Cabinet Office
e-Government Unit

OGC
Office of Government Commerce

Chief Information Officers' Council

Information, Communications and Technology Market Capacity

Pilot Project Report

July 2006

Table of Contents

Table of Appendices

1 Executive Summary

This report was produced by the OGC for the CIO Council (CIOC). It details the findings of the Information, Communications and Technology (ICT) Capacity Pilot Project, which was commissioned to identify potential capacity issues within the ICT market. In undertaking this work commercially available market research was reviewed, and information obtained from 20 public sector organisations and 13 key ICT suppliers. Details of over 170 ICT public sector projects with an annual value of approximately £3B were obtained, i.e. at least 40% of the estimated total spend.

A number of specific capacity issues and constraints that could have an adverse effect on the delivery of ICT public sector projects were identified. In particular:

- Bid capacity is an issue, i.e. suppliers' ability to field senior experienced bid teams.
- The availability of senior experienced personnel is also an issue from a delivery perspective; specifically, programme managers, technical architects, and change managers. Additionally, similar roles *within* the public sector were identified as constraints.
- A trend of increased risk being placed on suppliers and increasingly onerous terms and conditions was reported, which is causing suppliers to be more selective regarding which contracts they bid for.
- In the short term off-shoring seems unlikely to be essential to overcome capacity issues or constraints.
- The time required for personnel to obtain SC level and above security clearance, and for software to be accredited were also cited as constraints, as were the availability and lead-time for data centres and networks.

Whilst these specific capacity issues and constraints could adversely affect individual projects, it seems unlikely that there will be a *widespread* shortfall in ICT delivery capacity over the next three years. This is primarily due to: the UK ICT private sector growth forecast being relatively subdued, public sector project services spend being forecast to peak in 2008, and most suppliers advising of the need to maintain a balanced public and private sector portfolio, despite the level of growth in any one sector.

Further work is required to validate these findings and to develop a more complete understanding of capacity issues. Going forward, key recommendations include:

- CIOs need to ensure there is adequate visibility of their projects so that major approaches to the market can be better co-ordinated and that departments are not competing with one another for the same resource.
- Consideration should be given to establishing a skills working group involving the Cabinet Office's Professional Skills for Government (PSG) and OGC's

Programme and Project Management (PPM) teams, departments, suppliers and organisations such as Intellect, and e-skills UK to develop plans to improve the supply of key skills and to ensure supplier personnel have adequate exposure to the public sector.

- CIOs need to ensure appropriate project management and procurement teams are in place. In particular, greater attention needs to be given to the timings of other projects approaching the market, the opportunities for synergies, and early market engagement. It is fundamental for departments to adhere to published project timelines, and to shortlist an appropriate number of bidders as soon as possible. Any slippage in procurement timelines can have highly detrimental effects on other public sector projects being competed.
- Given the bid capacity issue, coupled with the need for requirements to be attractive, departments need to ensure that the level of risk being placed on suppliers and the terms and conditions are consistent and appropriate.
- Departments should make clear at the start of procurements whether off-shoring is acceptable for the service required.
- The time required to obtain higher levels of security clearance should be re-examined, and ways in which to better 'regulate' the supply of security cleared personnel explored. Additionally, public sector organisations should ensure that the requested level of security clearance is not over specified.
- Consideration should be given to commissioning a strategic review of data centres and networks, and developing a future provisioning strategy. The time required for software accreditation, and the associated advantages and disadvantages of a common reference architecture and pre-qualification information repositories should also be investigated.

Other recommendations include that the findings should be appropriately communicated to participants and other interested parties. It is also recommended that this work should be continued and data collected again in 3-4 months' time.

The CIOC is requested to consider these recommendations and agree how they should be taken forward in the context of other CIOC and Strategic Supplier Board (SSB) initiatives, and by whom.

2 Introduction

This section introduces the Project, commencing with the background and then proceeding to outline the Project purpose, objectives, scope and methodology.

2.1 Background

As part of the Government's e-delivery agenda the effective use of ICT was identified in the Transformational Government Report[1] as pivotal in transforming how government services will be provided in the future. Therefore, as part of the Transformational Government implementation plan, the need to better understand the ICT market was identified and the ICT Capacity Pilot Project commissioned.

The Project was led by the Supplier Management Board (a subgroup of the CIOC) and undertaken by the OGC. The Project was one of four interrelated workstreams forming the SMI. Within the SMI the other workstreams are Market Intelligence, the Common Assessment Framework and the Supplier Forums. It is via these four interrelated workstreams that a strategic view of the ICT market and individual supplier performance will be maintained.

2.2 Purpose and Objectives

The purpose of the Project was to identify any ICT market capacity constraints and to provide the CIOC with an initial strategic view of the major ICT public sector projects recently commenced or planned for the future.

The objectives of the Project were to:

- Provide an initial view of any ICT market capacity constraints (both generally and in particular with regard to ICT skills).
- Establish the basis of a database of major current and forthcoming ICT public sector projects. A database that would:
    - Provide appropriate macro-level information on the public sector's demand for ICT services in the short, medium and, where possible, longer term.
    - Assist the public sector to work more collectively, create synergies, and possibly smooth the demand for ICT services.
- Better understand the size and types of ICT projects being undertaken across the public sector.
- Include different sizes and types of public sector organisations (as opposed to just the large central civil government departments), so that any issues and nuances particular to smaller organisations can be identified and can be taken into account going forward.

[1] Transformational Government – Enabled by Technology – November 2005

- Not place an unduly onerous burden on the public sector organisations, suppliers and OGC in collecting, analysing and reporting this information.
- Develop a repeatable methodology and a 'capacity community' so that the information can be updated as required, i.e. twice a year.
- Ensure that different levels of information can be provided to different audiences, e.g. CIOs, Suppliers, Commercial Directors and Heads of Procurement.
- Ensure that the information can be provided in a format that is consistent with the other market reviews undertaken.
- Inform any ongoing project in terms of 'lessons learned' and refinements needed.

2.3 Scope

2.3.1 In Scope

The scope of the Project was primarily large central government Departments (including MOD, Health and Education), and their 'wider families', i.e. executive agencies and non-departmental public bodies, etc. Additionally, it included a number of regions, local authorities, and organisations such as the Crown Prosecution Service, the Office for National Statistics, and the Police Information and Technology Organisation (PITO).

Within scope were all ICT projects in the 'concept, feasibility, design, build and implement' phases. Given the macro–level nature of the Project, an arbitrary value for projects with an anticipated spend of £10M+ per annum was established, i.e. all projects with a spend of £10M+ in any one year should be included. For organisations with only a few (or no) projects of £10M+ per annum, the scope included their top five projects by value.

2.3.2 Out of Scope

Out of Project scope was:

- All ICT projects currently in the 'run' phase.
- All ICT professional services (pure consulting and advisory) spend.
- All Business Process Outsourcing (BPO) - unless it placed significant demand on the ICT market.
- All hardware only contracts.
- All commodity software only contracts, e.g. Microsoft.
- All Classified ICT spend (but some high-level project information was provided).
- The public sector capacity to compete, award and manage contracts (however, there were some findings in this regard).

2.4 Methodology

A full project methodology is provided in Appendix A, but this section provides a high level overview of the methodology used.

Desk based research was initially undertaken to assist in scoping the Project. In addition to OGC's existing data, information was reviewed from commercial market research companies Kable and Ovum. In order to cover both the supply and demand side of ICT capacity, two interrelated workstreams were formed, one relating to the suppliers and the other to the public sector.

In considering the objectives of the Project the CIOC provided an excellent sample set of public sector organisations, and all CIOC member organisations were invited to participate. In total 20 CIOC member organisations were able to participate, the associated details being contained in Appendix B. Similarly, 15 key ICT suppliers to the public sector were invited to participate in the Project; 13 of whom were able to do so, and the associated details are provided in Appendix C.

Working Groups were also established, one for the public sector and one for supplier participants. The purpose of the Working Groups was to challenge and help refine the data collection process and material.

Given the highly quantitative nature of the spend and project information being requested from the public sector, an Excel based data collection template was developed. The type of project information requested is detailed within Appendix D. Detailed guidance was also developed to accompany the template.

However, with regard to the supply side there was, at least initially, some 'unease' surrounding the Project. Suppliers were concerned that information provided could subsequently be used against them, e.g. a contract would not be awarded to a particular supplier because a capacity constraint was wrongly interpreted as a capacity issue. Therefore, as suppliers were uncomfortable providing detailed quantitative information a more qualitative approach was applied and a questionnaire developed.

During the data collection phase workshops were arranged to assist with the completion of the public sector template. Additionally, helpdesk support was provided to both public sector participants and suppliers. The responses were 'sanity checked' and any anomalies clarified with the individuals co-ordinating the organisations' responses, prior to being incorporated within the findings.

3 Findings

This section contains the Project findings. Section 3.1 details the key information derived from commercially available market research, and Sections 3.2 and 3.3 contain the empirical supply side and demand side findings, respectively.

3.1 Commercially Available Market Research

Sections 3.1.1 and 3.1.2 contain an analysis of the available market research information from organisations such as Ovum and Kable. Section 3.1.3 contains a summary of a selection of market research reports commenting on the UK ICT skills market.

3.1.1 ICT Market Overview

The global ICT market is forecast to grow by 4% in 2006 and by 3.8% in 2007[2]. In 2005 the UK ICT public sector market was estimated to be worth approximately £14.5B (calculated from Ovum [3,4] and Kable[5] information).

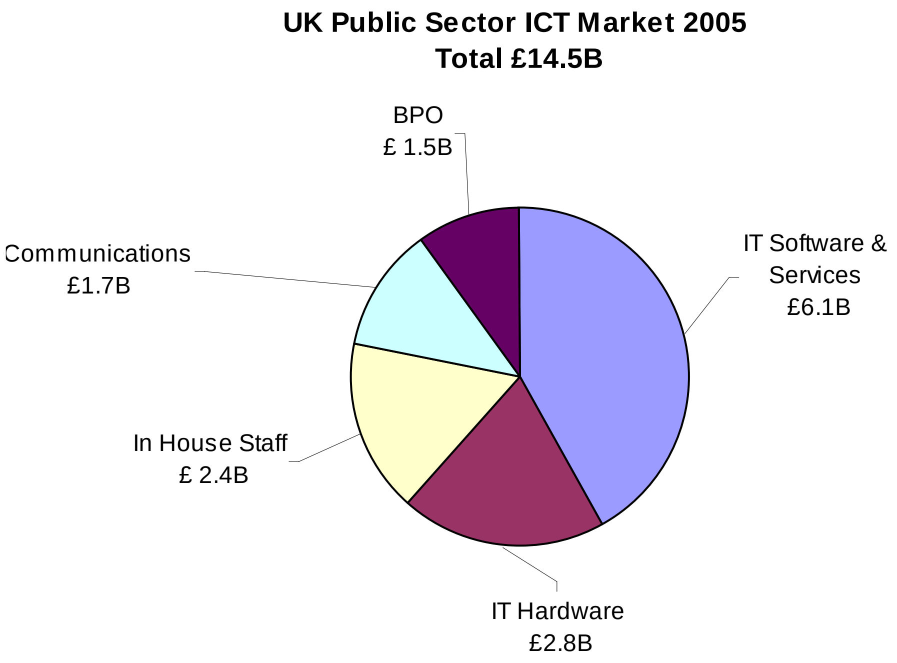


Figure 1 UK Public Sector ICT Market 2005

[2] European Information Technology Observatory - 2006
[3] Ovum - UK Public Sector Market Size and Forecasts, 1 November 2005
[4] Holway@Ovum - Market Trends Preview: Software and IT services in 2006 and beyond
[5] Kable - Public Sector ICT Overview to 2006/7

As illustrated in Figure 1 on the previous page, approximately £6B of this total is taken up by the IT Software and Services market; this market comprises Software Packages, Support Services, IT Outsourcing and Project Services. Of these, a key sector regarding possible ICT skills constraints is the Project Services market; this market comprises IT Systems Development, IT Consulting and IT Training, all of which require IT skills.

