OFFICE OF FAIR TRADING

Supply of Information and Communications Technology to the Public Sector

An OFT Market Study

March 2014

OFT1533

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Introduction

1.1 Information and Communications Technology (ICT) plays a key role in the delivery of all public services, from our schools and social housing to benefits payments and national security. The public sector spent around £13.8 billion in 2011/12 on ICT products and services.[1]

1.2 The landscape for the supply of ICT to the public sector is complex. A range of suppliers provide different products and services and many supply the private sector as well as the public sector. Some public sector organisations own and operate their own ICT systems, employing highly qualified in-house staff to do so, while others have outsourced whole business functions such as human resources or finance, including associated ICT, to third party providers.

1.3 Healthy competition can generally be expected to drive down costs, drive up efficiency and promote innovation. Conversely, a lack of competition can hinder productivity and economic growth. A well functioning, competitive, ICT sector involves suppliers competing to deliver as efficiently and innovatively as possible. At the same time, buyers must act as informed consumers, designing and implementing contracts so as to promote rather than restrict competition.

1.4 The OFT launched a Call for Information into the supply of ICT to the public sector on 3 July 2013.[2] The aim of the Call for Information was to understand more clearly the products and services involved, who supplies them, the structure and operation of these markets and the degree of competition between suppliers.

1.5 The Call for Information highlighted a number of issues about the sector, most notably that:

- certain businesses appear to have a large share of contracts in some areas of the sector

[1] Source: market intelligence provider Kable (see www.kable.co.uk/index.html). Note that this figure excludes direct employment costs associated with in-house ICT staff employed by public sector organisations.

[2] See www.oft.gov.uk/OFTwork/markets-work/othermarketswork/ICT-CFI/

- there are high barriers to entry and expansion (especially for smaller scale ICT businesses)
- there are difficulties and high costs in switching ICT supplier.

1.6 The OFT decided that these issues merited further analysis. Accordingly we launched this market study on 15 October 2013.

1.7 Public sector procurement has been and continues to be the subject of many reports and initiatives. We looked at the extent to which public sector procurement practices affect competition in our market study, building on the work that has already been done in this area.

1.8 We focused on two key areas of the ICT sector which were highlighted by respondents of the Call for Information - commercial off the shelf software, and Outsourced IT. Between them, they constitute around half of UK public sector ICT expenditure:

- **Commercial off the shelf (COTS) software:** COTS software is all types of software commercially available in a standardised form to different organisations. We looked specifically at management information systems for schools,[3] and software for housing,[4] planning,[5] local authority pension administration, [6] Enterprise Resource Planning[7] and Customer Relationship Management.[8] The UK public sector spent around £4 billion on COTS software and related services in 2011/12.[9]
- **Outsourced IT:** Outsourced IT involves contracting suppliers to build and/or manage IT infrastructure and applications. The UK public

[3] School management information systems (MIS) are used to support management and administration, maintain central records about students and staff and report data to Local Authorities and/or the Department for Education as required.
[4] Social housing software is used by district councils, unitary authorities, metropolitan boroughs and London boroughs to manage their portfolio of properties, associated tenants and leaseholders, waiting lists, allocations of properties, and to carry out their duties in relation to homeless individuals.
[5] Planning software is used by Local Authorities to process planning applications and appeals.
[6] Pensions administration software is used in the public and private sectors to administer occupational pensions schemes.
[7] Enterprise Resource Planning (ERP) functions underpin an organisation's main finance and management processes. These functions comprise the processes of accounting, payments and invoicing, HR and payroll and other related services.
[8] Customer Relationship Management (CRM) enables organisations to manage their communications with stakeholders in order to deliver their services.
[9] Kable, 2011/12. Such related services include maintenance, support and customisation.

sector spent £4.8 billion on outsourced IT in 2011/12.[10]

Key findings

1.9 We identified a number of issues that suggest that competition in this sector may not be working as effectively as it could.

1.10 We found that there are barriers to entry, expansion and switching across the two key areas of the ICT sector that we looked at. Many of these result from purchasing practices and a lack of access to the requisite commercial and technical capabilities within the public sector. However, they are compounded by the fact that suppliers often have more information about ICT solutions than buyers (known as information asymmetries), and by the actions of suppliers, such as the use of complex pricing models. In some areas, barriers to entry and expansion have helped to strengthen large shares of supply of individual suppliers. Some barriers to switching may be 'real' such as high costs or lengthy timescales associated with transition to new ICT solutions, while others may be based on perceptions, such as buyers' concerns about the extent of any disruption to business through switching ICT suppliers.

Structural issues and market power

1.11 The OFT has not sought to define economic markets within the sector in a formal sense, but has considered the competitive constraints on specific products and services in order to assess the intensity of competition in the various areas of the sector that we looked at. Our analysis suggests a degree of market power among certain suppliers and/or structural issues within the sector that may have an adverse impact on competition. Our findings are set out below.

High shares of supply in some sectors

1.12 There are small numbers of suppliers with high and stable shares of supply for certain types of software, most notably local authority housing, planning and pension administration software and management information systems for schools. In these areas, we

[10] Ibid.

found that the largest one or two suppliers have a total share of supply of at least 60 per cent and in some cases over 80 per cent which have not changed significantly over recent years. Such high and stable shares of supply suggest that competition may not be working as well as it could. Suppliers that have been in the market for a long time benefit from incumbency advantages such as in-depth knowledge of their customers' requirements and business processes, and are in a better position to take advantage of economies of scale. These advantages make it more difficult for entrants to contest their share of supply, enabling incumbents to sustain their high shares over time.

Significant barriers to entry and expansion exist

1.13 We identified a number of barriers to entry and expansion across the areas of the sector that we looked at.

1.14 Public sector procurement practices were frequently highlighted to us as a key barrier to entry and expansion. The way in which buyers interpret procurement rules and design procurement processes has an influence on the effectiveness of public sector procurement. Responding to tenders can be time consuming and expensive for suppliers, and there is a risk of tenders being cancelled or delayed, which can result in substantial irrecoverable costs for suppliers. Requirements placed on suppliers in order to qualify for tender processes, for example demonstrating a track record of having delivered ICT to UK public sector organisations, can discourage or prevent suppliers from bidding for certain contracts.

1.15 Many stakeholders said that early engagement with suppliers leads to a better understanding of public sector needs and the range of ICT solutions available. Without such engagement, buyers are less likely to be aware of alternatives when designing tender specifications and, as a result, less likely to consider alternative suppliers. In some cases, specifications can require a solution very similar to the existing solution and this favours the incumbent supplier. Public sector buyers generally carry out limited pre-tender engagement with suppliers, which reduces their ability to scope their ICT requirements properly and makes them less well informed about available solutions. However, we saw instances where public sector buyers had engaged with suppliers before and during tender processes, leading to contracts

being won by non-incumbent suppliers with previously small public sector footprints.

1.16 Concerns were also raised about the process for gaining security accreditation to carry out public sector ICT work. We were told that it can be prohibitively costly and time consuming to gain accreditation, especially for smaller suppliers, with some suppliers estimating that it can take 12 months and cost up to £200,000. Public sector organisations may also favour awarding contracts to suppliers with higher security accreditation levels even where this is not required to conduct the work.

Barriers to switching are prevalent across the sector

1.17 High switching costs and low levels of switching can limit competition and create barriers to entry. Barriers to switching in this sector can arise both from characteristics of the sector and the behaviour of buyers and suppliers.

