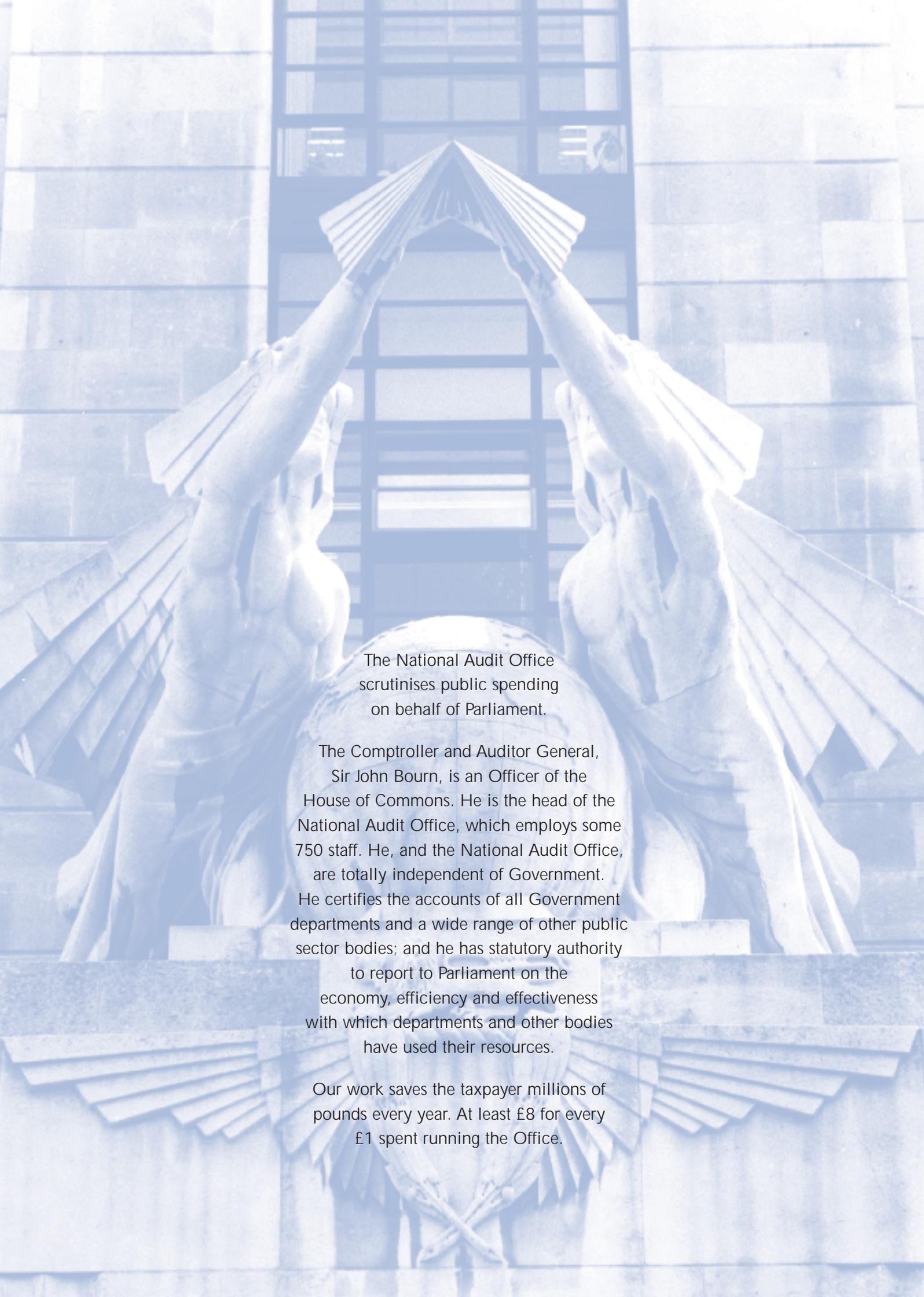


Ministry of Defence
**Non-Competitive
Procurement in the Ministry of Defence**

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL
HC 290 Session 2001-2002: 2 November 2001





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Non-Competitive
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This report has been prepared under Section 6 of the National Audit Act 1983 for presentation to the House of Commons in accordance with Section 9 of the Act.

John Bourn National Audit Office
Comptroller and Auditor General 23 October 2001

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[****] denotes information classified for either security or commercial reasons

executive summary

- 1 It is a long-standing principle of public procurement that effective competition between suppliers is likely to be the best means of achieving value for money. Experience shows, however, that it may not always be practicable or sensible to use competitive procurement. In such cases, alternative means are needed to secure value for money. The policy of the Ministry of Defence (the Department) is to use non-competitive procurement to acquire its military equipment only where there are compelling reasons. Over the last five years one quarter of the Department's annual expenditure of £9 billion on contracts for equipment and related services has been spent on non-competitive projects.



- 2 In the context of non-competitive procurement, the Department has processes in place which aim to replicate the pressures that apply in competition. These processes comprise a long-standing agreement between the Government and the Confederation of British Industry (the 1968 Agreement), and the No Acceptable Price No Contract (NAPNOC) policy. All non-competitive contracts valued at over £1 million are negotiated in accordance with this policy. Since 1998, the Department has also been applying a new approach known as Smart Acquisition (formerly Smart Procurement) to improve value for money in all its procurement.
- 3 The 1968 Agreement between the Government and the Confederation of British Industry provides that Government non-competitive procurement should be based on three key elements:
 - The Profit Formula, which determines the rate of profit contractors should earn on non-competitive contracts placed by Government departments;
 - The principle of Equality of Information between contractual parties, whereby each reveals data that is relevant to the agreement of a fair and reasonable price; and
 - Post-Costing which allows the Department to determine whether there was Equality of Information at the time of pricing and helps to inform future pricing through lessons learned. It also allows either party to refer a contract to an independent Review Board if it believes there has been inequality of information that may have led to an excess profit or substantial loss.

- 4 The Profit Formula element of the 1968 Agreement is currently under review. Moreover, the changes being made as a result of Smart Acquisition may have the potential to affect the other main elements of the 1968 Agreement. We shall keep under review these developments in the Department's framework for non-competitive procurement and report further if necessary.
- 5 NAPNOC is mandatory for all non-competitive contracts and amendments to contracts worth £1 million or more. Since its introduction in 1992, NAPNOC has been applied to some 1,850 contracts with a total value of £25 billion. It was introduced with the aim of replicating some of the pressures which exist in competitive tendering where prices are agreed before contracts are placed in non-competitive situations. The fundamental objectives of NAPNOC are:
- To price the contract before work commences. This objective is known as "pricing at the outset".
 - To ensure that the price closely reflects the price which would prevail under market conditions. This objective is known as "Should Cost" pricing.
 - To enable a company to maximise the opportunity to innovate, to be efficient and deliver timely performance of the contract, all of which, if achieved will improve profitability on the contract and the competitiveness of the company in future business with the Department.

Pricing at the outset also confers an additional advantage for the Department, in that it knows its financial liability at the time contracts are placed and is therefore able to be more informed about its budgetary assumptions.

- 6 This report examines the procedures followed by the Department once it decides to procure goods or services non-competitively. It considers how well the Department puts into practice the existing framework - the 1968 Agreement and its policy of NAPNOC - and whether the outcomes of non-competitive contracts are in line with agreed prices and ensure the timely delivery of equipment and services. In so doing, we examine:
- The framework and guidance for non-competitive procurements
 - How the Department conducts non-competitive procurements.
 - The outcomes which the Department achieves from its non-competitive procurement.



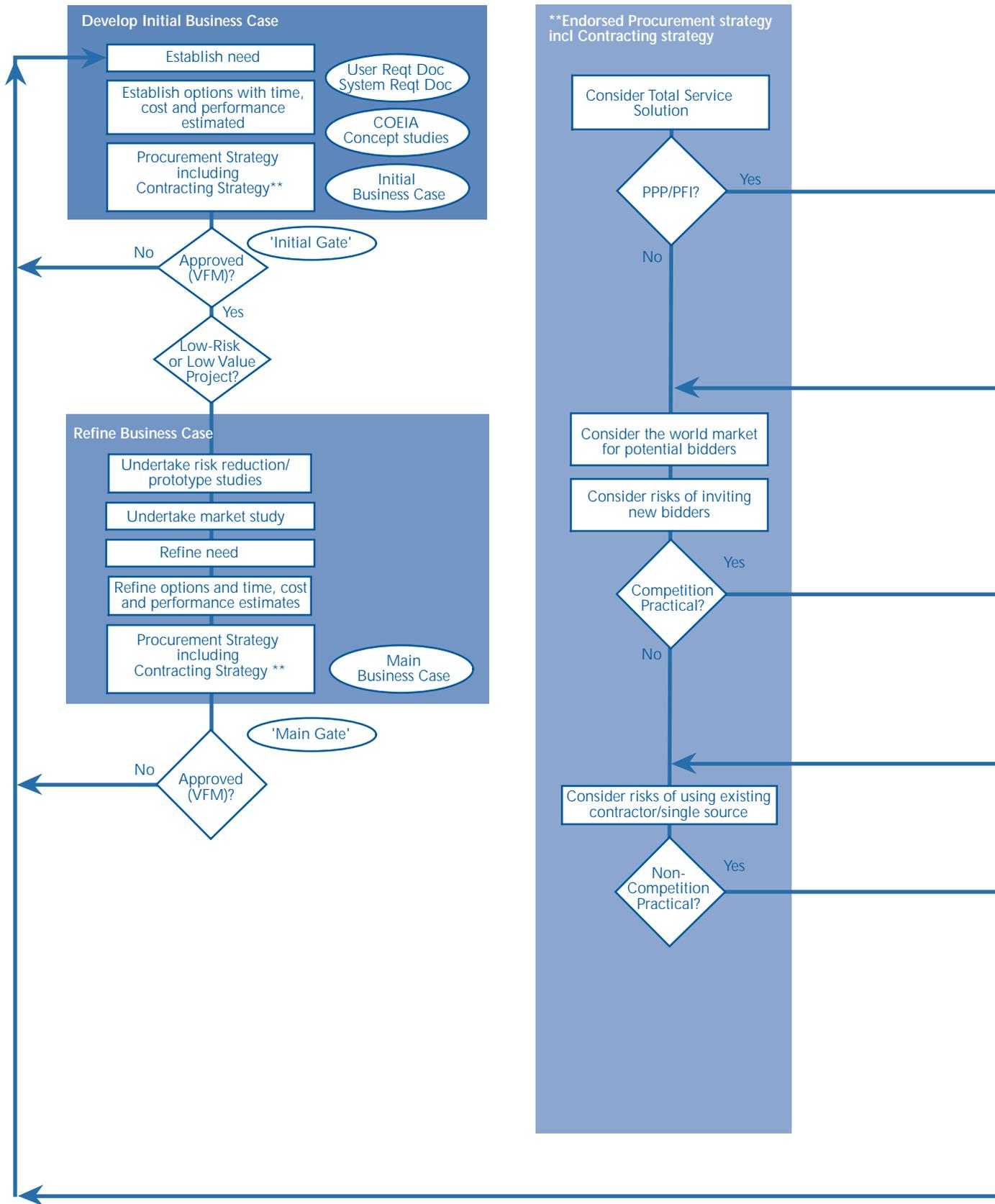
- 7 Our methodology, which included a comparative examination of the processes used for non-competitive procurement in a sample of public and private sector organisations, is described in Appendix 1. **Figure 1** shows a model of the non-competitive procurement processes followed by the Department while **Figure 1A** shows the composite model of the processes followed by the comparator organisations. The respective models show that there are many similarities in the approaches followed. We explore a number of these similarities throughout this Report.
- 8 We found that:
- While the existing non-competitive processes are well defined and understood there is scope for the Department to further develop the framework within which non-competitive contracts are let.
 - When conducting non-competitive procurements the process which the Department follows generally works well but needs improvement in some key areas.
 - The outcomes of the non-competitive process are mixed and the Department should make more use of the data gathered and past experience to inform future practice.