3.1.2 Project Services Market Overview

3.1.2.1 Public Sector

As shown in Table 1 below, the UK public sector Project Services[6] market, which currently represents approximately a third of the total Project Services market, was estimated to be worth approximately £2B in 2003 and is forecast to rise to £3.4B in 2009[7]. However, the growth during the 2003-2009 period is forecast to be uneven, with the market experiencing a surge in growth at the start of the period that then falls off to reach a situation where the market declines at the end of the period.

UK Public Sector, Project Services Spend 2003-2009	2003	2004	2005	2006	2007	2008	2009
Public Sector % of Total Project Services Market	23.7%	26.5%	29.7%	32.7%	35.1%	35.2%	33.6%
Public Sector Project Services Spend (£M)	£1,998	£2,305	£2,684	£3,084	£3,435	£3,523	£3,436
Year on Year Growth (2003-2009 Compound Annual Growth Rate = 9.5%)	-1.2%	15.4%	16.5%	14.9%	11.4%	2.5%	-2.5%
Percentage Increase Compared to 2003		15.4%	34.4%	54.4%	72.0%	76.3%	72.0%

Source: Calculated from Ovum information

Table 1 UK Public Sector – ICT Project Services Market

This growth profile is shown graphically in Figure 2 overleaf. **The market rises from a low point in 2003 (the lowest point reached after the dotcom boom year of 2000) to reach a peak of £3.5B in 2008 (representing a demand 76% higher than in 2003).** This peak is claimed by Ovum to be caused by the large number of public sector projects, such as the NHS National Programme for IT (NPfIT), moving from the development phase into the run phase towards the end of the period.

[6] To get a more accurate view of the Project Services market, that part of the outsourcing market requiring 'project services like' skills (the so called Application Management outsourcing sector) has been included in the Project Services figures.

[7] Ovum - UK Public Sector Market Size and Forecasts, 1 November 2005

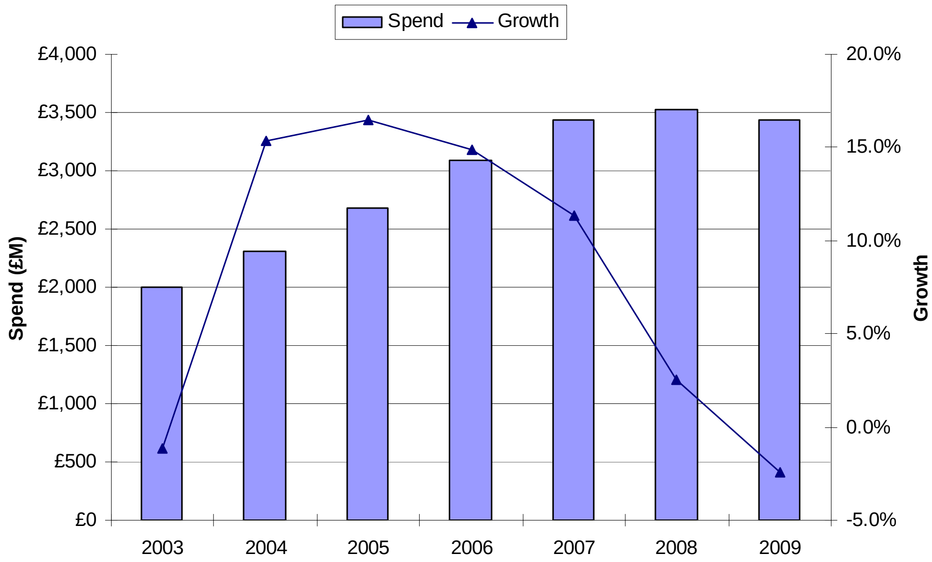
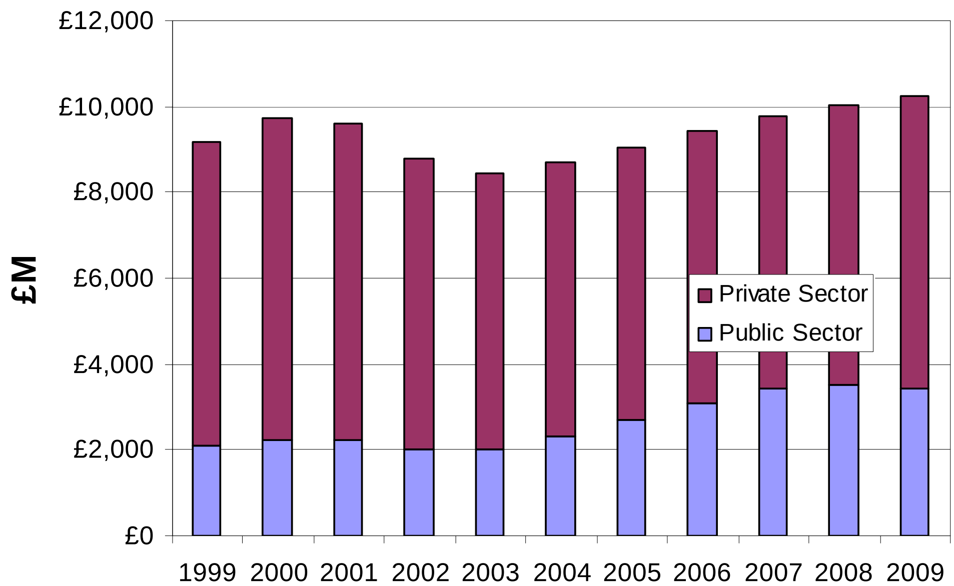


Figure 2 UK Public Sector Project Services Market 2003-2009

3.1.2.2 Total (Public and Private Sector) Project Services Market Overview

The commercially available market research shows that the UK **private sector** Project Services market is not forecast to experience the very high growth seen by the public sector during the period under examination. The private sector market has taken longer to recover from the dotcom boom and only starts to see positive growth again after 2006. The result of this, as illustrated in Figure 3 below, is that **for the combined private and public sector Project Services market there is no longer a peak in demand, just a gradual increase over the period**.



Source: Calculated from Ovum and OGC information

Figure 3 ICT Project Services Market (Public and Private) 1999-2009

The average annual growth rate for the combined public and private sector Project Services market over the 2003-2009 period is forecast to be 3.3%, resulting in the 2008 spend being only 3% greater in monetary terms than the spend in the year 2000 (the year of the dotcom boom). **This means that in real terms, excluding the effect of wage rate inflation, the 2008 market is almost certainly less than that of the dotcom peak of 2000.**

3.1.3 The UK ICT Skills Market

The relatively stable Project Services spend level does not mean that the demand for the range of IT skills deployed within the Project Services market will be stable. On the contrary, it is likely that there will be changes in the UK skills mix required.

Several market research reports have been published recently that indicate there may be an upcoming shortage in certain senior IT skills, such as project and programme managers, technical skills and business analysts. For instance:

- The 2006 IT Skills Trend Review, published by the Institute for the Management of Information Services (IMIS), claims that there is a growing trend for IT systems skills at the expense of technology skills. The Review further states that personnel with system skills are increasingly required to identify application requirements or to manage relationships, whereas many technology jobs have been off-shored. IMIS also claim in recent press reports that there will be a shortage of programme and project management skills in 2008-9.
- The SSL / Computer Weekly[8] salary survey also concludes that 'the remarkable degree of consistency in IT job volumes conceals some significant market dynamics. Recruitment is being influenced by moves to place IT development contracts overseas. The demand is for mainstream development staff and this is further stimulating demand for high calibre staff such as managers capable of masterminding projects taking place in two or more countries'. The report further states that 'while development jobs are increasingly migrating overseas strategic knowledge of the business is staying in-house [on shore]. This is demonstrated by a surge in demand for business analysts. The jobs on offer in this category have risen by 19%, more than three times the market average'.
- The Association of Technology Staffing Companies (Atsco) in their quarterly salary review[9] also reported that the salaries for senior project managers and business analysts have risen substantially over the past year (2005).

Although these reports on IT skills requirements indicate that there is a change in the skills mix required in the UK and there will be a shortage of certain specialised skills**, there is unfortunately very little detailed quantitative information about the UK ICT skills market available to confirm these views.**

[8] Computer Weekly 16 May 2006
[9] Q2 I Profile Skills Survey - Atsco

3.2 Empirical Findings (Supply Side)

This section contains the supply side empirical findings. Section 3.2.1 provides the suppliers' view of the market, the demand pipeline and public sector business. Section 3.2.2 concentrates on the bid process and, in particular, the capacity required to bid. Section 3.2.3 focuses on delivery capacity, including skills in high demand and non-skills based potential constraints.

3.2.1 Market Overview

3.2.1.1 View of the Market and Visibility of the Demand Pipeline

Overall, supplier participants shared a strong consensus with the market analysts'[10,11] views of the future UK ICT market, i.e. 6-7% year-on-year growth in the public sector, and consistent growth in the overall market of approximately 3-4% year-on-year.

In particular participants reported that; whilst there are some areas in the private sector (e.g. financial services and retail) starting to reinvest significantly in ICT, overall there remains significant cost pressures. Participants did not envisage a surge of activity in the private sector in the next few years.

Participants also advised that generally they had a reasonable view of the demand pipeline. Moreover, it was found that, with regard to the longer term pipeline (up to 3 years), there was marginally better visibility of the public sector demand pipeline as opposed to that of the private sector. The main reasons cited for this included: the openness of the public sector procurement process, private sector organisations seldom disclosing their plans several years ahead, and the considerable variation across the private sector in terms of market engagement.