1.18 In particular we note that incumbent suppliers have an inherent advantage over other suppliers in the sector. For example, they may already have in-depth knowledge of buyers' business requirements; products may have been adapted to meet these requirements; staff may have been trained to use existing products; and buyers may have already bought perpetual licences for existing software or products.

1.19 This can lead to significant additional switching costs, for example installing new systems, training staff and transferring data. It may also mean that timescales for switching to new suppliers are lengthy and there is potential for considerable disruption from usual service.

1.20 In some cases, the actual costs incurred may not outweigh the benefits of switching. However, they may still be perceived to do so by buyers, for example if they are concerned about the risks of significant disruption to important public services as a result of switching ICT suppliers.

1.21 As well as these specific characteristics of the sector, buyer and supplier behaviour can raise or compound barriers to entry, expansion and switching. These are discussed further below.

1.22 Notwithstanding the above, we saw instances of entry and expansion, for example where established suppliers with limited track records in providing public sector ICT in the UK had won contracts for outsourced IT, and in relation to some types of software where we saw new entry by smaller suppliers. We also saw cases where public sector organisations had successfully switched suppliers. This suggests that it is possible to overcome existing barriers to entry and switching can occur, although we note that much entry is still small scale and niche and we saw less evidence of suppliers expanding their shares post entry.

Information asymmetries exist

1.23 In many cases, suppliers know more about the quality of ICT goods and services, their suitability for meeting particular needs and the costs involved in their production than buyers. Added to this, pricing models are complex and suppliers do not always provide transparent pricing information to public sector organisations. Public sector organisations do not consistently collect good quality information about the level of competition for contracts, such as the number of bidders and quality of their bids, prices, quality and supplier performance.

1.24 Information asymmetries between suppliers and buyers can impact on buyers in a number of ways. At the point of awarding contracts, buyers may find it difficult to judge whether ICT solutions are the most efficient and offer value for money. After contracts have been awarded, buyers may find it difficult to evaluate and challenge supplier performance and therefore to decide whether to switch suppliers to drive value for money.

1.25 We saw evidence that some parts of the public sector are taking steps to address these issues, for example looking to improve collection of information about competition for contracts, prices and supplier performance, and improving commercial and technical capabilities to interpret and use market intelligence more effectively. This is discussed further below.

Some characteristics of the market may facilitate tacit co-ordination

1.26 We considered whether there were characteristics of the market that may facilitate tacit co-ordination between suppliers. Tacit co-ordination arises where suppliers recognise that they can reach a more profitable outcome by coordinating their actions to dampen competitive rivalry but achieve this outcome through implicit understanding of each others' future actions, rather than through arrangements.[11] Tacit coordination enables firms to raise prices above those that would otherwise be expected in a competitive market.

1.27 Our analysis suggests that some of the characteristics that increase the possibility of tacit coordination are present in some public sector ICT markets, while others are not. For example, in some software sectors, we see high, stable and symmetrical shares of supply consistent with the ability to reach and sustain coordination. In outsourced IT, on the other hand, there are large numbers of firms and apparently lower levels of concentration that could make co-ordination more difficult.

1.28 Furthermore, for some of the characteristics of the market, our assessment of the possibility of tacit co-ordination is inconclusive. For example, we looked at the frequency and nature of interactions between suppliers in the sector, where suppliers may compete to supply in one contract, while partnering to supply or acting as subcontractors in others. This level of interaction may be driven to some extent by government policy to encourage more SMEs to participate in the market through subcontracting relationships and thereby reduce dependency on any single supplier. However, more frequent contact may enable suppliers to learn more about each other's businesses and to base their own behaviour on clear expectations about other suppliers' likely reactions. On the other hand, the complexity of interrelationships and the larger number of suppliers involved makes coordination more difficult. In addition, contracts are quite 'lumpy' in many areas, making any punishment for suppliers who may deviate from a coordinated outcome less effective.

[11] Where this outcome is reached through explicit agreements, or other arrangements, to fix prices or divide up markets between suppliers, this is known as explicit collusion. Explicit collusion is prohibited by competition law: specifically section 2(1) of the Competition Act 1998 and Article 101.1 of the Treaty on the Functioning of the European Union.

1.29 Data on bids and pricing can be helpful in detecting potential tacit co-ordination. At present, public sector buyers do not collect reliable data that would allow us to look more closely at different parts of the ICT sector to see whether the trends might be consistent with tacit coordination between suppliers.

1.30 This is a very diverse sector with many different markets, each with unique characteristics. Whilst the evidence available does not allow us to conclude on the feasibility of tacit coordination by suppliers in particular areas, nor can we discount the possibility.

Allegations of explicit collusion

1.31 The OFT asked buyers and suppliers for their view of the allegations made in The Public Administration Select Committee report 'Government and IT – 'a recipe for rip-offs': time for a new approach[1]', in particular 'the serious allegations of anti-competitive behaviour and collusion.' Buyers did not provide any evidence in response to this question. Suppliers, both large and small, strongly refuted the allegation, asserting that the sector is fiercely competitive. However, given that unlawful collusion between suppliers is almost invariably carried out in secret (to avoid the significant penalties that may be imposed on businesses and individuals that participate in such collusion), we cannot reach any conclusions about the existence or otherwise of unlawful collusion in this sector from these responses.

Buyer conduct

1.32 We looked at the influence that buyer behaviour has on the structure of the sector and behaviour of suppliers.

Lack of access to relevant expertise hinders buyers' procurement decisions

1.33 Public sector organisations may not have access to the requisite commercial and technical expertise when procuring ICT, meaning they are unable accurately to define their ICT requirements, evaluate the best placed suppliers to meet these, and assess and challenge supplier performance. It can also lead to suppliers, rather than buyers, driving

[1] Available at www.parliament.uk/business/committees/committees-a-z/commons-select/public-administration-select-committee/news/report-on-Government-it-published/

the development of ICT solutions and increase the levels of uncertainty and perceived risks of purchasing particular ICT solutions. This hinders public sector organisations' ability to make informed purchasing decisions.

1.34 We note that there are initiatives aimed at improving the commercial and technical capabilities of public sector organisations (see below).

Public sector organisations do not routinely collect procurement data or make full use of market intelligence

1.35 Information about the number and quality of bids for public sector ICT contracts and supplier performance is crucial in assessing the intensity of competition for contracts, quality and value for money. However, it is not collected on an objective, systematic and consistent basis or used effectively across the public sector. The lack of routine data collection and effective use of market intelligence by public sector organisations contributes to information asymmetries between buyers and suppliers).

1.36 There are initiatives underway across the public sector to improve collection and use of market intelligence. However, there are still significant gaps in the information sources available to the public sector.

Public sector organisations are averse to switching supplier

1.37 We found that public sector buyers tend to be averse to switching ICT suppliers, especially in the case of larger and/or customised systems and software. There are a number of reasons for this, notably:

- the risks to service delivery from any problems with switching
- a lack of consistent data collection and benchmarking across the public sector
- lack of access to commercial and technical expertise
- inadequate exit provisions in contracts.

1.38 Public sector organisations deliver many vital public services and disruption to these would have a significant adverse impact. As a

result they may remain with incumbent suppliers with a known track record rather than considering contracting with suppliers who may be able to provide a better solution at lower cost but have a more limited public sector track record. This could stifle innovation and prevent public sector organisations from obtaining the best value for money.