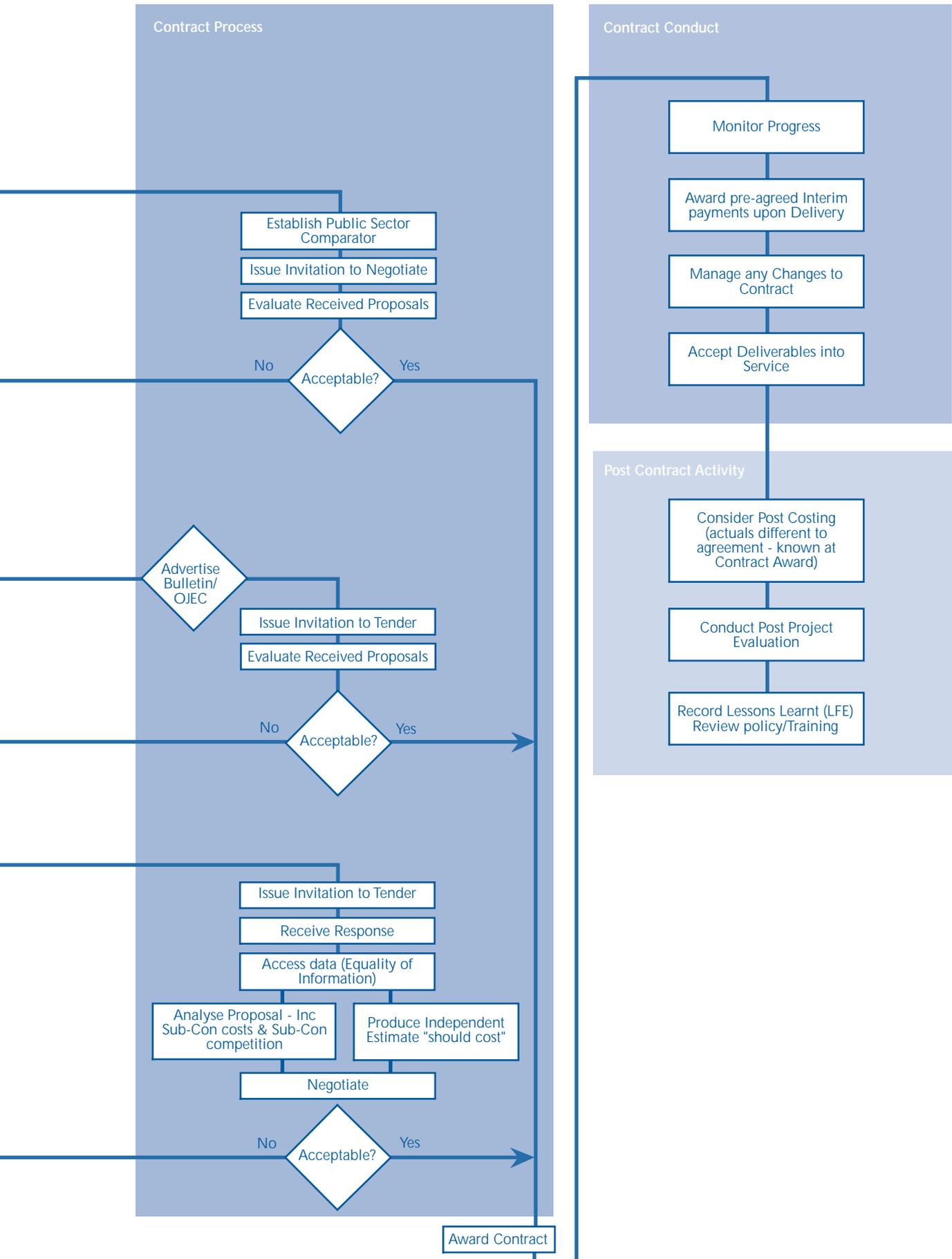
There is scope for the Department to improve the framework within which non-competitive contracts are let

- 9 While the Department's general procurement policy is one of competition, it recognises that there are circumstances where competition is inappropriate or impracticable. Since 1993, the Department has had a performance measure to compete 75 per cent by value of its contracts to ensure that competition remains the predominant procurement route. The Department has broadly achieved this performance measure in each of the past five years. (Paragraphs 1.3 to 1.7.)

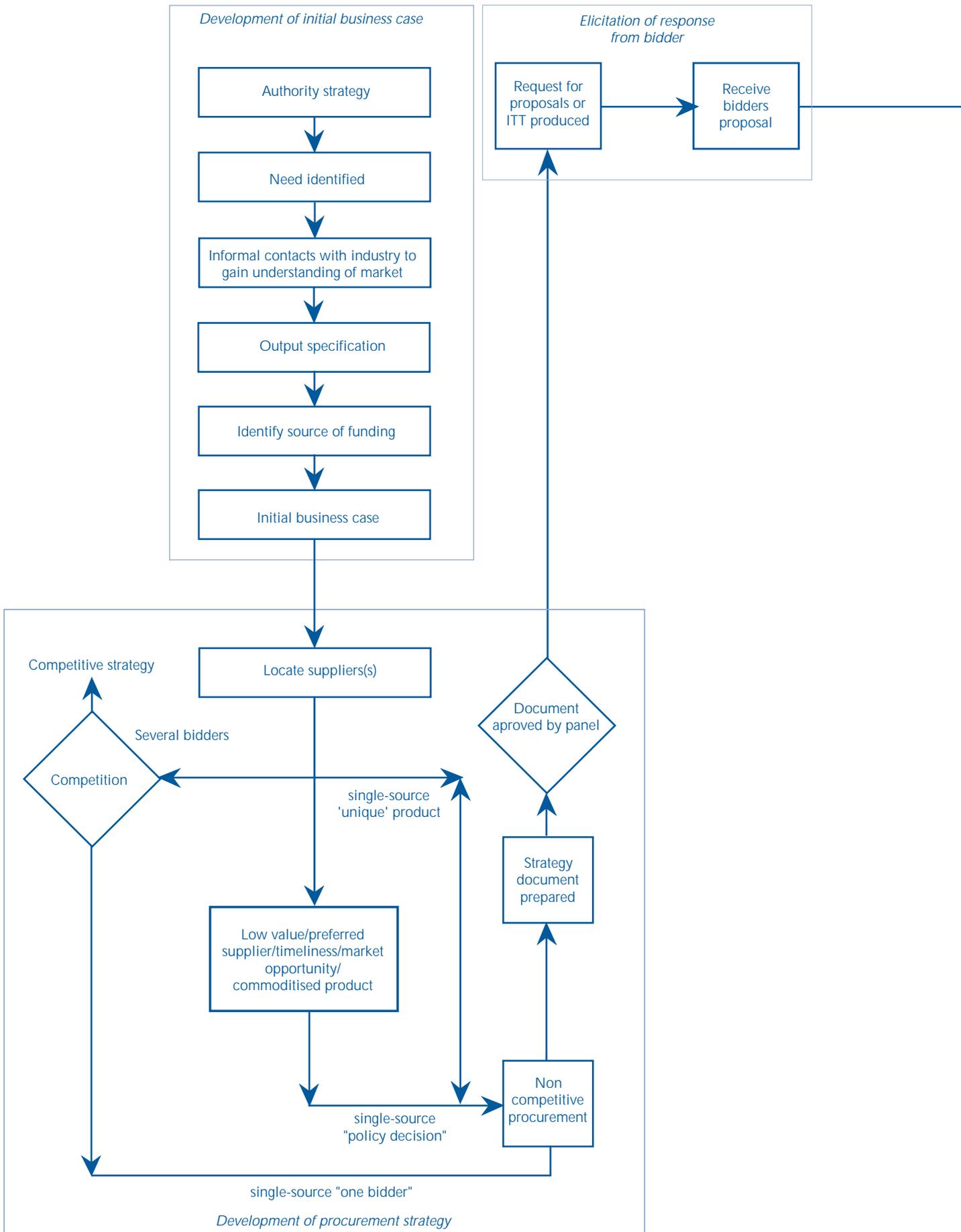


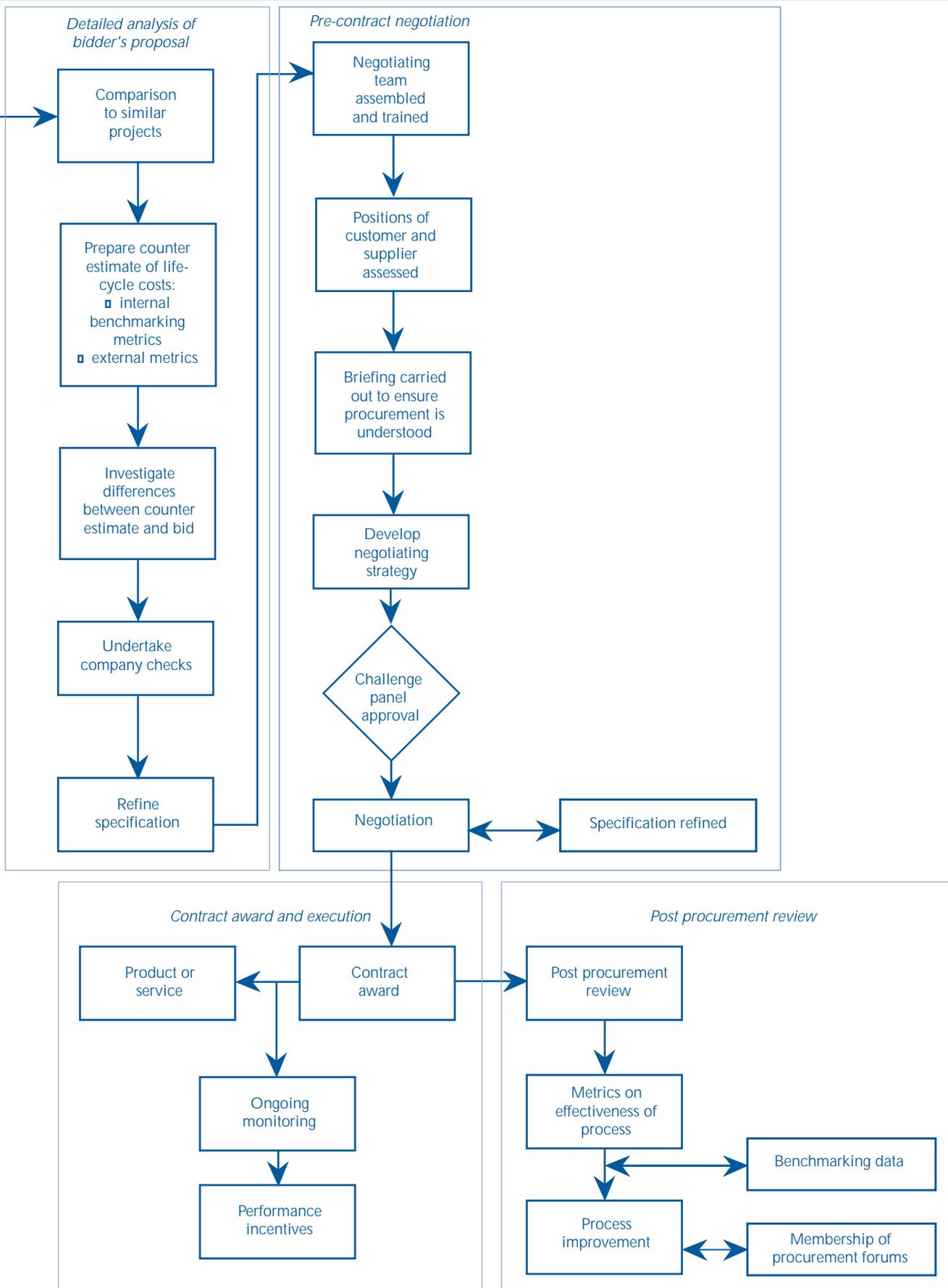
1 The Department's single source procurement process





1A The National Audit Office model of comparative practice





- 10 Once a decision has been made to procure non-competitively, the Department applies its framework consisting, as explained above, primarily of the 1968 Agreement and its NAPNOC policy, both of which are clearly defined in its working level guidance. The Department's approach is intended to ensure that it achieves value for money while suppliers obtain a fair profit. At present, the profit formula is currently under review by the Department, the Treasury, the Department of Trade and Industry and the Confederation of British Industry. It is anticipated that this review will not be finalised before April 2002. (Paragraphs 1.8 to 1.11.)
- 11 We found that there are also some concerns over the application of the principles of Equality of Information and Post-Costing. Thirty one per cent of the contracts we surveyed revealed that the Department's Equality of Information Statement was not being completed though alternative methods were used to provide assurance of Equality of Information. In addition, the Department has had concerns over the timeliness of Post-Costing given that its benefits can decrease considerably over time. The Department is now reviewing the timeliness of Post-Costing. These concerns about Equality of Information and Post-Costing may be addressed by Smart Acquisition practices, such as the Department's aim of working more closely with contractors in longer term relationships known as partnering. Partnering is a favoured approach amongst some commercial comparators and offers several benefits including the incentivisation of performance, the encouragement of innovation, and a reduction in costs. (Paragraphs 1.12 to 1.19.)
- 12 The guidance for non-competitive procurement used by commercial comparators is relatively concise and aims to identify principles and not focus on processes. However, the Department's working level guidance, though less inclined to brevity, is generally perceived by staff to be effective. We found that the Department's guidance for non-competitive procurement is dispersed among various publications and is not always up to date. (Paragraphs 1.20 to 1.22.)

When conducting non-competitive procurements, the processes that the Department follows need to be better applied in some areas

- 13 We found that the work of the Directorate of Pricing within the Specialist Procurement Services in pricing proposed non-competitive contracts has led to some significant reductions in prices prior to contract placement but that currently the Department's arrangements for such work on contracts placed overseas do not always provide the same level of information. Some steps have been taken for pricing bodies such as the Specialist Procurement Services to be able to price other nations' contractors under the terms of Memoranda of Understanding between those nations. We found the vast majority of contracts staff are currently satisfied with the work of the Specialist Procurement Services. (Paragraphs 2.2 to 2.11.)
- 14 The use of Should Cost data to determine a price that closely reflects market conditions is common to both the commercial comparators and the Department. We found that the Department has encountered problems in deriving a Should Cost model because of a lack of historical data on some projects and, in one case, where the Should Cost analysis did not address all of the elements of the contract. These difficulties are often intrinsic to projects depending on new technology or a high software content. In the inevitable cases where no formal Should Cost model exists, the Department has been ready to be innovative in using other means to achieve a credible estimate of what an item should cost. (Paragraphs 2.12 to 2.15.)

15 We found that risk registers were compiled on 40 per cent of the contracts surveyed, including nine of the ten largest. Very few contracts used joint risk registers although the Department's guidance encouraging their use was only introduced in late 1998 after many of the contracts in our survey had already been let. Only a small number of risk registers addressed the potential risk arising from the non-competitive nature of the contract. Although the Department's guidance stresses that as many sub-contracts as possible should be competed, only 24 per cent of the contracts surveyed had sub-contracts which were competed. Among the reasons for this low number are unrealistic assumptions about the scope for competition and problems caused by trying to compete for proprietary items. Furthermore, we found that the Department does not always have visibility of the work undertaken by sub-contractors though in some cases the prime contractor is effective in this role. Where prime contractors establish longer-term and more open relationships with key suppliers, the Department is likely to also benefit by having improved visibility of work done by sub-contractors. (Paragraphs 2.16 to 2.26.)

