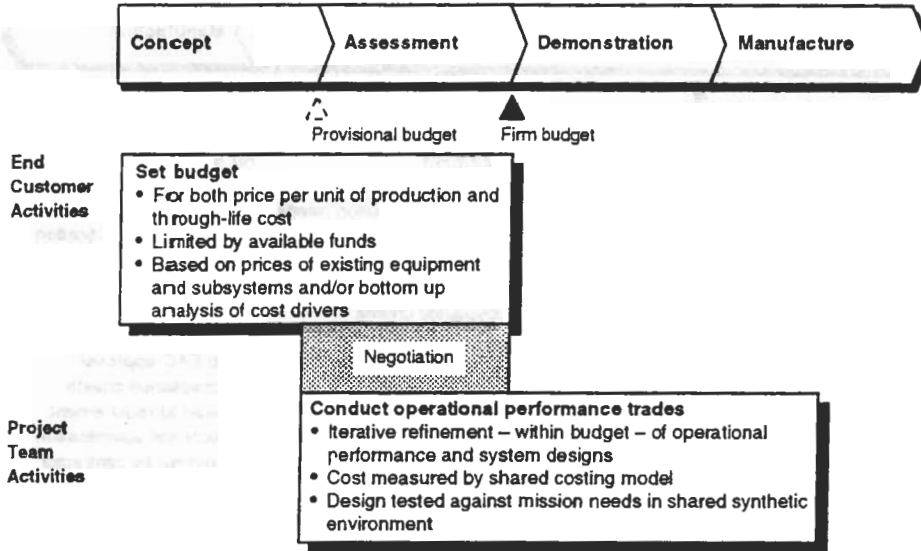


Exhibit 3.7

DESIGN TO COST METHODOLOGY



Source: Joint Strike Fighter Technical Director interview; McKinsey Product Development Practice

Exhibit 3.8

IMPACT OF DESIGN-TO-COST METHODOLOGY

%

	Industrial experience*	U.S. DoD experience**		
		JDAM	WCMD	JASSM
Manufacturing cost reduction	18-65	53	64	51
Development time reduction	30-50	25	-	50
Defect rate reduction	25-62	Warranty increased 5 to 20 years	-	-

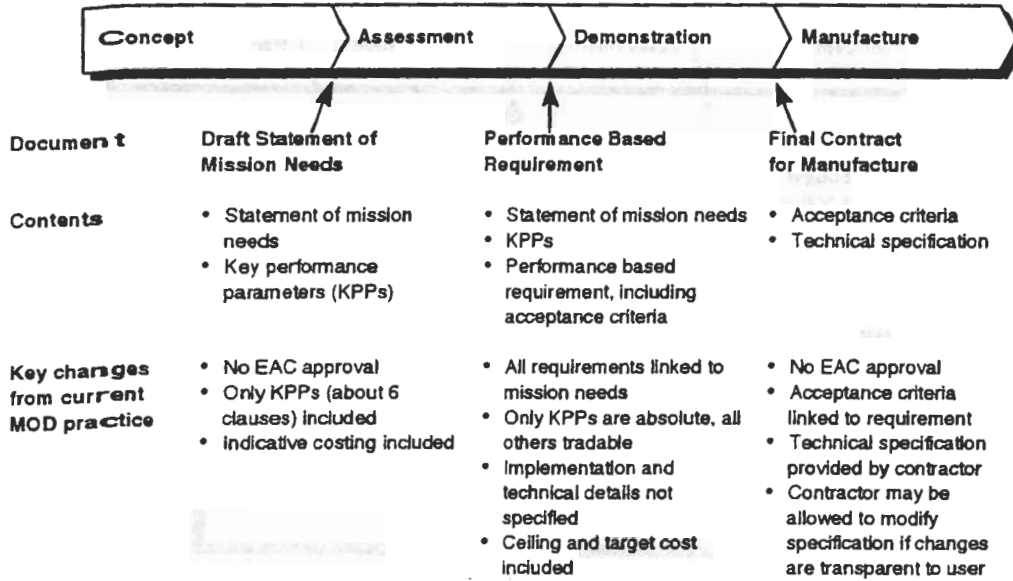
* Study of 23 companies from range of industries

** From Joint Direct Attack Munition, Wind Corrected Munition Dispenser and Joint Air-to-Surface Standoff Missile

Source: McKinsey Product Development Practice; University of Missouri Design Productivity Center; Project Manager Interviews

Exhibit 3.9

REQUIREMENTS DOCUMENTS UNDER REVISED PROCESS

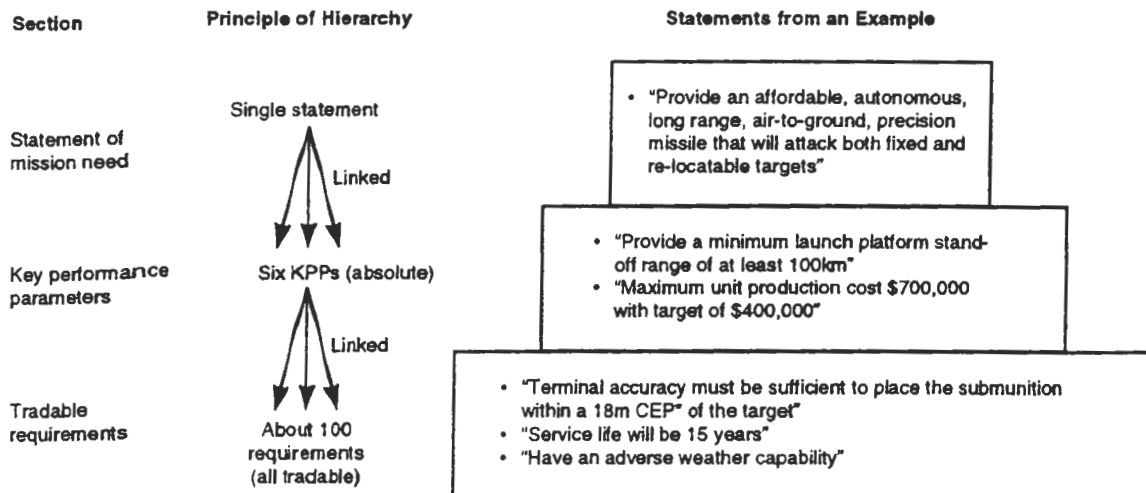


Source: Joint Strike Fighter Technical Director interviews; McKinsey Product Development Practice

Exhibit 3.10

STRUCTURE OF PERFORMANCE BASED REQUIREMENT

DISGUISED



* Circular Error Probability

Source: Project Manager interviews; Joint Air-to-Surface Stand-off Missile (JASSM) Joint Operational Requirements Document

- Currently a wide range of internal stakeholders are involved **at** one time or another in the project life-cycle. However, in practice **the** current approach is often ineffective:
 - Discontinuities and confusion often arise because of **frequent** rotation of staff in key roles (in particular OR and PE project managers), as well as multiple changes in leadership **throughout** the project cycle.
 - The dossier working group approach, which is meant to **provide** a mechanism for key stakeholders to input their views, is **sub-optimal** due to the part time nature of involvement and **the** lack of clear accountability for successful delivery of the project:
 - . In some cases, this results in inadequacies in the quality **of** stakeholders' input.
 - . In others, it reduces the willingness of the project leader (whether OR or PE) fully to take account of other stakeholders' views.
- In terms of industry involvement, the current approach frequently results in patchy involvement of contractors in the Concept phase, and an arms length relationship between MoD and key contractors during Feasibility and Project Definition. This inhibits the **free** and full exchange of information between MoD and contractors, and prevents effective joint problem solving.

3.4 A project-based organisation based around IPTs, which include all key internal stakeholders, and industry as full members, should therefore be introduced in place of the current largely functional organisation⁵. This will deliver consistency and continuity throughout the project life-cycle, and ensure close and effective involvement of all major stakeholders in key decisions. The benefits of a project-based organisation have been widely demonstrated in the private sector, in particular in the automotive and aerospace industries; in the U.S. Department of Defense (DoD) (where the introduction of IPTs was recently identified as instrumental in delivering significant savings⁶); and in isolated areas within MoD:

- Individual IPTs should be launched during the Concept phase to pursue a specific solution to a requirement. A number of major options for fulfilling a given requirement may be under consideration during the Assessment phase, with one option being selected at the end of the phase to proceed to Demonstration. The

⁵ Also recommended (as 'Integrated Stakeholder Procurement Teams') by *Smart Procurement*.

⁶ Service acquisition executive study of acquisition reform implementation, October 1997.

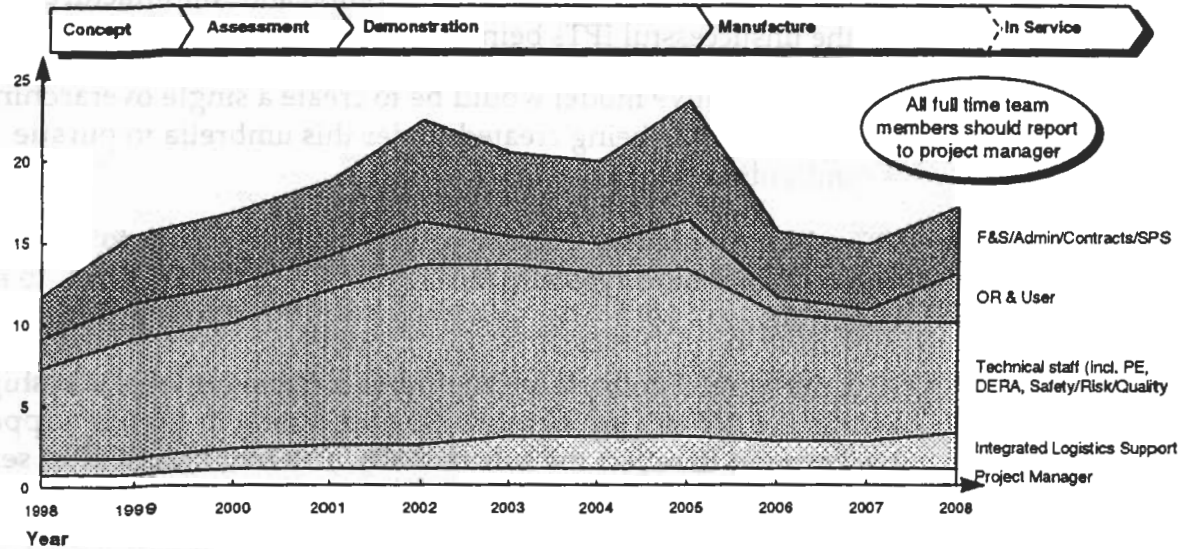
customer will have to decide, on a case by case basis, between two different models for handling this:

- First, separate IPTs could be set up for the Assessment phase for each of the major options, with the customer taking the lead in comparing the outputs of each IPT and deciding which option should proceed. At the end of Assessment, the successful IPT would then run on into Demonstration and Manufacture, with the unsuccessful IPTs being disbanded.
- An alternative model would be to create a single overarching IPT, with sub-IPTs being created under this umbrella to pursue individual options.
- IPTs should be led by a senior project manager (at up to one star level), who should typically remain in post for 4 to 5 years, to ensure continuity.
- At a pre-agreed point, there should be a transition of leadership within the IPT to a senior manager with strong in service support background to reflect the substantially different nature of in service support activities.
 - There is significant evidence from a number of recent projects that the transfer of leadership from PE to PAO is occurring too late in the project life cycle (e.g., Sea King helicopters, Sea Wolf missiles) which clouds accountability for equipment management, development and support. Our recommendation is that the leadership should transfer to the PAO as soon as development, technical risk-reduction and initial acceptance is complete. This point will vary depending on the type of equipment and the number of units being produced. For example, for a project involving the production of a large number of units (e.g. 500 missiles), it would be entirely feasible to transfer the project to the Single Service once a small number have been successfully produced. However, in the development of a new class of submarine, with production of three units, transfer would not occur until the last unit had been manufactured and completed in-service acceptance trials. To manage this variability, we recommend that the point of transfer between the PE and the PAO should be agreed by the Centre and the Single Service at the beginning of the Demonstration phase.
 - The existing IPT should be responsible for incremental technology acquisition, minor upgrades, and refits according to the project plan, and should contract for additional project management resource with the PE, or elsewhere, as required. For major modifications that significantly change the capability of the

Exhibit 3.11

ILLUSTRATION OF POTENTIAL STAKEHOLDER INVOLVEMENT UP TO ACCEPTANCE
No of team members

ILLUSTRATIVE
EXAMPLE



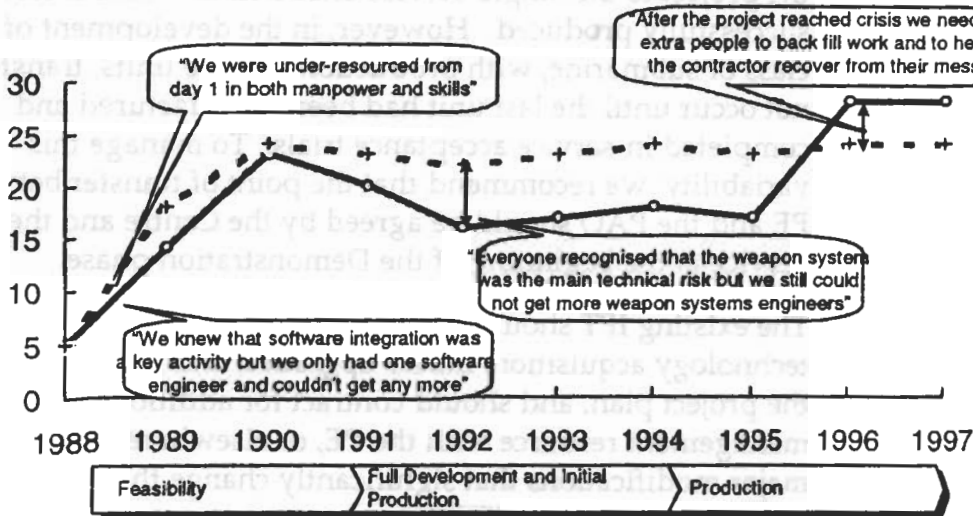
Source: Workshop with PMs; team analysis

Exhibit 3.12

INADEQUACIES OF CURRENT APPROACH TO STAKEHOLDER INVOLVEMENT – PROJECT EXAMPLE
No of team members*

EXAMPLE

Actual
Desired



* Include PE and ILS members seconded to PE; excludes Contracts and F&S

Source: LTC '98; Project History; Interviews with Project Managers

equipment, a parallel IPT with overlapping membership and led by the PE should be formed for the Concept and Assessment phases. Once a firm decision to proceed has been taken at the end of the Assessment phase, this IPT should be formally integrated into the original IPT.