1.39 A lack of information with which to compare suppliers and prices coupled with inadequate access to the requisite commercial and technical expertise, can prevent public sector organisations from effectively evaluating what ICT they need, what solutions are available and assessing and challenging suppliers' performance. This may lead to public sector organisations remaining with incumbent suppliers due to uncertainty and inadequate information about alternatives.

1.40 Public sector ICT contracts typically contain contractual provisions dealing with contract exit and transition. We heard that these provisions are often inadequate for achieving smooth transition and therefore may restrict or prevent public sector organisations from switching suppliers.

Supplier conduct

1.41 We identified certain supplier conduct that may prevent competition in the sector from working as well as it could and that may exacerbate some of the structural issues and demand side issues identified above.

Supplier conduct can limit the ability of customers to shop around

1.42 The ability of sufficient numbers of buyers to compare products and prices is an essential feature of a competitive market. If not enough buyers are able to compare the prices they are paying with alternative options, they will be less able to drive effective competition amongst suppliers.

1.43 Public sector buyers raised concerns about some ICT suppliers using complex pricing that is difficult to understand, making it difficult for buyers to challenge and compare prices. Linked to this, some buyers said that prices of individual components of the ICT solution are not always transparent in the overall pricing presented. This restricts the ability of buyers to compare prices for ICT solutions.

1.44 Some incumbent suppliers have not joined procurement frameworks for the supply of their products\services to the sector. This can limit the viability of such frameworks, particularly where that supplier already supplies a large share of the sector. Procurement frameworks are designed to reduce procurement costs to buyers and enable them to compare, relatively quickly and cheaply, products and services that might meet their needs.

1.45 Suppliers have said that they do not always bid for procurement frameworks because the terms and conditions can be unduly onerous with little room for flexibility, for example transferring all risk onto the supplier. Alternatively where they do bid, the price bid will reflect the additional cost of meeting those terms. Addressing barriers to switching may reduce the ability of suppliers with appreciable market power to undermine procurement frameworks, because buyers will be more likely to switch to suppliers who are on these frameworks.

Supplier conduct can impose or heighten barriers to switching

1.46 Incumbent suppliers may behave in such a way as to create or increase obstacles to public sector organisations switching to other suppliers when contracts end. Where this is the case, customers may feel locked-in to the incumbent supplier, or the cost of switching may be prohibitive.

1.47 Both buyers **and** suppliers said that some incumbent suppliers do not co-operate during transition to a new supplier. Some of the examples included imposing high charges for data migration and encouraging lock in to an incumbent supplier by proposed implementation of proprietary and bespoke solutions (as opposed to those with open standards or open source licenses).

1.48 As noted above, there are information asymmetries between buyers and suppliers in this sector. We saw evidence that suppliers may be benefitting from their greater technical knowledge of the products and services they supply. In some cases, buyers have said that suppliers use their superior product knowledge to steer buyers towards particular types of solutions regardless of whether these are the most appropriate or lowest cost solutions to their ICT requirements.

1.49 Concerns were also raised about some suppliers exaggerating the risks of switching to discourage the buyer from switching. However, we were also provided with examples to the contrary where suppliers had co-operated and assisted transition to new suppliers.

Existing initiatives designed to improve public sector procurement

1.50 We note that various initiatives are underway to improve public sector procurement, including the following:

- Improving procurement processes: Specific changes are underway to simplify public sector procurement processes and engage more suppliers. Frameworks such as G-Cloud and Digital Services are managed by the Crown Commercial Service and 'refreshed' regularly, allowing suppliers access to public sector organisations. Large contracts are being broken down into multiple 'towers' to open up opportunities to a wider range of suppliers. In central government, clear expectations have been set regarding the length and cost of ICT contracts. In local government too there has been an increasing focus on procurement.[12] The devolved administrations have also taken significant steps to change the way they look at and procure ICT.[13]

- Improving capability: Some areas of the public sector are expanding access to relevant commercial and technical skills and expertise. Professional support from the Crown Commercial Service has been able to improve buyer outcomes, and encourage sharing of information and best practice. There are indications that this is helping the public sector to think differently about ICT, both in terms of the supplier base and types of solutions.

[12] For example, recent evidence provided by both CO and DCLG ministers to the Communities and Local Government Committee suggests that local government will soon be following central government in mandating the abolition of PQQs for procurements under the EU threshold. There has also been work by LGA to develop a National Procurement Strategy

[13] The Scottish Government Central Government ICT Strategy published in February 2013 recommends a digital first approach, create cost effective and streamlined procurement and offer IT systems and platforms that are agile and adaptable. In 2011 the Welsh Government published their ICT Strategy for the Public Sector in Wales which is closely aligned with the UK Government ICT strategy.

- Managing suppliers: Central government in particular has introduced measures to ensure that relationships with its largest suppliers receive additional focus, to understand the work these suppliers do and in which parts of the public sector, and to manage and monitor performance more effectively.
- Technical changes: The Government has set clear expectations about the openness of public sector ICT systems. The aim is to make these systems easier to understand and capable of being updated by different suppliers, facilitating greater reuse of existing technology. These technical changes may also enable better exchange of information either within or across public sector organisations and make it easier to switch suppliers

1.51 Many of these initiatives are at a relatively early stage and their longer term impact on competition is unclear. This is especially the case where long term contracts and legacy ICT remains in place in some parts of the public sector. Moreover, some initiatives may only extend to certain parts of the public sector.

1.52 We therefore believe there to be scope for further work to improve outcomes in the market.

Recommendations

1.53 We set out some high level recommendations below, which aim to build on and complement the relevant initiatives already underway. Specifically, we recommend that:

- Public sector buyers should work with suppliers to address information asymmetries, in particular considering:
  - what information should be collected about bidding, products and services, prices and supplier performance
  - how this information can be collected in an efficient way that minimises the burden on suppliers, while ensuring that the public sector has access to comprehensive, objective data that is gathered on a consistent basis

- whether there is scope for suppliers to make this information clearer and more transparent
- how this information can be shared within the public sector, without the risk of it being shared with suppliers
- how this can be used to facilitate benchmarking, driving better value for money; assess the intensity of competition over time and across sectors; and to evaluate the effectiveness of new proposals designed to improve the way the market works.

• Public sector buyers should continue to seek improvements in the way they procure and manage contracts with suppliers:

- The OFT has highlighted a wide range of new initiatives, mainly coming from central government, that are designed to improve procurement processes and increase competition for supply. The public sector should look for ways to share experience of initiatives that work well within certain areas that could be extended to the benefit of the wider public sector.
- Public sector buyers should consider how they could co-operate further to improve access to specialist, independent advice and shared support for tendering and managing contracts.
- Public sector buyers should assess whether they are getting value for money by ensuring they test the market and re-tender contracts with sufficient frequency to achieve competitive prices and service levels.
- Public sector buyers should consider whether there is greater scope for standardisation of the products and services to allow them to aggregate purchases, to facilitate switching and to reduce costs.
- In light of the introduction of new security classifications as of 2 April 2014, the public sector should consider whether technical standards and security accreditation processes, both for suppliers themselves and their staff, can be refined so as not to prevent or deter suppliers from gaining the accreditation required for carrying out public sector work.

- Suppliers should consider whether they have adequate compliance programmes in place to guard against the potential for anti-competitive behaviour.
- This is an important sector of the economy and the CMA should give careful consideration to prioritising an investigation into any evidence of anti-competitive behaviour.