Upon further exploration of the public sector pipeline, however, it was found that during the period (up to 12 months) immediately prior to competing the requirement, there was a general paucity of engagement and information sharing. Moreover, it was reported that when information such as timescales was provided, it was susceptible to change.

3.2.1.2 Appeal of Public Sector Business

With regard to the appeal of public sector business, as shown in Figure 4 overleaf, **only 2 of the 13 participants agreed with the proposition that 'were ICT demand in the private sector to increase, public sector work would become less attractive and we would plan to undertake less public sector work.'** The main reasons cited for this included maintaining or growing the share of a key market, and maintaining a balanced portfolio of public and private sector work.

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[10] Ovum - UK Public Sector Market Size and Forecasts, 1 November 2005

[11] Holway@Ovum - Market Trends Preview: Software and IT services in 2006 and beyond

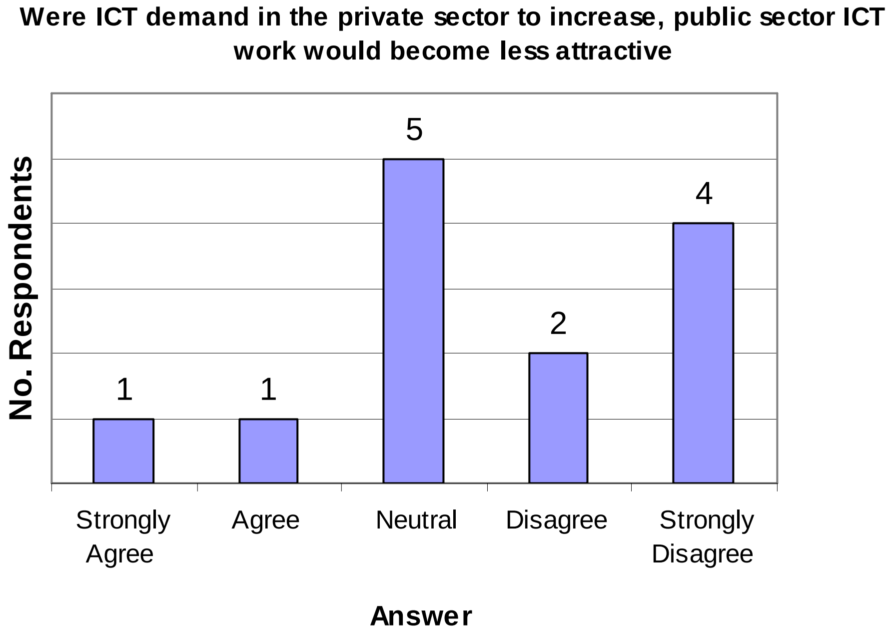

Figure 4 Appeal of Public Sector Business

The appeal of public sector business was further reinforced by all participants (including the two suppliers who advised that were the private sector business to increase they would plan to undertake less public sector work) advising that **over the next three years they plan to grow their public sector business at least in line with market predictions, and in a number of instances by significantly more than market predictions.**

It is important to note, however, that whilst participants advised that they intend to maintain or grow their public sector business, a number of caveats were also conveyed. Principally, **if the perceived trend of placing greater risk, financing requirements and onerous terms and conditions on suppliers continues, this could significantly detract from the public sector's current appeal and cause suppliers to revisit their overall strategies.** Examples of these caveats are provided below.

'As government contracting terms become less commercial [more onerous on suppliers] we would seek to grow our commercial [private sector] business more quickly than our public sector business.'

'The public sector market may in itself become less attractive e.g. with increasingly aggressive terms and conditions and expensive bid cycles.'

'Onerous commercials [terms and conditions] that create revenue generation difficulties and contracts that have long and expensive bid costs will not be viewed as attractive to bid for.'

3.2.2 The Bid Process

3.2.2.1 Bid Teams

It was found that suppliers' permanent bid teams are usually quite small and in some cases non-existent. Moreover, the permanent bid teams tend to concentrate on the smaller, business-as-usual bids, and act in more of a facilitation role for larger bids.

For larger bids much more of a project approach is applied. For instance, once an opportunity is qualified (see Section 3.2.2.2) and a budget assigned, a bid (or project) manager is appointed and they assemble a cross-functional core bid team. Core bid teams typically comprise the bid manager, technical owner, commercial owner, solution specialists, and a legal representative; most of whom will be senior experienced personnel. Various specialists and additional resources tend to supplement the core bid team as and when required. **The key point to note, however, is that the majority of bid resources are drawn from the same 'pool' as delivery resource.**

3.2.2.2 Decision to Bid

In determining whether to bid, far from 'chasing every opportunity', supplier participants advised that they heavily qualified all potential opportunities using a range of criteria. Examples of the criteria cited in qualifying bids are provided in Appendix E, but key criteria include measures such as:

- The likelihood of winning.
- Whether the delivery risk profile was acceptable.
- Whether the project profitability and cash flow were acceptable.
- The match with the supplier's core competencies.
- Adequate understanding of the requirement.
- The capacity and capability to deliver the requirement.
- Whether the bid cost was proportional to the contract value.
- Whether there was a good relationship with the client.
- Whether the terms and conditions were acceptable.

Upon further exploration it became very apparent that, certainly for larger projects, the decision to bid can be a fundamental investment decision. It is a case of not only balancing the delivery and bid pipelines, but also about identifying the 'best fit' opportunity. Therefore, the 'attractiveness' of the opportunity is imperative.

It was also found that integral to any bid decision was the ability to resource and deliver the project. Participants advised that resourcing plans were fundamental, at least in outline, to the decision to bid, and that as the bid progressed more and more detail was required.

Moreover, it was advised that a supplier will never be successful unless they can demonstrate to the client a detailed, robust resourcing plan, especially when the supplier is known to have recently won or is bidding for a contract requiring similar resource.

3.2.2.3 Bid Capacity

As illustrated in Figure 5 below, **bid capacity was identified as an issue** with 8 out of 13 participants either strongly disagreeing or disagreeing with the proposition that 'ICT bid capacity over the next 3 years is not an issue as suppliers can adjust the size and composition of bids teams at relatively short notice'.

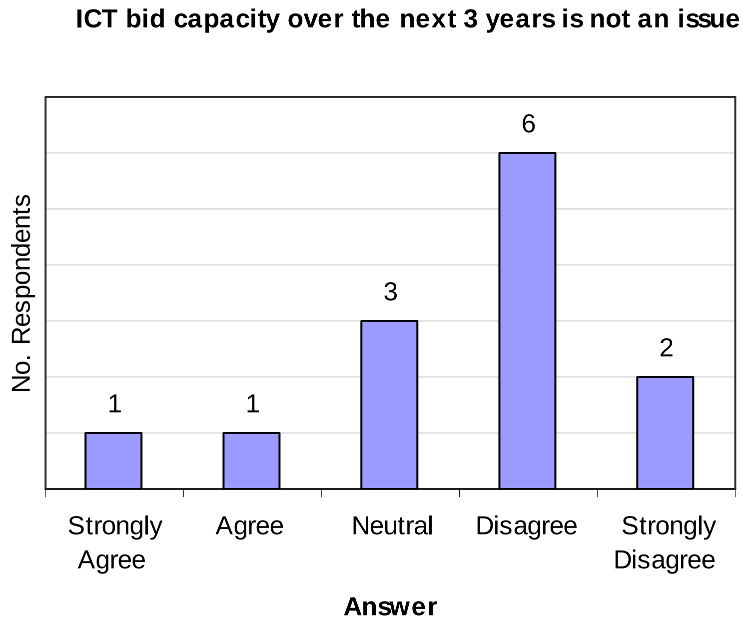

Figure 5 Suppliers' View of Bid Capacity

The issue of bid capacity was further emphasised by a number of participants who advised that:

'Bid capacity IS an issue.'

'[Bid] capacity is an issue and organisations have difficulty adjusting size / composition of bid teams because of commercial pressure and ability to recruit the right quality individuals.'

'Bid capacity can be an issue, particularly when several other complex bids are in progress simultaneously.'

Upon exploring the underlying causes of bid capacity, **it was found that the main constraint was availability of senior experienced personnel e.g. programme and project managers, and technical architects. These same roles / skills are also in high demand from a delivery perspective (please see Section 3.2.3.1).**

The other main bid constraint cited was the duration and, in particular, the 'peaks and troughs' nature of the procurement process. Whilst a number of supplier participants advised that they were able to reallocate resource during the 'troughs' and then reassemble the core bid team, overall it was found that once resource was released there was no opportunity to get it back. Of particular concern was when procurement timelines slip, as suppliers have little option but to keep the bid team in place given that they have already invested significant time and resource. This in turn further impacts on capacity, both bid and delivery, and increases costs.

3.2.2.4 Bid Capacity – Public Sector Mitigation

A number of suggestions were made by participants regarding how the public sector could help address bid capacity. A complete list of suggestions is contained in Appendix F, but the key recommendations were as follows:

- There needs to be much earlier, ongoing and meaningful engagement with the market. Buyers need to proactively maintain contact with suppliers at all stages of the procurement process, and provide greater depth of information. It was also suggested that where the public sector had 'concerns' with a company winning a number of similar contracts, that this should be appropriately communicated at the outset.
- Clients need to be clear (and realistic) in terms of what they are buying, when they need it and how they are going to obtain it. In other words 'don't buy what you can not specify'.
- The procurement process needs to be streamlined, simplified and shortened. A particular concern mooted was the time involved between the decision to shortlist or award being taken and it being communicated to the market.
- There should be greater standardisation of requirements, a common reference architecture (perhaps similar to the Government Enterprise Architecture used in the United States) and fewer bespoke systems.
- Terms and conditions were seen as becoming increasingly onerous on suppliers, thereby requiring a disproportionate amount senior commercial and legal resource. In order to help alleviate bid capacity issues this perceived trend needs to be reversed.
- A clearer and more consistent steer on off-shoring is needed. It was reported that considerable time is being spent by bidders trying to clarify whether off-shoring is acceptable, and in a number of instances not being advised either way.
- A central repository for standard pre-qualification data should be created, which would help to reduce both timescales and costs.

Other suggestions included the need for business users to be at the centre of the project, and for specifications to be truly output based.

3.2.3 Delivery Capacity

Overall it was found that suppliers did not consider ICT delivery capacity over the next three years to be an issue. As shown in Figure 6 below, only 3 participants disagreed with the proposition 'ICT delivery capacity over the next 3 years is not an issue as once the requirement is known suppliers will always be able to fulfil demand'.