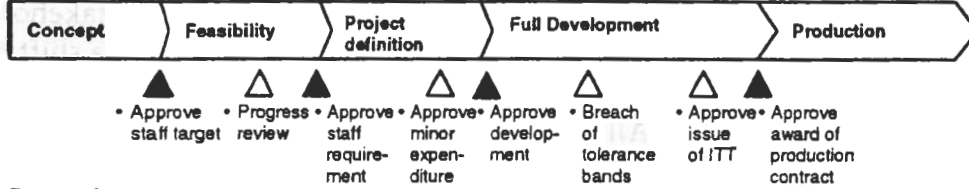
- The composition of the IPT will vary over time, but should include full time representation from all of the key stakeholders in any given stage (Exhibit 3.11). This is likely to involve a shift in the balance of resources towards the early phases of the project life-cycle (Exhibit 3.12). All team members should report directly to the project manager as first reporting officer, with the appropriate functional unit acting as second reporting officer. Wherever possible, team members should be collocated.
- The project manager should be given full authority to decide on how project operating resources should be deployed.
- Industry should be involved closely during Concept, and fully integrated into the IPT in subsequent phases:
 - The views and input of potential prime contractors and sub-contractors should be systematically sought during the Concept phase, when the draft Statement of Mission Needs is being prepared.
 - At the start of the Assessment phase, a small number of possible prime contractors should be selected based on current criteria, but with greater emphasis on past performance⁷. They – and a small number of key sub-contractors – should be fully integrated within the IPT, with subsequent down selections during or at the end of the Assessment and Demonstration phases. The precise numbers to be involved will vary depending on the option being evaluated; but typically 2–3 prime contractors during Assessment and 1–2 during Demonstration would be appropriate.
 - In terms of IPT structure, a 'Chinese walls' type arrangement should be operated to ensure that the confidentiality of contractor data is maintained, with ownership of intellectual property resting, as at present, with the individual contractor.
 - There may be some cases where it is not possible to have competition during Assessment or Demonstration: for example, where only one supplier exists, where political considerations dictate the use of a particular supplier, or where (for example, in the case of a large platform) the costs associated with running

⁷ As recommended by *Smart Procurement*.

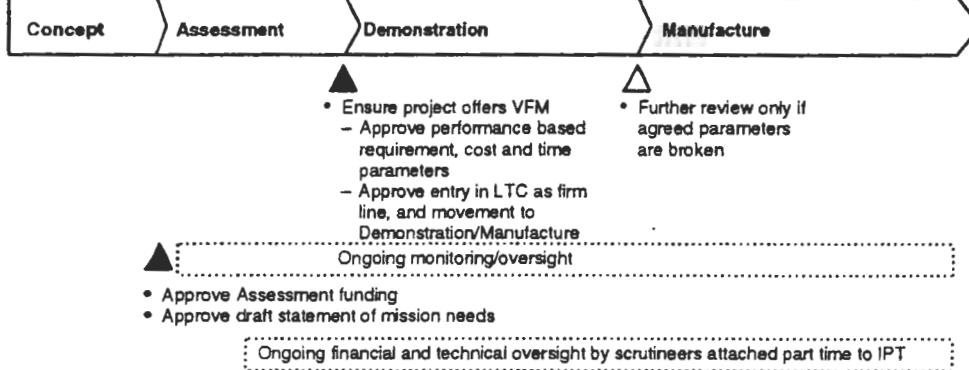
APPROVALS PROCESS FOR MAJOR PROJECTS

▲ Mandatory reviews
 △ Ad hoc reviews

Current Process



Proposed process



two parallel projects in Demonstration are prohibitively high. In these cases, the full integration of the prime contractor in the IPT, the rigorous application of design to cost methodology, the use of technical costing techniques, and consideration of competitive alternatives where relevant, will help to ensure that costs are controlled.

Streamlined Approvals and Oversight Mechanisms

3.5 The current process is characterised by a cumbersome approvals process, which causes substantial delays and inefficiencies at a project level and fails to deliver effective oversight⁸:

- The current approvals regime is onerous and causes delays. The number of approval stage gates required is excessive compared to best practice examples from industry. At present, a larger project will typically be required to undergo 3 or 4 formal EAC reviews, and may additionally make up to 4 or 5 additional 'ad hoc' submissions, during the project life-cycle. At each formal EAC review, the process of dossier preparation and circulation is cumbersome and lengthy, involving up to 60 people and taking anywhere from 6 to 18 months to complete.
- Moreover the current approach fails to deliver effective oversight. Of the nearly 300 submissions made to the EAC since 1992, less than 1 per cent have resulted in projects being stopped.

3.6 A revised approvals model should therefore be introduced which will deliver focused and effective scrutiny, while reducing delays at a project level. The core of this should be a single EAC approval point at the end of the Assessment phase:

- The number of formal approval points should be reduced to a single major review (Exhibit 3.13):
 - The major review point, which would determine *commitment* to an individual project, should be established at the end of the Assessment phase. At this point, the IPT and the customer should jointly submit for EAC approval recommendations on whether the project should continue to Demonstration and Manufacture, as well as on the firm parameters which should be established for the project going forward: i.e., a firm LTC funding line, ceiling unit price and through life costs, a firm in service date and a finalised performance-based requirement. At this point, projects

⁸ These deficiencies were also pointed out by *Smart Procurement* which recommended that the process be reviewed.

not providing an acceptable balance between performance, cost and time should be killed off. We recommend that the project manager and customer have the opportunity to present their case directly to the EAC in support of their documentary submission (in line with industry practice) rather than the EAC convening 'virtually' to review dossier summaries only.

- Further EAC reviews post Demonstration should only be conducted in exceptional circumstances if:
 - . The project deviates from agreed boundaries on performance, cost and time.
 - . Wider affordability or other issues have arisen in the interim which could alter or undermine the original decision.
- In almost all cases, the decision to *launch* an individual project would rest with the customer. However, in the rare cases where Assessment spend exceeds £100 million, the decision should be signed off at 2 star level by the customer and a financial scrutineer. PE would be invited to input to this decision at an equivalent level, but would not be required to provide sign-off.
- The EAC approvals process itself should be significantly simplified to ensure that dossier preparation is carried out insofar as possible in parallel with ongoing development work during the Assessment phase. Intermediate dossier circulations should be strictly limited and not include the right of veto. In cases where the recommendation is to proceed to Demonstration, the IPT should have authority to continue with preparatory work for the Demonstration phase while waiting for EAC approval.

3.7 Effective ongoing oversight should be delivered both by the customer and by strong technical and financial scrutiny functions reporting through their functional chain of command into the appropriate EAC members:

- The customer should provide continuous monitoring and oversight of the project's progress, based on frequent interaction and open communication with the project team.
- This oversight should be further reinforced by scrutiny at IPT level. Technical and financial scrutineers should be attached to the team on a part time basis, but reporting separately, as at present. The scrutineer's role should be twofold: first, to support the project manager in assessing and managing technical risks, and in preparing documentation and analysis for the EAC; second, to provide an additional level of independent oversight. To fulfil this second role effectively, they must have the right to require further

Exhibit 3.14

INDUSTRY EXAMPLE OF EFFECT OF CONTRACT INCENTIVES

Example	Outcome
<ul style="list-style-type: none"> • Building a large chemical plant <ul style="list-style-type: none"> - Contractor to receive costs (including agreed profit margin) less £2m - Contractor receives £2m bonus if costs (including profit) are below £66m - Contractor receives additional £0.1m for each £1m reduction in costs (up to £0.5m) 	<ul style="list-style-type: none"> • Actual cost was £64m (compared with original estimate of £74m) • Contractor made £2m bonus and £0.2m extra profit
<ul style="list-style-type: none"> • Reconstructing the Santa Monica Freeway <ul style="list-style-type: none"> - Contract set at \$14.9m for completion in 140 days - A bonus of \$0.2m paid to the contractor for each day the freeway was early and \$0.2m penalty for each day late 	<ul style="list-style-type: none"> • Construction completed in 66 days, 74 days early • Benefits to City of Santa Monica estimated at \$60m • Contractor earned extra revenue of \$14
<ul style="list-style-type: none"> • Construction of oil rig <ul style="list-style-type: none"> - Target price set at £373m - Gain share clause in contract with 54% of cost savings below target accruing to contractor 	<ul style="list-style-type: none"> • Cost under budget by £87m • Contractor earned extra £47m

Source: Press articles

Exhibit 3.15

RATIONALES FOR COLLABORATION

EXAMPLES

Rational for Collaboration

COBRA HORIZON BVRAMM SKYNET 5 SEA GNAT COBLU MRAV EFA STORM SHADOW TRIGAT

- Economic**
 - Large scale
 - Shared non-recurring costs
 - Reduced in-service costs
 - Learning curve in production
- Political**
 - Enhanced political cohesion
 - Strategic balance (e.g., NATO vs. WEU)
 - Participate in OCCAR
- Industrial**
 - Technology transfer
 - National capability
 - Cross-border rationalisation
 - Create international standards
- Military**
 - Interoperability
 - Aligned doctrine

Source: Interviews with Project Managers

EAC consideration of a project (for example, before transitioning from Demonstration to Manufacture) if fundamental issues have been identified.

Effective Contractor Incentives

3.8 The current set of incentives used by the MoD are not effective in encouraging desired contractor behaviour, and hence fail to deliver either the absolute level of performance or the rate of improvement that is achievable. Simply put, the MoD uses too small a 'carrot' and too small a 'stick':

- **Appropriate use of meaningful positive incentives is a highly effective means of encouraging contractors to reduce costs and/or time, yielding substantial benefits to both parties. MoD does not currently use positive incentives in any comprehensive way.**
- Rigorous negative incentives can also be a powerful motivational tool. Current negative incentives are ineffective. Milestone payments are often used as stage payments rather than as progress incentives. Although milestone payments can be effective incentives, MoD does not consistently withhold payments on non-completion. Liquidated damages are difficult to enforce and are often ineffective.
- In addition, current Variation of Price (VoP) clauses are damaging for two reasons. Due to their potentially 'circular' nature, some VoP clauses provide no direct incentive for major contractors to reduce their input costs. In addition, the use of different indices by the MoD (VoP clauses) and Treasury (GDP deflator) institutionalises cost overruns, causing collateral damage to other projects from LTC rebalancing.

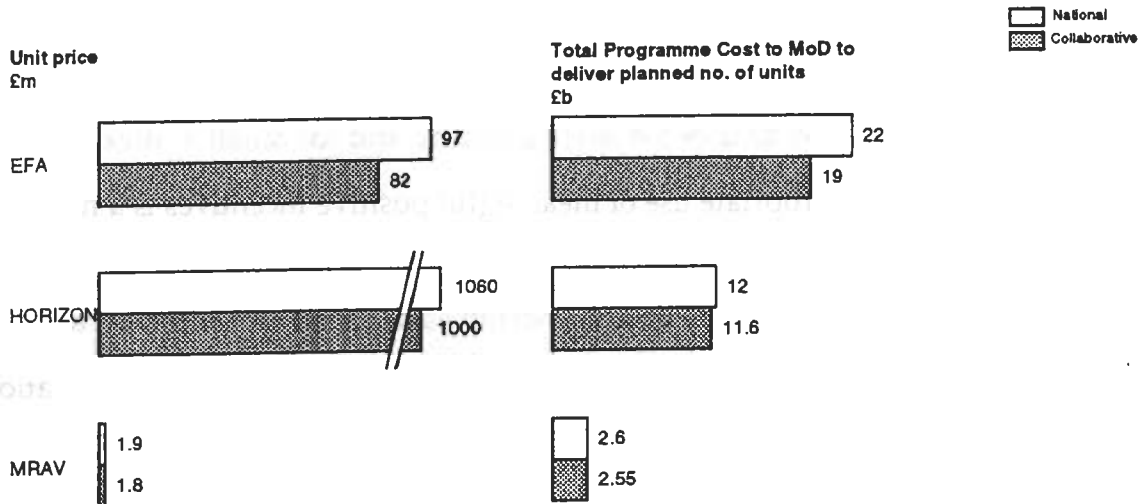
3.9 Going forward, MoD should therefore make more effective use of available positive and negative incentives to achieve improvements in contractor performance. **This should involve selective re-negotiation of existing contracts where opportunities exist to capture additional value, as well as systematic consideration of the full range of available positive and negative incentives for new contracts.** The scope for achieving significant performance improvements through effective use of positive and negative incentives has been widely demonstrated in the private sector (Exhibit 3.14):

- MoD should review all existing contracts **to determine** whether value could be added by renegotiating **these, for example by** inserting value engineering clauses **allowing contractors** to share in incremental savings. The intention **here is to capture new opportunities not identified** when the original contract was let.