1.54 The supply of ICT to the public sector makes a vital contribution to the delivery of our public services and costs the taxpayer just under £14bn a year. We believe that these recommendations build on and complement ongoing initiatives, and would improve competition in the sector. The additional information gathered by buyers would allow the effectiveness of existing initiatives and recommendations to be assessed, ensuring the delivery of high quality services at a competitive price.

2 INTRODUCTION

2.1 Information and Communications Technology (ICT) plays a key role in the delivery of all public services, from our schools and social housing to benefits payments and national security. The public sector spent around £13.8 billion in 2011/12 on ICT products and services.[14]

2.2 The landscape for the supply of ICT to the public sector is complex. A range of suppliers provide different products and services and many supply the private sector as well as the public sector. Some public sector organisations own and operate their own ICT systems, employing highly qualified in-house staff to do so, while others have outsourced whole business functions such as human resources or finance, including associated ICT, to third party providers.

OFT's mission and powers

2.3 The OFT's mission is to make markets work well for consumers. Markets work well when businesses are in open, fair and vigorous competition with each other to attract customers, including both businesses and final consumers. Market studies are one of a number of tools at the OFT's disposal to examine possible competition or consumer protection issues and address them as appropriate, alongside its enforcement and advocacy activities.

2.4 Market studies[15] involve the analysis of a particular market, or practices across a variety of goods and services, with the aim of identifying and addressing significant aspects of market failure. Possible outcomes of market studies include:

- enforcement action by the OFT
- a reference of the market to the Competition Commission (CC)
- recommendations to Government or regulators for changes in laws, regulations or policy

[14] Source: market intelligence provider Kable (see www.kable.co.uk/index.html). Note that this figure excludes direct employment costs associated with in-house ICT staff employed by public sector organisations.
[15] Market studies are conducted under the OFT's general function as set out in section 5 of the Enterprise EA02, which includes the functions of obtaining information and conducting research. For more information on market studies, see: www.oft.gov.uk/OFTwork/markets-work/market-studies-further-info/

- recommendations for voluntary action by industry participants to address any problems found
- campaigns to promote consumer awareness
- a clean bill of health.

Background on this market study

2.5 The OFT launched a Call for Information (CfI) into the supply of ICT to the public sector on 3 July 2013.[16] The aim of the CfI was to understand more clearly the products and services involved, who supplies them, the structure and operation of these markets and the degree of competition between suppliers.

2.6 The CfI highlighted a number of concerns about the sector, most notably that:

- certain businesses appear to have a large share of contracts in some areas of the sector
- there are high barriers to entry and expansion (especially for smaller scale ICT businesses)
- there are difficulties and high costs in switching ICT supplier.

2.7 The OFT decided that these issues merited further analysis. Accordingly we launched this market study on 15 October 2013.

2.8 In looking at the supply of ICT to the public sector in this study, we have examined two key areas of the ICT sector where issues raised in response to the CfI appear to be present and which between them make up around half of UK public sector ICT expenditure - outsourced IT and commercial off the shelf (COTS) software.

2.9 In our CfI, we noted that public sector procurement practices may interact with issues such as those above. Responses to the CfI highlighted that these practices affect the structure of supply and supplier behaviour in the sector. We looked at the extent to which

[16] See www.oft.gov.uk/OFTwork/markets-work/othermarketswork/ICT-CFI/

these practices affect competition in our market study. Public sector procurement has been and continues to be the subject of many reports and initiatives, which informed our market study but which we did not intend to duplicate in this work.

Aim of the study

2.10 The aim of the study was to develop a sound understanding of the structure of supply of ICT for outsourced IT and COTS software. The study sought to assess the degree of competition and market outcomes, and identify appropriate potential remedies where necessary. The report also gives an overview of the existing initiatives in the sector, which focus, in particular on central government purchasing.

Research and analysis

2.11 During the market study the OFT contacted a range of stakeholders to hear their views, including ICT suppliers, central government departments, local authorities, trade associations, schools, and other stakeholders, including in academia.

2.12 We sent questionnaires directly to some stakeholders. Additionally, some organisations, most notably Tech UK, ScotlandIS and the Society of Information Technology Management (SOCITM), assisted us by distributing questionnaires to members and setting up events through which we engaged directly with their members. We also published all of our questionnaires on the OFT website.

2.13 We received over 70 written submissions to our market study from suppliers, central and local government organisations, schools and other stakeholders. We also held over 50 meetings and telephone interviews with a range of stakeholders, including four roundtable discussions with suppliers of varying sizes.

2.14 In addition, we reviewed a range of other information sources to improve our understanding of the sector and our evidence base. We used various publically available databases and studies which we refer to throughout this report. Several of these are of particular importance to our analysis:

- Estimates of the size of UK public and private sector expenditure on various ICT goods and services from market intelligence providers Kable (for 2011/12) and TechMarketView (for 2011 and 2012) (the 'Kable expenditure estimates' and the 'TechMarketView expenditure estimates').[17]
- A database of public sector outsourced IT contracts collated by Kable (the 'Kable outsourced IT database'), which includes data on buyers and suppliers, and durations and values of contracts and has comprehensive coverage of contracts over at least the past 10 years.
- A database of all ICT OJEU tender and contract award notices since 2007 as identified by Kable (the 'Kable procurement database'). The database contains information relating to a number of parameters including buyers and suppliers, contract values and product categories.
- A database of all OJEU tender and contract award notices between 02 March 2010 and 27 April 2013, downloaded from the Tenders Electronic Daily website and published by OpenTED (the 'OpenTED database').[18] The database contains all information contained in OJEU notices for each award, including but not limited to buyers and suppliers, contract values, product classifications, the number of offers received, the type of OJEU procedure and bid assessment criteria.[19]

2.15 We also used information gathered during our CfI, where relevant, in our analysis.

[17] Kable refers to these estimates as its 'markets by numbers' analysis; these relate only to public sector expenditure. TechMarketView data relates specifically to 'software and IT services' (SITS) and is published in its 'UK Software and IT Services Market' spreadsheets (September 2013 edition). Both sources contain expenditure forecasts up to 2016.
[18] The OpenTED database contains all information published on the TED website (see Annexe C for further details). In some cases, buyers do not report information under every category, so there is missing information on contract values, suppliers, the number of bidders and the procurement procedure in some cases. Our use of the OpenTED database is such that this missing data, which typically relates to only a minority of contracts, does not have a major impact on our analysis.
[19] We have at times used the Kable procurement database to identify which contracts in the OpenTED database relate to certain categories of ICT goods and services, for example outsourced IT.

Structure of this report

2.16 This report presents a full analysis of our findings on the market study, together with a set of high level recommendations to address the findings. The remainder of the report is structured as follows:

- Chapter 3 sets out the background and ICT landscape, including an overview of the existing initiatives in the sector
- Chapter 4 gives an overview of COTS software and outsourced IT, our two areas of focus.
- Chapter 5 explains our approach to evaluating competition for the supply of ICT to the public sector
- Chapter 6 sets out our analysis on market power
- Chapter 7 sets out our findings on buyer conduct in the market
- Chapter 8 sets out our findings on supplier conduct in the market
- Chapter 9 sets out our conclusion and recommendations.