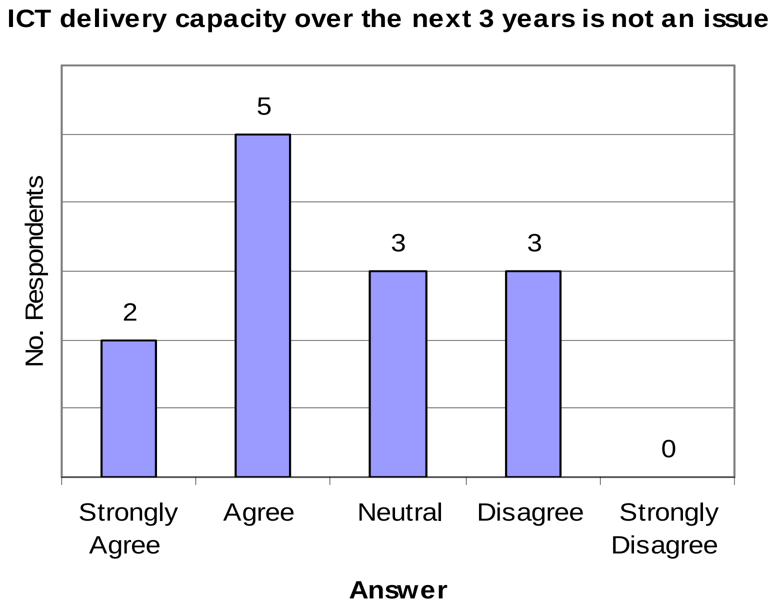

Figure 6 Suppliers' View of Delivery Capacity

On exploring delivery capacity further it was generally found that the ICT market is a global market, and it is relatively easy, subject to client agreement, to move work to where there is capacity. As one participant advised 'the ability to move work around the globe using consistent processes has been in place for some time.'

Indeed, it was interesting to note the impact of changing the above proposition slightly to include 'using labour from countries in approximately the same proportions as currently used and charging clients rates similar to those currently charged'. As illustrated in Figure 7 overleaf, there was a marked shift in participants' views with 5 participants disagreeing with the proposition and only 2 agreed with it.

On probing this point further the consensus was that, **with a number of exceptions in relation to specific skills**, there is in general adequate resource available to deliver UK ICT public sector projects. However, if suppliers are not able to use the most appropriate 'blend' of on-shore and off-shore resource it is highly unlikely that public sector projects would achieve good value for money. It was also interesting to note that, whilst 5 supplier participants were neutral, 6 of the 13 participants envisaged significantly more (10%+ per annum) public sector work being carried out off-shore over the next 3 years.

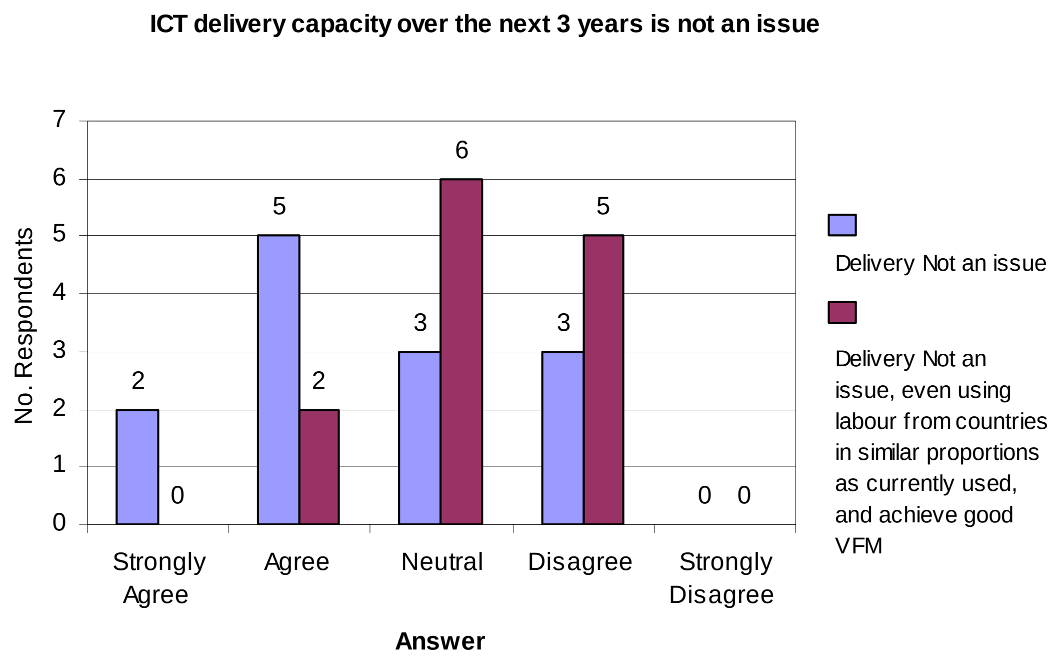

Figure 7 Suppliers' View of Delivery Capacity were Labour Sources to be prescribed

3.2.3.1 Skills and Skills Based Constraints

It was found that demand for ICT skills in the UK remains high with 11 of the 13 participants either strongly disagreeing or disagreeing with the proposition that there is becoming a surplus of ICT skills in the UK. Additionally, suppliers advised that UK ICT labour rates are continuing to increase.

On drilling down into specific skills, as detailed in Appendix G, a number of skills were cited as being in high demand. **A fundamental finding, however, was that one of the key issues (if not *the* issue) in terms of ICT capacity is the availability of senior experienced personnel. Specifically, the following skills were reported to be in particularly high demand:**

- Senior Programme Managers
- Senior Technical Architects
- Change Managers

Other functional skills reported to be in high demand, but not to the same extent as the aforementioned skills, included:

- Senior Project Managers
- Security Technologists
- Business Analysts

The demand for business facing skills was generally found to be less acute, but business facing skills in high demand included (commencing with those cited most frequently):

- HR
- Financial Management
- Business Process Outsourcing
- Shared Services
- Customer Relationship Management
- Knowledge in terms of how the public sector operates

Lower level technical skills were generally not considered to be a capacity constraint. However, more senior technical skills in high demand included (commencing with those cited most frequently):

- Java
- Oracle
- SAP
- .net
- Siebel

Niche skills in high demand included Identity Management and Biometric expertise.

3.2.3.2 Non-Skills Based Constraints

In addition to the aforementioned skills based issues and constraints, participants advised of a number of other capacity constraints. The details are contained in Appendix H, but the key non-skills based constraints were as follows (commencing with those cited most frequently):

- **Security Clearance.** The time required for personnel to be security cleared was raised as a constraint, with security clearance to SC and above levels reportedly taking up to 9 months in some instances. Moreover, it was advised that whilst only a relatively small percentage of personnel need to be security cleared, more contracts are requiring security cleared personnel.
- **Terms and Conditions.** Unreasonable and onerous terms and conditions were reported as taking up a disproportionate of senior commercial and legal resource, not only during the bid process but also throughout the contract duration. During the operational phase the issue is that, given the very serious implications for suppliers of not adhering to the letter of the contract, the terms and conditions have to be scrutinised on an ongoing basis. It was also felt that the public sector's contracts were onerous on risk, but light in terms of reward.

- **Lack of Visibility of Projects.** Whilst participants reported that they had a reasonable view of the public sector demand pipeline, it was also reported as a constraint.
- **Public Sector Capability and Capacity.** The ability of the public sector to compete requirements and manage the ongoing contracts was also identified as a constraint. In particular, it was felt that the public sector does not have sufficiently skilled resource in terms of programme and project management, ability to specify requirements in output format, and the capacity to test solutions.
- **Alternative Delivery Models.** It was also reported that within the public sector there is a reluctance to advise on the acceptability of alternative delivery models, including off-shoring. This was considered a capacity constraint on two counts: (1) senior management time spent trying to clarify what is acceptable, and (2) more resource intensive solutions being selected.
- **Lack of Standardisation and Shared Solutions.** The lack of standardisation and shared solutions, and public sector organisations creating and maintaining bespoke solutions was considered a sub-optimal use of resource.
- **Software Security Accreditation.** Another reported capacity constraint was the time required to obtain the necessary software security accreditation so that the software can be deployed.
- **Networks.** It was reported that given the considerable number of projects currently requiring new networks, the provision of networks when and where required could become a limiting factor.
- **Data Centres.** The availability of secure data centres was also raised as a constraint. However, this was considered to be a fairly minor constraint as it was also reported that even new-build secure data centres can now be brought on line relatively quickly, i.e. within 2 years (unless highly specialist security facilities are required).

3.2.3.3 Public Sector Mitigation of Delivery Capacity Constraints

Suppliers' suggestions in terms of how the public sector could assist in addressing the aforementioned constraints included:

- **Off-shoring.** A more committed and pragmatic approach to off-shoring.
- **Greater Standardisation.** Greater standardisation of requirements and the introduction of a common reference architecture.
- **Terms and Conditions.** Less onerous terms and conditions so that suppliers can focus more on delivery rather than avoiding penalties.
- **Nugatory Projects.** Nugatory projects should be cancelled as soon as possible, thereby freeing up resource that can be redeployed elsewhere.

3.3 Empirical Findings (Demand Side)

This section reports the demand side empirical findings. Section 3.3.1 provides an overview of the ICT spend and project information obtained, Section 3.3.2 focuses specifically on future projects, and Section 3.3.3 outlines the public sector participants' view of the ICT market and potential capacity constraints.

3.3.1 Public Sector Supply Side ICT Spend and Projects Overview

3.3.1.1 Total ICT Spend

In addition to providing project data, organisations were requested to provide an estimate of their total ICT supply side spend for the period 2006-2010. Unfortunately, nearly half of the organisations did not provide this data, especially for the latter part of the period. The difficulty seems to have been that organisations were able to obtain data on projects that have either started, or are due to start within the next twelve months, but that data for future projects was harder to obtain within the required timescales. Indeed, a number of participants advised that there is considerable uncertainty regarding future ICT projects pending the 2007 Spending Review.

3.3.1.2 Major Project Spend

Data was received on 172 projects. These projects have a combined total value of approximately £23B.

A database of all the reported project data is held by the OGC.

The commercially available market research reports estimate (see Section 3.1) that the total UK ICT public sector spend is approximately £14.5B per annum. If in-house spend (which is not included in the reported project spend) and ICT hardware spend (it is believed that little hardware spend was included in the reported project spend) are excluded from this, the total spend becomes £9.3B. As very little local government spend was reported this can also be excluded from the total which reduces it to just over £7B per annum. **Therefore, the reported project spend is estimated to cover at least 40% of the total spend for the sector.**

For each project, annual spend data was requested for the three year period 2006/7-2008/9. The total annual spend for the reported projects was approximately £3B in 2006/7 and 2007/8 but this declined in 2008/9 to approximately £2.6B[12].

It was found that the vast majority of the reported projects (93%) were IT projects with only 7% of projects being communications related. Additionally, the majority of the reported projects (78% of the projects for which information was provided) were for discreet pieces of work, 14% were for re-competitions, and 8% were for

[12] The question becomes, however, is this potential decrease in total spend an actual decrease, or is it indicative of organisations' ability to advise information on future projects

framework agreements. Where details were provided of dominant architecture to be used within a project, Oracle, Microsoft, Siebel and SAP were mentioned the most often.