Exhibit 3.16

ECONOMY OF SCALE FROM COLLABORATIVE PROJECTS

EXAMPLES

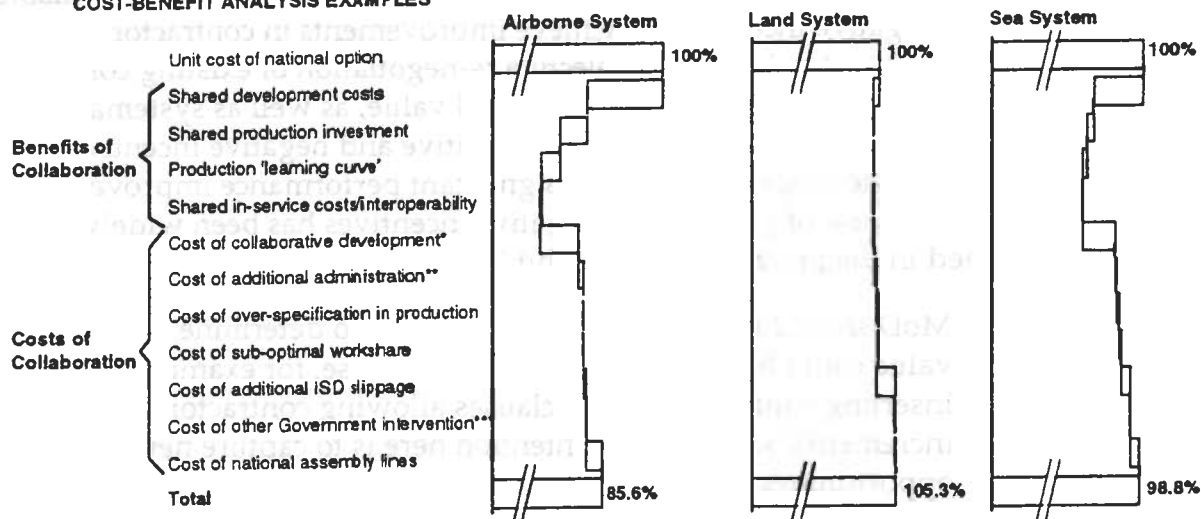


Source: Interviews; COEIA documents; team analysis

Exhibit 3.17

COST-BENEFIT ANALYSIS EXAMPLES

ILLUSTRATIVE



* includes cost of extra specs, additional variants
 ** includes multiple teams, travel, language
 *** e.g., change requirement, pull out of project

Source: Interviews; team analysis

- For new contracts, the project manager should consider the full range of available positive and negative incentives and make recommendations on which should be used. In general, the MoD should make broad use of target cost incentive fees and continuous improvement targets and discontinue the use of VoP clauses with circular indices.
- MoD should also take account of past performance in determining contractor selection for new projects.

DIFFERENTIATED PROCUREMENT PROCESSES FOR MINOR PROJECTS AND COLLABORATION

Collaborative Projects

3.10 Collaborative programmes represent a large and growing subset of the Ministry of Defence's planned procurement programme. Indeed, of the 172 largest planned future programmes, 47 per cent by value have been identified as candidates for collaborative development.

3.11 Unfortunately, on average, collaborative programmes have suffered from more severe performance shortfalls than national programmes. In addition to slightly higher cost overruns, collaborative projects average 12 months of additional in service date slippage compared to national projects⁹.

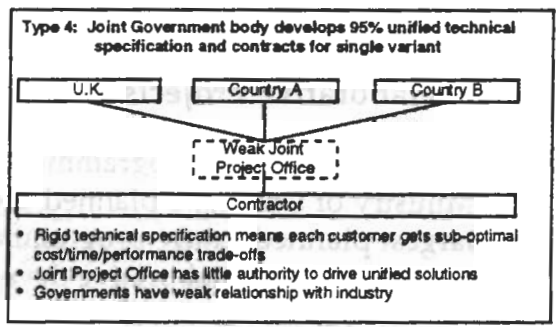
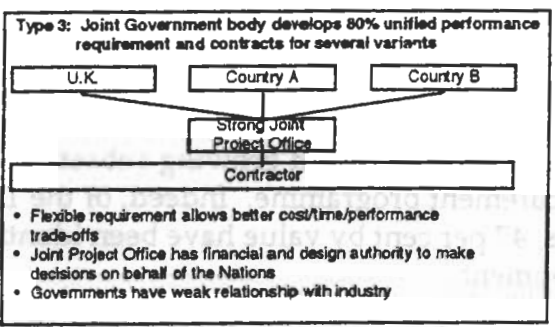
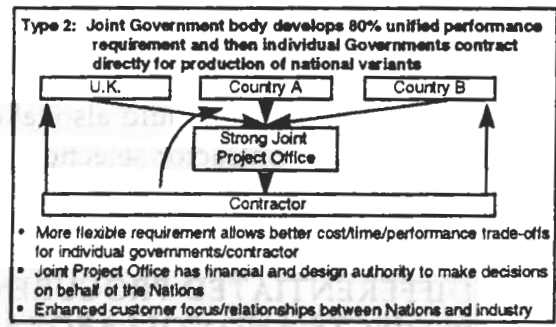
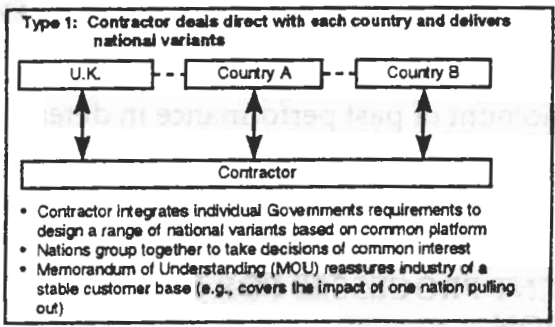
3.12 There are clearly a number of different reasons to pursue collaborative projects (Exhibit 3.15). On an economic basis, the benefit from shared development expense is quantifiable. Unfortunately, the harmonisation of requirements adds cost which can offset these savings. A look at the Combined Operational Effectiveness and Investment Appraisals (COEIA) for three collaborative projects shows that for all but the largest projects such as the Eurofighter, collaborative projects are not significantly cheaper at face value (Exhibit 3.16). Given the higher likelihood of delay, collaborative programmes do not represent best value for money in many instances. Furthermore, our own detailed analysis shows that when the additional hidden costs of collaboration are accounted for, collaborative programmes are more expensive than anticipated and can be more expensive than the national alternative (Exhibit 3.17). As performance on national programmes improves through the implementation of the recommendations presented in this report, collaborative programmes will be at an increasing disadvantage unless improvements are pursued in this area as well.

⁹ National Audit Office, *Major Projects Report 1995*.

Exhibit 3.18

GOVERNMENT MODELS FOR COLLABORATION

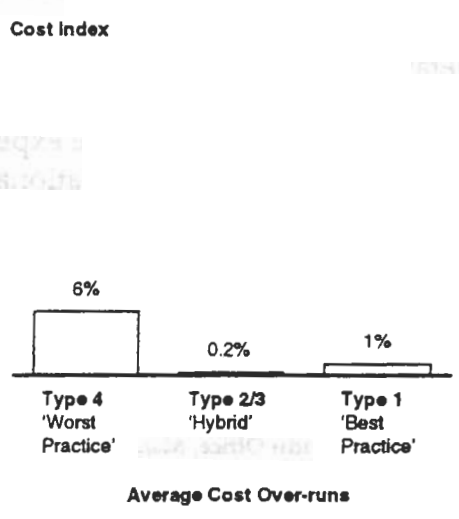
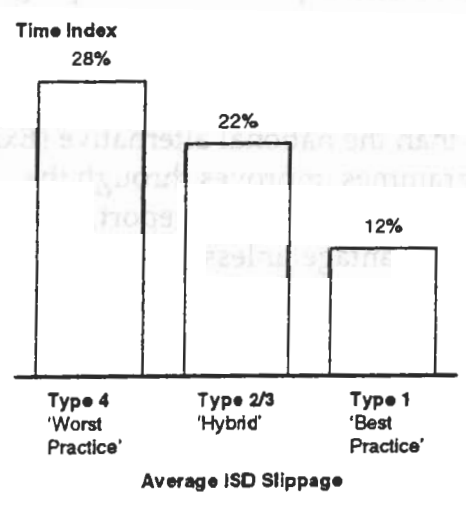
CONCEPTUAL



Source: Team analysis

Exhibit 3.19

AVERAGE COST AND TIME OVERRUNS FOR MOD COLLABORATIVE PROJECTS



Source: CISMIS; team analysis

3.13 The 'collaborative programme' label is actually used to describe a number of different working models, of which we have identified four (Exhibit 3.18):

- **Type 1:** A small project office confirms that requirements are sufficiently similar to those of potential partners for an available prime contractor to carry out the integration and optimisation of requirements.
- **Type 2:** A strong joint Government project office takes different national requirements and harmonises a core requirement which is sufficiently aligned for an available prime contractor to carry out integration and optimisation for national variants during production. National governments contract separately with the prime contractor for variants.
- **Type 3:** A strong joint government project office takes different national requirements and harmonises a core requirement which is not sufficiently aligned to allow a prime contractor to carry out final integration. The project office works closely with the prime contractor to develop specifications for national variants.
- **Type 4:** A weak joint Government office drives harmonisation of different national requirements to develop a tightly defined specification but with little authority and control.

Our analysis of recent collaborative programmes indicates that the most prevalent model, Type 4, suffers from worst cost and time overruns (Exhibits 3.19 and 3.20).

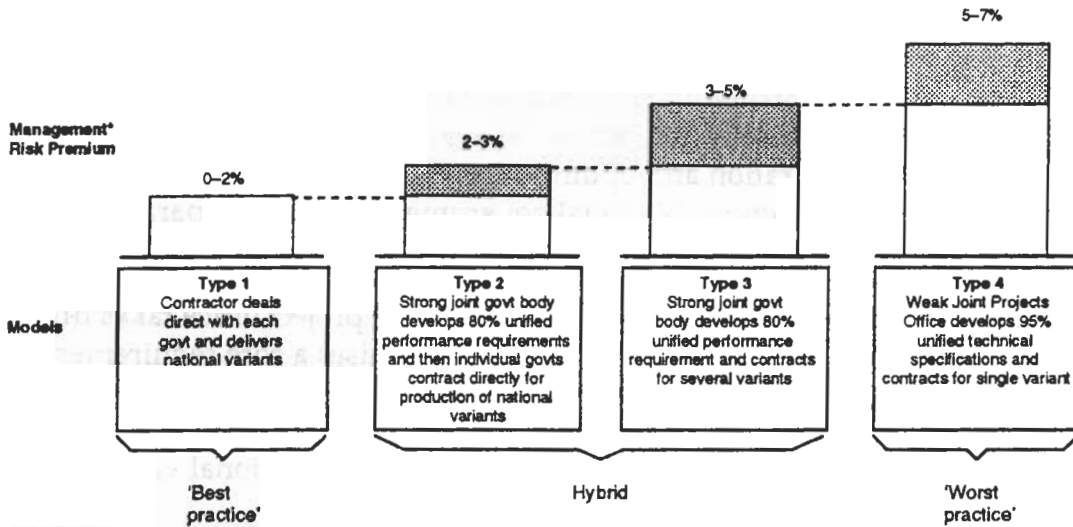
3.14 Recommendations. Each of the recommendations already made for major projects, can, and should, apply to collaborative programmes as well. IPTs, strengthened contractor incentives, segmentation in budgeting, a full-life cost approach and increased emphasis on the front end of the process are all relevant in collaborative programmes. In addition, we recommend that the MoD pursue a number of specific changes:

- **Deciding to collaborate**
 - *Make more accurate assessments of the economics of collaboration, capturing both the benefits and the hidden costs.*
 - *Identify collaborative options early, commit to them later.*
Opportunities to collaborate should be identified as early as possible to ensure harmonisation among potential partners of performance requirements, not specifications. Commitment to collaborate should be withheld until the end of assessment phase, as for all major projects. At this point, the collaborative programme should be compared with national options, with full

Exhibit 3.20

MODELS OF GOVERNMENT COLLABORATION
% additional programme cost

ILLUSTRATIVE



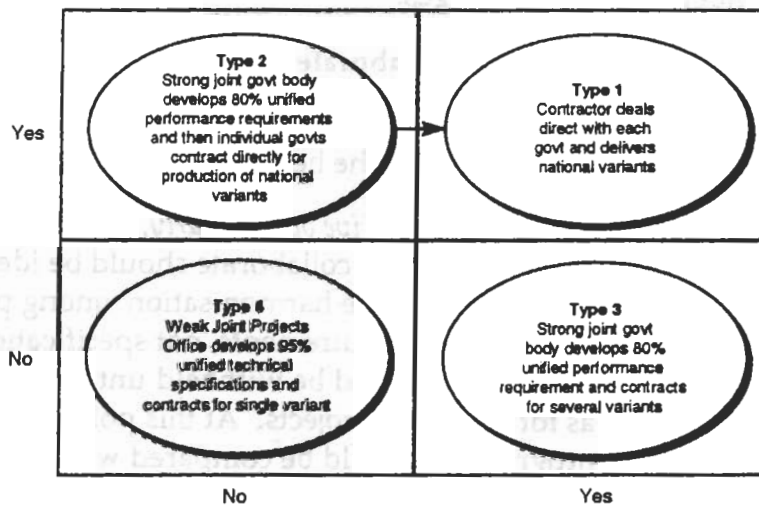
* Management Risk Premium to be modelled from past experience
Source: Team analysis

Exhibit 3.21

DECISION TO SELECT MODEL OF GOVERNMENT COLLABORATION

CONCEPTUAL

Contractor available with capability to integrate requirements



Significant overlap of requirements

Source: Team analysis

consideration of both economic and non-economic factors and a realistic assessment of the management risks involved. It is essential that the MoD retain the ability to cancel collaborative options at this stage.