3 BACKGROUND: ICT LANDSCAPE

Introduction

3.1 ICT refers to the use of computer hardware and telecommunications equipment, often in conjunction with software and a variety of related services, in order to store, retrieve, process, manipulate and share information. ICT plays a key role in the delivery of all public services, from schools and social housing to benefits payments and national security, and has been described by the UK Government as 'a fundamental tool that every modern state needs'.[20]

3.2 Public sector ICT has been the subject of increasing scrutiny in recent years. This scrutiny has intensified partly in the light of a number of high-profile projects encountering difficulties which have led to delays, cost overruns and project failures.[21] A number of high profile reports by parliamentary committees, public sector bodies, think tanks and academics have sought to identify the reasons behind these problems and how the public sector can secure better outcomes.[22]

3.3 Most of these reports have focused on the buyer side, including how the public sector can better identify its needs, manage its procurement processes, integrate the systems and solutions it buys, and leverage its considerable potential buyer power to drive down prices and secure high quality outcomes. In 2011, the UK government published its own wide-ranging ICT strategy which addressed these and other issues, and whose implementation was projected to save the public sector

[20] 'Government ICT Strategy', Cabinet Office, March 2011, paragraph 7.
[21] Some commentators have attempted to quantify the scale of the problem. A 2007 report by the European Services Strategy Agency, for example, identified cost overruns totalling £9 billion across 105 major UK public sector projects (see Whitfield, ' Cost overruns, delays and terminations', European Services Strategy Unit, December 2007, available at www.european-services-strategy.org.uk/news/2007/ict-contract-chaos/105-ict-contracts.pdf. A much larger study of over 4,000 large ICT contracts across the globe by academics at the University of Oxford has found that these issues are not specific to the UK public sector, and observed average cost overruns of over 100 per cent and delays of more than 35 per cent: see Budzier, A. & B. Flyvbjerg: 'Making Sense of the Impact and Importance of Outliers in Project Management through the Use of Power Laws',11th International Research Network on Organizing by Projects Conference, June 2013, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2289549)
[22] See for example the Public Administration Select Committee's 'Government and IT: A Recipe for Rip-offs – time for a new approach' (July 2011); the Committee for Public Accounts' 'ICT in Government' (2011); the National Audit Office's 'Information and Communications Technology in Government Landscape Review' (February 2011), 'The Impact of Government's ICT Savings Initiatives' (January 2013), 'Managing the risks of legacy ICT to public service delivery' (September 2013) and ' Managing government suppliers' (November 2013); and the Institute for Government's 'System Error: Fixing the flaws in government IT' (March 2011).

£1.4 billion over four years.[23]

3.4 However, this same strategy also suggested problems on the supply side of the market, committing to 'put an end to the oligopoly of large suppliers that monopolise [the government's] ICT provision'. The government has subsequently introduced a raft of measures to engage and negotiate with ICT suppliers, and with the recent establishment of the Crown Commercial Service (CCS), the government's centralised procurement function (the Government Procurement Service (GPS)) has combined with its centralised commercial function in recognition of the importance of both the demand and supply sides of the market in stimulating effective competition and achieving further savings.[24]

3.5 In this section we provide an overview of the various markets that collectively comprise 'public sector ICT'. We begin by providing an overview of the relevant goods and services and the impact of recent technological developments, before setting out the value of public sector expenditure on ICT goods and services and how public sector organisations procure ICT, including some of the recent initiatives and policies which are set to affect the future competitive landscape. We conclude by discussing the main buyers.

3.6 More detail on the ICT goods and services on which we have focused is provided in Chapter 4, Annexe A and Annexe B.

Overview of ICT goods and services

3.7 Public sector ICT consists of the software, hardware, infrastructure and services that underpin computer systems[25] critical to the delivery of modern public services, including:[26]

[23] See www.gov.uk/government/news/ict-strategy-strategic-implementation-plan-to-deliver-savings-of-over-a-billion-pounds. 2010 and 2011 also saw the establishment of the Efficiency and Reform Group (ERG) and the Government Digital Service (GDS), both having remits which include the design of IT in government.
[24] The establishment of the CCS was announced in July 2013. It also incorporates procurement and commercial management functions. ICT is a major focus of the Crown Commercial Service, accounting for well over half of the 'strategic' suppliers that it manages, and a large proportion of its centralised frameworks (see paragraphs 3.20 to 3.22 for further details on frameworks).
[25] A computer system is any collection of hardware and software operating simultaneously. See paragraph 3.8 for definitions of hardware and software.
[26] See Information and Communications Technology in government: Landscape Review, National Audit Office, February 2011, paragraph 1.8.

- Back-office and business intelligence systems that facilitate the collection of financial, managerial and operational performance information; underpin key business systems (such as finance, human resources, procurement and facilities management); and enable public bodies to identify ways of working more efficiently, and ultimately to make informed decisions.
- Business systems that underpin effective public service delivery right across the public sector, from centralised tax collection and benefits payments systems to integrated information systems enabling joined-up information assimilation, records management and front-line support for those delivering services in areas such as policing, education and healthcare.
- Front-facing, online systems that allow public sector bodies to engage and interact with the public and businesses, from the booking of medical appointments to the reporting of crime.

3.8 We classify the various goods and services that comprise public sector ICT, as follows:[27]

- Hardware: This is physical computing infrastructure and includes all types of computers (desktop, laptop, server and mainframe); Local Area Network (LAN) equipment;[28] storage devices such as USB sticks and external hard drives; and peripheral equipment and consumables such as printers and toner cartridges.
- Off-the-shelf software licences:[29] Software is any machine-readable code that instructs hardware to perform certain user-specified tasks. This category includes all types of pre-built software that are commercially available to multiple users upon purchase of a lease or licence (commercial off-the shelf or COTS software), as well as 'open source' software.

[27] This closely follows the taxonomy used by Kable. The first two categories in the classification comprise hardware and software available on an off-the-shelf basis (goods), and the third category includes IT services. Like Kable we consider communications infrastructure and voice and data services separately, however our fourth category also includes managed telecommunication services, which Kable includes in a broader 'ICT services' category.
[28] A LAN is a group of computers connected across a small, limited area, which can share resources such as network storage and printers.
[29] See Chapter 4 and Annexe 3 for further details on off-the-shelf software.

- IT Services: This category incorporates the wide range of services that are commonly supplied alongside, or in addition to, hardware and off-the-shelf software. It includes software licensing, maintenance and support; customisation and development of software applications; hardware maintenance; systems integration; training; and consulting. These can either be provided by an in-house ICT team or purchased from third party suppliers, either directly or through outsourcing contracts (referred to as 'outsourced IT').[30]
- Communications: This category includes expenditure on fixed line and mobile voice and data telecommunications, as well as Metropolitan and Wide Area Network (MAN and WAN)[31] infrastructure. It also includes managed communications services.[32]

Cloud computing

3.9 End users can also purchase many of the hardware and software goods identified on a rental basis, without owning the underlying hardware or software licences themselves. This is commonly known as 'cloud computing'.

3.10 Cloud computing involves computer servers[33] and other network infrastructure being physically located away from a customer's premises, and allocated to them on an on-demand basis. If the customer wishes to run a piece of software, for example, the software can be loaded onto a remotely-located server, and they can access the software through a web browser on their own premises. Since customers of cloud services need only own basic hardware and software, they will incur lower fixed costs and higher variable costs than users who own and operate their own computing infrastructure. Customers are therefore able to smooth their expenditure over time.