The outcomes of the Department's non-competitive procurement processes are mixed and the Department should make more use of past experience to inform future practice

- 16 Since 1993, the Department has had in place a target whereby 90 per cent of all non-competitive contracts, on a rolling three-year average, should be priced at the outset. In the last four years it has met or exceeded this target. We also found that a key objective for the Department in negotiating non-competitive contracts is to achieve an affordable price. While the Department has used NAPNOC to negotiate some significant reductions in price this has sometimes meant that contracts have been placed later than planned. (Paragraphs 3.2 to 3.5.)
- 17 Performance in meeting timescales for the completion of non-competitive contracts is good with two-thirds of contracts surveyed achieving these. The results of Post-Costing returns for the years 1997 to 2000 show that, on average, costs to the contractor have been 3.5 per cent below the original estimate. The returns also revealed that there are wide fluctuations in the variations on agreed costs. (Paragraphs 3.6 to 3.8.)
- 18 The Department holds a range of data on non-competitive procurement but this does not focus systematically on the outcomes of the process and, as such, it cannot fully assess trends or the potential impacts on value for money. The Department's 75 per cent performance measure for the value of contracts to be placed competitively was introduced in 1993 when the emphasis was on encouraging a step change in the level of competition. This performance measure is of limited utility now given recent changes in the procurement environment. The commercial comparators tend to focus on achieving value for money when they analyse the data gathered from their non-competitive procurements. (Paragraphs 3.9 to 3.12.)
- 19 The Department has a Lessons Learned database but this does not have a specific section on non-competitive procurement. Nevertheless, a number of the contracts we surveyed did yield lessons that could inform future non-competitive procurements. The commercial comparators carry out post-project evaluation to assess any potential value for money improvements; the capture of any benchmarking information; and the identification of any lessons learnt. (Paragraphs 3.13 to 3.16.)

Recommendations

- 20 To improve the way it places and manages its non-competitive contracts, the Department should implement the recommendations in the following table.

Evidence from the Report	Action recommended
"On 31 per cent of the contracts we surveyed, no Equality of Information Statement was signed despite the Department's policy that such statements should be completed in all instances." (Paragraph 1.14.)	The Department should ensure that all NAPNOC contracts have an Equality of Information Pricing Statement in place before a contract is placed.
"Post-costing...enables the Department to draw any lessons that can be learnt..... It can also be used to provide evidence for a reference to the Review Board."	The Department should conclude its review of Post-Costing activity to ensure that Post-Costing takes place within a timeframe that maximises the benefits.
"The Department is reviewing how to improve the timeliness of Post-Costing given that delays can impair its effectiveness....." (Paragraphs 1.15 - 1.16.)	
"Partnering or collaborative working covers a range of practices designed to promote more co-operation between contracting parties." (Paragraph 1.17.)	The Department should review whether there is scope to extend the application of partnering across more non-competitive contracts.
"We reviewed the [Department's] guidance and found that it is dispersed among various publications and is sometimes out of date." (Paragraph 1.21.)	The Department should conduct a review of its existing guidance on non-competitive procurement to ensure that it is both accessible and up-to-date.
"We are concerned that the arrangements in place for pricing contracts with overseas contractors should always offer complete assurance that value for money is being achieved." (Paragraph 2.9.)	The Department should regularly review the arrangements it has in place for pricing contracts with overseas contractors to ensure that these arrangements provide the best possible assurance that value for money is being achieved.
"The extent to which the picture of the Directorate of Pricing as a properly resourced outfit can be maintained may be questionable given that the demands on their expertise are likely to increase. This is due to the increased likelihood of non-competitive procurement as a result of industrial consolidation..... [and the] need for [it] to contribute to the pricing of non-competitive contracts which may be let with the newly privatised QinetiQ..." (Paragraph 2.11.)	Any further consideration of the resources allocated to the Pricing Directorate should be assessed in light of the potential for improving the efficiency of the process as well as a quantified assessment of the benefits the Directorate produces, in relation to other priorities for resources.
"Problemscan occur when deriving Should Cost estimates." (Paragraph 2.14.)	The Department should ensure that it always utilises existing techniques to generate the best possible Should Cost data to ensure a robust pricing process.
"The Department's guidance, issued in late 1998, refers to the developing use of joint risk registers as an aid to pricing. This is reflected in our survey finding where 26 per cent of the contracts that featured in the survey had a joint risk register, most of which were let prior to the guidance being issued." (Paragraph 2.16)	All NAPNOC contracts should have a joint risk register.

Evidence from the Report**Action recommended**

"Only three of the contracts we surveyed considered the possibility of risks emerging because of the non-competitive nature of the contract." (Paragraph 2.17.)

Risk registers for non-competitive contracts should include an assessment of the additional risks due to their non-competitive nature.

"The Department's guidance states that wherever appropriate, it should have visibility of how prime contractors organise and place their sub-contracts. ...Of the NAP-NOC contracts we surveyed, 37 per cent of those with sub-contracts did not have conditions in place which gave visibility of sub-contracting activity although the largest contracts such as that for Astute covered the point fully." (Paragraph 2.22.)

The Department should ensure that it has visibility of how the contractor manages its sub-contracts.

"Seven of the contracts we examined in our survey failed to meet their original timetable for placement." (Paragraph 3.5.)

There needs to be greater realism regarding the timescales set for negotiating non-competitive prices.

"A performance measure of achieving 75 per cent of procurement through competition had a greater logic when the measure was first introduced in 1993 and the emphasis was on encouraging a step change in the level of competition. In our view, it is of less utility now....." (Paragraph 3.11)

The Department should manage and understand its business by always focusing on value for money and should again review the need to have a set performance measure for the amount of procurement it competes.



Part 1

The framework for non-competitive procurement

- 1.1 The Department, following recognised Government policy, aims to compete its requirements for defence equipment and services. Its policy is to use non-competitive procurement only where there are compelling reasons. Once a decision has been taken to conduct a particular procurement non-competitively, the 1968 Agreement between the Government and the Confederation of British Industry, and the Department's No Acceptable Price No Contract (NAPNOC) procurement policy provide the basis for letting a contract. Since 1999, the Department has also been implementing Smart Acquisition to improve value for money in all its procurement. In this Part we examine the framework within which non-competitive procurement operates. We also examine the extent to which the Department has effective working level guidance in place to assist staff in negotiating, pricing and placing non-competitive contracts.
- 1.2 The two key findings upon which our analysis is based are:
- The key processes for undertaking non-competitive contracts are well defined and understood.
 - There is scope for the Department to further develop the framework under which non-competitive contracts are let.

The Department's policy on non-competitive procurement

- 1.3 Government procurement policy is based on the premise that competition promotes economy, efficiency and effectiveness in public expenditure. The Treasury's Procurement Policy Guidelines stipulate that "goods and services should be acquired by competition unless there are compelling reasons to the contrary". The guidelines also state that "Accounting Officers or their designates are responsible for determining the circumstances in which contracts may be awarded without competition". The Department follows this approach, stating in its internal guidance:

"Competition should be pursued whenever practicable and cost-effective." (A Guide to Developing Procurement Strategies, Acquisition Management System, June 2000.)

- 1.4 The Department has always recognised that it will never be possible to procure all of its requirements on a competitive basis though the proportion has changed. In the early 1980s, the Department competed about 40 per cent by value of its procurement. A decade later, this figure had risen to over 60 per cent. In 1993, the Department agreed a performance measure with the Treasury that, on a rolling three-year average, 75 per cent by value of its £9 billion of annual expenditure on equipment and related services should be made on a competitive basis. **Figure 2** shows that the Department has broadly achieved this performance measure in each of the past five years.
- 1.5 The obverse of the Department's success in meeting its competition performance measure is that it continues to place about one quarter of its contracts non-competitively. In June 1998, the Chief of Defence Procurement, Sir Robert Walmsley, articulated the problem facing the Department in trying to achieve value for money from non-competitive procurement. Giving evidence to the Committee of Public Accounts (HC 101, 1998-99, Question 10) he remarked:

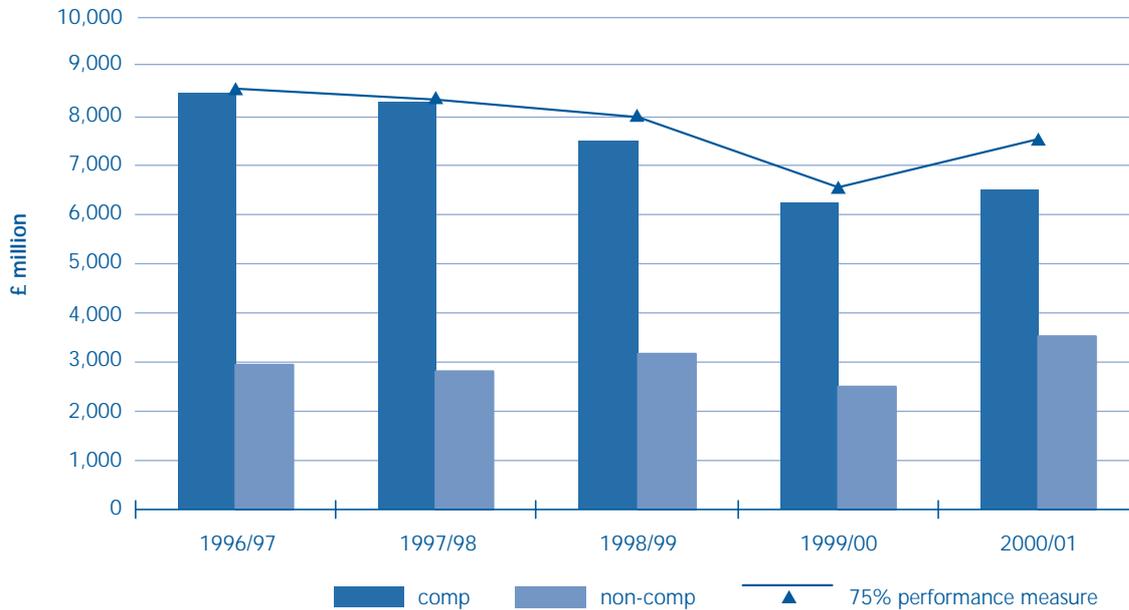
"Having said so firmly that I believe competition is the most certain route to securing value-for-money, I cannot then claim to secure best value-for-money if I do not have competition."

He then went on to describe the fundamental requirements of the NAPNOC process as requiring "openness and trust between us and the contractor and although it takes a long time... I think it does give us the best chance for both parties of undertaking a sensibly risk-priced contract."

2 The extent of non-competitive procurement

The Department has broadly met its performance measure for placing competitive contracts in the past five years

Extent of contract values (by award)



Source: United Kingdom Defence Statistics

1.6 Figure 2 also illustrates that the volume of non-competitive procurement has remained broadly constant in recent years. There are signs that this trend may change in the future. For example, on the Astute-class submarine, invitations to tender were originally issued to both VSEL and GEC-Marconi. Tenders were received from both companies in June 1995 but at that time GEC acquired VSEL. The tenders were separately evaluated under competitive conditions until December 1995 when GEC-Marconi was selected as the preferred bidder. The Department then initiated NAPNOC negotiations. On the other hand, the increasing use of commercial off-the-shelf procurement, particularly for information technology, should allow the Department rather more scope to use competition.

1.7 The Department has five categories to record usage of the non-competitive route and these are explained in Figure 3. Using these categories Figure 4 illustrates that the most common reason given in procurement strategies for going single-source is design and development risk (38 per cent), synonymous with the application of intellectual property rights. However, we note that in cases such as Sentry E-3D Post Design Services (PDS), the Department has sought innovative solutions to overcome the difficulties that can arise as a result of the existence of intellectual property rights. On Sentry E-3D, the Department built an additional requirement into the follow-on PDS procurement strategy which meant that Boeing had to have a sister design authority in the United Kingdom to overcome the difficulties of having a design authority based in the United States.

The Department's key processes for undertaking non-competitive contracts are well defined

1.8 The Department's framework for managing non-competitive procurement consists of two elements: the 1968 Agreement between the Government and the Confederation of British Industry, which represented the interests of contractors involved in non-competitive work let by the Government; and the policy of No Acceptable Price No Contract (NAPNOC) introduced in 1992.

The No Acceptable Price No Contract policy is intended to replicate competition

1.9 In 1992, the Department introduced NAPNOC, which is mandatory for all non-competitive contracts worth £1 million or more. Since its introduction, NAPNOC has been applied to some 1,850 contracts with a total value of £25 billion. The objective of NAPNOC is to replicate in the non-competitive environment some of the competitive pressures of the market place, where prices are agreed before contracts are placed. NAPNOC helps to ensure that the contract carries an incentive to perform efficiently which improves value for money and the competitiveness of the supplier in later and potential contracts with the Department and other customers.

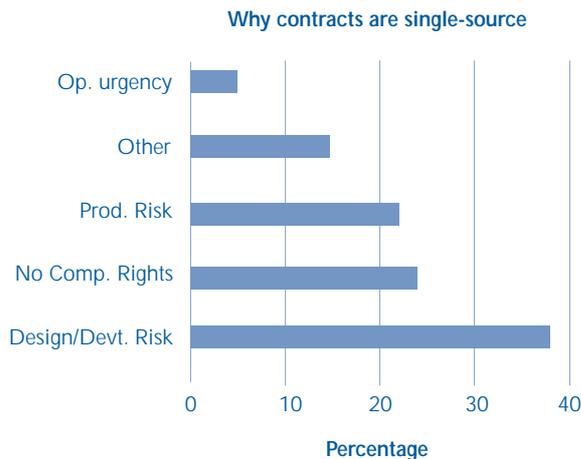
3 Categories used by the Department to explain non-competitive procurement

Reason	Explanation
No competition rights	Contract is for a proprietary item meaning the contractor is the only maker and supplier of the particular equipment required.
Design/Development risk	Entails changes to the existing design where insufficient scope exists for competition owing to Intellectual Property Rights; work that is with the Design Authority because specifications and drawings are unavailable to third parties; and where the requirement is not well defined technically.
Production risk or capacity	Encompasses follow-on contracts where a spares requirement is ordered from the main equipment contractor; a policy decision is made based on capability or industrial capacity; and where a unique or specialised capability or capacity is required.
Operational urgency	An Urgent Operational Requirement, which can only be met by one supplier in the timescale available.
Other reasons	Include classified requirements unsuitable for competition, repeat orders with the winner of an earlier competition and where competition collapses.