3.3.2 Future Projects

Of the 172 projects identified, 85 projects with a total value of £15B (65% of the total project spend) had already started and 87 projects with a total value of £8B (35% of the total project spend) had yet to start (future projects). The following sections address the timing of the future projects the payment terms to be used and some of the skills needed by these projects.

3.3.2.1 Timing of Future Projects

Of the 87 projects still to commence, start dates for 38 projects were provided. 31 of these 38 projects (with a collective value of £1.8B) are planned to start in the next twelve months.

Of the remaining 7 projects being competed, 2 are due to start in 2007/8, 2 in 2008/9 and only 3 projects are to be undertaken after 2008/9. Figure 8 below, shows the number of projects starting per quarter up to Q2 2011 (narrow line) and the value of these projects (column chart).

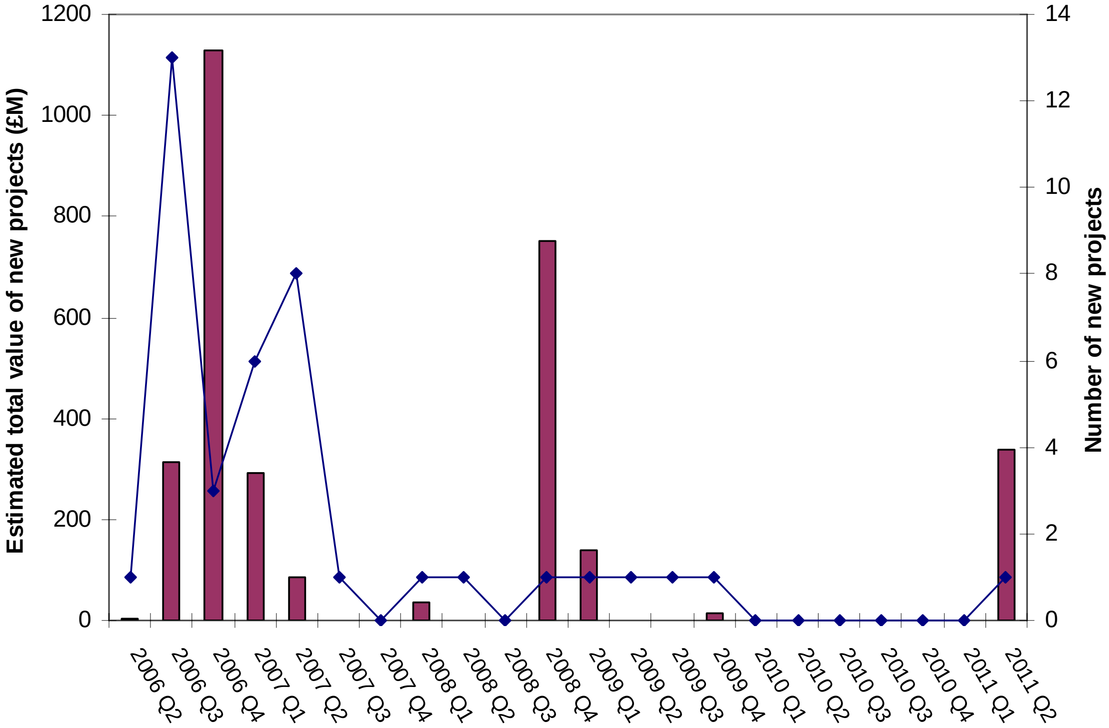

Figure 8 Future Projects – Start Dates

3.3.2.2 Payment Terms of Future Projects

As shown in Figure 9 below, the suppliers' view that they are being expected to provide more project funding would appear to be substantiated. Indeed, whilst the funding arrangement is not yet known for many of the future projects, for those projects where it is known, almost half expect the supplier to invest in the infrastructure and recover their investment over the contract duration.

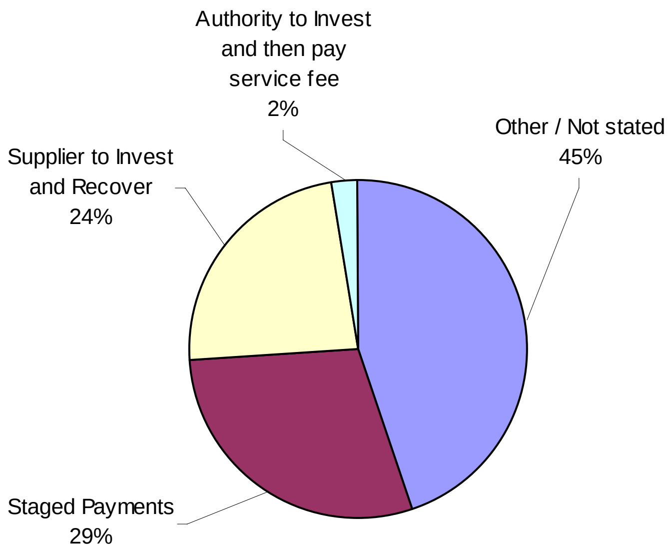

Figure 9 Payment Types for Future Projects (by project spend)

3.3.2.3 Capacity Demand - Future Projects

In relation to the degree to which future projects may require resource that could be a potential capacity constraint, Figure 10, overleaf, shows the percentage of the total reported project spend that has been deemed to require such a resource.

It can be seen that a significant proportion of projects will require the use of skills that may pose a capacity constraint, e.g. senior project managers and senior analysts. The demand for senior programmers, especially the percentage of projects that reported the demand as being 'high', is significantly lower than the demand reported for senior project managers and senior analysts.

There is also a high level of demand for data centres. The demand for security cleared personnel is not as high as the other potential constraints but may, of course, pose a significant issue for those projects that have this requirement.

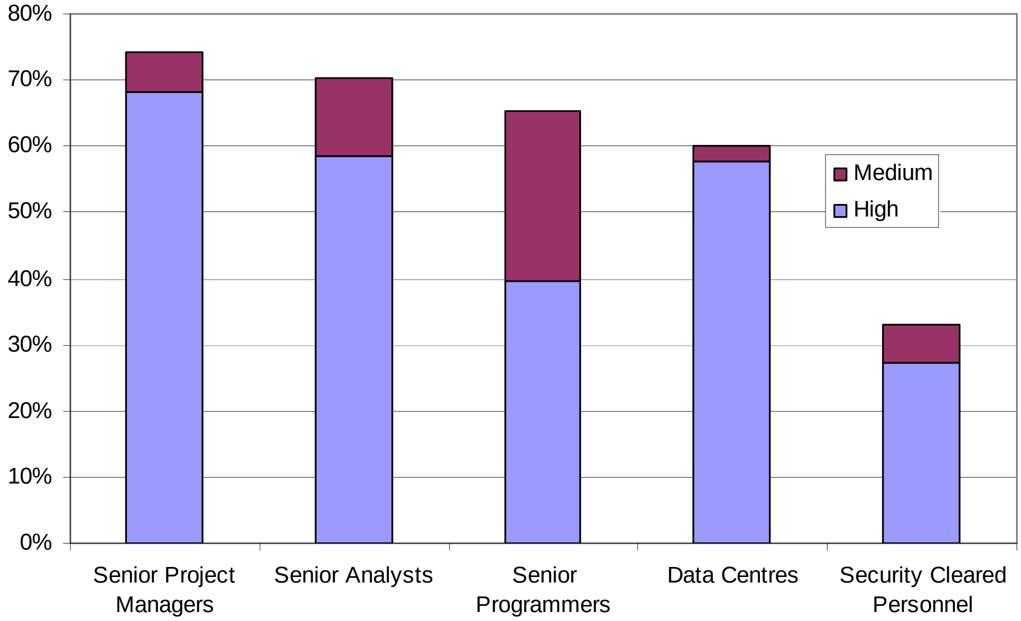

Figure 10 Percentage of project spend reported with High and Medium Demand for Potential Capacity Constraints

3.3.3 Public Sector View of the Market and Potential Capacity Constraints

With regard to the public sector's view of the ICT markets' capacity to deliver their requirements over the next three years, **overall it was found that their level of confidence was reasonably positive, i.e. based on a 'confidence continuum' of 1-5 (with 5 being very confident) the average score was 3.6 and the score weighted by the organisation's ICT spend was 3.3.**

Moreover, in terms of future ICT labour rate increases, the public sector is not expecting significant 'hikes' over the next 3 years, but instead generally envisages year-on-year increases in line with inflation.

The public sector also cited, as detailed in Appendix I, a number of potential ICT market capacity constraints. These were primarily skills related constraints, the key ones being (commencing with those cited most frequently):

- Project Managers
- Security Architecture Personnel
- General Technical Skills
- Support for Legacy Systems (in particular VME and Cobol)
- Programme Managers
- Personnel who understand the business requirements
- Integration Specialists

As detailed in Appendix J, these aforementioned skills were very much considered constraints **not only in terms of supplier personnel but also in relation to the public sector having adequate in-house resource**. Indeed, particular skill constraints reported *within* the public sector included (commencing with those cited most frequently):

- Project Managers
- Programme Managers
- Senior Technical Architects
- Business Analysts
- Software Developers (including senior analysts and senior programmers)
- Test Analysts
- Procurement and Supplier Management

Appendix J also contains details of technical, business facing and niche skills cited by the public sector as being in high demand. Key technical skills in high demand were reported as being:

- Oracle
- Java
- Web Design and Development
- SAP
- Unix

With regard to Business Facing skills in high demand the key areas cited were:

- Finance
- Business Process Outsourcing

Equally, niche services advised of as being in high demand included:

- IT Security expertise
- Tivioli Suite expertise
- Legacy technology expertise, in particular VME and Cobol.

4 Conclusions

This section outlines the key conclusions that can be derived from the Project. With regard to the structure Section 4.1 details the capacity issues and constraints identified, Section 4.2 contains the overall ICT capacity conclusions, and Section 4.3 highlights a number of conclusions in relation to the Project itself.

It needs to be emphasised, however, that the conclusions are preliminary conclusions based on a pilot project involving a limited sample set, limited resource and challenging timelines. Further work is essential in order to validate these conclusions.

4.1 ICT Capacity Issues and Constraints

The Project identified a number of capacity issues and constraints, which, if not appropriately addressed, could have serious implications for individual ICT projects, i.e.:

- **Bid Capacity. The ability to field senior experienced bid teams is an issue.** The importance of bid capacity cannot be overstated. Without adequate bid capacity the public sector is unlikely to benefit from the most appropriate solution or achieve good value for money. Indeed, public sector organisations could find themselves in the situation where they have to choose from a number of inappropriate suppliers, or even not have any bidders. Regrettably, given the overall lack of timing information provided in relation to future projects, it was not possible to identify future periods of heightened bid activity at this stage.