[30] See Chapter 4 and Annexe 2 for further details on outsourced IT services.
[31] A MAN connects computers within a metropolitan area, and is typically formed of multiple LANs. A WAN, such as the Internet, connects computers across metropolitan or even national boundaries.
[32] Managed communications services involve a third party supplier managing a public organisation's voice or data communications infrastructure.
[33] Or so-called virtual servers, whereby physical server resources are shared amongst multiple users through the use of specialised 'virtualisation' software.

3.11 There are three common models of cloud computing:

- 'Software-as-a-Service' (SaaS): The most common cloud service, SaaS allows customers to access and use application software which is remotely hosted on third party platforms (IT servers and operating systems). The user typically accesses the software via a web browser, and may pay on a monthly or a per-use basis. The user owns neither the hardware capability nor the software being provided.
- 'Platform-as-a-service' (PaaS): PaaS allows users to run different operating systems and/or middleware on remotely-located hardware, which is owned by the third party cloud provider. This enables them to perform tasks such as building new applications. Again the user owns neither the hardware capability nor the software being provided.[34]
- 'Infrastructure-as-a-service' (IaaS): IaaS allows the user to rent computational resources or storage capacity from a cloud provider, which owns the underlying hardware. No software is provided or deployed by the cloud operator.

Expenditure levels

3.12 The public sector spent an estimated £13.8 billion on ICT goods and services in 2011/12.[35] ICT thus accounts for an estimated six per cent of total public sector spending with third party suppliers,[36] and the public sector accounts for around one quarter of total UK ICT expenditure.[37]

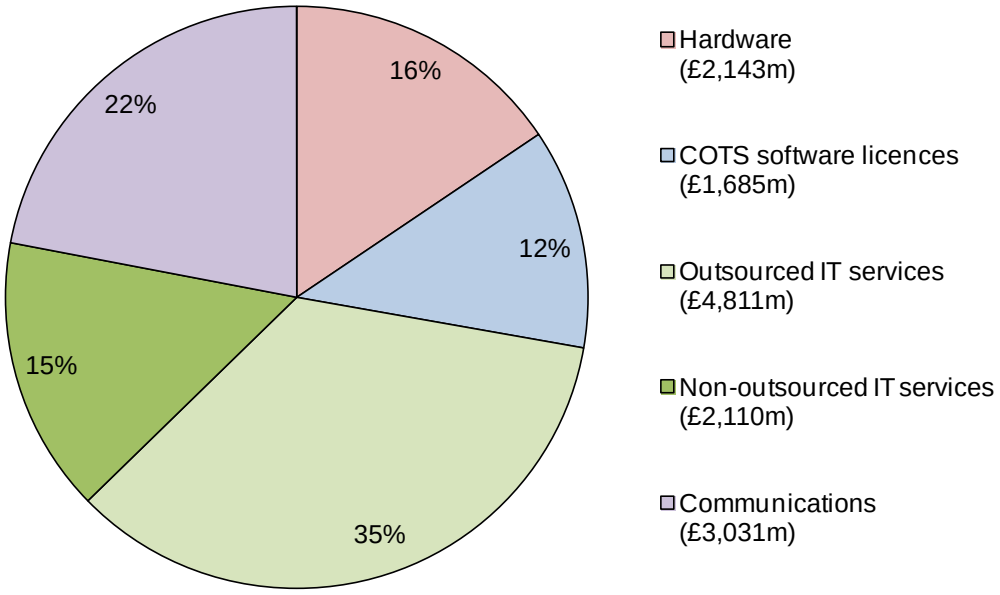
3.13 Expenditure has fallen significantly in recent years, against a backdrop of budget cuts and increased government oversight and intervention. It is estimated that in real terms public sector expenditure on software

[34] The type of software and hardware being provided are what differentiates PaaS from SaaS.
[35] Source: Kable expenditure estimates (see Chapter 2 for further details on our sources of information). Estimates of total public sector spend on ICT, including on in-house staff, are higher, ranging from £16 billion to £21 billion per annum.
[36] The Public Administration Select Committee reports that the public sector spends an estimated £227 billion on goods, services and works each year. See 'Government Procurement', Public Administration Select Committee, July 2013, p3.
[37] The rest being attributable to the private sector. Specifically this relates to 'software and IT services' (SITS), a subset of ICT. Source: TechMarketView expenditure estimates.

and IT services fell by 4.6 per cent from 2011 to 2012, compared with a slight increase in the private sector.[38] The NAO reported in 2011 that government ICT expenditure may have fallen by £1 billion in that year alone.[39]

3.14 Public sector ICT is predominantly services-based.[40] IT services alone accounted for around 50 per cent of total 2011/12 spending, with the remainder accounted for by hardware (16 per cent), COTS software licences (12 per cent),[41] and communications goods and services (22 per cent).

Figure 1: Breakdown of public sector ICT expenditure by product categories, 2011/12



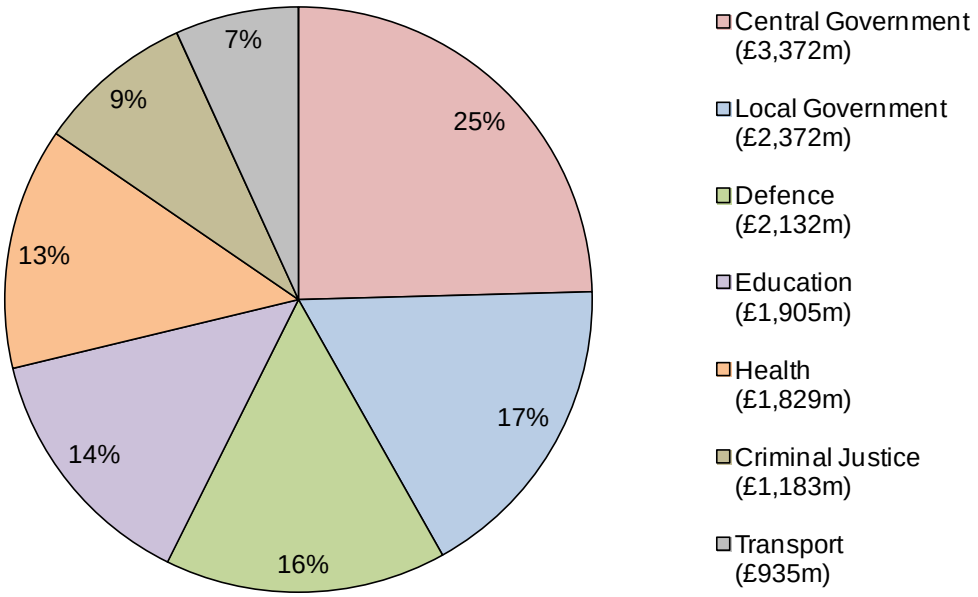
Source: Kable expenditure estimates

3.15 Central government is the largest buyer of ICT in the public sector, accounting for around 25 per cent of total expenditure. The next largest buyer groups are local government (17 per cent), defence (16

[38] The increase being 0.4 per cent. Source: TechMarketView expenditure estimates
[39] See 'Information and Communications Technology in government: landscape review', National Audit Office, paragraph 3.24, available at www.nao.org.uk/wp-content/uploads/2011/02/1011757.pdf.
[40] When considering both IT services and outsourced managed communication services.
[41] Since Open source software is typically available for free, we report only revenues from COTS software licence sales.

per cent), education (14 per cent) and health (13 per cent). [42] ICT goods and services account for a much greater proportion of central government and defence expenditure on goods and services (approximately 11 to 12 per cent) than they do for local government and health (approximately three to four per cent).[43]

Figure 2: Proportion of total public sector ICT expenditure by area of the public sector, 2011/12



Source: Kable expenditure estimates

Procurement processes

3.16 In this section we introduce the various procurement processes that public bodies are permitted to use under current procurement law.