Source: National Audit Office

4 Why contracts are placed non-competitively

Design risk is the most common reason given for non-competitive procurement



Source: National Audit Office

NAPNOC has two fundamental objectives:

- To price the contract before work commences since it is at this point that the Department's negotiating position is strongest. This objective is known as "pricing at the outset". (Discussed in Part 3.)
- To ensure that the price closely reflects the price which would prevail under market conditions. This objective is known as "Should Cost" pricing.

The 1968 Agreement

1.10 The 1968 Agreement led to the creation of an independent Review Board for Government Contracts, which is responsible for recommending the rate of profit contractors should earn on Government placed non-competitive contracts, via the profit formula, and acting as arbiter in case of disputes. Other key aspects of the 1968 Agreement are, firstly, the need for "Equality of Information" between contractual parties, whereby each reveals data that is relevant to the agreement of a fair and reasonable price. Secondly, there is "Post-Costing" which, once the contract is complete establishes the actual costs incurred in performing the contract. This helps the Department to check that there was Equality of Information; informs future pricing through lessons learned; and allows either party to refer contracts to the Review Board where they consider there has been inequality of information which may have led to an excess profit or a substantial loss.

The profit formula is undergoing major review

1.11 The framework developed under the 1968 Agreement, together with the more recent NAPNOC initiative, constitutes a body of practice, which is intended to ensure that the Department obtains the best possible value for money consistent with providing industry with a reasonable profit. However, both the Department and industry have questioned elements of the agreement from time to time. For example, the Department has disagreed with the Review Board's recommendations on the profit rates in the Annual Reviews of the profit formula in 1985 and 1986 and in the 6th General Review in 1990. The Profit Formula is currently under review by the Department, the Treasury, the Department of Trade and Industry and the Confederation of British Industry. The review is not expected to be resolved before April 2002. Box 1 provides further details about the current debate on the Profit Formula.

Box 1 Profit Formula

- 1 The Profit Formula is based on the comparability principle, that is the idea that a fair rate of return to contractors awarded non-competitive Government contracts should be related to the average rate of return earned by the United Kingdom's industry¹. One problem with that approach has been the changing structure and very much reduced size of the United Kingdom's manufacturing industry, leading to a need to change the definition of the reference group. A more fundamental issue, raised by the Treasury has been to question whether a single rate of profit could ever fairly reward the whole range of non-competitive contracts involving as they must a very wide range of innovation and risk.
- 2 Although there is a well established theoretical model (the Capital Asset Pricing Model²) which relates the average cost of capital employed (including an element for profit) to the riskiness of an investment, applying that model in advance to an individual procurement contract is far from straightforward and is likely to give rise to argument. On its own, therefore, the Capital Asset Pricing Model may not provide sufficient certainty to be the basis of a revised Profit Formula.
- 3 The current intention is to present the Capital Asset Pricing Model to industry as part of a new methodology to act as a starting point for negotiations with Industry, the aim being to have a revised Profit Formula in place from April 2002.

Equality of Information and Post-Costing remain key elements of non-competitive procurement

1.12 The 1968 Agreement provides that the basis of non-competitive pricing should be one of "Equality of Information" up to the time of price fixing. No precise definition of the phrase Equality of Information exists. It is presumed that each party divulges material that is relevant to the agreement of a fair and reasonable price so that, when final judgement on pricing takes place, both parties are in the same position as each other. Post-Costing is also an important feature of the Equality of Information concept. Part of the Post-Costing regime allows either party to a procurement to refer a case to the Review Board if it considers that the difference between the agreed costs at the time of pricing and the post costed outturn was a consequence of inequality of information at the time of pricing.

1.13 In 1995, the Department and representatives of defence contractors agreed to introduce an Equality of Information Pricing Statement that should be signed on all non-competitive contracts valued at £250,000 and above. This statement provides a positive confirmation of Equality of Information on the part of each party. The Pricing Statement takes account of a mandatory Questionnaire on the Method of Allocation of Costs explaining the basis on which particular costs are charged to the contract.

1.14 On 31 per cent of the contracts we surveyed, no Equality of Information Statement was signed despite the Department's policy that such statements should be completed in all instances. **Figure 5** shows examples of cases where Statements were not agreed, and where the Department used a number of alternative methods to provide assurance of Equality of Information, although they did not necessarily provide the same level of assurance.

Recommendation

The Department should ensure that all NAPNOC contracts have an Equality of Information Pricing Statement in place, before a contract is placed.

1.15 Post-Costing takes place once a contract has been completed and enables the Department to draw any lessons that can be learnt for the future particularly when pricing follow-on contracts. It can also be used to provide evidence for a reference to the Review Board. An awareness that the Department may Post Cost a contract also encourages observance of the application of Equality of Information principles at the time of pricing. This is because of the possibility that the contract could be post costed and inaccurate information could be detected at that stage. The Department normally selects for Post-Costing all eligible non-competitive contracts with an agreed price of £5 million or more. In 1994, the Department told the Committee of Public Accounts that subject to resources being available, it would also select for Post-Costing 75 per cent by value of those contracts in the £1 million to £5 million range placed on a NAPNOC basis to assess pricing accuracy. However, in recent years, and to try to improve the timeliness of Post-

1 Industry is defined as the reference group used for assessing comparability with non-competitive work let by the Government. Originally the yardstick was the overall earnings of British manufacturing industry. However, the decline of the manufacturing sector since 1968 has led to changes in the reference group. In 1998, with the agreement of the Department and industry representatives the reference group was defined as including all sectors of industry and commerce except for banking, insurance, investment trusts, mining, oil, gas, water, power, rubber and tea and companies controlled by overseas parent companies. Eurotunnel is excluded as an exceptional case.

2 Capital Asset Pricing Model (CAPM): a model that links the level of risk to be borne and the expected rate of return.

5 Examples of alternatives to Equality of Information Statements

The Department adopts a range of alternative approaches to obtain Equality of Information

Contract	Measure taken to ensure Equality of Information
VC10 Post-Design Services (PDS)	As the contract price was based on charging rates agreed under Government Accounting Conventions for pricing, no Equality of Information Statement was obtained.
High Velocity Missile Aiming Unit PDS	A price breakdown was provided by the contractor during the pricing investigation, which enabled a full report to be produced. This gave the Department assurance of a "fair and reasonable price".
GEM Supply of Service Spares	The depth of the SPS investigation and the ability to directly interrogate the contractor's standard cost records on a real time basis precluded the need for a statement.
Tornado GR4/4A update	Prior to an offer of a contract being made, the Department undertook detailed analysis of the contractor's price estimates and utilised the data in the price negotiations that followed. On the basis of the information available to both parties at the time of pricing, the Department satisfied itself that the price was fair and reasonable, and the basis of the agreed price was recorded in a detailed report.
Message Handling System PDS	Grades and hours quoted by the contractor were examined in detail by the Department and considered reasonable.
Hercules Modifications	Follow-on contract to previous contract won in competition - prices based on those secured in competition.
Sea King Flight Safety Equipment	The contractor's auditors confirmed that the Department was paying "best company prices".
Supply of Matador Infra Red Lamps	This was a requirement for proprietary off-the-shelf equipment. Prices were in line with those paid by the US Government.

Source: National Audit Office

Costing the Department has advised the Committee that it only selects cases in this range where it judges there to be some benefit to be gained from Post-Costing, although it continues to monitor the position on these contracts.

- 1.16 The Department is reviewing how to improve the timeliness of Post-Costing given that delays can impair its effectiveness as they hinder the process of gathering the relevant information. Delays can also elongate the feedback loop for learning lessons. Furthermore, there is a question mark over the utility of aiming to post-cost 75 per cent of the contracts in the £1million to £5 million range given that their proportion in value (13 per cent in 1999) is so small.

Recommendation

The Department should conclude its review of Post-Costing activity to ensure that Post-Costing takes place within a timeframe that maximises the benefits.

Smart Acquisition is leading to further change

The Department has already begun to make use of partnering on non-competitive contracts

- 1.17 A key theme of Smart Acquisition is a change to a better, more open and interactive relationship between the Department and industry. Underpinning this, in 1998, the Department and the Confederation of British Industry issued a joint publication, "Partnering Arrangements between MoD and its Suppliers". Partnering or collaborative working covers a range of practices designed to promote more co-operation between contracting parties and maximise the effectiveness of resources. The comparator organisations, which we examined, were increasingly establishing close relationships with particular suppliers to identify synergies between each other's operations to achieve further cost reductions or service improvements.³

³ We have examined partnering in more detail in our report, *Modernising Construction (HC 87, 2000-01)*.

1.18 Currently the Department has 31 partnering arrangements of which 11 are non-competitive in origin. The Department anticipate a number of benefits emerging from partnering arrangements generally under the banner of improved long-term value for money and specifically through the:

- Incentivisation of performance as a condition for continuing the partnering arrangement.
- Encouragement of investment through a more assured long-term relationship.
- Encouragement of innovation through a willingness to share ideas.
- Transparency.
- A reduction in costs.
- Fewer disputes.
- Exploitation of spare capacity.
- Encouragement of a sensible allocation of risk.

Recommendation

The Department should review whether there is scope to extend the application of partnering principles across more non-competitive contracts.

Under Smart Acquisition, arrangements for Equality of Information and Post-Costing could change

1.19 Some of the processes being introduced under Smart Acquisition could address the areas that have adversely affected the achievement of Equality of Information through extending the application of the principle beyond the point of pricing. They could also improve the timeliness of Post-Costing because the necessary data could be more readily available than is currently the case. For example:

- **Open book accounting**, which will mean that the Department and industry share information throughout the life of a programme.
- Project management techniques such as **Earned Value Management**, which enables a contractor to monitor progress not just on the basis of cost and schedule performance but also the value added, which can provide a much clearer indication of progress. By sharing this information with the Department both parties obtain a greater insight into progress on the programme of work. The technique is already being used, amongst other projects, on the Future Offensive Air Capability programme.

The working level guidance aids staff when they place non-competitive contracts, although it is dispersed

1.20 In the comparator organisations, we established that procedures involved in non-competitive procurement are typically defined in a relatively concise document, which is freely available throughout the organisation although protected from release to external bodies including the suppliers with whom it is planned to conclude such contracts. The document is far from being prescriptive about the processes to be applied.

1.21 The Department undertakes non-competitive procurement within a framework that is generic to all types of procurement activity. The Department has therefore developed a range of guidance on how non-competitive procurement should be undertaken which includes all contract amendments. We reviewed the guidance and found that it is dispersed among various publications and is sometimes out of date (Figure 6). The content of the guidance is broadly similar to that of the comparators although partly because of its more detailed procedures, it is less concise and, in places, provides a rather more detailed commentary on individual processes. The Department considers that this detailed guidance is appropriate to a large organisation where quite junior staff can be engaged on the many low-value non-competitive procurements.

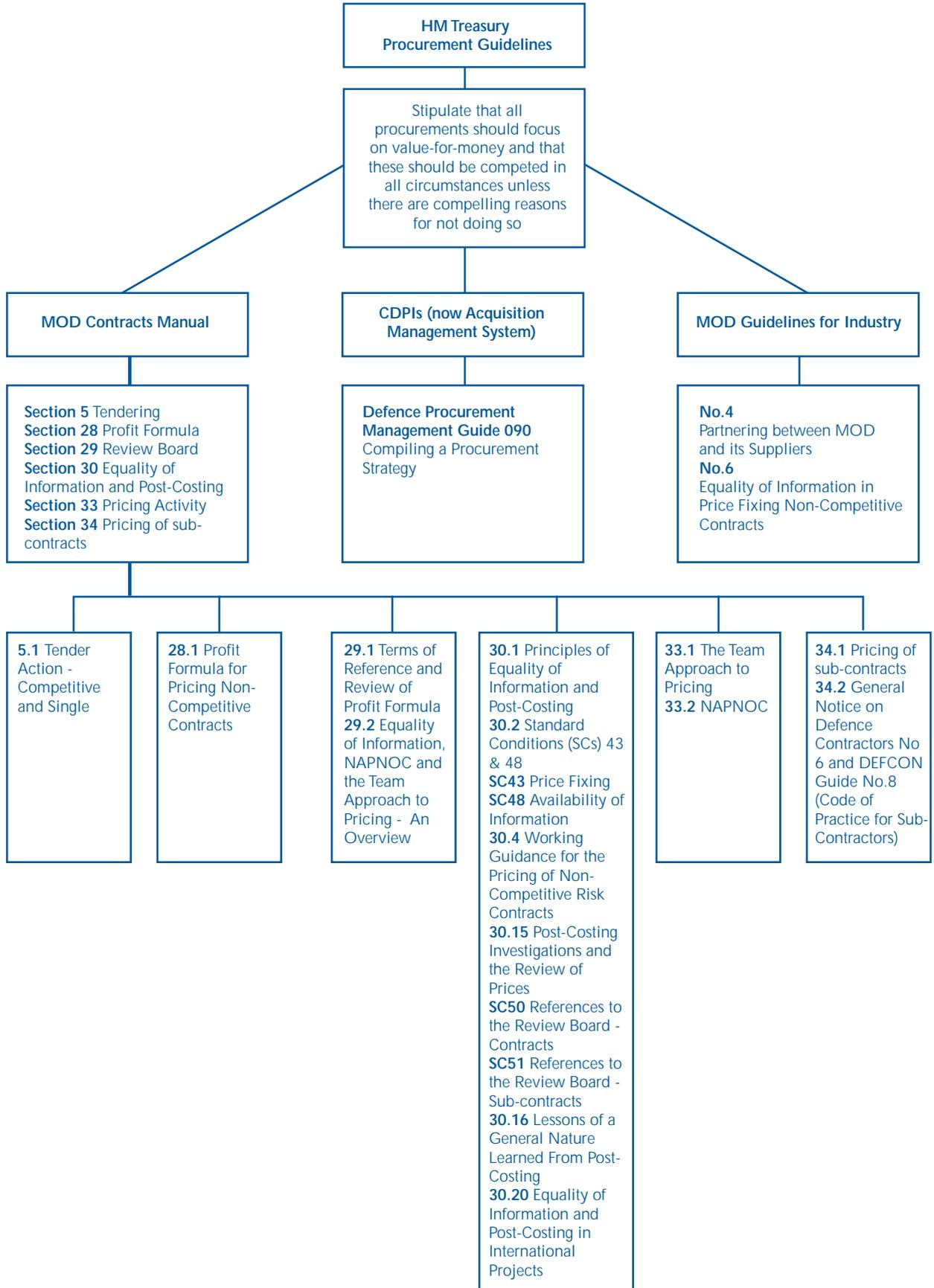
1.22 The Department has tried to establish coherence in its guidance on non-competitive procurement by linkages and cross-referencing within its own central guidance as well as guidelines, which are available to industry, on the way in which the Department conducts its business. However, the Department needs to review these processes for clarity and currency. Nevertheless, the results of our survey show that staff working on the majority of contracts we examined (some 76 per cent) found the Contracts Manual to be effective while a further 14 per cent of respondents described it as highly effective. This suggests a very high acceptance rate amongst the practitioners of non-competitive contracts.