- **Skills.** Lower level ICT skills are generally not considered a capacity constraint. **However, the availability of senior experienced personnel is an issue.** In particular, there is very high demand for senior programme managers, senior technical architects and change managers. Additionally, there is high demand, but not to the same extent, for project managers, security technologists and business analysts.

  As subsequently discussed in Section 4.2, whilst it should be possible to fill all of these roles, this will almost certainly mean having to pay premium rates. Moreover, this strong demand could lead to lower calibre personnel being appointed to these key roles, which could adversely affect the individual projects involved.

  A further conclusion with regard to skills is that whilst not regarded as an issue at this point in time; SAP, Oracle, Java and Siebel skills are in high demand. Based on the public sector project information provided these technical skills are likely to remain in high demand, and therefore their availability needs to be carefully monitored. Additionally, other skill sets that need to be closely monitored include ID and biometric expertise, and legacy expertise, in particular VME and Cobol.

- **Public Sector Capacity**. **Linked to skills, a capacity constraint identified by both the public sector and suppliers, is the public sector's ability to compete, award and manage these ICT projects.** Indeed, a shortage of skills pertaining to programme and project management, understanding business requirements, testing software, and procurement and supplier management were cited. The key concern is that if suppliers are having to work hard to fill these roles how much more difficult will it be for the public sector. Without the appropriate skills on the client side, however, this will place even greater demand on suppliers for senior resource, e.g. the need for more and higher calibre project managers.

  Better Practice Project Management and Procurement. Based on some of the public sector responses and supplier discussions it is clear that there are good examples of capacity planning and early market engagement taking place in the public sector. This would not appear to be universal, however, and given its critical importance, especially with the bid capacity constraint, **more widespread good practice project management and procurement is needed, not least to ensure that the requirement is as attractive as possible to the market.**

- **Risk and Terms & Conditions**. From supplier discussions and the public sector responses with regard to the probable financing of projects, it would appear that considerable risk is being placed with suppliers. Indeed, this may be highly appropriate, but there is also a limit to how much risk companies can accept without adversely affecting their overall risk rating and value. Additionally, suppliers are generally of the opinion that public sector terms and conditions are becoming increasingly onerous for them. Again, given the bid capacity constraint coupled with the need for requirements to be as attractive as possible, **public sector organisations must ensure that the level of risk being placed on suppliers and the terms and conditions are consistent and appropriate.**

- **Use of Off-shoring.** There was little evidence to suggest that greater off-shoring of public sector ICT work is necessary to ensure adequate capacity. However improved value for money may be possible where suppliers are able to use the best 'blend' of on-shore and off-shore resources. In any case, Departments should make it clear at the start of procurements whether off-shoring is acceptable for the service required.

- **Security Clearance**. Security clearance of personnel cuts across all skills, and extended delays in obtaining higher level security clearance will inevitably further compound capacity constraints, whether they are programme directors, SAP experts or ID specialists. **By minimising the time required (though of course not the degree of diligence applied) to obtain higher level security clearance, an ICT capacity constraint could be significantly reduced.**

- **Software Accreditation, Networks and Data Centres**. Whilst not identified as significant constraints at this point in time, the lead-time required for software accreditation and deploying networks needs to be closely monitored. The availability of appropriate secure data centres, especially given the envisaged level of demand within the public sector projects identified, must also be closely tracked.

- **Bespoke Requirements and Lack of Standardised Solutions.** Another variable in terms of capacity is the significant amount of resource needed to develop solutions for bespoke requirements and to 'rework' inherited solutions.

4.2 Overall ICT Capacity

Whilst a number of specific capacity issues and constraints have been identified, in assessing whether or not there is likely to be sufficient overall ICT delivery capacity over the next three years, there appear to be a number of mixed signals.

For example, there are the aforementioned specific issues and constraints. Equally, commercially available market research suggests that by 2007 UK ICT Project Services spend levels will increase to approximately those of the dotcom era; a period known to have had capacity issues.

Then there are conflicting messages with regard to the visibility of the public sector demand pipeline. Suppliers report reasonable visibility, and if anything slightly better than the private sector; yet they also cite visibility of the public sector pipeline as a constraint. Moreover, this Project found it difficult to obtain details of projects going to market from 2007 onwards.

Conversely, there are a number factors suggesting that there should be adequate ICT delivery capacity. For instance, ICT global growth is forecast to be 4% in 2006 and only 3.8% in 2007, and the UK private sector is not considered a major threat to capacity given its relatively modest forecast growth levels. Equally, ICT public sector project services work is forecast to peak in 2008. Perhaps even more significantly the ICT industry is, in the main, a global market and most work can be relatively easily moved to where there is capacity. Moreover, there were strong messages from suppliers that they need to balance their public and private sector business, and that they do not envisage major delivery capacity issues over the next three years. This view is further reinforced by the public sector's reasonably positive view of the ICT market's ability to deliver. Finally, there is anecdotal evidence that as a result of SR07 there may not be as much ICT public sector work as originally forecast.

Given this potential dichotomy, it is necessary to explore a number of these factors in more detail. For instance, whilst the commercially forecast UK ICT Project Services spend levels are comparable to those of the dotcom period there are a number of fundamental differences.

Firstly, in real terms, e.g. excluding wage rate inflation, even the highest level of forecast spend is almost certainly less than in the dotcom period. Additionally, the dotcom spend occurred relatively quickly and was more of a 'spike', e.g. a total increase of 6.3% between 1999 and 2000, whereas the projected spend for the period 2006 – 2009 shows a more gradual increase. Moreover, compared to even 5 years ago, the way in which ICT is delivered has evolved significantly, e.g. technology has replaced some of the lower level work, and the ways in which to best utilise the global resource pool have matured. Indeed, increasing ICT spend levels, per se, are unlikely to equate to capacity issues.

That said, what can equate to capacity issues are the underlying skills that are required, primarily the availability of senior experienced personnel both for bids and delivery. This also, however, needs to be considered in context. In particular, relatively few of these individuals are actually required, e.g. there will usually only be one successful supplier who will need only one programme director. Moreover, a significant number of these senior experienced individuals tend to be independent contractors and / or reasonably mobile e.g. prepared to work away from home or even relocate for the project duration. Hence, it is usually not so much a case of individuals not being available, but the premium needed for them to undertake the role.

Therefore, although specific capacity issues and constraints have been identified, on balance the various factors suggest that there is unlikely to be a *widespread* shortfall in ICT delivery capacity over the next 3 years**.** Indeed, as one supplier commented ‘in order for there to be a capacity problem, global demand would need to increase by 15-20%’.

However, this is a slightly tentative conclusion, because there is not sufficient visibility of future ICT public sector projects. By identifying opportunities and making use of the available commercial market research, suppliers evidently believe that they have a reasonable view of the public sector demand pipeline. This, however, is fundamentally different from actually having visibility of the entire public sector pipeline.

Another key conclusion, therefore, is that in order for ICT delivery capacity to be ascertained with a greater degree of certainly there needs to be greater visibility of future public sector ICT spend and projects.

4.3 Project Process Conclusions

The following conclusions are based primarily on the experiences and observations of the Project Team and are included to help inform any ongoing work.

- **Appetite for the Project.** Overall, and as reflected by the response rates, there was considerable appetite for the Project across both the public sector and supplier community.
- **Continued Involvement.** In order to maintain the essential involvement of key Departments and suppliers there must be demonstrable benefits for them. Moreover, suppliers need to be reassured about how the information will be stored and reported, and what the information will and will not be used for.
- **Public Sector Future Project Information.** Perhaps because this was the first time the data was collected, but there appeared to be particular difficulties in public sector participants accessing future project information from the strategic planning and performance teams.
- **Variable Quality Responses.** Whilst most of the supplier responses were of reasonably high quality, the quality of the public sector responses was more variable.

5 Recommendations

This section contains the recommendations arising from the Project. Section 5.1 contains recommendations to help ensure adequate ICT capacity. Section 5.2 makes a number of recommendations with regard to the Project going forward.

5.1 Recommendations to help ensure adequate ICT Capacity

Based on the findings and conclusions the following is recommended:

- **Visibility of the Public Sector Demand Pipeline. CIOs need to ensure there is adequate visibility of their planned projects so that major approaches to the market can be better coordinated and that departments are not competing with one another.** Section 5.2 details a number of ways to assist in ensuring there is greater strategic visibility of the public sector pipeline including the Project Team working more closely with the Treasury and OGC's Better Projects Directorate, and CIOs ensuring the person co-ordinating their responses has adequate access to their organisation's strategic planning information.
- **Skills. Given that particular skills have been identified as issues or constraints, a skills working group, reporting to the CIOC, should be established.** Their remit would be to develop plans to improve the supply of key skills and to ensure that supplier personnel have adequate exposure to working in the public sector. Suggested initial membership includes the Cabinet Office's Professional Skills for Government (PSG) and OGC's Programme and Project Management (PPM) teams, key departments and suppliers, and organisations such as Intellect, and e-skills UK. Moreover, both the public sector and suppliers should:
    - Review their recruitment and retention strategies for the senior roles identified as issues or constraints.
    - Consider undertaking detailed scenario planning, e.g. if another 10 programme managers are needed, what are the 'names in the boxes' and what proactive action do we need to be taking?
    - Scrutinise CVs to ensure that individuals really have the breadth and depth of experience required. Consideration should also be given to greater use of independent assessment centres.
    - Consider increasing investment in 'fast track' training and mentoring so that aspiring individuals are able to take on senior roles more quickly.
    - Review recruitment and retention strategies for such technical skills as SAP, Oracle, Java, Siebel and legacy systems (where applicable to the business).

- **Good Practice Project Management and Procurement. In helping to mitigate ICT capacity issues and constraints CIOs need to ensure appropriate project management and procurement teams are in place. Moreover, the appointed teams need to ensure that:**
  - They actively engage with the market as early as possible.
  - In planning projects, greater consideration is given to what other projects are taking place in terms of identifying opportunities for synergies and aligning competition dates to smooth the overall demand on the market. Indeed, the database being developed as part of this Project should be of considerable assistance to departments in this regard.
  - Demanding yet pragmatic project plans are developed, the duration of the procurement phase kept to a minimum, and an appropriate number of bidders are shortlisted as soon as possible. Fundamentally, however, every effort must be made to adhere to the project dates advised to the market.
  - The procurement process and bid information required is reflective of the contract value, and adequate consideration is given to using framework agreements.
  - Wherever possible, output based specifications are used and adequate consideration given to alternative delivery models.
  - Requirements are as attractive as possible. Appropriate consideration should be given to the factors cited by suppliers in Section 3.2.2.2, and additional factors such as the contract duration and ownership and use of Intellectual Property.
  - Linked to the attractiveness of the requirement are risk and terms and conditions. Project teams need to ensure risk sits where it is most appropriate, and that terms and conditions are not unduly onerous.
  - They communicate with the market proactively and are as open as possible.
- **Off-shoring.** Departments should make it clear at the start of procurements whether off-shoring is acceptable for the service required.
- **Security Clearance. The time required for personnel obtaining higher levels of security clearance should be re-examined.** Moreover, ways to better ‘regulate’ the availability of security cleared personnel should be explored, e.g. ensuring that the organisations which proactively invest in getting individuals security cleared gain at least some of the benefit. Consideration should also be given to the Defence Vetting Agency’s recent proposals for streamlining security clearance, and, if appropriate, supported by the CIOC. Additionally, public sector organisations should ensure that the level of security clearance is not over specified.