[42] In this chart, central and local government expenditure excludes spending on managed services in the five other areas, even where that spending is administered by a central government department. For further details on which bodies are included in each buyer group see footnote 15 of our CFI report.
[43] See 'Managing Government Suppliers', NAO, November 2013. Central government departments plus devolved administrations and independent bodies spent an estimated £53bn on goods and services in 2011/12. From this we have extracted spend by the Ministry of Defence and Department of Health, which we have assigned to the defence and health categories separately. This is necessary due to the way Kable classifies expenditure. As a result we estimate total spend on goods and services in the healthcare and defence categories at £51.8bn and £20bn respectively. Our central government estimate is likely to be slightly too low as certain expenditure by the Home Office and Ministry of Justice is classified by Kable under 'Criminal Justice'. Local government spent an estimated £84bn on goods and services in 2011/12

OJEU processes

3.17 When undertaking procurement of ICT goods or services with a contract value above a certain threshold,[44] UK public sector bodies must, where possible, run a tender process which allows potential suppliers to compete to win the contract. Such processes, through which the vast majority of public sector ICT (by value) is procured, are known as 'OJEU' processes.[45] In 2013 around 850 ICT-related OJEU processes were initiated in the UK, covering the whole spectrum of both public bodies and categories of goods and services.[46]

3.18 There are four main types of OJEU procedure,[47] and two broad ways in which bids can be assessed. With further details provided in Annexe C, key points to note are:

- Buyers must publish in advance of a tender process whether they intend to assess bids solely with reference to their price, or instead against a set of pre-specified price and non-price criteria (so-called 'MEAT' criteria).[48]
- Buyers must, where possible, use the (least restrictive) 'open' or 'restricted' procedures. In both cases the buyer notifies potential suppliers of the goods or services it wishes to procure, and invites suppliers to bid, selecting the winner based on the assessment criteria.
- For more complex purchases, including where the buyer is unsure of the goods or services it needs to fulfill its requirements, it can use the 'competitive dialogue' procedure. In this case the buyer notifies the market of its requirements, and engages in dialogue with shortlisted suppliers to narrow down the range of options and potential bidders. The remaining suppliers submit their 'best and final offers' which are judged against the assessment criteria.

[44] Currently over £111,676 (for central government departments and many of their bodies/agencies) and £172,514 (for other public sector bodies). Public sector contracts in the UK worth less than these thresholds but above £10,000 must usually involve a (shorter) competitive process.
[45] OJEU stands for the 'Official Journal of the European Union', where tender and contract award notices are published.
[46] Source: Kable procurement database
[47] The use of one of these, the 'negotiated' procedure is heavily restricted and is uncommon in ICT procurement. For this reason we do not focus on it in this report.
[48] MEAT stands for 'most economically advantageous tender'.

- The open procedure is the only one where all interested suppliers are eligible to bid. Under other procedures, buyers may disqualify bidders if they do not satisfy requirements relating to, among others, their financial and technical capacity or relevant previous experience. Public bodies usually determine whether potential suppliers meet these criteria by inviting them to complete a 'pre-qualification questionnaire' (PQQ).

3.19 The complexity of ICT procurements is reflected in the public sector's choice of OJEU processes and awards criteria. ICT contracts are over six times more likely to be tendered using a competitive dialogue procedure than other goods and services, with these contracts accounting for around one third of total contract values (TCVs) in a given year; furthermore around 95 per cent of bids are assessed according to MEAT criteria rather than price alone. [49] The widespread use of MEAT criteria also means that suppliers are unlikely to compete solely on price; instead they may seek to differentiate their products or compete on quality, innovation or other parameters set out in the assessment criteria.

Framework agreements

3.20 Framework agreements (hereafter 'frameworks')[50] allow public sector organisations to set the terms against which they can subsequently buy ('call-off') unspecified quantities of goods or services, for a set period of time (with a maximum of four years).[51] Buyers may use frameworks where they are unsure of the exact quantity of goods they require, or where it would be excessively costly to run multiple competitive tender processes. While they must be originally tendered through an OJEU process, frameworks make each subsequent purchase simpler and faster for individual buyers, who can either contract directly with the supplier, or, if there are multiple framework

[49] Source: OpenTED database. See Annexe C for further details.
[50] There are two types of framework arrangements: framework contracts, and framework agreements. Unlike framework agreements, framework contracts are associated with an up-front payment and a minimum guaranteed demand. The largest framework arrangements in public sector ICT are framework agreements.
[51] Call-offs from frameworks can continue after that framework expires. For example, the recent CCS 'Desktop21' framework (RM653) lasted for four years, but allowed seven year call-offs.

suppliers,[52] may engage some or all of them in a shorter competitive process.

3.21 ICT is more likely to be procured through frameworks than are other goods and services. While the proportion of OJEU processes that are for frameworks is similar in ICT to that for all goods and services, ICT frameworks tend to be particularly large - more than 10 times greater than the value of direct contracts.[53] They therefore account for around 70 per cent of total contract values in a given year, more than twice the corresponding proportion for all goods and services.[54]

3.22 Frameworks are often put in place by one public body for use by others. Many of the largest public sector ICT frameworks are operated by the CCS, and are available to organisations across the public sector.[55]

Recent initiatives and policies

3.23 In this section we discuss several of the recent public sector initiatives and policies that are of particular relevance to our study.

Procurement initiatives

3.24 Over the past two decades, many of the business systems critical to the delivery of UK public services have been large-scale and bespoke, and their design, build and operation has been outsourced to third party suppliers. Increasing use has also been made of much broader outsourcing arrangements, which include ICT provision, by buyers across all parts of the public sector. As has been noted in several

[52] Frameworks can have single suppliers (such as the recent CCS 'Sprint II' framework), or more (G-Cloud IV has over 1,000 suppliers). Multi-supplier frameworks must legally have at least three suppliers.
[53] Our analysis suggests that 19 per cent of ICT contracts between March 2010 and April 2013 were framework awards, accounting for around 70 per cent of total awarded values. This compares with figures of 18 per cent of contracts and 34 per cent of values when considering all UK public procurements between 2006 and 2010. See 'Public procurement in Europe', prepared for the European Commission by PwC, London Economics and Ecorys, March 2011, p38, available at http://ec.europa.eu/internal_market/publicprocurement/docs/modernising_rules/cost-effectiveness_en.pdf.
[54] Note that because frameworks often last for multiple years and the data relates to total contract values, we cannot conclude whether in a given time period frameworks or direct awards account for a greater proportion of overall spend.
[55] Certain of these are designed for different types of buyer: for example 'Local Government Software Application Solutions' (RM865), managed jointly with the Pro5 Group; and 'Information Management and Learning Services' (RM1500), developed in partnership with the Department for Education.

previous studies on the subject, and by a number of stakeholders during our market study, this practice is widely perceived to have led to a number of adverse outcomes, including:

- only a small number of large suppliers are able to deliver the largest and most complex contracts
- an inability to benchmark prices where services are bundled into single outsourcing contracts and where software and systems are bespoke
- a duplication of procurement, with little re-use of software and systems and overcapacity in government-owned data centres
- high costs of switching suppliers, partly due to the inability of custom-built software and systems to adequately communicate with each other (a lack of 'interoperability').