Recommendation

The Department should conduct a review of its existing guidance on non-competitive procurement to ensure that it is both accessible and up-to-date.

6 Non-competitive procurement guidance

The Department's guidance on non-competitive contracts is dispersed



Source: National Audit Office and Ministry of Defence

Part 2

Conducting non-competitive defence procurements

2.1 When undertaking a non-competitive procurement the Department has a set of detailed working level guidance as outlined in Part One of this report. In addition to the need for effective guidance, the placing of non-competitive contracts is underpinned by four key aspects: the role of the pricing staff within the Specialist Procurement Services (SPS); the availability and use of Should Cost data; the management of risk arising from a non-competitive approach; and the visibility of sub-contracts. We discuss each of these elements below. This part, therefore, looks at the way in which the non-competitive processes are applied and whether this is in accordance with the guidance.

The key finding upon which our analysis is based is:

- Processes for placing non-competitive contracts generally work well but require improvement in some key areas.

The processes for placing non-competitive contracts work well but there is still room for improvement

The Directorate of Pricing within the Specialist Procurement Services plays a key, and largely successful, role in pricing

2.2 The Directorate of Pricing within the Specialist Procurement Services (SPS) provides the Department's pricing service. Pricing staff play a major role in the Department's examination of contractors' costing and financial management, and in pricing proposed non-competitive contracts. We found that pricing staff were used on a third (80 per cent by value) of all the procurement strategies covered by our survey. Pricing staff also contributed significantly to the work undertaken to produce Should Cost models which were developed on 38 per cent by number (71 per cent by value) of the contracts we surveyed.

Project staff generally perceive pricing staff as performing well

2.3 Ninety per cent of respondents to our survey were satisfied with pricing staff's work on their contracts while our survey also showed that pricing staff identified errors in estimates provided by contractors in 48 per cent of contracts. On all contracts in 2000-01, pricing staff identified £91.5 million of savings on 171 contracts that had an agreed price of £602 million with the contractor, an average rate of saving of 15.2 per cent. Pricing staff also estimated another £291.8 million of savings on another 309 contracts which were valued at £1,550 million, the price of which had yet to be agreed, which equates to an average rate of saving of 18.8 per cent.

Pricing staff have contributed to significant reductions in prices

2.4 Prior to the advent of Integrated Project Teams, the Department's guidance emphasised the utility of a "team approach", whereby Project, Finance, and Contracts staff worked with pricing staff to ensure insight into all elements of the negotiating process so as to achieve the best possible price. This approach has worked well on, for example, the Astute programme where pricing staff's advice arose from the need to bring the price down to within the Department's estimated figures (against which the budget had been set). [****] There was open and full dialogue between the Department and the contractor. Pricing staff used their expertise in estimating based on the Department's previous experience in direct contracting for submarine design, build and support to provide a framework within which the target price incentive negotiations between the Department and the contractor could move forward. [*****]

The arrangements for pricing contracts placed with overseas contractors do not always result in the Department receiving the required information

- 2.5 The Department procures approximately 10 per cent of its equipment and services from overseas and has agreed Memoranda of Understanding with a number of nations to facilitate this process. However, when such procurement is non-competitive some of the processes that underpin the Department's conduct of non-competitive procurement within the United Kingdom are not relevant. For example, Equality of Information may be difficult to obtain and the deterrent of referring a case to the Review Board in respect of perceived asymmetries of information is not available in these arrangements.
- 2.6 The most important Memorandum of Understanding is that between the United Kingdom and the United States, which dates from 1984, and allows the respective pricing agencies in each nation to undertake pricing services on the other's behalf. When the Department buys equipment from an American contractor, either pricing staff or the project office, acting through the United Kingdom's Defence Procurement Office in Washington, will place a request upon the Defence Contracts Management Agency (DCMA) who place a task on the Defence Contracts Audit Agency (DCAA) to perform the required pricing. The DCMA is the agency of the United States Government that manages contracts let by the United States armed forces and under the Foreign Military Sales arrangements.
- 2.7 In some cases, United States companies have not always provided data on the grounds that they consider it to be commercially sensitive. For example, the DCAA was required to produce its report on Boeing's proposal on the Sentry E-3D follow-on PDS contract prior to receiving the technical analysis to be carried out by the DCMA under the reciprocal audit arrangements. The DCAA considered this analysis to be essential to its work and qualified its report accordingly. However, when the DCMA did produce its analysis, it was incomplete, as Boeing had not submitted adequate cost/pricing data.
- 2.8 Recognising such difficulties a recent trend has been for national pricing bodies to assist with pricing activities under the terms of the various Memoranda of Understanding. Under these arrangements visits would be restricted to the pricing body meeting with the host nation's pricing staff and would not involve a direct meeting with the contractor. [****]
- 2.9 The Department also has in place further Memoranda of Understanding with Canada, France, Germany, Australia and South Korea which contain reciprocal audit and pricing arrangements similar to those with the United States. One example from our survey was a contract for Gazelle spares which was placed taking into account advice from the DGA audit branch, the French equivalent of the Department's Pricing Directorate. The project

team informed us that it had no oversight of their work, but that they did receive an assurance that, at the time of pricing, the Department was not paying higher prices for spares than the French Ministry of Defence. We are concerned that the arrangements in place for pricing contracts with overseas contractors should always offer complete assurance that value for money is being achieved. Greater visibility of reciprocal pricing reports in such circumstances would enable a more informed judgement of value for money to be made.

Recommendation

The Department should regularly review the arrangements it has in place for pricing contracts with overseas contractors to ensure that these arrangements provide the best possible assurance that value for money is being achieved.

In future, prioritisation of resources may become more of an issue for pricing staff given a decrease in its staff resources

- 2.10 Like the Defence Procurement Agency, the Directorate of Pricing has had its staff reduced in recent years and now employs 394 full-time equivalent staff with a budget of £12.5 million for the year 2001-02. After an internal review, staff numbers are expected to fall by a further 20 per cent by March 2003 and the Department is considering ways of mitigating this reduction through the consistently better presentation of good quality data by industry as well as through increased efficiency and the better prioritisation of tasks. Some 86 per cent of survey respondents felt that pricing staff were adequately resourced though there were exceptions to this satisfactory picture. For example, on the StingRay Post Design Services contract, pricing staff were forced to re-prioritise its resources, which resulted in delays (also see paragraph 3.5).
- 2.11 The extent to which the picture of Directorate of Pricing as a properly resourced outfit can be maintained may be questionable given that the demands on their expertise are likely to increase. This is due to the increased likelihood of non-competitive procurement as a result of industrial consolidation, for example, in the missile industry. There will also be some need for the Directorate of Pricing to contribute to the pricing of non-competitive contracts which may be let with the newly privatised QinetiQ (formerly part of the Defence Evaluation and Research Agency). Any increase in the use of non-competitive procurement due to the extended use of the partnering process will possibly be counterbalanced by the increased availability of high quality data from suppliers as a condition of such partnering arrangements.

Recommendation

Any further consideration of the resources allocated to the Pricing Directorate should be assessed in light of the potential for improving the efficiency of the process as well as a quantified assessment of the benefits the Directorate produces, in relation to other priorities for resources.

The use of Should Cost data for pricing is key to non-competitive procurement

The use of Should Cost data is a key element of the comparative practice model

2.12 We established that a variety of techniques are used by the comparators and the Department to produce a proposed price for what an item should cost. These techniques include comparison with similar projects (high-level benchmarking) and bottom-up costing whereby each cost at the working level is examined to arrive at a total (low-level benchmarking). The costing may be undertaken in two ways:

- Personnel from the procuring organisation may use their technical expertise to determine what the product "should" cost according to the cited specifications.
- External consultants might be used so as to tap an area of specialised knowledge unknown to the procurer. Another advantage of this is that external personnel are liable to be more objective in their findings.

The Department makes some use of Should Cost data, mainly on its largest projects

2.13 The Department's guidance defines Should Cost as "an estimate related to a broad datum, including external yardsticks where applicable, so as to result in a more objective view of an acceptable price" (MOD Contracts Manual 33.2, "NAPNOC"). However, where new technology is being introduced or where a project has a high software content it is more intrinsically difficult to provide Should Cost data. We found that pricing staff use the same techniques as the commercial sector to develop models that will give an indication of an acceptable price. A Should Cost model was developed on 38 per cent by number (76 per cent by value) of the contracts we surveyed. **Figure 7** illustrates some of the techniques used by the Department in contracts where it developed a Should Cost model.

2.14 The following examples from the case studies highlight some of the problems that can occur when deriving Should Cost estimates:

- **A lack of historical data**

On the Bowman project, the partial lack of Should Cost data was remedied by using price benchmarking. However, this effort was hindered by a lack of historical data. The Department therefore applied the lessons which it had learnt from the procurement of the Astute submarines to make up for a lack of historical benchmarking information on Bowman. Among these lessons was a willingness on the part of the Department to let the contractor question details of the requirement for the equipment and to inform the Department where the main cost and risk drivers lay.

While the Department had the benefit of drawing on costing information from previous boat builds to feed the Astute cost model, the Bowman project had no such database on which to draw. Projects such as Bowman with a high software content are particularly difficult to estimate because of a general difficulty in accurately assessing the size of the development task or of the integration and validation task when software re-use is intended.

During the competitive project definition phase on Bowman, ITT, as one of the partners in the competing Crossbow consortium, demonstrated a derivative of the United States digital combat radio system, the Single-Channel Ground and Airborne Radio System (SINCGARS). Although there was a programme cost for this, differences in volume, production rate, and specification meant that an exact benchmark could not be drawn. Similarly, no formal Should Cost analysis was practicable on the contract for the production investment for the Eurofighter engine because of the novelty of the technology involved which involved the establishment of a state-of-the-art jet engine manufacturing facility. Given the lack of comparable facilities, the Department concluded that no adequate benchmarking exercise was possible.

- **The Should Cost model did not address all of the contract elements**

The Sentry E-3D PDS contract is divided into recurring and non-recurring tasks. The recurring tasks have a price set in the contract based on an agreed statement of work. The non-recurring tasks occur on an ad hoc basis and the number of hours for any particular non-recurring task is agreed in advance by the Department's engineers or other experts who can endorse the length of time a particular task will take. The hourly rates for the non-recurring tasks were agreed in the contract at the outset. The Department considered that this contract complied with the requirements of NAPNOC by having agreed hourly rates and by controlling the number of hours per task.

7 Techniques used in "Should Cost" Models

The Department uses a number of techniques when developing "Should Cost" models

Contract	Techniques used
Batch 2 Trafalgar Class (Astute)	This was a new class of submarine which was essentially a combination of new technology used in the VANGUARD class SSBNs and in updating existing submarines. The Department used High-level benchmarking, which utilised this detailed data. Parametric estimating techniques were used to give the Pricing Directorate an appropriate degree of confidence in its estimates. The Astute programme is subject to a target cost incentive fee (TCIF) contract, partly in acknowledgement of pricing uncertainty.
Covert Radar Altimeter for Tornado GR4/4A.	This model embraced comparative estimating techniques whereby the SPS report embraced Risk Analysis showing a range of projected costs compared with contractor's estimates.
Mobile Access to the Ptarmigan Packet Switch (MAPPS) communications system (Production)	The Model produced an estimate commensurate with industrial best practice. Some production costs were benchmarked.
Jaguar Engine Conversion	This used results from a risk analysis model and outputs from previous contracts.