- **Data Centres and Networks.** Consideration should be given to commissioning a strategic review of data centres and networks, perhaps as part of the Critical National Infrastructure programme, and developing a future provisioning strategy.
- **Software Accreditation.** The process and time required for obtaining software accreditation should be further explored in terms of how it could be improved.
- **Common Reference Architecture.** To help clarify requirements, compare solutions, and reduce the amount of resource and switching costs involved when a new supplier takes over a service, consideration should be given to introducing a common reference architecture similar to the Global Enterprise Architecture being used in the United States.
- **Pre-qualification Information Repositories.** Consideration should be given to the development of supplier pre-qualification information repositories, similar to NHS PASA's Supplier Information Database (NHSsid), but for use by the wider public sector.
- **Additional Measures.** Additional recommendations for helping ensure adequate capacity include greater use of Shared Services, and cancelling nugatory projects as soon as possible.

5.2 Process Recommendations

This section contains recommendations for immediate next steps and the ongoing Project.

5.2.1 Immediate Next Steps

With regard to the immediate next steps, the following is recommended:

- In order to help identify and address ICT capacity issues this Project should be continued as part of the SMI. Once embedded, it will act as 'trusted forum' in which suppliers can proactively advise of pending capacity constraints, so that constraints can be jointly addressed with the public sector. To be effective, however, the ongoing Project needs to be seen as a vehicle for change, and recommendations either implemented or suitable reasons advised as to why it was not possible to implement them.
- All participants, both public sector and suppliers, plus parties such as PSG, PPM, Intellect, Socitm and e-skills UK, should be invited to a presentation(s) to hear the conclusions, recommendations and the next steps.
- Details of potentially similar ICT projects should be circulated to the various public sector organisations involved, with a view to identifying synergies.
- Non-commercially sensitive project information should be shared with suppliers. Information to be shared with suppliers needs to be agreed in advance with the respective public sector participants.

- Supplier participants should be invited to advise if their views on capacity have changed in light of the Project information.
- A version of this report with the confidential or sensitive information removed should be published online, and links circulated to other suppliers and public sector IT Directors, Commercial Directors, Heads of IT and Heads of Procurement, inviting their organisation to participate going forward.

5.2.2 Ongoing Project

In relation to the ongoing Project, the following is recommended:

- CIOs should ensure that the SMI objectives are integral to, and not separate from, their organisation's objectives so that the Project can be easily supported.
- In order for the Project to deliver maximum value, a small number of representatives from departments, suppliers and organisations such as PSG, PPM, Intellect, Socitm and e-skills UK, should be invited to form a working group. The role of the working group would be to assist OGC's Project Team in:
    - Refining the Project scope, objectives, approach, and defining the data to be collected.
    - Being 'champions' for the Project and encouraging organisations to actively participate, and assist in the development of material and, potentially, the data collection.
- Consideration should be given to increasing the scope of the Project to include more public sector organisations, e.g. the Police Forces, the wider NHS and more Local Authorities. Consideration should also be given to reducing the project value threshold to, say, £5M in any one year. Equally, a greater number of suppliers should be invited to participate.
- Given that there may be considerable overlap in terms of the resource pool, especially in areas identified as capacity issues and constraints e.g. senior programme and project managers, consideration should be given to extending the project scope to include pure ICT consultancy spend. Moreover, wherever possible, high level information should be included on ICT Classified projects.
- Consideration should also be given to increasing the scope of the project to include demand side capacity, i.e. the public sector's ability to compete, award and manage these contracts. This could, however, have significant Project resource implications.
- There should be an even stronger association between the Project and the SMI. Where applicable, supplier's capacity returns should also feed into the Common Assessment Framework, the 360 (e.g. specific examples of good and poor procurement practice) and discussed in the individual Supplier Forums.

- The Treasury and OGC's Better Projects Directorate should be approached at a senior level with regard to how they could potentially assist the ongoing project and/or complement the existing information.
- A task based project plan should be produced with the emphasis being on the time required to produce high quality information rather than what can be achieved within predetermined timelines.
- The approach of CIOs / senior management nominating the person best placed to collate the information for their organisation should be continued. However, the person nominated should not delegate their role. Sufficiently senior personnel are needed to access the information (especially strategic planning information), and to challenge and question it, so that there is a high degree of confidence as to its completeness and accuracy.
- Quantitative public sector data should be supplemented by interviews with client side programme directors or managers, i.e. where are they experiencing or envisage capacity problems.
- Consideration should be given to supplier input being sequential to the public sector data collection, with suppliers having visibility of the latest non-commercially sensitive public sector demand information, prior to advising on capacity constraints. This approach would also allow suppliers to comment on specific constraints reported by the public sector.

6 Acknowledgements

Contributions to this report were received from the representatives of ICT suppliers and public sector organisations listed in Appendices B & C. The ICT Capacity Project Team would like to acknowledge these contributions and thank the contributors for their support of the Project.

Appendices

Appendix A – Project Methodology

This Appendix outlines, essentially in chronological order, the methodology used in undertaking the Project.

Project Team and Project Management

The Project commenced in January 2006 and the Project Team comprised essentially 1.5 FTEs (initially 1 FTE for 3 months and then 2 FTEs for the subsequent 3 months). The Project Team was complemented as required by additional analytical and administrative support.

The Project was undertaken in accordance with Prince2 principles. A Project Initiation Document, Project Plan, and Risks and Issues Register were developed and maintained, and written weekly updates provided.

Desk Based Research

Desk based research was initially undertaken in order to scope the Project. In addition to OGC's existing data, information sources reviewed included Kable and Ovum.

Workstreams and Organisations Invited to Participate

Given the nature of the Project, i.e. consideration of both demand and supply, two interrelated workstreams were formed, i.e. public sector organisations and suppliers.

In considering the objectives of the Project, and the fact that it was a Transformational Government commitment, the CIOC, per se, provided an excellent sample set of public sector organisations. All CIOC member organisations were therefore invited to participate, details of which are provided in Appendix B.

With regard to the suppliers invited to participate in the Project, this was essentially the top 15 non-specialist ICT suppliers to government (by spend), details of which are provided in Appendix C.

Capacity Leaders / Contacts

Given the size and federated nature of some of the participant organisations (both public sector and suppliers), coupled with the challenging timelines, the approach taken was for all CIOs to nominate a senior representative as Capacity Leader. The role of the Capacity Leaders was to act as the focal point for their organisation and to facilitate the collection of the information for their organisation, including, where applicable, their organisation's 'wider families'.

Similarly, suppliers' senior management were initially contacted and asked to nominate a senior contact to co-ordinate their organisation's response.

All Capacity Leader and supplier contact details were recorded centrally, thereby creating the nucleus of the 'capacity community' for future capacity work (one of the Project objectives).

Project Launch and Establishing Working Groups

To launch the Project all potential participants were invited to one of two 'kick off' meetings (one meeting for the public sector participants and one for the suppliers). The purpose of these meetings was to communicate the details of the project, i.e. the purpose and objectives, what would be required from participating organisations, the associated timelines, details of the data collection workshops, etc; and to address any questions.

During the 'kick off' meetings volunteers were requested to participate in Working Groups (one for the public sector and one for the suppliers). The purpose of the working groups was to challenge and help refine the data collection process and material. Details of organisations that formed the public sector working group are also included in Appendix B. With regard to the suppliers working group, virtually all suppliers volunteered to be part of this, but membership was restricted to 6-7 suppliers selected at random.

Data Collection Material

Drawing on previous market review work undertaken and given the highly quantitative nature of the project information being requested from the public sector, an Excel based data collection template was developed. Detailed guidance was also developed to accompany the template.

The supplier questions were developed in such a way so as to 'build on' and validate one another e.g. how did a supplier's response to the attractiveness of public sector work compare to their advised future public / private sector business split. Additionally, to uncover any underlying capacity issues and their severity, a number of potentially contentious proposition statements were put forward and suppliers asked to comment, e.g. 'do you believe there is becoming a surplus of ICT skills in the UK'.

Working Groups and Additional Input

In total four Working Group meetings (two for the public sector organisations and two for the suppliers) were held to review, challenge and refine the guidance and data collection material.

Additionally, input was obtained from OGC's Legal, Freedom of Information and Communications teams. The public sector data collection template was also 'stress tested', both for clarity and in terms of functionality, by a member of the public sector working group. Details of the type of information requested from the public sector is provided in Appendix D, and a copy of the supplier questionnaire is available from OGC on request.

Communiqués and Issuing of Data Collection Material

Several weeks prior to the data collection material being issued, 'warm up / reminder' communiqués were issued to the Capacity Leaders and nominated supplier contacts. The communiqués reiterated that the data collection material would be issued on schedule (as previously advised), to prepare as much as possible, e.g. to brief the individuals who would be collecting the information, and to put one of the data collection workshop dates in diaries.

The data collection material, including detailed guidance, was issued on schedule to the public sector participants and suppliers. Thereafter, the public sector participants were contacted to ensure the data collection material had been received, and establish who would be attending which of the data collection workshops. In the case of the suppliers, they were also contacted to ensure receipt of the questionnaire and to arrange a suitable time for their interview meetings.

Data Collection Workshops

Four data collection workshops were facilitated for the public sector organisations (all covering the same material). The structure of the workshops comprised a brief presentation outlining the background and objectives of the Project, followed by an in-depth review of the fields in data collection template. Clarification points raised within the workshops were circulated to all Capacity Leaders.

Given that the nature of the information requested from the suppliers was primarily of a qualitative nature, and the fact that responses would be clarified in the subsequent interviews, workshops were not considered necessary for suppliers. Instead, however, all suppliers were contacted and asked if there were any issues they needed clarified.

Helpdesk Support

In addition to the data collection workshops and the proactive liaison with the suppliers, helpdesk support was provided for both the public sector participants and suppliers throughout the 6-week data collection stage. During the data collection stage a number of reminders re-iterating the response deadline were also issued.

Additional Engagement

Throughout the initial and data collection stages of the Project, addition information sources were also explored. For example, HM Treasury, OGC's Better Projects and Intellect were engaged, as were the Institute for the Management of Information Systems, e-skills UK and the Society of Information Technology Management

(Socitm). This provided useful insights and who's involvement could be beneficial to the Project going forward.