- *Resource early discussions appropriately*, managing the relative balance of effort between the national and international team, and how that changes over time.
- **Choosing the right collaborative model**
 - The choice of appropriate model depends on how much overlap there is of requirements between different nations and the availability of a contractor with the skills to integrate requirements (Exhibit 3.21). As the model selected moves further away from best practice, an increased risk premium should be added to the cost of the project, based on an historic assessment of the performance of that model, as recommended also by a 1990 NAO report¹⁰.
 - Wherever possible, appoint a strong prime contractor, with increased responsibility for product specification and subcontractor selection
- **Work with international partners to improve performance of collaborative programmes**
 - Improvements in the performance of collaborative programmes can not be made in isolation. Several current international partners have expressed a willingness to explore opportunities to improve the performance of collaborative programmes. The MoD should pursue improvements in this area.
 - International bodies such as OCCAR represent an opportunity to shift the collaborative procurement model toward the more efficient approaches outlined above, and should be encouraged towards that aim.

Minor Projects

3.15 The MoD does not differentiate sufficiently in its treatment of minor projects. Currently, MoD categorises projects based on both development and production spend. However, the process differences which are driven by this categorisation are relatively minor. For example, a category B project (that is with development spend between £50 and £75 million, production spend

¹⁰ National Audit Office, *Collaborative Projects*, 1990

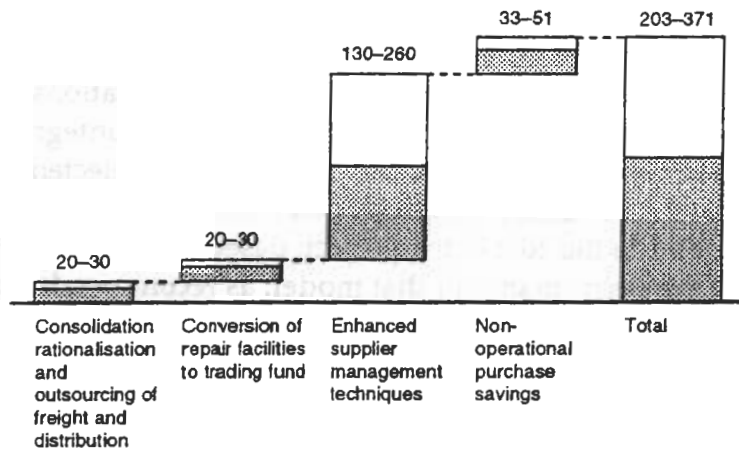
Exhibit 3.22

POTENTIAL SAVINGS IN NON-PROJECT BASED PROCUREMENT*

£m, based on 1998/99 projected spend

ESTIMATE

□ Possible additional savings
▨ Indicative minimum savings



* Savings need to be reviewed to eliminate double counting with existing savings

between £100 and £150 million, or combined spend between £150 and £225 million) has to go through precisely the same number of formal review points, and follow the same review process at each of these points, as a category A project (that is, a project with development, production or combined spend above these thresholds). The only differentiation for projects below category B is the level at which approvals must be sought. This results in an unnecessarily cumbersome and rigid process for smaller projects.

3.16 A simplified procurement model should therefore be introduced for minor projects. For these projects, there should be no requirement to refer the dossier to the EAC for endorsement except in exceptional cases (for example, when significant political considerations arise). Instead, for projects with total development and production spend greater than £100 million, the customer at 2 star level and a financial scrutineer, with input from PE, should jointly take full responsibility for the key decisions at the post-Assessment stage gate. For projects below this threshold, responsibility should lie solely with the customer.¹¹

NON-PROJECT-BASED PROCUREMENT

3.17 The PAOs have four main responsibilities: purchasing, distribution and storage of operational and non-operational items; equipment support and maintenance; legislative compliance such as air-worthiness; operational logistics. Recommendations under this heading deal with the first two areas. The PAOs have made significant improvements over the past few years in equipment support and maintenance and in the procurement of common user items. However, these improvements are inconsistently applied because there has not been sufficient sharing of best practice and skill development.

- The PAOs transfer insufficient risk to the private sector and hold excessive stock. In addition, storage and distribution is fragmented.
- The purchase of common user items suffers from a lack of a consolidated supply base and excessive reliance on the public sector or in-house activities.
- The purchasing and equipment support organisation suffers from an inadequate skill set, poor management information and a lack of best-practice co-ordination and delivery.

3.18 The PAOs need to implement best practice equipment support and maintenance techniques, improve procurement processes for common user items and significantly develop organisational capability. Implementation of the

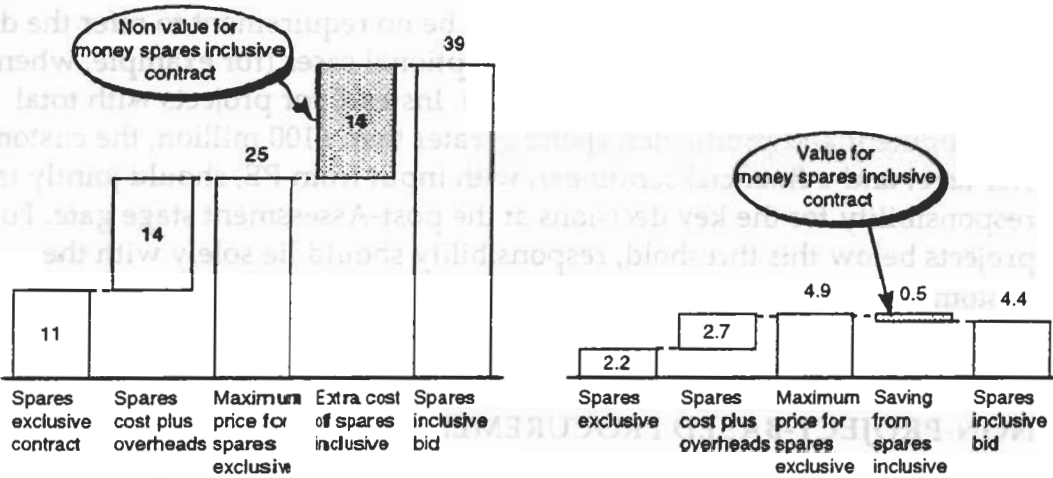
¹¹ For projects where the level of technical risk is low there should be flexibility on a case by case basis to eliminate one or more risk reduction steps (i.e. Concept, Assessment, Demonstration) if appropriate

Exhibit 3.23

SPARES INCLUSIVE AND EXCLUSIVE CONTRACTS
£m

EXAMPLES

Extra cost/saving



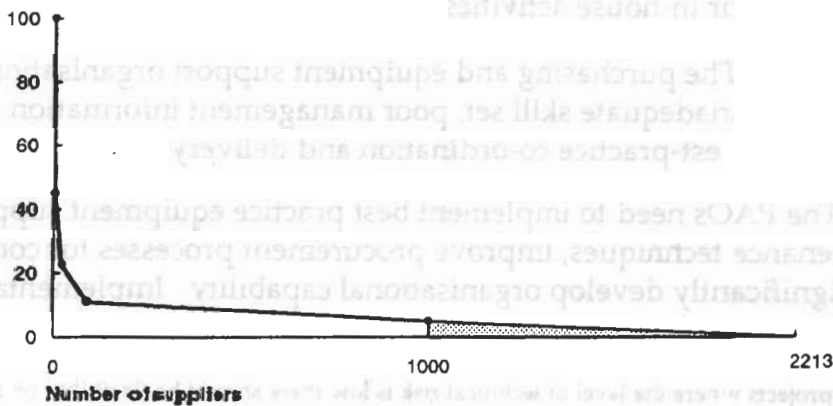
Source: MoD analysis

Exhibit 3.24

PERCENTAGE OF SPEND VS. NUMBER OF SUPPLIERS - RAF
%

EXAMPLE

Potential suppliers for rationalisation



changes detailed below could deliver savings of about £200 to £370 million a year (Exhibit 3.22) This equates to savings of 10 per cent to 20 per cent in the area of purchasing, equipment support and maintenance; and 5 per cent to 10 per cent in the common user items reviewed. It is unclear how much of these savings have already been assumed and this will require detailed analysis early in the implementation phase.

Equipment Support, Maintenance and Storage and Distribution

3.19 A higher level of equipment repair and maintenance should be carried out in the private sector. In parallel best practice supply chain techniques such as graduated readiness and Reliability Centred Maintenance (RCM) reviews should be implemented. These recommendations will require changes within the PAOs, such as the conversion of repair agencies to trading fund status.

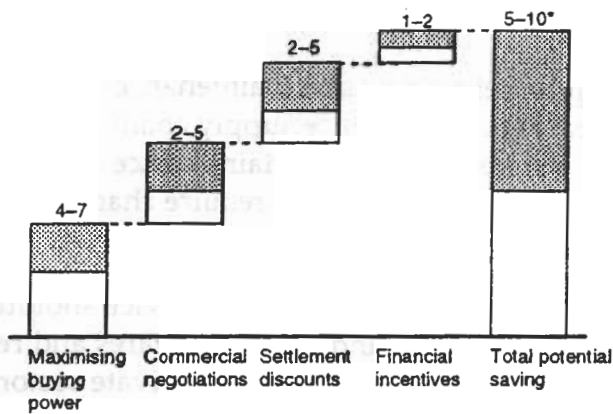
- *Equipment repair and maintenance.* Each service should further develop IPTs to provision and purchase spares and repairs. Third and fourth line repair carried out in the private sector should be increased from the current average of 83 per cent by value, using spares inclusive contracts where risk can best be managed by industry. The MoD should compare the full cost of spares exclusive contracts with the full costs of spares inclusive contracts, to ascertain the best option, as inclusive contracts are not always the cheapest (Exhibit 3.23). 'Core' first and second line repair should continue to be carried out by the MoD, but should use best practice supply chain techniques.
- *Storage and Distribution.* As detailed in SDR 2G1, non 'core' Storage and Distribution should be centralised, rationalised and outsourced, yielding savings of £20–30 million per year.
- *Supply chain techniques.* To deliver further savings the IPTs should focus on developing enhanced supplier management techniques, as well as exploring the opportunities for short-term wins. Specifically:
 - Graduated readiness, Reliability Centred Maintenance (RCM) reviews and a focus on requirements rather than stock, especially for high cost items (enabling industry to hold part-finished items) should be explored as potential large wins.
 - A corporate database should be rolled out to maximise buying power. This database should allow grouping of products by type such that a significant rationalisation of the supplier base can be made (e.g. 50 per cent of RAF suppliers account for just 11 per cent of their spend – Exhibit 3.24). Significantly more emphasis should be placed on supplier development. This will require

Exhibit 3.25

190298LVUKG002KMH0046

COMMERCIAL SUPPLIER MANAGEMENT SURVEY
 % savings as proportion of total PAO expenditure with industry on spares and repair

 Likely saving



Potential saving
 = £130-260m per year

- Assumes 5-10% saving on spares and outsourced repairs expenditure

* Assumes 50% of savings can be realised

Exhibit 3.26

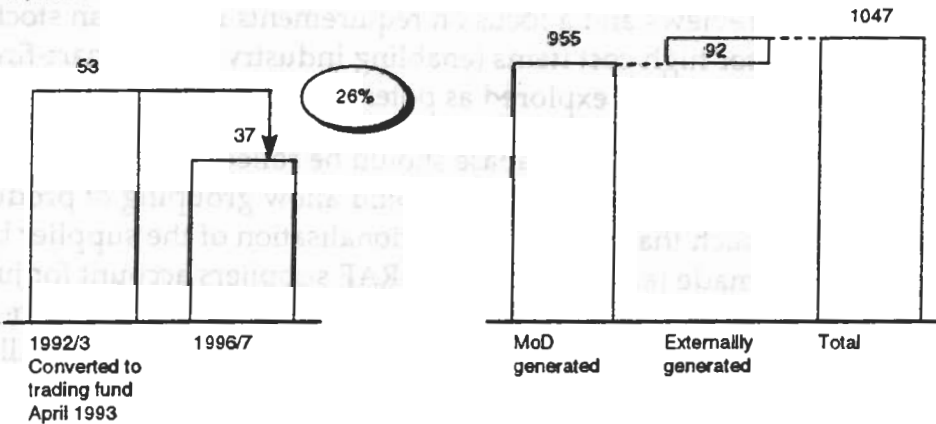
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EXAMPLE

FINANCIAL BENEFITS OF COMMERCIAL PRACTICES FROM TRADING FUND STATUS - DERA EXAMPLE

Average cost of output
 £ per scientific hour

Turnover
 £m (1996/97)



Source: NAO report 1996/97

more open data sharing, joint problem solving and the use of financial incentives and benefits sharing with suppliers. The objective would be to bring about continuous improvement leading to significant cost reductions. Early estimates indicate savings of £130 to 260 million per year (Exhibit 3.25).