Source: National Audit Office

The Department did not undertake any should cost analysis of the non-recurring tasks but recognising the need for prioritising unpredictable modification requirements made an estimate based on the available budget. The Department calculated that the cost of a two-year PDS contract with Boeing would be £10 million, comprising of £8 million for recurring tasks, and up to £2 million for the non-recurring tasks. As the contract progressed it became apparent that the figure for the non-recurring tasks was not sufficient and the actual outturn for the non-recurring tasks was £3 million. This variation occurred because the original estimate for the cost of the non-recurring tasks did not include drawing incorporation work, which updates the aircraft drawings as a result of modifications and should take place on a continual basis after each modification. This work cost approximately £1.3 million. In addition, a number of urgent and unanticipated tasks arose concerning the airworthiness of the aircraft (worth £0.07 million). While some of the non-recurring tasks were incorrectly estimated the Department assessed the price which it paid for the work to be fair.

Where no formal Should Cost model exists, the Department uses other means to achieve an estimate of price

2.15 There can not always be enough information available to produce a formal Should Cost model. Therefore the Department has to rely on other, more informal, means to achieve an estimate of the price of an item and contracting mechanisms which are designed to incentivise economy and efficiency where uncertainty remains. Some of these alternative approaches are shown in **Figure 8**.

Recommendation

The Department should ensure that it always utilises existing techniques to generate the best possible Should Cost data to ensure a robust pricing process.

8 Alternatives to Should Cost Models

Where no "Should Cost" model exists, the Department often uses alternative approaches to obtain should cost data

Contract	Measures taken
Conventionally Armed Stand-Off Missile (CASOM). Modification package of Integration and related items	Following a keen competition for the supply of the missiles (valued at over £500 million) a further package of work comprising integration and related activities was submitted by the contractor. This package of work was valued by the contractor at some £45 million and was examined by the Department's pricing staff who accepted the estimating logic and accuracy of the company's charging rates.
Gem Mk 204 and 205 Aero Engine Spare Parts for Army and Navy Lynx helicopters	The contractor produced spares price lists that were subject to audit by the Department prior to recommendation for acceptance. As some spares requirements are of a low value and are sporadic it would not have been economic to generate a Should Cost model. The Department carried out a detailed investigation into the high cost drivers.
Message Handling System PDS	A model was not deemed appropriate for minor value tasks where the Project Office had adequate oversight of the grades and hours quoted.
TAVERN Vehicles	The original price was quoted in competition before the contract was put on hold because of a change in operational threat. It was later given operational emergency status and the original preferred bidder was still assessed as having the best solution. Therefore, no model was required.
Replacement Used Nuclear Fuel Storage	In the limited time available, the Department generated a broad assessment of the contractor's tender, which had been prepared with a view to compete and therefore made a model unnecessary.

Source: National Audit Office

When placing contracts, the Department does not always manage the risks raised by their non-competitive nature

The use of risk registers on non-competitive contracts was limited, with few using a joint risk register

2.16 A risk register is a way of codifying a project team's risk assessment of a project, and includes the pricing period as well as the execution of contracts. It can then be used as a tool for managing the project as it matures. We found that a risk register was compiled on only 40 per cent of the contracts we surveyed, although a risk register was used on nine out of ten of the highest value contracts. The Department's guidance, issued in late 1998, refers to the developing use of joint risk registers as an aid to pricing. This is reflected in our survey finding where 26 per cent of the contracts that featured in the survey had a joint risk register, most of which were let prior to the guidance being fully issued.

Recommendation

All NAPNOC contracts should have a joint risk register.

Most risk registers did not address the risk raised by the non-competitive nature of the contract

2.17 The vast majority of risks that were highlighted by the contracts in our survey are common to all types of procurement and cannot be ascribed to whether the contract is competitive or non-competitive. Only three of the contracts we surveyed considered the possibility of risks emerging because of the non-competitive nature of the contract. The Sentry E-3D follow-on PDS contract is an example where the risks relating to non-competitive procurement were highlighted and addressed. In particular, the project team identified the possible causes of delay which might occur and which might prevent the new contract being signed on time and the contingency measures that would be put in place to prevent there being any possible break in the service designed to support and maintain the aircraft.

Recommendation

Risk registers for non-competitive contracts should include an assessment of the additional risks due to their non-competitive nature.

There is inconsistent use of project risk registers to take account of changing risk on a number of contracts

- 2.18 For large projects such as those featuring in the Major Projects Report there may be a number of associated contracts addressing all stages of the procurement cycle and it is therefore important that either a risk register takes account of all of these contracts so that all possible risks to the project are highlighted or there is a risk register for each contract. For smaller contracts such as the StingRay PDS contract where the company is the design authority for the torpedo, the project team did not draw up a risk register which covered that specific contract. While no risks emerged during this particular contract other than time delays, the team will establish a specific risk register for the next follow-on contract. The Sentry E-3D follow-on PDS contract did establish a risk register that was contract specific and which evolved during the procurement to address changing risks.
- 2.19 On the Astute submarine, the contractor GEC-Marconi undertook a number of risk reduction contracts which were designed to produce an affordable technical and commercial solution. Following an Investment Appraisal of the potential procurement strategies for the Bowman project, a single-source, risk-reduction contract was let with Archer Communications Systems Ltd (ACSL). A joint risk register was regularly reviewed and acted upon.

The Department does not maximise sub-contract competition on non-competitive contracts

- 2.20 The Department's guidance stresses the importance of ensuring that as many sub-contracts as possible are awarded as a result of competition. The preferred approach is for the Department to monitor competitions though the prime contractor should take responsibility for running the competitions. Such an approach gives those competing for sub-contracts the assurance that competitions will be fairly run and that the prime contractor's subsidiaries or companies involved during any earlier work on the requirement are not unfairly advantaged. In practice, our survey showed that sub-contracts were competed in only 24 per cent of the contracts by number (although one of these contracts was for Astute which constituted 54 per cent of the value of all the contracts included in the survey). These contracts are listed in [Figure 9](#).

- 2.21 The following examples from the case studies highlight problems surrounding the competing of sub-contracts:

- **Unrealistic targets for competition**

On the Bowman project, the Department intended that NAPNOC work would account for 10 per cent of total production costs with competition accounting for the other 90 per cent (50 per cent full competition and 40 per cent limited to members of Archer Communications Systems Ltd (ACSL)). In the event, some 65 per cent by value was competed or due to be competed. The shortfall was partly because of a perception that the shareholders in ACSL were pre-eminent in military communications and best placed to win much of the work.

- **Problems with proprietary items resulted in a reduction in sub-contract competition**

The Combined Arms Tactical Trainer (CATT) was initiated as a single source procurement to exploit technology that had already been developed for an equivalent trainer for the United States Army. A specific part of the prime contract for CATT identified those elements of the project which were to be the subject of sub-contract competition. In practice the contractor, Lockheed Martin, identified that some of these elements were not conducive to full competition and made them single-source in part because of the proprietary nature of the equipment concerned. The Department considered that the contractor had to take that course of action as a result of a lack of forward planning although the contractor denied that this was the case.

The Department does not always have appropriate visibility of the work done by sub-contractors

- 2.22 The Department's guidance states that, wherever appropriate, it should have visibility of how prime contractors organise and place their sub-contracts. The Department also has conditions which it uses in its contracts to cover the issue of how sub-contractors should be managed. Particular consideration is given to the extent to which the Department becomes involved in this process so as to avoid compromising the prime contractor's responsibilities under the terms of the contract. Of the NAPNOC contracts we surveyed, 37 per cent of those with sub-contracts did not have conditions in place which gave visibility of sub-contracting activity although the largest contracts such as that for Astute covered the point fully.

9 Contracts that competed sub-contracts

The extent of competition of sub-contracts on non-competitive prime contracts is variable

Contract	Sub-contracts as a proportion of contract value	The proportion by value of sub-contracts which were competed
Long Lead Merlin Spares	89 per cent	25 per cent
Core Refuel Update	30 per cent	65 per cent
StingRay Life Extension	31 per cent	1 per cent
Merlin Spares	89 per cent	25 per cent
CASOM Integration and related items	85 per cent	74 per cent
Warrior Road Wheels	20 per cent	20 per cent
VSC330 Modems supplied to a number of satellite communications projects.	20 per cent	5 per cent
Enabling Arrangement - AS90 Spares	95 per cent	10 per cent
Batch 2 Trafalgar Class (Astute)	80 per cent	60 per cent
Submarine Command System Oceanography Software	63 per cent	35 per cent
Pressurised Water Reactor for Swiftsure/ Trafalgar Class submarines	84 per cent	10 per cent
Supply of Gazelle airframe spares	28 per cent	20 per cent
MAPPS	17 per cent	13.5 per cent
TAVERN Vehicles	55 per cent	50 per cent

Source: National Audit Office

2.23 There are a number of examples where visibility has proved key to the management of the contract:

- The prime contractor, RO Defence (originally VSEL) is responsible for the oversight of sub-contractors on the contract for AS90 spares. Initially, certain sub-contractors were reluctant to provide the pricing information which the Department's pricing staff required. The Department has used its Code of Practice on the visibility of sub-contractors to good effect and as a result RO Defence is now managing its sub-contractors more effectively than before.
- Traditionally for submarine building the Department sub-contracted directly with suppliers. On Astute, in line with the terms of the contract, the prime contractor implemented the process for the competitive selection of sub-contractors though in practice the Department had free and open access to any information it required. At the request of the contractor, the Department's pricing staff have subsequently become involved in some sub-contract pricing through the Department's Integrated Project Team.

■ [****]

Developments in supply chain management and relationships could offer greater flexibility in securing value for money

2.24 In recent years, much of industry including the defence industry has moved towards establishing longer-term and more open relationships with a smaller number of key suppliers. On many major defence programmes, prime contractor costs account for less than one third of the total programme cost and, in common with general industry trends, defence prime contractors have therefore sought to achieve continuing improvements in the efficiency and competitiveness of suppliers. The comparators recognise that it is in the interest of the prime contractor to maximise the value to the overall procurement of any sub-contractor involvement.

2.25 One of the tenets of the Supply Chain Relationships in Action (SCRIA) initiative, championed by the Society of British Aerospace Companies, is that traditional management practice and interfaces between a supplier and customer inhibit effective supply chains. Smart Acquisition seeks to embrace best commercial practices in areas such as partnering and other co-operative working techniques and the Department has recently agreed with Industry a set of codes of practice on the commercial framework. These codes are essentially behavioural in nature and demonstrate a commitment by both sides to work together to establish mutually satisfactory relationships based upon openness and trust. One of the codes sets out arrangements in the area of sub-contract competition and the way in which the Department might play a pragmatic part in this process in certain circumstances. Thus, whilst the Department wishes to see the widest possible application of competition for sub-contract activities, it also recognises that a contractor's

long-term strategic relationships with suppliers may also provide value for money.

2.26 The Department is also developing a technique known as the Soft Issues Bid Evaluation Tool (SIBET) to assess the "softer" relationship and cultural issues that are crucial to such long-term relationships but which have previously received little attention in assessing potential contractors. The MOD/Industry Commercial Policy Group has recently published a guideline on the use of SIBET. Experience in the use of the tool is being jointly monitored on a quarterly basis. This evaluation can complement the intent to take past performance ("track record") into account when awarding contracts.

Recommendation

The Department should ensure that it has visibility of how the contractor manages its sub-contracts.



Part 3

Outcomes and monitoring of the Department's non-competitive procurement processes

3.1 The Department's aim, when placing non-competitive contracts, is to ensure that it achieves an affordable price within an acceptable time-scale. We therefore examined how well the Department is meeting these objectives. We also examined how the Department monitors its non-competitive procurement and uses this information in future procurements. The three key findings upon which our analysis is based are:

- The Department successfully applies NAPNOC principles to reduce prices although the placing of contracts may be delayed.
- The extent to which non-competitive contracts are completed on time, and the accuracy of prices, varies.
- There is scope for the Department to make better use of the monitoring it undertakes on non-competitive procurements and to utilise the lessons it learns from past experiences more effectively.

The Department successfully applies NAPNOC to reduce prices although the placing of contracts may be delayed

The Department's non-competitive procurement processes normally result in a contract being placed

3.2 The Department has recorded that since NAPNOC was introduced only two out of the 1,850 non-competitive contract negotiations have ended without agreement on an Acceptable Price and resulted in no contract being awarded. Whilst price was not the only factor involved it can be argued that such a scenario also occurred on Bowman. In March 1999, ACSL submitted a proposal for the supply and support contract which the Department considered was unaffordable. In an attempt to reduce the cost of the programme, the Department engaged with ACSL to identify flexibility within the requirement and a team of Departmental pricing staff was co-located

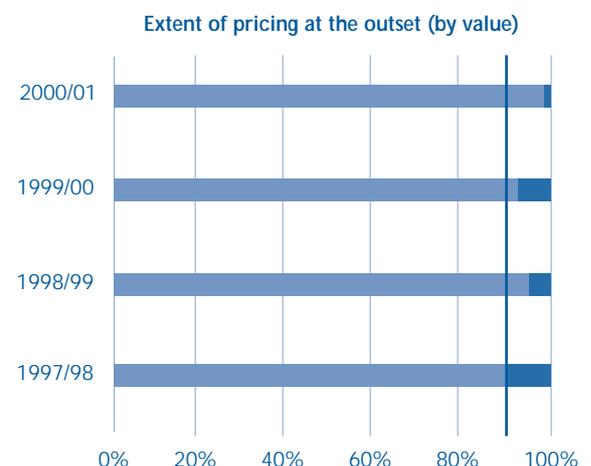
at ACSL to review the contractor's costings. In June 2000, ACSL submitted a formal bid to the Department of [****] which remained unaffordable because the true cost of the bid was of the order of [****]. In July 2000, the Department decided to re-introduce competition for the Bowman project and a contract was placed in September 2001 with General Dynamics United Kingdom Ltd (formerly known as CDC Systems UK).