Supplier Interviews and Analysis

13 out of 15 suppliers participated. Upon reviewing their questionnaire responses, a list of supplementary questions was compiled and supplier responses further probed and clarified in interview meetings. In terms of analysis, all quantitative information was collated into tables and appropriate and robust statistical techniques applied.

Public Sector Responses, Clarification and Analysis

In total, as detailed in Appendix B, 20 of the 28 invited public sector participants submitted a useable response equating to a response rate in excess of 70%. The responses were 'sanity checked' e.g. that the header level information was completed and not just the sub-level information etc, and anomalies were clarified, as much as possible, via the Capacity Leaders. The clarified information was then collated into a master spreadsheet to assist with analysis and to form the basis of the ICT projects database.

Appendix B – Public Sector Participants

Participant Organisations
Birmingham City Council
Cabinet Office
Criminal Justice Information Technology
Crown Prosecution Service
Department for Communities and Local Government
Department for Environment Food and Rural Affairs
Department for Constitutional Affairs
Department for Education and Skills (Becta Only)
Department for Work and Pensions
Department of Health
Department of Trade and Industry
Hampshire County Council
HM Revenue and Customs
HM Treasury
Home Office
Ministry of Defence
NHS (Connecting for Health Only)
Northern Ireland Office
Office for National Statistics
Police Information Technology Organisation

Appendix C – Supplier Participants

Supplier Participants
Accenture
AtosOrigin
BT
Capgemini
Cable & Wireless
CSC
EDS
Fujitsu Services
HP
IBM
LogicaCMG
Steria
Tata Consultancy Services

Appendix D – Public Sector Project Data Collection Template Fields

The public sector data collection template requested the following information for each project:

- Department Name
- Project Type
- Policy or Programme (driving the project)
- Project Name / Identity
- Project Description and Scope
- Primary Categorisation of the Project (Applications, BPO, Communications, Datacentre or Desktop)
- Probability of the Project going ahead
- Contract Duration
- Estimated Total Project Spend
- Estimated Total Labour Spend
- Estimated Total Spend (06/07)
- Estimated Total Spend (07/08)
- Estimated Total Spend (08/09)
- Dominant Architectural Products being used
- Project Complexities or Niche Services required
- Potential Constraints (datacentres, senior project managers, senior programmers, senior analysts, security cleared personnel)
- Procurement Route envisaged (existing schedule of rates, framework, separate competition)
- Contract Type (supplier to invest and recover, staged payments, organisation invests and pays service fee)
- Expected OJEU Date
- Expected Project Start Date
- Envisaged Bidders / Known Suppliers
- Envisaged / Known Subcontractors
- Additional Information

Appendix E – Suppliers' Bid / No Bid Decision Criteria

Bid / No Bid Criteria Considered by Suppliers	Number of times mentioned
Likelihood of winning	11
Is the delivery risk profile acceptable	10
Will be project be profitable and have acceptable cash flow	10
Do the requirements fit with the company's core competencies	8
Do we understand the requirements	7
Do we have the capacity and capability to deliver the requirement	6
Is the bid cost reasonable compared to the contract value	5
Do we have a good relationship with the customer	5
Can we accept the terms and conditions	4
Can we genuinely add value	4
Strategic Value (potential of upsell or using solution as reference sell)	4
Does the customer understand the requirement	4
Is the procurement approach efficient	3
Can the bid team be staffed	2
Can we offer the best solution, and can we differentiate ourselves	2
Do we need to replace an incumbent	2
Does the project give us the effective and efficient use of staff	1
Does the customer know our potential delivery team and ability to deliver	1
Do we have relevant and appropriate references	1
Do we have access to off the shelf solutions for the requirement	1
Have we done something similar before	1
Is the customer a Key Customer	1
Is the requirement real	1
Track record with the customer and customers in related areas	1
Does the customer have the required funding	1

Appendix F – Suppliers' Suggestions to Address Bid Capacity

Measures suggested by Suppliers to help address Bid Capacity	Number of times mentioned
Much earlier, ongoing and meaningful engagement with the market; including greater openness of information, and customers being more proactive in contacting suppliers at all stages of the process	7
Customers need to be clear what they are buying, when they need it and how they are going to obtain it. The requirement also need to be realistic.	7
Streamline, simplify and shorten the procurement process	6
More standardisation of requirements, common reference architecture, fewer bespoke systems	4
Less onerous terms and conditions	3
More pragmatic and consistent approach to off-shoring	3
Central repositories of supplier pre-qualification information that can be accessed by each procuring body to reduce bidding timescales and costs	3
Customers should be less concerned about the possibility and implications of challenges to procurement decisions	2
Requirements should be output (not input) based	2
Government should make greater use of frameworks	2
Removal from the critical path of work packages that are intrinsically lengthy	1
Reduce confrontational posturing; negotiation should aim to achieve consensus, not compliance or conflict	1
Reward success to the same degree that failure is penalised	1
Realistic bid response timescales	1
Frameworks can exclude other bidders	1
Senior leadership should be engaged throughout procurement process (both sides)	1
Consistent commercial approach across government deals	1
Access to knowledge where there is an incumbent, unable to compete with an incumbent where there is significant knowledge transfer required	1
The end customer (business user) should be at the centre of the procurement process	1
Customer's programme managers need to be accountable for whole project, procurement should be seen as a supporting department	1

Appendix G – Suppliers' View of ICT Skills in High Demand

Functional Skills in High Demand	Number of times mentioned
Programme Directors and Senior Programme Managers	10
Senior Technical and Solution Architects	9
Transformation Architects / Change Managers	8
Senior Project Managers	3
Security Technologists	3
Business Analysts	2
Test Leads	1
Service Orientated Architects	1
ITIL Expert Practitioners	1
Network Security Specialists	1
Infrastructure Consulting	1
Legal Support	1

Business Facing Skills in High Demand	Number of times mentioned
HR	4
Financial Management	4
BPO	2
Shared Services	1
Customer Relationship Management	1
Knowledge of how the Public Sector operates	1

Technical Skills in High Demand	Number of times mentioned
Java	5
Oracle	5
SAP	4
.net	2
Siebel	2
Opensource	1
Omnibus	1
MQ	1
C++	1
Messaging	1
Microsoft CRM	1
Axapta	1
Sharepoint	1
Filenet	1
Documentum	1
SAS	1
Teradata	1
XML and Data Standards	1
Web Development	1
Heritage / Legacy Skills	1

Niche Skills which could cause Capacity Issues	Number of times mentioned
Biometric and Identity Management expertise	3

Appendix H – Suppliers' View of Non-Skills Based Constraints

Suppliers' View of Non-Skills Based ICT Delivery Capacity Constraints	Number of times mentioned
Lead time for security clearances (higher level)	6
Unreasonable and / or onerous terms for public sector contracts taking up legal and commercial resources and increasing risk (penalty for underachieving is disproportionate to bonus for overachieving)	6
Lack of visibility of public sector market requirements, uncertainty of customer plans leading to difficulties in staff development	5
Shortage of experienced public sector users to manage the relationship, specify requirements and test solutions	3
General reluctance to consider alternative approaches to delivery, including inconsistent guidance on the scope for offshore delivery	2
Lack of standardisation and shared solutions	2
Software Security Accreditation (capacity of government to provide software security accreditation)	1
Network Services – ability to provide services where and when required	1
Availability of secure data centres	1

Appendix I – Public Sector's View of ICT Capacity Issues

Potential ICT Market Capacity Issues Over The Next Three Years	Number of times mentioned
Project Management Skills	3
Security Architecture Personnel	3
General Technical Skills	3
Support for Legacy Systems (in particular VME and Cobol)	3
Programme Managers	2
Business Aware Personnel	2
Integration Capabilities	2
Enterprise Solutions Skills	1
Security Accreditation (software)	1
Identity Management Skills	1
Requirements Analysis Skills	1
Curam Skills	1
Service Oriented Architecture Skills	1
ITIL Best Practice	1
Business Change Managers	1
Misguided Outsourcing (resulting in problems recompeting / in-sourcing)	1
Acceptability of Off-shoring	1
Security Cleared Personnel	1

Appendix J – Public Sector's View of ICT Skills that could be Capacity Constraints

Public Sector 'In-House' ICT Skills that could become a Capacity Constraint	**Number of times mentioned**
Project Managers	7
Programme Managers	5
Technical Architects (Senior)	4
Business Analysts	4
Software Developers (inc. Senior Analysts and Senior Programmers)	4
Test Analysts	4
Procurement / Supplier Management	4
Database Administrators	3
Security Architects	2
SAP Expertise	2
ICT Service Managers	2
Data Protection	1
Data Standards	1
Enterprise Technologists	1
GIS Specialists	1
Healthcare Applications Skills	1
IBM Applications Expertise	1
Identity Management (including biometrics)	1
ITIL Best Practice	1
Network Engineers	1
Portfolio Management	1
Programme Office	1
Release Managers	1
Security Managers	1
Service Design ICT Skills	1
Service Orientated Architects	1
Systems Administration	1
Quality Control	1

ICT Functional Expertise Commanding Premium Rates	Number of times mentioned
Project Directors / Managers	6
Programme Directors / Managers	4
Senior Technical Personnel	4
Security Specialists	3
Business Analysts	1
Capacity Managers	1
CIO	1
Clinical Analysis in NHS	1
Data Migration Specialists	1
Enterprise Architects	1
Identity Management Personnel	1
ITIL Service Management	1
Middleware Engineers (Security Cleared)	1
Procurement Specialists	1
Programme Office	1
Release Managers	1
Security Cleared Personnel	1
Senior IT Managers	1
Service Managers	1
Stakeholder / Change Management	1
Test Analysts	1

ICT Technical Skills Commanding Premium Rates	Number of times mentioned
Oracle	7
Java	5
Web Design and Development	3
SAP	3
Unix	3
.net	2
Cobol	1
Data Architects	1
Data Protection	1
Data Standards	1
Fast / CMS	1
Identity Management (biometrics)	1
IDMS Database	1
Knowledge Management	1
Linux	1
Lotus Notes	1
Networking	1
VME / Cobol	1
Websphere	1

Business Facing Expertise Commanding Premium Rates	Number of times mentioned
Finance	2
Business Process Analysts	2
Functional Analysts with NHS knowledge	1
Information Strategists	1
Police knowledge	1
Safety Management	1
Pensions ICT Support Services	1

Potential Niche Service Constraints	Number of times mentioned
IT Security	3
Tivoli Suite	2
Legacy Technology Expertise (in particular VME and Cobol)	2
Access Control	1
Biometric Specialists	1
Basic Datacentre Services (server hosting)	1
Bowstreet Portlet Factory	1
Curam	1
Enterprise Architects	1
Enterprise Content Management	1
Integration Skills	1
Metamatrix	1
Penetration Testing	1
Polarlake	1
Secure Telecoms Network Capacity	1