- *Impact on the Services.* To achieve this, third line repair agencies should be converted to trading funds. Conversion to trading funds, with the associated injection of commercial practices, should allow these organisations to continue to deliver cost savings (Exhibit 3.26). Preliminary estimates indicate savings of £20–30 million.

Specifically:

- The Army, as they have proposed, should convert their repair organisation (ABRO) to a trading fund, reviewing the potential for privatisation at a later stage. The spares purchase function (ESPPA) should be embedded within the IPTs (as an expert buyer), and ABRO repair should continue to move to spares inclusive contracts.
- The RAF should convert its repair organisation (MGDA) to a trading fund, reviewing the potential for privatisation at a later stage. This new trading fund should, as currently proposed, include the tri-service helicopter repair agency (NARO). The trading fund should be encouraged to take on greater responsibility for inventory management through spares inclusive contracts and other measures where they are best able to manage risk and can offer cost effective alternatives.

Common User Items

3.20 Expert buyers are in place for most non-operational purchases already, however, each IPT can make significant improvements to their business processes, totalling about £33–£51 million (Exhibit 3.27). Annex A details the recommended changes in this area.

PAO organisation

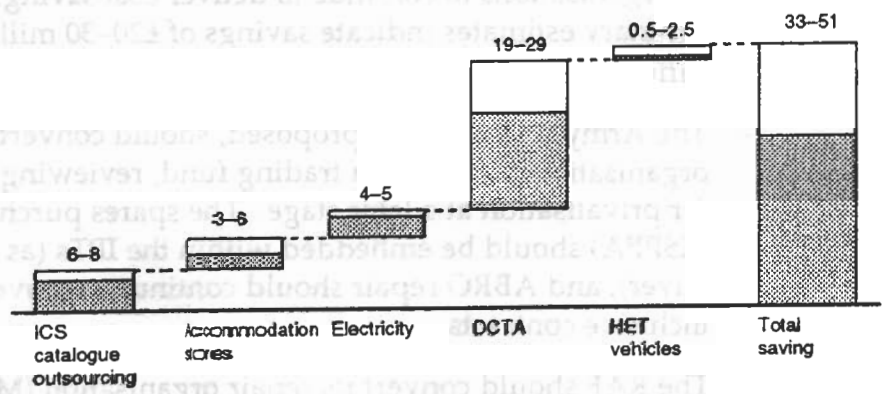
3.21 The purchase of common user items should be consolidated into a single agency. The existing operational IPTs should be strengthened through the creation of a central purchasing capability to co-ordinate best practice and skills development; the delegation of greater authority to the IPTs to spend their customer's money; the provision of vastly improved management information systems to enable the IPTs to make the best value for money trade-offs.

Exhibit 3.27

POSSIBLE SAVINGS IN CONSUMABLES* AREA
£m

ESTIMATE

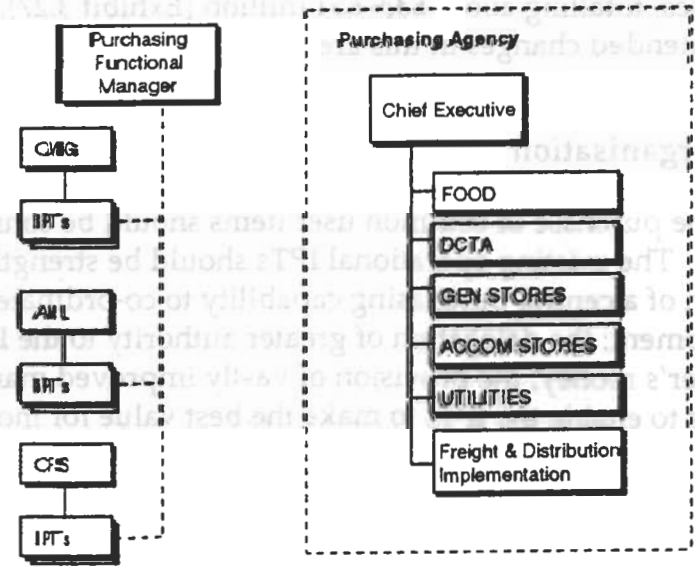
□ Possible additional saving
▨ Indicative minimum saving



* excluding spares
Source: Team analysis

Exhibit 3.28

JOINT PURCHASING ORGANISATION



- *Common user purchases.* All non-operational IPTs (such as accommodation stores) should be consolidated into a single organisation reporting to a Chief Executive, possibly recruited from industry (Exhibit 3.28). This buying group should then be made into an agency to accelerate the rate of improvement.
- *Purchasing capability.* Purchasing capability is still below the professional standard aspired to by the MoD – with some services achieving only 5 per cent professional qualifications in purchasing compared with Civil Service targets of 75 per cent, although many have attended internal courses. Therefore, we recommend that specialist purchasing managers should be developed to work alongside the contracts staff within the IPTs. This group should have a functional reporting line to a purchasing functional manager seconded from industry. The role of the purchasing functional manager should be to drive a professional development programme and spread best practice.
- *Budgets.* Customers and suppliers should agree outputs for the next year as part of the CAPITAL process. The budget should be allocated to the supplier, who then uses it to acquire spares and logistics support through the IPTs to meet agreed outputs. There should be sufficient flexibility to allow outputs and budgets to be flexed if customer requirements change. IPTs should have line responsibility over members of their group, such as contracts and finance, and have greater delegated authority.
- *MoD-wide IT procurement strategy* should be fundamentally reviewed to eliminate nugatory effort and provide IPTs with the management and costing information needed to improve decision making. This should follow the definition of output requirements redesign of procurements processes and organisation.

CLARIFIED ACCOUNTABILITY

3.22 Lack of clear accountability currently prevents effective performance management throughout the life of a project. In particular, the lack of a customer at the front-end with both equipment programming and budgeting responsibilities to make effective trade-offs across equipment and capabilities results in poor balance of investment decisions. The lack of accountability to a single end customer at each phase of the project life-cycle also limits the effectiveness of performance management.

3.23 To address these issues, the top level organisation of the procurement system needs to be reconfigured to clarify accountabilities throughout the project

life-cycle, based around the IPT as the basic organisational building block. Two major changes are required. First, a clear customer should be created for the IPT at each phase of the project life-cycle. This requires the creation of a single capability based customer at the centre, drawing together requirements and funding. Secondly, the role of PE should be redefined as the supplier of a project management resource to the customer at the centre on the basis of a clearly defined customer-supplier relationship (best carried out as a trading fund). Similarly, the IPTs within the PAOs provide logistics expertise to their customer, the Single Services.

3.24 Basic principles. The creation of a clear customer for the IPT should be based on a number of basic principles:

- The centre must be accountable for defining equipment requirements to meet a given capability in order to make the essential trade-offs both across and within equipment programmes. The centre is therefore a customer for the future equipment programme.
- In order to drive performance, provide effective oversight and make informed decisions, the central customer must hold the funding for the duration of the project and transfer it **directly** to the operating and programme budgets of the IPT.
- The management of the future equipment programme and the maintenance of current equipment in support of the delivery of military capability are fundamentally different activities. Therefore the Single Services should become the customer for the equipment and at a certain point the project must transfer, with the single team intact, from the centre to the Single Service.

3.25 Creating a clear customer at the centre for the IPT. It is critical to the delivery of process improvement benefits that there is a clear customer at the centre for the IPT who holds the money and makes balance-of-investment decisions both across capabilities and across equipment within a given capability. Without a clear customer in place managing capability and fully meeting the criteria detailed below, the procurement system as a whole will remain fundamentally flawed and will fail to deliver the savings identified in Chapter 4. A swift decision on the identity of the customer at the centre is therefore essential:

- The customer should be responsible for delivering and managing the capability required to fulfil the military tasks specified. To discharge this role effectively, and to be able to make the balance of investment decisions required, the customer must be fully responsible for the development and delivery of the equipment

programme, and must also hold (and be responsible for allocating) the equipment budget.

- The customer should have significant delegated authority for approving projects at all stages of the procurement cycle and should initiate a project, endorse the selection of the project management resource and authorise a budget for the project during the Assessment Phase. At the end of the Assessment Phase the customer should decide whether the project should proceed to Demonstration, and if so seek approval from the EAC (for major projects). Assuming the Demonstration phase runs within the parameters agreed with the EAC, the customer should be able to approve the start of Manufacture.
- The customer should be organised around capability groups and capability managers to facilitate effective trade-offs between equipments. These should be organised on a cross functional basis to provide close involvement with key stakeholders to ensure rapid and informed decision making.
- The customer should also be responsible for management of the applied research program and monitoring the developing capabilities of industry to ensure that the research programme is linked clearly to both industry and the equipment programme, as recommended by 'Strength through Partnerships' and 'Smart Procurement'.
- The customer should not be a committee or collection of individuals as this can not be an effective solution.
- Despite work to define the customer for the future equipment programme, an acceptable solution **has not yet been proposed**. Annex B proposes an organisational solution that meets these criteria, recommending an explicit Capability Management role to act as the customer for the IPT.

3.26 Customer budgetary responsibility. We would expect the responsibility for financial allocation and budgeting to cascade as follows:

- The customer should manage the aggregated LTC for the forward equipment programme covering all phases from Concept to Disposal (including in-service support). The aggregated LTC should consist of three parts: operating costs (including in-service and all central staffs overhead), through-life programme costs and the applied research programme. The customer should be responsible for allocating the portion of in-year budgets to the Single Services for in-service support of equipment, and should transfer funding for the

programme and operating budgets for specific projects directly to IPT Project Managers.

- The customer should be able to contract with other organisations to provide professional services such as DERA and have the option to acquire these services commercially where they can be provided in a more cost effective manner.

3.27 Managing the transition between customers

- As described in the previous section on IPTs, the leadership of the IPT should transfer after acceptance. At this point, the Single Services become the customer for the IPT now led by a PAO manager (similar to the way Multi Disciplinary Groups currently operate).
- The Single Service should be the customer for incremental technology acquisition, minor upgrades, and refits according to the project plan, and as described earlier, the IPT should contract for additional project management resource with the PE, or elsewhere, as required. For significant enhancements of capability (e.g., a major mid-life upgrade) the centre should be the customer until the project enters to Demonstration phase.

Role and ownership of the PE

3.28 The organisational recommendations outlined above have significant implications for the role of the PE, and provide a number of options in terms of change of ownership.

3.29 Role of the PE. PE should be responsible for:

- Providing a professional project management service within the framework of a clearly defined customer-supplier relationship that delivers equipment to meet the time, cost and performance requirements established by their customer.
- Ensuring the efficient allocation of internal resources to meet overall project demand and to keep within cash limits. It should also inform the customer of opportunities to reduce in-year cash spend by reallocating those resources more efficiently across projects.
- Providing advice on matters of procurement policy, including Industrial Policy, Collaboration, Intellectual Property Rights, Safety, Quality, and Supplier selection. The Head of PE should be the Accounting Officer for that organisation.
- This has significant implications:

- Senior management in the PE should have responsibility for maintaining and developing a skill pool, but should have no role in specific project decisions, such as changing the scope of a project or rebalancing programme funds across projects.
- The current PE senior staff supporting equipment programmes at the DG and Director level should be reallocated into customer capability groups or remain within the PE as Project Managers. A number of functional leaders will be required to manage across Projects, with more significant spans of control. Span breakers responsible for line management are likely to have much fewer responsibilities than in the current organisation, as many of these will have passed to the customer. Some resources at this level could therefore logically be reallocated to the customer, given that the larger spans of control implied mean that fewer will be needed within PE.

3.30 Ownership of the Procurement Executive. In our view, having considered ownership models ranging from the status quo to privatisation, a trading fund is the most attractive option, whereby PE should be funded by charging its fully-costed services to projects, in line with the project operating cost budget provided by the customer. As previously discussed, the identification of a clear central customer is critical for the delivery of benefits, and the rigour introduced by framework documentation associated with trading fund status should ensure a clear customer-provider relationship. Clearly, several issues will need to be explicitly addressed. The customer-supplier relationship will need to be clarified, and Ministerial input to the procurement process documented. Assuming that these issues are adequately addressed, we believe that a shift to trading fund status would be a powerful reinforcement to the changes recommended in the AOR. A more detailed paper addressing the options for the ownership of the PE is attached at Annex C.

4. Expected Benefits

4.1 The need for improved cost and time performance has driven the fundamental review of the U.K. Defence Procurement system. We have found strong evidence that the model we propose will result in substantially faster development and lower cost – with better performance in fielded military equipment. In addition to significant reductions in the time required to deliver initial operational capability, significant savings in the equipment programme, operating expenses and in service costs are achievable. Overall, we believe 4.4–8.2 per cent of the 10 year total is achievable, with ongoing annual savings of £0.7-1.1 billion from year 11.