The vast majority of non-competitive contracts are priced at the outset

3.3 The Department has had a target in place for pricing at the outset since NAPNOC was introduced in 1992. The Department agreed with the Treasury that, by 1997-98, 90 per cent by value of all non-competitive risk contracts should be priced at the outset, calculated as a three year rolling average. **Figure 10** shows that the Department has successfully met or exceeded this target in each of the four years.

10 The extent to which non-competitive contracts are priced at the outset

The Department meets or exceeds its target that 90 per cent of all contracts are priced at the outset



Source: National Audit Office

The Department's non-competitive procurement processes have generated some significant reductions in prices

3.4 A key aim for the Department when entering negotiations on non-competitive contracts is to achieve an affordable price without reducing the quality or delivery of the equipment. A good example where the Department adopted this approach was in the negotiations of the price for the Landing Platform Dock (Replacement) vessels. VSEL submitted its bid in July 1995. In September 1995, pricing and project staff undertook a broad comparison of VSEL's bid with their original Should Cost figure from 1992 but concluded that due to the limited availability of the data from the contractor they could not provide up-to-date Should Cost data at that stage. The Department therefore compared VSEL's original bid with its cost cap from 1992 as updated to 1995 prices. This provided the Department with a robust view of the proper costs to be attached to the project and underpinned the Department's negotiating position. After detailed negotiations between the Department and VSEL, which included a review of the potential for productivity improvements and a revised approach to overhead attribution so as to separate submarine from surface ship work, a contract was placed in July 1996 at a price within the Department's estimate. [****]

The Department's approach to negotiating contracts can mean the placing of the contract is later than planned

3.5 A significant responsibility is placed upon defence contractors to provide the Department with the data necessary for the negotiation of a non-competitive contract. For major programmes, the level of this data can be significant and there may be cases when the data is provided in an incremental manner as it becomes available or for other industrial reasons. Seven of the contracts we examined in our survey failed to meet their original timetable for placement. Some contract negotiations can be delayed because of the burden placed on Departmental staff to examine costs and to prepare a report to be used as a basis for negotiation while, as shown below, industrial reasons can also be a factor.

- As discussed in paragraph 1.6, on the Astute programme, in December 1995 GEC-Marconi was selected as the preferred bidder. In view of the gap between the contractor's tender and the Department's estimate the Department initiated NAPNOC negotiations to arrive at an acceptable contract at an affordable price. This took nine months longer than the competitive plan given the substantial, additional, detailed cost breakdown data required and the difficult and intensive negotiations which followed.

- As a result of the NAPNOC negotiations on the Landing Platform Dock (Replacement) the Department achieved a substantial reduction in the initial bid price for the vessels. The need to negotiate with a single-source supplier did prolong negotiations which the Department had not foreseen.
- On the contract for AS90 spares, there was a delay of six months compared with the timescale allowed in the procurement strategy. A fundamental factor in the delay was the number of sub-contractors involved in this contract. Because RO Defence (originally VSEL) was not willing to give the Department prices unless it had a quote from the relevant sub-contractor, it was not possible for the Department to make any estimates on price in a timely manner.
- On the StingRay PDS contract, pricing staff complained about the short timescales which they had been given in which to complete their work. In the event their report was delayed as a result of precedence given to a request from the United States for price investigations and because of the need to complete other work for the Chief of Defence Procurement. The contractor involved, GEC-Marconi, was forced to send a revised quotation to take account of the delay. In this instance, pricing staff were not brought on board early enough although in the view of the project team the quality of its reporting when it was completed was good. In the event, the placing of the contract slipped by 12 months.

Recommendation

There needs to be greater realism regarding the timescales set for negotiating non-competitive prices.

The extent to which non-competitive contracts are completed on time, and the accuracy of prices, varies

Performance in meeting contractual timescales is generally good

3.6 Over two-thirds of the contracts in our survey which had been completed have met the time schedule for executing the contract and the non-competitive nature of the contracts was not a cause of delay on the other contracts. Rather, the same sorts of reasons that apply to delays on competitive contracts also apply to single-source contracts.

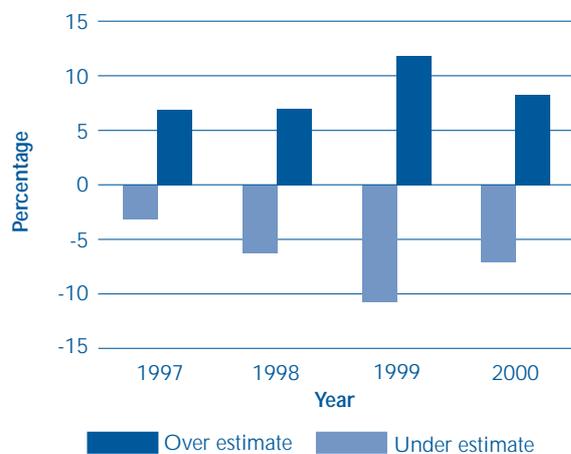
The accuracy of pricing is variable

3.7 **Figure 11** provides a summary of the results of the Department's Post-Costing exercises completed for the last three years. Taking an average for the years 1997-2000, some 47 per cent of contracts by value had an outturn price which was more than five per cent above or below the original estimate of the price. The average variation on all contracts was 3.5 per cent below the contractor's original estimate.

11 Fully analysed Post-Costing results, 1997-2000

The overall variances on outturn prices against estimates have fluctuated since 1997 but show a broadly increasing trend

Variation on fully-analysed post-costing results



Source: Ministry of Defence

3.8 Figure 11 does not reveal the extent to which there can be wide fluctuations in variation on agreed costs [****]. Over the four-year period from 1997 to 2000, some 19 per cent of Post-Costing results for NAPNOC contracts exceeded the ten per cent "trigger" figure, (which allows for referral of the contract to the Review Board). In that same period 8 per cent of the results represented contracts where the contractor made a loss beyond the corresponding negative ten per cent "trigger" figure. The majority of these cases were post costed in 1999.

There is scope for the Department to make better use of the monitoring it undertakes on non-competitive procurements and to utilise the lessons it learns from past experiences more effectively

The timeliness and accuracy of non-competitive data is mixed

3.9 The Department holds a range of data on its non-competitive procurement in two separate databases. In part, this reflects the varying purposes for which the data is collected - as either a return to monitor contract placement or as part of a bill payment procedure. We found that there were inconsistencies between the two databases, that this data was not always incorporated in a timely manner and was not always brought together in a single point of reference. The Department hopes that the quality of the data available to it to monitor non-competitive procurement performance and trends will improve when a new Information Technology application, ASPECT, is introduced in late 2001.

The Department still focuses on its 75 per cent performance measure for the value of contracts to be placed competitively

3.10 At present, the prime use which the Department makes of the data it gathers on non-competitive procurement is to monitor its performance against its performance measure that 75 per cent of its procurement by value, as a three-year rolling average, should be undertaken through competition. Not only are there shortcomings in the quality of the data available, but the Department does not make systematic use of the available data to assess long term trends or the potential impacts on value for money.

3.11 A performance measure of achieving 75 per cent of procurement through competition had a greater logic when the measure was first introduced in 1993 and the emphasis was on encouraging a step change in the level of competition. In our view, it is of less utility now, given changes in both the supply side (fewer, larger global defence companies) and the demand side (the introduction of Smart Acquisition). The Department did review the performance measure in 2000 but decided that it should remain in place for the time being given its utility as a yardstick.

The comparators place greater emphasis on the achievement of value for money

3.12 We found that the comparator organisations use data gathered on non-competitive procurement in a number of ways to focus on maximising the benefit to their business. In particular:

- **Via the business case for the procurement**, which will typically define the likely return on investment and hence set a bound on the acceptable costs associated with the type of procurement. Hence a non-competitive route may be selected even if the contracted "cost" is likely to be higher, because this is over-ridden by the value associated with, for example, timely delivery or establishing a long-term relationship with a supplier. There may also be instances where the overall cost of the procurement is lower for a non-competitive procurement - this is particularly likely with low value procurements or where a "commodity" product is being procured, the price of which is already subject to competitive pressures on the open market.
- **Once a non-competitive procurement approach has been adopted**, by establishing targets (often with associated staff incentives) for improvements in the value for money to be achieved during the procurement. These improvements would typically accrue as a result of contract negotiations, and may be a reflection of reductions in cost, risk, and timescales or a refinement of the detail of the requirement.

Recommendation

The Department should manage and understand its business by always focusing on value for money and should again review the need to have a set performance measure for the amount of procurement it competes.

There is no overall mechanism in place for ensuring that the Department draws lessons from its non-competitive procurements

3.13 The Department has had a Lessons Learned database since 1991 although the majority of entries have been made since 1997. The aim of the database is to act as:

"A mechanism whereby positive and negative lessons learned from past or current projects can be formally recorded and fed back into the procurement process, in order to improve the performance of future projects and, where possible, to influence current projects".

The database is sub-divided into a number of sections but does not have a specific section on non-competitive procurement and as a result the Department has few formal high-level lessons on the reasons for placing non-competitive contracts. Any such lessons do not generally inform future guidance on the non-competitive process although senior staff will generally apply the lessons learned from their own experience.

- 3.14 Similarly, our survey found that one-third of respondents had drawn lessons from the way in which their contracts had been managed. One such lesson was the benefits of having pricing staff involved as early as possible which is a reflection of the available guidance. Another common lesson was the need for good working relationships with the contractor.
- 3.15 For example, on Astute, the "joined up" approach of the pricing team involving project, commercial, financial and pricing staff led to a greater understanding of each other's roles in the process. The Department is currently considering a further buy of Astute Class submarines and intends to exploit the lessons learnt from the initial batch pricing activity just as it has already in many other projects.

Systematic post-project evaluation is an important element of the comparative practice model

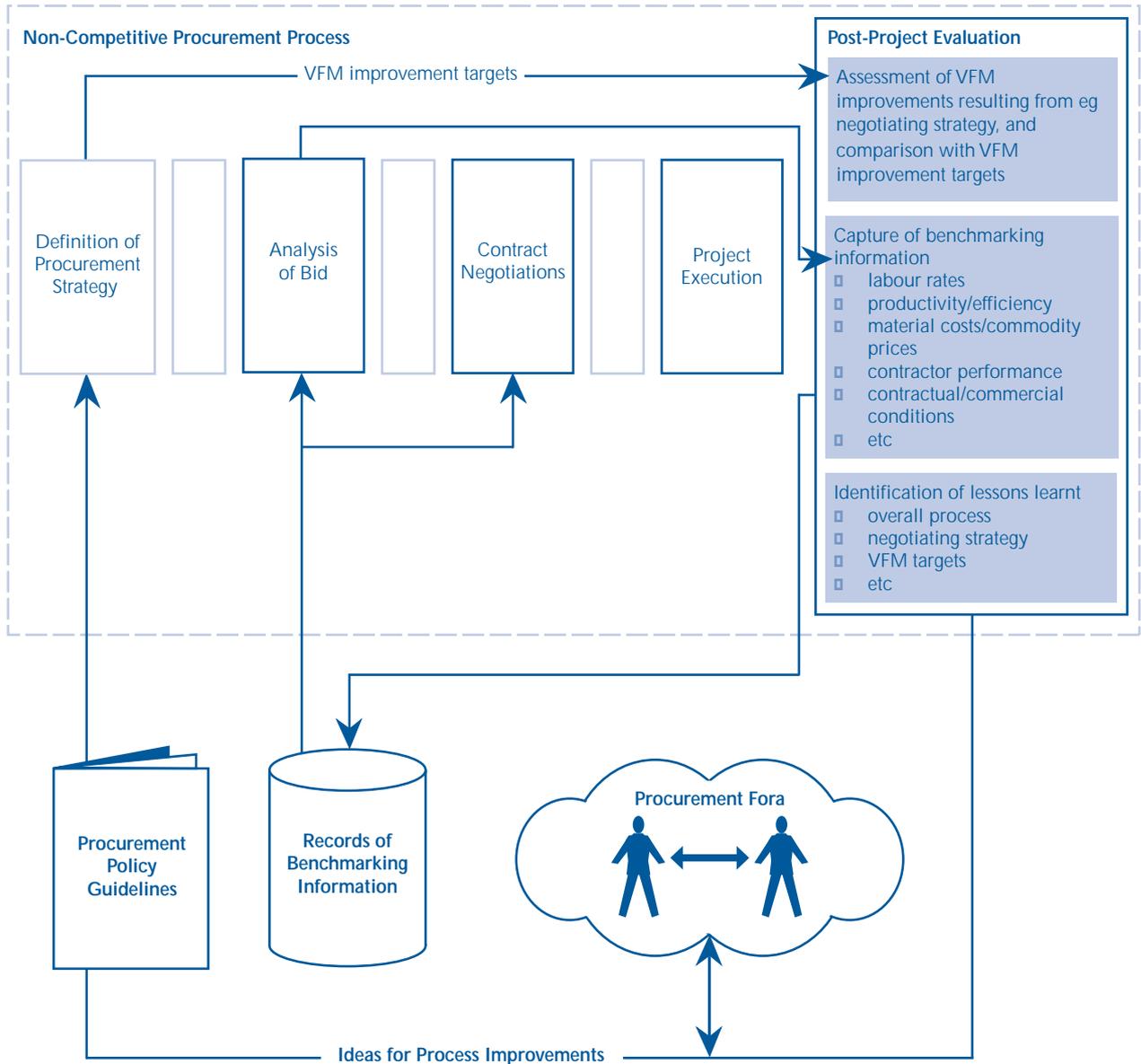
3.16 We found that the commercial comparators typically undertake a series of post project review activities (Figure 12). Such activities cover:

- **The evaluation of any value for money improvements** achieved as a result of the application of the non-competitive procurement procedures defined in the procurement strategy for the project, including comparison with any targets defined in this strategy. The evaluation of any improvement necessarily takes into account the cost of any additional effort incurred by the contracting organisation itself during the process.
- **The capture of any benchmarking information** to inform future procurements. Information should include:
 - labour rates;
 - material costs and commodity prices; and
 - productivity and efficiency rates.