CYCLE TIME REDUCTION

4.2 The model we have proposed will reduce the average time for bringing affordable, reliable defence systems into service to from the current figure of over 20 years to 11–14 years. This figure represents a 30 to 45 per cent reduction in cycle time versus the current, which is consistent with our experience in a number of industrial settings. Further support comes from U.S. Department of Defense experience. After the implementation of its acquisition reform initiatives, the DoD has shown a 25 per cent reduction in cycle time for major new systems¹².

4.3 Cycle time reductions will be achieved through early resolution of technical difficulties (which currently account for around 6 years of unplanned delay) through improved risk management, the reduction of imposed delays due to **LTC re-balancing caused by overruns** on other programmes (which currently account for around 1.5 years of unplanned delay) and the streamlining of project oversight (which currently consume around 2 years).

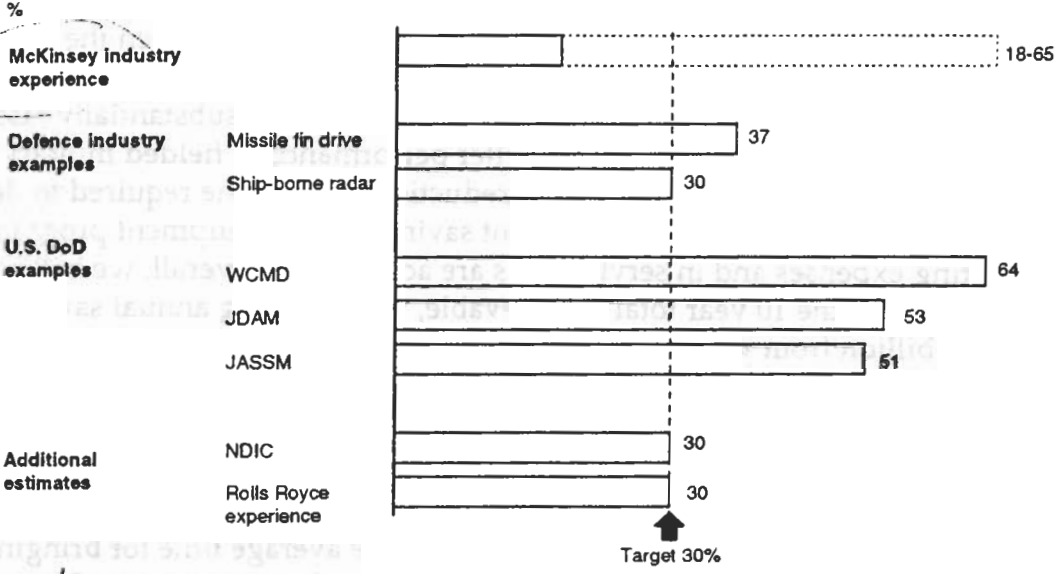
As a result, fielded equipment will be more up to date on entry into service.

¹² Acquisition Reform Benchmarking Group 1997 Final Report.

Exhibit 4.1

EQUIPMENT COST SAVINGS BENCHMARKS

EXAMPLE



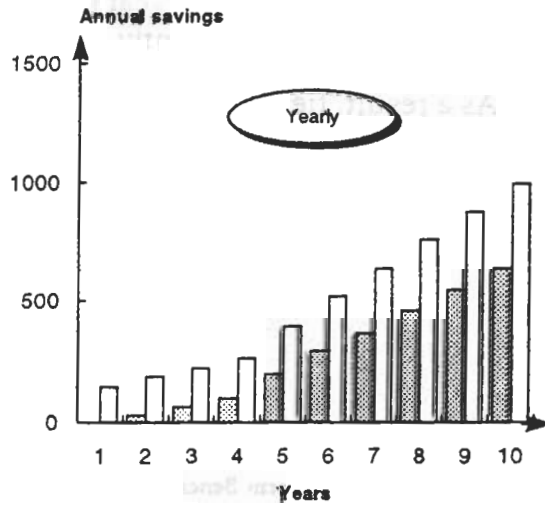
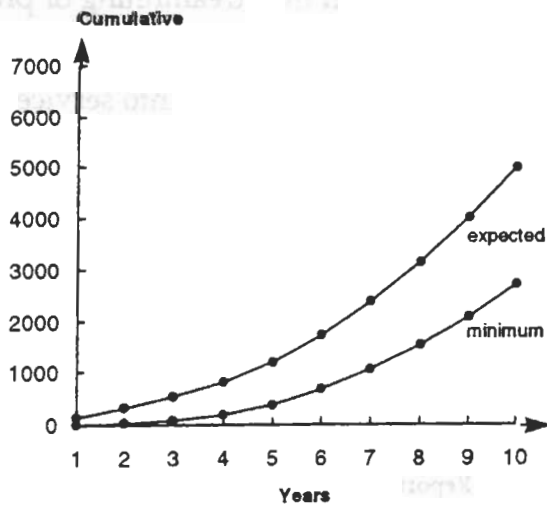
Source: McKinsey product development practice

Exhibit 4.2

PREDICTED LTC SAVINGS

£m

expected
minimum



IMPROVED COST PERFORMANCE

Estimated Equipment Savings

4.4 In its submission as part of the Strategic Defence Review, the National Defence Industries Council (NDIC) estimated that improvements in the procurement process could ultimately reduce equipment costs by 30 per cent¹³. Our own experience suggests that savings of 18–65 per cent are achievable on individual programmes (Exhibit 4.1). Our client work with defence manufacturers and reductions on individual U.S. programmes lends credence to the target set by the NDIC and others. We therefore feel that the 30 per cent figure is a useful target for the purposes of this exercise though we have also modelled savings based on 20 per cent as a lower limit.

4.5 Given the long lead times involved, and the need to share 40 per cent of the benefits with industry as an incentive to act in many settings, we have developed a detailed savings model to estimate indicative savings over the next ten years (see Annex D for details). Overall, we believe that savings of 4.4–8.2 per cent of the ten year total equipment spend (and £0.7–1.1 billion a year after that), are possible: this is based on detailed estimates by contract type and phase of development (Exhibit 4.2).

4.6 To achieve the desired saving, it is necessary for the MoD to spend more up-front on projects. This will not affect the savings profile as the project can be slipped in view of the compressed timescales of the overall project. In addition, the MoD will need to rebalance all project spend to match the new compressed procurement timescale, which will inevitably identify further opportunities for delaying spend.

4.7 Realising full value will also require tackling major existing contracts, including several that have been signed recently, such as the Eurofighter production contract. It is recognised that achieving these savings requires a similar degree of improvement in collaborative projects. Although these projects offer a higher degree of potential savings, they also represent a much more difficult task.

Operating Cost Savings

4.8 Although the system we have designed is primarily intended to deliver savings against the equipment budget, we believe that this model will deliver significant operating cost savings as well. Based on our experience in similar settings, we estimate that operating costs for the procurement function *can be reduced by 20 per cent over 18 months*, which represents £35–50 million in

¹³ *Strength Through Partnerships*, page 27, UK Industrial Input to the Strategic Defence Review, October 1997.

Exhibit 4.3

OPERATING COST SAVINGS BENCHMARKS

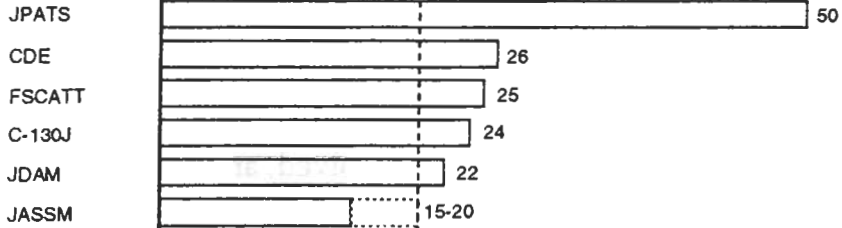
EXAMPLE

%

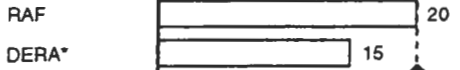
Industry examples



U.S. DoD examples



MoD examples



Target 20%

* Portion of DERA savings attributable to structural changes

Source: Acquisition reform benchmarking group, McGinsey product development practice, interviews

annual operating cost savings (not including likely restructuring costs of approximately 150 per cent of year one savings). These savings are generated by a rigorous bottom-up review of activities, eliminating work before reducing headcount. Specific evidence from a number of analogous situations indicates that a shift to the organisational model we are advocating can deliver operating cost savings ranging from 15 to 50 per cent, which further supports the 20 per cent figure (Exhibit 4.3).

4.9 It is important to note that some project teams, particularly those early in the development cycle, will need additional resources, which is consistent with the increasing emphasis we are placing on the front-end of the procurement system. Savings are likely to come from three main sources:

- Significant reductions in the number of personnel dedicated to late-cycle projects where the ability to influence the outcome is low.
- Re-sizing of functional units to reflect their new role.
- Streamlined oversight.

4.10 To capture these savings, we recommend a zero-based approach to reconstructing the procurement organisation. In its simplest form, this exercise would proceed as follows:

- Identify major projects and appropriate groupings of minor projects.
- Develop a plan to accelerate transition of late-cycle projects to the services.
- Determine the level of resources required for the remaining IPTs, using best practice comparisons and benchmarks to ensure that teams are staffed at appropriate levels.
- Re-size functional units to reflect their new role.

4.11 We believe that comparable operating cost savings could be identified in procurement areas in PAO and the Centre as well, although we have not studied the issue in detail. Clearly, a separate exercise would be required to identify and capture savings in these areas.

In-Service Spend Savings

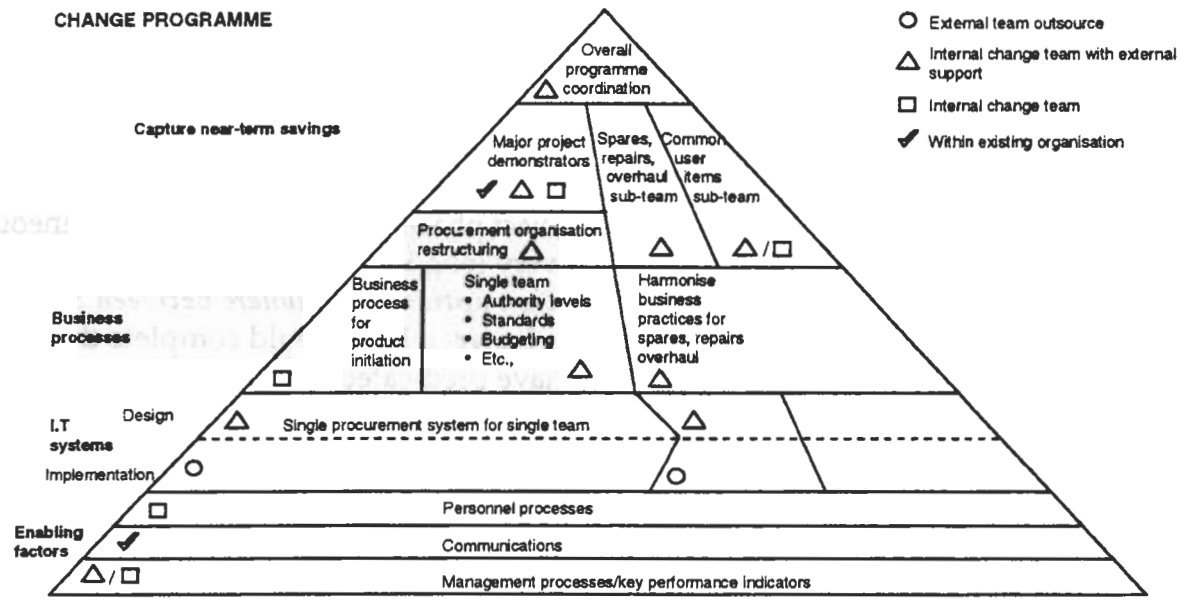
4.12 £150–290 million in annual savings can be achieved through improved purchasing of parts and services used for maintenance, repair and overhaul spares and the use of third party providers to conduct third and fourth line repair.

4.13 Specific improvements in the purchase of non-operational common user items should deliver £33–51 million in annual savings, representing a reduction of 5–11 per cent of those items examined.

The Pace of Change

4.14 Several options exist regarding the pace with which the changes outlined in this report are pursued. In increasing order of aggressiveness, they include a adoption of the new process for selected new projects (a pilot based approach); adoption of the new process for all new projects on initiation; a cut over to the new process on transition from one project phase to another; or a simultaneous change across all projects. Due to the very long life cycles involved, *we recommend an aggressive implementation option, somewhere between the phased cut over and the simultaneous change*, which would complete the initial restructuring in 12 to 18 months, and have predicated our savings figures on that assumption.

CHANGE PROGRAMME



- External team outsource
- △ Internal change team with external support
- Internal change team
- ✓ Within existing organisation

5. Implementation Planning – Making it Happen

5.1 Implementing the changes recommended in this report will represent a significant multi-year challenge that will involve not only codifying and establishing new organisational structures and processes, but changing behaviours, working practices and values at an institutional and individual level. This section addresses how implementation should be managed, the major tasks and the key success factors.

MANAGING IMPLEMENTATION

5.2 A small, full time implementation team should be established (6–8 people), led by a high calibre individual of 3 star rank, and comprising representatives from PE, the PAOs and Central Staffs, plus a communications specialist. The team should also include a senior representative from industry. Their role should be to develop, co-ordinate and drive the implementation plan.

5.3 Sub-teams should be formed around the specific implementation tasks, with external support as required.

5.4 A review of existing initiatives which may overlap with AOR should be conducted to ensure that their relationship to the overall implementation plan is recognised and understood. If necessary these other initiatives should be stopped to ensure an organisational focus around a single plan.

5.5 Stretching targets will need to be established, incorporated in budgets and management plans, and cascaded through the organisation, in order both to drive and also to track the implementation plan.

KEY IMPLEMENTATION TASKS

5.6 The implementation plan to be developed by the implementation team should include the following elements or work streams (Exhibit 5.1).

- **Procurement process design and development;** detailed design and documentation of the major projects process.

- **Reopening of existing contracts to achieve early savings;** pilot of breakthrough teams against major current projects with the objective of making substantial reductions in overall programme costs. This will need to involve benefit sharing with industry.
- **Management processes and organisation;** realignment of budgets and accountabilities, construction of job descriptions for key roles and the development of review processes and key performance indicators across the procurement system.
- **IT infrastructure;** development of the systems architecture that will support the new procurement and purchasing processes. We believe that this project can be financed by refocusing or stopping existing IT projects.
- **Capability development and training;** development of specific packages of training to support pivotal job holders in the new organisation, particularly project managers.
- **Communications planning;** development of an internal and external communications strategy and delivery capability to support the change effort across the MoD.
- **Operating cost reduction exercise;** piloting and subsequent roll out of a structured, high involvement project aimed at driving out low value activities across the procurement system.

KEY SUCCESS FACTORS

5.7 Top management commitment and leadership. The fundamental reason that the majority of change programmes fail is that they either never achieve, or lose, the visible commitment and focus of top management. If this project is not very high on the list of top management priorities, then it is unlikely that it will succeed in delivering the forecast benefits.

5.8 Identifying and influencing pivotal job holders. Persuading people of the need for change and providing them with personal incentives to do so, financial or otherwise, will be fundamental to the success of the change effort. There are a number of positions within the new procurement system, at different levels, whose staff are critical to the successful delivery of the implementation plan. These include both military and civilian staff (particularly Capability Managers and Project Managers), as well as industry. Without their support the overall programme could be derailed and they need to be identified and plans developed to win and maintain their commitment. Typical actions might include individual meetings with Ministers, tailored communications and briefings, peer group progress reviews, and targeted incentives.

5.9 Building and maintaining momentum. The design of the implementation plan will be critical to the success of the overall project, particularly with regard to the sequencing of sub-projects. It will be important to identify and achieve early successes to build confidence and commitment whilst at the same time establishing the process and output performance measures that will demonstrate how effectively the new system is operating.

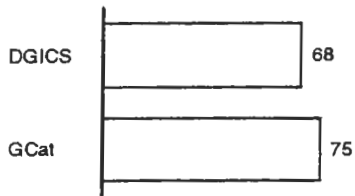
ANNEXES

- A. Common User Items
- B. Capability Management Organisation
- C. Ownership Options
- D. Equipment Programme Savings Estimate

Exhibit A1

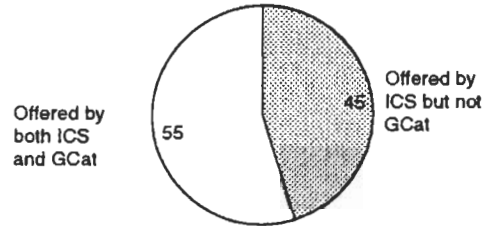
COMPARISON BETWEEN ICS AND GCAT

Price comparison for common items*
£m



GCat 10% more expensive

Items and services offered
100% = Items used MoD-wide

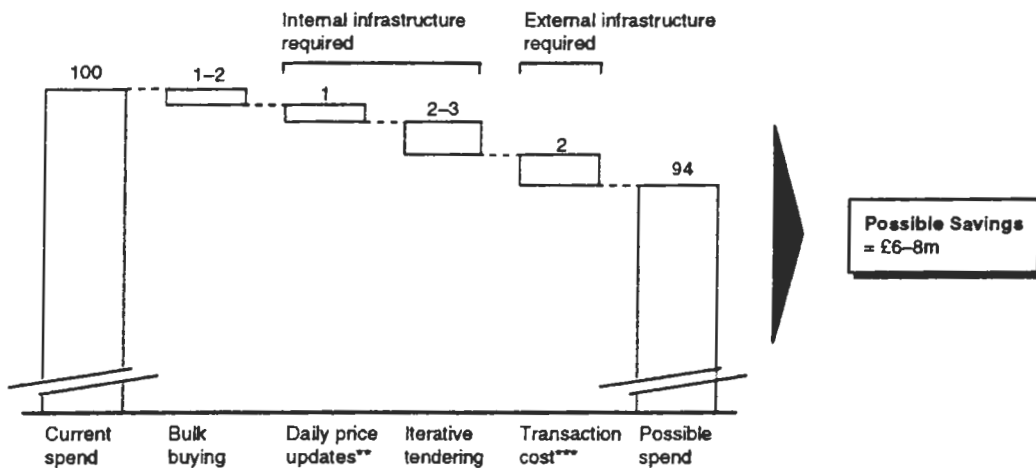


* February 1998 price comparison; total volume based on 1997 orders
Source: ICS catalogue manager; team analysis

Exhibit A2

ESTIMATES

ICS CATALOGUE: POSSIBLE SAVINGS OVER 1 YEAR BY OUTSOURCING AND ENHANCING INFRASTRUCTURE
%: 100% = £99.2m*



* Includes operating cost
** Benefit of capturing rapidly falling market prices
*** Benefit of enhanced electronic purchase/use of payment card
Source: Team analysis

A. COMMON USER ITEMS

Support Computer Hardware

A.1 *Support computer hardware, software and services* are purchased predominantly through the ICS catalogue (managed by an IPT under DGICS). Opening up the use of the catalogue to a wider customer base offers the benefit of bulk buying. One possibility is to transfer the catalogue function to the government-wide catalogue GCat. Although this would save £1 million operating cost, programme costs would increase by about 10 per cent and the variety of items offered would reduce by about 55 per cent (Exhibit A1). Instead, the current programme costs could be reduced by outsourcing procurement to another large-scale buyer, by partnership or by the sale of the catalogue. Savings totalling £6–8 million are achievable by exploiting these options together with improving internal and external infrastructure, specifically the adoption of electronic trading (Exhibit A2).

Accommodation Stores

A.2 *Purchase of accommodation stores* is predominantly through the government-wide Buying Agency. Whilst the MoD has no *direct* control over the activities of the Buying Agency it has been recognised that the Buying Agency does not always offer best value for money¹⁴. If the MoD leverages its position as one of the main Buying Agency customers to insist on best practice contract negotiation (as opposed to 3 or 5 year fixed price contracts currently in place) savings of £3–6 million should be possible. If this cannot be achieved alternative suppliers should be cultivated.

General Stores

A.3 *General stores* are currently organised on a lead-service basis, whereby each of three organisations takes responsibility for tri-service provision of certain items. It has previously been identified¹⁵ that rationalising general stores to an agency (possibly DCTA) is desirable (with the exception of items relating to airworthiness which should remain with the RAF). Although difficult to accept culturally, there appears to be no economic reason why this should not happen forthwith.

¹⁴ *Defence Accommodation stores contracts and procurement - the buying agency and possible future alternative arrangements*, 1996.

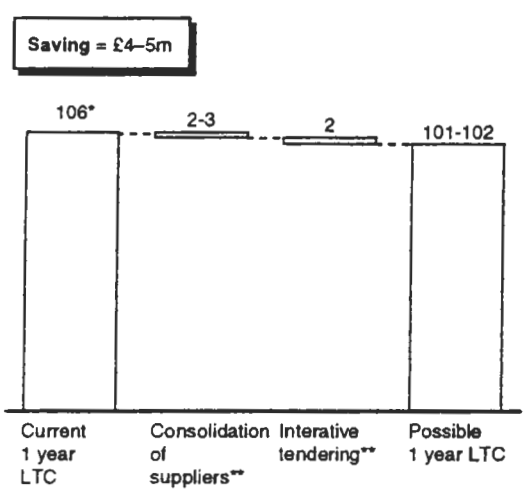
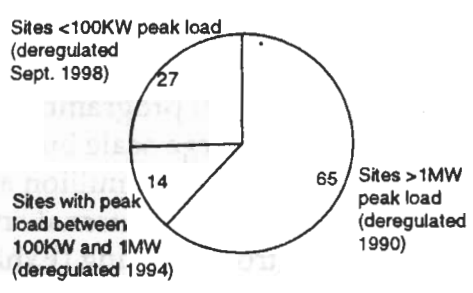
¹⁵ *The rationalisation of general stores study*, 1996.

Exhibit A3

ELECTRICITY SPEND AND POSSIBLE SAVINGS OVER 1 YEAR

ESTIMATES

£m



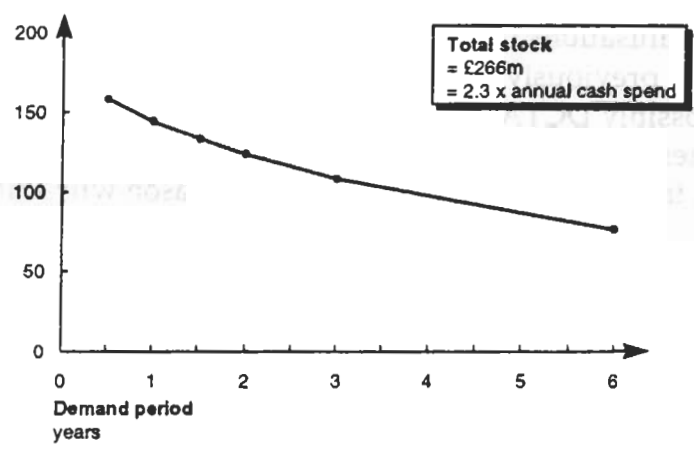
* Is not adjusted for electricity market inflation
 ** Estimates from current tendering exercise

Source: Team analysis

Exhibit A4

VALUE OF CLOTHING AND TEXTILES STOCK HELD IN EXCESS OF DEMAND*

£m



* as at June 1997

Source: SDR 2G (stockholding); team analysis

Electricity

A.4 *Electricity* contracts for 400 sites with peak load greater than 100kW are currently negotiated through a central IPT: the purchase of the remainder is highly fragmented. The deregulation of the electricity market currently allows contract negotiation for sites over 100kW peak load, and from September 1998 the market is expected to be completely deregulated. Consolidating the purchase of electricity, reducing the number of suppliers, and iteratively tendering the contracts offers savings of £4-5 million (Exhibit A3). For these savings to be achieved, it is essential that the aggregation of contract negotiation is extended as far as possible with policy directing all sites to use the IPT. Other utilities should be managed similarly.

Clothing and Textiles

A.5 *Clothing and textiles* are currently purchased by the Defence Clothing and Textiles Agency. Research and development is managed in-house, though some is passed to DERA. A total of 550 people are employed by DCTA and in addition to their expert buyer function they are involved with research, design and development, patterns' library management, etc. DCTA should concentrate on its expert buyer function by outsourcing *all* research and development either to contractors or to DERA and by passing over *all* design to contractors as soon as performance specifications are defined (so that design-to-cost and design-to-manufacture opportunities can be captured). This should yield programme savings of £10-20 million per annum plus operating cost savings. **Following this rationalisation a thorough external review of the agency should be carried out to identify ways in which its stocks can be more rapidly reduced from their current level of £260 million (Exhibit A4) and ways in which service can be improved. Stock reduction of £150 million should save £9 million per annum of RAB charges, and sale of excess stock should yield a further saving. One option that should be considered is the use of an external agency to manage suppliers once the specification is agreed.**

Green Fleet Support Vehicles

A.6 The complete replacement of many Green Fleet Support Vehicles (e.g., Heavy Equipment Transport Vehicles, recovery vehicles and cargo vehicles) is planned within the next 5 years, and a variety of private financing options are being considered for each. The potential savings for the private financing options increase with increasing contractor involvement with a total potential savings of around £50 million (Exhibit A5), but the maximal options require the use of sponsored reserves (and management of the associated risk). The vigorous challenging of existing ideas of core/non-core tasks (including the legal and operational implications of using 'sponsored reserves') is essential to maximise savings.