In addition, the comparators collate information on the performance of particular contractors, and on the contractual/commercial conditions accepted by the contractor. This information is stored in a corporate knowledge database.

12 Elements of post-project evaluation within the comparative practice model

Commercial best practice shows that post-project evaluation places an emphasis on value for money



Source: Idetica Limited

- **Identification of any lessons learnt.** Lessons cover any aspect of the procurement from the detail of the procurement approach (for example, aspects of the negotiating policy or the manner in which the requirement is conveyed to the contractor) to the value accrued to the business of applying this

approach. Any lessons identified (both positive and negative) will be reviewed and, following appropriate consultations, be used to refine the procurement process as defined in procurement policy guidelines.

Appendix 1

Study methodology

Introduction

The National Audit Office undertook two main exercises in obtaining evidence for this Report while it employed consultants to undertake a third exercise. The exercises were designed both to capture existing information and to generate new information. This Appendix describes the methods employed and the use made of the results.

Exercise 1: Survey of NAPNOC Contracts

Sample size and selection

To ensure that we would be examining a sufficient number of contracts that had been completed we set the population from which we drew our sample as all NAPNOC contracts that had been let between January 1996 and December 1998 inclusive. This was generated from a database held by the Department which is collated from information provided by contract branches. As this data is not generated in real-time, a few contracts were actually let outwith the aforementioned dates. The population comprised some 633 contracts after amendments and Royal Dockyards contracts, which may feature in a separate report, were deliberately excluded. It was initially divided into small, medium, and large contracts in accordance with the Department's guidelines:

Small: Between £1 million and £10 million, of which there were 550 contracts. We included thirty-one of these contracts in the survey.

Medium: Between £10 million and £100 million, of which there were 70 contracts. We included twenty-two of these in the survey.

Large: Over £100 million, of which there were 13 contracts. We included six of these in the survey.

All service environments - land, sea, and air - were reflected in the survey, as were contracts from each of the three years featured. The representative sample, producing results at a 90 per cent confidence level, and with a precision of plus or minus 15 per cent, was as follows:

	Land	Sea	Air	TOTAL
Small	10	14	7	31
Medium	10	6	6	22
Large	0	5	1	6
TOTAL	20	25	14	59

In the event, one of the contracts, that for LDCN - Wire Framing, was inadvertently entered on the Department's database when in fact it was not a NAPNOC contract. Therefore, the actual survey sample was 58 contracts (all of which are listed in Appendix 2), a number that does not diminish the validity of the sample.

The value of the contracts sampled was £3,348.6 million which was 41.5 per cent of the value of the population as a whole.

Method of collecting data and response rate

A self-completion postal questionnaire was used. This was distributed to the relevant contracts branch responsible for each contract. Every questionnaire was completed and returned before or not long after the deadline set by the National Audit Office. Each response was usable for the purposes of the survey.

Coverage of the questionnaire

The questionnaire was constructed in five sections with the following main headings:

- General information
- Procurement Strategy
- Pricing the contract
- Management of the contract
- Contract outcomes

Most of the questions were of the "closed" form so as to allow quick and easy tabulation, analysis and comparison. The majority of questions sought straightforward factual information from the respondent whilst some required a measure of judgement. A questionnaire helpline, staffed by members of the National Audit Office study team, was available to provide assistance at all times.

Presentation of results

The results of the survey have been used in the Report in three main ways. Firstly, responses have been aggregated for a number of the questions to illustrate the overall picture with regard to non-competitive procurement. Secondly, information has been taken from some of the survey projects to illustrate or reinforce points where appropriate. Thirdly, seven of the most interesting responses were used as Case Examples, and involved some detailed follow-up work being conducted by the National Audit Office. These are listed in Appendix 3.

Exercise 2: Case Study analysis

Selection

Four contracts were selected as case studies to provide an in-depth understanding of the successful application and constraints on the use of non-competitive procurement through the acquisition lifecycle:

- Bowman, a major single-source procurement that had originally been subject to competition and has since been competed again.
- The Landing Platform Dock (Replacement), a non-competitive procurement which the Department considered to have worked well.
- The Combined Arms Tactical Trainer, a contract let non-competitively with an overseas prime contractor.
- Sentry E-3D Post-Design Services follow-on contract. This was of relatively small value and was selected because of its size and place in the acquisition lifecycle.

More details of each contract are provided in Appendix 3.

Objectives

Given the small number of contracts examined, the National Audit Office undertook an in-depth but tightly focused analysis of each against a common audit programme. Information was gathered through file examination and interviews with project managers, contracts staff, pricing staff, equipment users, and, where possible, the contractor(s).

The key issues that the case studies addressed were:

- The utility of the Department's guidelines on non-competitive procurement, and the extent to which these were understood and adhered to in practice.

- Whether the Department's approach to non-competitive procurement was sufficiently robust to ensure that the risks to value for money were minimised.

The following questions were key to each case study:

- Was the decision to select a single-source supplier based on a sound approach that offered best value for money?
- Were all the key parties in the Department fully involved throughout the process, were they properly resourced, and did they take a "team approach" (in other words, were Project, Contract and SPS staff involved in the negotiating process)?
- How was the pricing of the contract carried out? What sort of data was used, what techniques were used, what timescales were applied, and was Equality of Information achieved?
- What was the nature of the Department's relationship with the contractor, whether "partnership" or arms length, and how did this affect the conduct of the contract?
- What is the Department's approach to evaluating lessons learned from non-competitive contracts, and is it building up a body of experience to this end?

Exercise 3: Analysis of comparative best practice

The National Audit Office employed Idetica Limited (formerly The Smith Group Limited) to identify a model of comparative practice for the procurement of equipment, goods and services in a non-competitive market. The aim was to compare and contrast the approach adopted by the Department in placing non-competitive contracts against the comparative practice model.

The approach which Idetica adopted was to canvas a number of leading organisations to document their procurement practice in letting non-competitive contracts, and then to combine these into a single composite model of comparative practice. Idetica adopted a two-stage approach to the work. Initially, they selected eight organisations for study which they discussed with both the National Audit Office and the Ministry of Defence. Idetica conducted preliminary investigations of the non-competitive practices used by these organisations through the use of questionnaires and telephone interviews which they structured using a generic model of non-competitive practice that they had drawn up. They mapped the results from this survey onto the generic model to give a representation of the process undertaken in each organisation. These process diagrams were then validated by the relevant organisations.

The eight organisations selected for this initial phase were:

- British Gas;
- British Telecommunications (BT);
- Eurocontrol - the European organisation responsible for the safety of air navigation;
- The Ford Motor Company;
- Lockheed Martin UK Government Systems;
- Shell UK Oil Products;
- The UK Atomic Energy Authority; and
- The UK National Air Traffic Control Services (NATS), part of the UK Civil Aviation Authority (CAA).

These organisations were selected to give a representative spread of different types of organisations in both the public and private sectors that undertake non-competitive procurement. We took the decision that we would not include defence contractors but would include a range of non-defence organisations which undertook significant amounts of non-competitive procurement. After the initial results were analysed, Idetica selected three of these organisations for further study. This selection was based upon the perceived effectiveness and applicability of their respective procedures as well as their willingness to contribute further to the project. Idetica obtained more detailed information on the non-competitive practices employed by those organisations through a combination of further telephone interviews and face-to-face discussions. The greater level of understanding of procurement procedures identified was then reflected in updates to the process diagrams and to the composite comparative practice model, which can be seen in Figure 1A.

Appendix 2

Contracts surveyed by the National Audit Office

Description	£m	Let date	Reason why single-source
VC10 PDS	[****]	Jan-96	No competition rights
Seagnat Decoy Launching System	[****]	Oct-95	Other
HVM Aiming Unit PDS	[****]	Jan-96	Production Risk
Bomb Adaptor Rings	[****]	Oct-95	Prod. Risk
Seadart Airframe Refurbishment	[****]	Feb-96	Design/Development Risk
Seadart Missile In-Service support and system engineering	[****]	Feb-96	Prod. Risk
LACS	[****]	Feb-96	No comp. Rights
Supply of Gazelle airframe spares	[****]	Feb-96	Other
ADAWS Modifications	[****]	Mar-96	Design/Devt. Risk
MSTAR Trainers	[****]	Mar-96	Design/Devt. Risk
Calibration etc. of Rapier	[****]	Aug-96	Design/Devt. Risk
Long Lead Merlin Spares	[****]	April-95	Prod. Risk
Guided Missile Systems PDS	[****]	Mar-96	Design/Devt./Prod. Risk
Core Refuel Update	[****]	Feb-97	No comp. Rights
StingRay Life Extension	[****]	Jul-96	Design/Devt. Risk
Merlin Spares	[****]	Jul-96	Prod. Risk
Phoenix Support	[****]	Sep-96	Design/Devt. Risk
Sea King Tech. Pubs.	[****]	Jan-97	Design/Devt. Risk
Broadcasting Services	[****]	Nov-96	Prod. Risk
Sea Dart Airframe Stocks/Support	[****]	Jan-97	Prod. Risk
Phoenix PDS	[****]	Oct-96	Design/Devt. Risk
GQ360 Parachute Assemblies	[****]	Dec-96	No comp. Rights
CASOM Integration	[****]	Jan-97	Other
Warrior Road Wheels	[****]	Feb-97	No comp. Rights
VSC330 Modem	[****]	Feb-97	No comp. Rights
Bedford Truck Spares	[****]	Mar-97	No comp. Rights
Enabling Arrangement AS90 Spares	[****]	Mar-97	Design/Devt. Risk
Batch 2 Trafalgar Class (Astute)	[****]	Mar-97	Other
HVM Tranche 1C	[****]	Apr-97	Prod. Risk
GEM Supply of Service Spares	[****]	Jul-97	Prod. Risk
GNOME Supply of Service Spares	[****]	Jul-97	Prod. Risk
Tornado GR4/4A update.	[****]	Jul-97	Prod. Risk
Chieftain/Challenger 1 PDS	[****]	Feb-98	Design/Devt. Risk
PDS/ISS for GWS30 Radar	[****]	Apr-98	Design/Devt. Risk
SCMS Oceanography Cap Mod	[****]	Apr-98	No comp. Rights
Modification kit for Nimrod Trainer	[****]	Mar-98	Design/Devt. Risk
Message Handling System PDS	[****]	Jul-98	Design/Devt. Risk
Aerosol Size & Shape Analyser	[****]	May-98	Operational Urgency

Description	£m	Let date	Reason why single-source
FOAC	[****]	Apr-98	Prod. Risk
Manufacture of Reactor Core Z23	[****]	Mar-98	No comp. Rights
Radar/Altimeter for Tornado GR4	[****]	Mar-98	No comp. Rights
Supply of Gazelle airframe spares	[****]	Apr-98	Other
MAPPS	[****]	Feb-98	Design/Devt. Risk
TRACER PD Phase	[****]	Jan-99	Other
TAVERN Vehicles	[****]	Aug-94	Op. Urgency
Additional quantities of 4.5 Mk Ammunition	[****]	Sep-96	No comp. Rights/Design/Devt. Risk
StingRay PDS	[****]	Feb-97	Design/Devt. Risk
Hercules Modifications	[****]	Jan-97	Design/Devt. Risk
Merlin Engine Specification Differences	[****]	Feb-97	Design/Devt. Risk
Sea King Flight Safety Equipment	[****]	Nov-96	No comp. Rights
Blue Vixen Radar PDS	[****]	Dec-97	Design/Devt. Risk
Blue Vixen Radar B-Model Trials	[****]	Mar-98	Design/Devt. Risk
Gun Mountings Refurbishment	[****]	Apr-98	No comp. Rights
Supply of Matador Lamps	[****]	Dec-97	No comp. Rights
Jaguar Engine Conversion	[****]	Jul-98	Design/Devt. Risk
JTIDS on Sea Harrier	[****]	Jan-97	Design/Devt. Risk
Production Investment for Eurofighter Engines	[****]	Jan-98	Other
Replacement Used Nuclear Fuel Storage	[****]	Apr-96	Other

Appendix 3

The Case Studies and the Case Examples

Bowman

Contract Value/let date	[****] Risk reduction contract (April 1997).
Contractor	Archer Communications Systems Limited (ACSL).
Operational Role	Combat net radio system primarily designed to replace the Clansman radio system and to provide all three services with secure voice and data tactical communications.

Landing Platform Dock (Replacement)

Contract Value/let date	[****] Development and production contract (April 1996).
Contractor	BAE SYSTEMS (originally VSEL).
Operational Role	Two amphibious assault vessels, HMS Albion and HMS Bulwark, that will provide the means to deploy a Brigade-sized force without having to rely on obtaining airfields or host nation support.

Sentry E-3D

Contract Value/let date	[****] Follow-up Post Design Services contract (June 1996).
Contractor	Boeing (Sister Design Authority Marshall's of Cambridge).
Operational Role	The Royal Air Force has a fleet of seven airborne early warning and control systems, based on Boeing E-3D configuration, known as Sentry.

Combined Arms Tactical Trainer

Contract Value/let date	[****] Development and production contract (December 1996).
Contractor	Lockheed Martin.
Operational Role	To train the army's battlegroups, at all levels, in combined arms tactics, drills and procedures in a realistically simulated combat environment that will enable these forces to be maintained at the requisite level of readiness.

Batch 2 Trafalgar Class (Astute)

Contract Value/let date	[****] Development and production contract (March 1997)
Contractor	BAE SYSTEMS Astute Class Limited (originally GEC-Marconi).
Operational Role	Astute class of nuclear-powered Hunter Killer attack submarines, which are intended to replace the Swiftsure Class SSNs (Sub Surface Nuclear).