Exhibit A5

HET VEHICLES: SAVINGS FOR VARIOUS PFI OPTIONS OVER 20 YEARS £m

ESTIMATES

Savings compared to public sector comparator

Possible Saving
= £8-50m total

8-17*
Contractor provides and supports vehicles including all maintenance and fleet management

Minimum option

not costed
Contractor provides a delivery service comprising the vehicle maintenance, civilian/military training facility and a civilian crew for peacetime moves only, on demand

Intermediate option

25-50*
Contractor provides a delivery service comprising the vehicle maintenance, a military trained crew and agrees to meet peacetime and any operational requirement (subject to a maximum) operating on demand

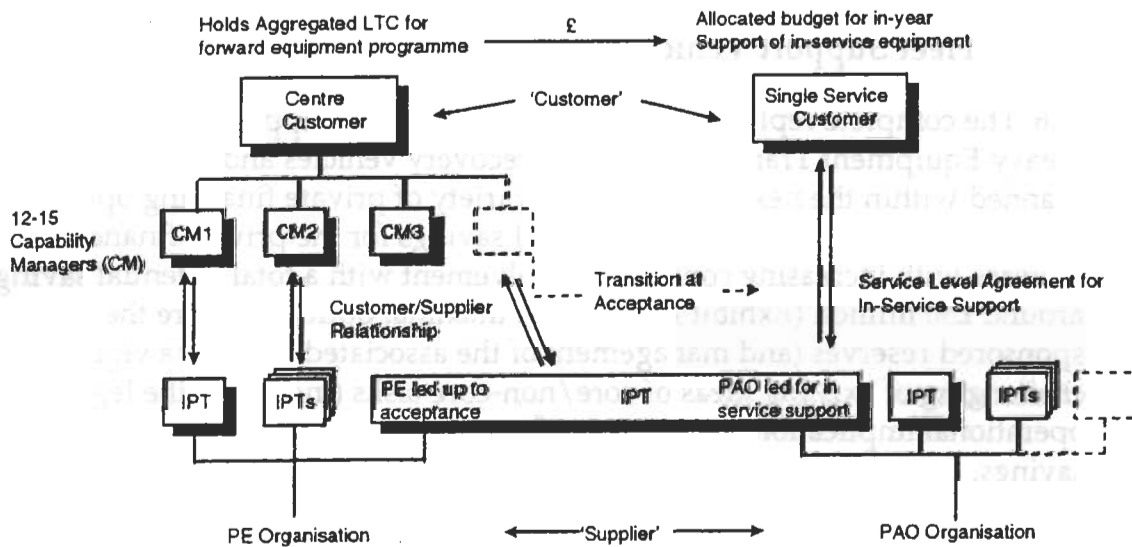
Full option

* Preliminary estimates based on team analyses

Source: Team analysis

Exhibit B1

TRANSITION OF CUSTOMER, AND ROLE OF IPT



B. CAPABILITY MANAGEMENT ORGANISATION

It is critical to the delivery of process improvement benefits that there is a clear customer for the IPT who holds the money and makes balance of investment decisions both across capabilities and across equipment within a given capability. Our preferred solution is for the centre to be reorganised around capabilities, creating a 3 star role for a senior manager with responsibility for allocating resources across capabilities, and 12–15 two star roles for Capability Managers with responsibility for making trade-offs across equipment to deliver a given capability (e.g., Air Superiority, Force Projection, ISTAR¹⁶)(Exhibit B1). As the customer for the equipment programme at the centre, these managers would require both budgetary authority and staff support in order to make rapid and informed decisions.

B.1 Role of the senior Capability Manager The Capability Managers should report to a three star appointment responsible for making the balance of investment decisions across Capability Groups in order to provide equipment to meet defined military tasks. This role should act as first reporting officer for the CMs and should attend the EAC and the Procurement Board. This role should report to VCDS/2nd PUS.

B.2 Role of the Capability Manager. The primary role of the 12–15 Capability Managers (CMs) should be to manage the future equipment programme such that equipment is developed to provide a military capability, to meet clearly defined military tasks, in a cost effective and timely manner. CMs could be found from within the current Systems area and from the PE organisation, and at this stage it is not foreseen that additional 2 star personnel would be required.

B.3 Role of the Capability Management Group The shift to a Capability Management structure requires that the CM operates in close conjunction with a number of key stakeholders. To ensure rapid and informed decision making and to assist in making effective trade-offs between equipments for a given capability, we recommend that each CM is supported by a Capability Management Group (CMG).

- The Capability Management Group (CMG) should include staff from Operational Requirements and D Science (those individuals not seconded direct to IPTs), plus representatives from Plans (specifically related to equipment programmes), and the PAOs to provide input on ILS matters. All members of the CMG should report direct to the CM but should feel the obligation to dissent along their functional lines if they feel a capability decision is being mishandled.

¹⁶ Intelligence, Surveillance, Target Acquisition and Reconnaissance.

- It is clearly important, given the level of financial authority delegated to the CM, that an appropriate level of scrutiny should exist. There are two options to achieve this; functional or project-based. Under the functional option the scrutiny function could be performed from within the current RP organisation structure (realigned as necessary). Alternatively, under the project-based option, RP could second staff to the CMG where they would perform the scrutiny function from within, although maintaining an independent reporting line. We favour the latter approach which would mirror the financial scrutiny function within an IPT in the proposed project management organisation and would allow rapid and effective planning in response to changes in funding.

B.4 Capability Management organisation to have responsibility for financial allocation. The fundamental principle that the customer should control the budgeting and funding for procurement and in-service support has implications for the Capability Management organisation. We envisage the responsibility for financial allocation and budgeting cascading as follows:

- The senior 3 star manager should manage the aggregated LTC for the forward equipment programme covering all phases from Concept to Disposal (including in-service support). The 3 star manager should be responsible for allocating each part across the various CMGs – which should be agreed with the FPMG on an annual basis – including sub-allocating a portion of the programme costs for Concept and Assessment work.
- Once allocated, the Capability Managers should allocate a portion of their in-year budgets for the service of equipment that has passed to the Single Services as the end customer. The Capability Managers should have delegated authority to manage the remainder of their in-year budgets to enable them to complete 2 main tasks; to conduct applied research in support of specific projects, and to sponsor the development of specific equipments. The budget would be divided between operating and programme expenditures.
- The CM should agree and fund programme and operating budgets for specific projects with the IPT Project Managers. Having agreed these, and had the operating and programme funds transferred from the CM, plus additional funds to conduct applied research as necessary, the IPT Project Manager should have the flexibility and authority to manage to meet the agreed project deliverables.
- Accounting Officer at the centre for the Capability Management Organisation.

C. OWNERSHIP MODELS FOR THE PROCUREMENT EXECUTIVE

C.1 This Annex addresses a range of alternative ownership models for the Procurement Executive (PE) including agency status, trading fund status and privatisation/outsourcing, including a summary of the key considerations, a brief evaluation of each option, and a provisional recommendation.

Key Considerations

C.2 First of all, we should be clear about the key considerations which should shape such an organisational decision. Our sense is that there are four factors that a change in the organisational model particularly needs to address.

C.3 **Flexibility in personnel matters.** One key lever in accelerating the pace of change is improved flexibility in personnel matters, which increases successively in each of the options under consideration. While the Chief Executive of an agency can seek permission for changes in pay and grading, the strategic control framework for a trading fund is intended to include full pay delegation. Clearly, privatisation yields the highest degree of flexibility on this dimension, given that stock options and other financial incentives can be brought to bear.

C.4 **Need for clarity in customer/supplier relationship.** The move to agency or trading fund status requires clear delineation of the customer-supplier relationship. Indeed, the scope for establishing a genuine customer-contractor relationship between the fund and its customers is one of the key eligibility tests the establishment of a trading fund¹⁷. The creation of a Framework Document would require clarity regarding ministerial input to the procurement process. Although it was recognised that this task would be challenging, it was not considered to be insurmountable.

C.5 **Personnel exchange.** Separation from the main Department often results in lower levels of personnel rotation. This has both positive and negative implications.

- In the creation of a professional acquisition organisation, lower levels of churn, and the resulting increase in experience levels, would be a positive factor.
- Disincentives to transfer between the PE, the centre and the PAOs, however, would decrease the pool of personnel with experience in all of these areas. Initial discussions suggest that this will be more of an issue for civil than military personnel.

¹⁷ The Financing and Accountability of Next Steps Agencies (Cm914).

C.6 Visible change in circumstances. Finally, a change in organisational status sends a powerful signal to members of the organisation that a major change is underway. This was recognised as one of the most powerful arguments in favour of a change in status. The scale of change that we believe is necessary is going to be hard to achieve in that it requires a highly visible change in organisational model. People will need to feel that it is a new world and things are not as they were. Critically, they will need to feel that there is a new set of objectives and incentives.

Options

C.7 On-Vote Agency.

- The main characteristics which differentiate an on-Vote agency are its governance and the formality of the customer-supplier relationship. Agencies are headed by a chief executive, who is typically selected competitively and acts as accounting officer for the agency, reporting to the Secretary of State or his designated representative. The customer-supplier relationship is documented in a Framework Document.
- Given CDP's current role, status, means of selection and reporting, the PE has many characteristics of an agency today.
- Agencies must prepare corporate and business plans and publish accounts and reports. Although additional cost would be incurred in the conduct of these activities, they represent good business practice and are currently being pursued as part of project CAPITAL.

C.8 Off-Vote Trading Fund status.

- In addition to the characteristics of an on-Vote agency described above, an off-Vote trading fund differs mainly due to the financial regime in which it operates. It is, as the name implies, funded directly through receipts from its customers, charging for the cost of services provided. A trading fund is expected to borrow, and receive a certain return on capital.
- Given the off-Vote funding, clarity regarding the customer relationship is paramount. In addition, the relationship with the PAOs would need to be clarified.

C.9 Privatisation.

- Private provision of procurement expertise would formalise the arms length relationship between customer and supplier. The main

differences are largely dictated by the change in financial and legal status.

- The absence of easily identifiable alternatives to a privatised PE, at least for complex military equipment, indicates that careful consideration must be given to the creation of appropriate competition.
- One way to ensure competition would be to split the PE into several separate private entities which would then compete with each other for business.

Recommendation

C.10 Many of the changes recommended as part of the Acquisition Organisation Review are not new – the problems have been recognised in the past, solutions have been proposed and even implemented in isolated instances. Unfortunately, the organisation as a whole has struggled to change, and the full potential has not been realised. Therefore, the argument for a change in status to act as a catalyst for the transformation of the procurement function is very attractive.

C.11 Given the likely disruptive nature of the changes we envision, combined with the very real need for near-term skill building, privatisation is likely to be too disruptive for now, but could be attractive as a longer term option.

C.12 Since the PE already has many characteristics of an agency today, a move to agency status would make sense and, we believe, entirely feasible. But given the need for a real change to catalyse the transformation of the procurement system, a shift to agency status may be too incremental.

C.13 In our view, therefore, An off-vote trading fund is the most attractive option. Clearly, several issues will need to be explicitly addressed. Concerns have been raised regarding the ability of the new accounting system in Abbey Wood to handle customer billing, which would be necessary. The customer/supplier relationship will need to be clarified, and ministerial input to the procurement process documented. Assuming that these issues can be adequately addressed, we believe that a shift to trading fund status would be a powerful reinforcement to the changes recommended in the AOR.

D. EQUIPMENT PROGRAMME SAVINGS ESTIMATE

D.1 We believe that £2.7–5.0 billion in savings is possible over ten years (representing 4.4–8.2 per cent of the ten year total), and £0.7–1.1 billion per year from year 11. This figure was developed using the following methodology:

1. Estimation of savings from projects depending on current phase.
2. Multiplication of savings by an estimate of projects currently in each phase.
3. Alteration of curve of likely savings to account for increased up-front spend and delayed or cancelled projects

Estimated Savings By Project Phase

D.2 The cost savings achievable from each project vary depending on which phase the project is currently in – projects in concept are likely to yield greater overall savings than those currently in production.

- *Projects currently in concept* could achieve 20–30 per cent savings, with 12–18 per cent accruing to the MoD. As explained in the main report, the saving on programme costs is possible by implementing the recommendations outlined in the report. Such savings would be delivered by, and so shared between the MoD (60 per cent) and industry (40 per cent), reducing the likely saving to the MoD to 12–18 per cent.
- *Projects currently in feasibility* could achieve 15–25 per cent savings with 8–15 per cent accruing to the MoD. Significant risk-reduction is still possible, but many design to cost opportunities have been lost.
- *Projects currently in project definition* could achieve 5–10 per cent savings with 3–6 per cent accruing to the MoD. Once in PD many of the opportunities for cost reduction have been missed, but opportunities remain
- *Projects currently in full development and production* could achieve 0–5 per cent with 0–3 per cent accruing to the MoD. Once in full development and production, opportunities to reduce costs are limited to assembly and incremental items rather than significant simplification of overall specifications (e.g., use of just-in-time assembly and better incremental software solutions) yielding relatively small savings.

Estimate of projects in each phase

D.3 Data specifying the total LTC value of each project and their current phase is limited and inevitably inaccurate. Using the estimates of how long an average project may spend in each phase (see main report), and the current spend in each phase (e.g., 88 per cent of current spend is on manufacturing, 8 per cent is in PD, etc.), it is possible to estimate how many projects will be in each phase each year for the next ten years.

D.4 Applying the savings estimated in D1 above to the profile of projects generates an S-curve of likely savings, starting low (as most project spend is in the manufacturing phase) and building up over time as the benefit from projects currently in concept yields results.

Accounting for Increased Up-Front Spend, Delays and Cancellations

D.5 The improved process describes in the main report results in more time and money being spend up-front, and a significantly compressed timescale. Both of these could impact the savings profile:

- *Impact of increased up-front savings.* In reality, an increase in up-front spend is unlikely to require the early LTC line to increase. This is because increased spend is likely to be counterbalanced by savings from compressed timescales
- *Impact of delays and cancellations.* Each project will need to re-estimate its LTC line based on the new compressed timescales that should result from the proposed changes. Such a re-evaluation should allow significant scope for delaying the start date of projects not yet started, or postponing key stage-gates without endangering the current ISD. As a result, additional savings not currently estimated as part of the overall estimate should be identified. In addition, SDR may enable the cancellation or delay of other new projects.