3.25 These issues were some of those addressed in the UK government's 2011 ICT Strategy and other contemporaneous reviews. In the past few years, a raft of public sector initiatives have been implemented with the aim of changing the public sector's approach to ICT procurement. Below we introduce some of the initiatives most relevant to our study.

Towers model

3.26 In recent years the public sector has been steadily moving towards a new commercial model for ICT delivery. Known as the 'towers' model, it involves the breaking up of often large-scale contracts which aggregate the supply of multiple services into a number of constituent 'service towers'. The type of outsourced IT services that often constitute separate towers are discussed in Chapter 4.

3.27 The increasing uptake of the towers model, which is now in use or a feature of current or upcoming procurement process for many central government departments, has arisen partly due to a policy announced in the 2011 ICT strategy that there would be a presumption against new ICT projects with an expected lifetime cost of more than £100 million. It has been reported that this approach will lead to a greater

number of suppliers being able to bid for contracts[56] and better enable buyers to benchmark the prices they are paying.[57]

Cloud-first

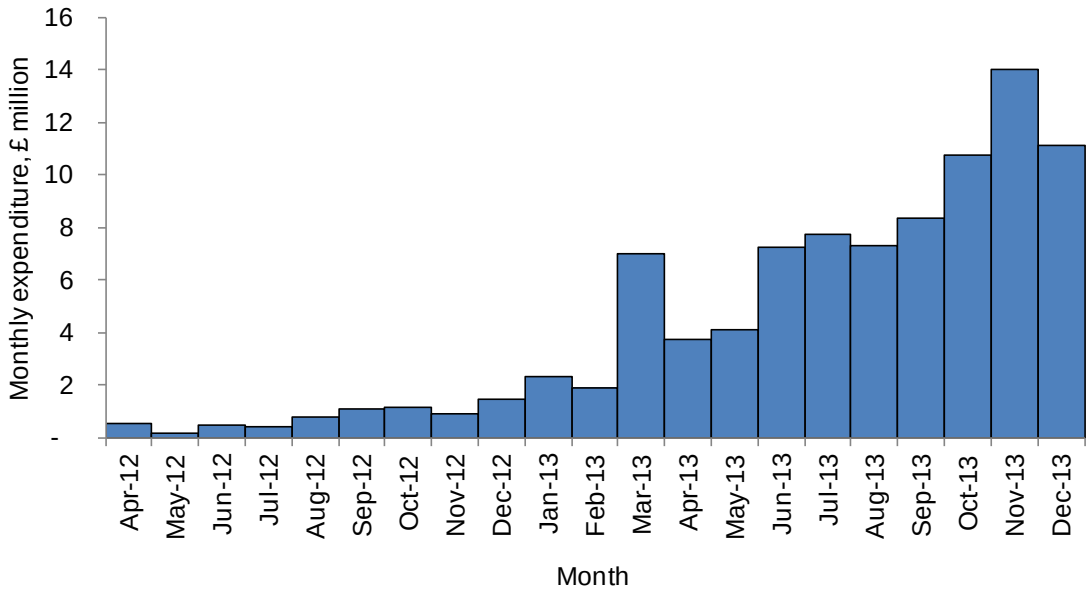
3.28 Against a backdrop of faster internet connections and government policy explicitly encouraging its adoption, the public sector has made increasing use of cloud technologies when purchasing IT goods. Since early 2012, the GPS (now CCS) has operated a number of multi-supplier 'G-Cloud' frameworks,[58] which enable buyers from across the public sector to purchase SaaS, PaaS, IaaS and cloud-related services via a dedicated website (the 'CloudStore'). Over 1,000 suppliers have been listed on the regularly-updated frameworks, around 235 of which have subsequently won business, and they have been used by over 300 public bodies.

3.29 In May 2013, the UK government formally adopted a 'Cloud First' policy, noting the cost savings associated with procuring cloud services rather than bespoke hardware and software solutions.[59] This policy mandates all central government organisations to consider and evaluate potential cloud solutions when procuring ICT, and strongly encourages the wider public sector to do the same.

3.30 Overall usage of G-Cloud has been very low to date, accounting for around one per cent of total expenditure on software and IT services in 2013.[60] However, sales have been steadily increasing month-on-month, as shown in Figure 3 below.

[56] See www.gov.uk/government/news/government-draws-the-line-on-bloated-and-wasteful-it-contracts
[57] See, for example, written evidence submitted by HMRC to the Public Administration Select Committee (PASC) in 'Government and IT - 'a recipe for rip offs': time for a new approach', Volume II, July 2011.
[58] There had been four G-Cloud frameworks at the time of publication.
[59] See www.gov.uk/government/news/government-adopts-cloud-first-policy-for-public-sector-it.
[60] According to G-Cloud, 2013 saw £86 million worth of call-offs from the active G-Cloud frameworks. We use TechMarketView's estimate of 2012 Software and IT services expenditure (£11.3 billion) as the basis for this calculation, although the result is very similar when using Kable's (earlier) 2011/12 total ICT expenditure estimate.

Figure 3: Monthly expenditure through the G-Cloud frameworks, April 2012 - December 2013



Source: G-Cloud.[61]

Open standards

3.31 'Standards' refers to the format in which data is stored and retrieved, and the ability of different software programs to exchange data and to read and write to the same file formats (their 'interoperability'). Where standards are proprietary, they may be subject to legal or technical clauses that limit their use, or managed and developed by a single software vendor. This means users may be 'locked in' to specific software when looking to transfer data between systems. In contrast, where standards are open, other software providers are able to view and implement them, and they are managed and modified independently of any single vendor. Where open standards are used, suppliers can therefore develop their own software products that are interoperable with other software products. Users, or new suppliers, are then able to transmit data and documents between systems more easily, making supplier lock-in less likely.

3.32 The 2011 ICT strategy mandated the use of specific open standards, and in 2012 the government announced a set of open standards

[61] Available at http://gcloud.civilservice.gov.uk/about/sales-information/

principles,[62] with the intention that systems can be reused and are less likely to become obsolete, as they can be updated by various different suppliers.

Security

3.33 Other policies of relevance to our study concern the security of data and information. Security is a key concern for public sector ICT, and in order to carry out public sector ICT work, suppliers and their staff must have the appropriate security accreditation, as required by buyers themselves or specified in the government's Security Policy Framework.[63]

3.34 Accreditation for products, systems and services is provided by CESG[64] which, among other services, offers a 'Common Product Assurance' (CPA) scheme, which evaluates COTS software products against a set of security standards for less onerous security requirements and a 'CESG assisted products service' (CAPS) scheme for the strictest requirements.[65] CESG also provides a pan-government accreditation service which is used to accredit suppliers on the G-Cloud frameworks.[66]

3.35 Furthermore suppliers may also need to gain security clearance for their staff, particularly when working in more sensitive areas such as national security. Public sector organisations can sponsor suppliers to get the necessary clearance, although we understand that this may not be possible until a contract is awarded.

Main buyers

3.36 Since large public sector ICT contracts are often directly procured by public bodies, many of the highest spending buyers are the larger central government departments such as the Ministry of Defence, the

[62] See www.gov.uk/government/uploads/system/uploads/attachment_data/file/78892/Open-Standards-Principles-FINAL.pdf.
[63] See www.gov.uk/government/publications/security-policy-framework
[64] CESG is the UK government's national technical authority for information assurance.
[65] See, for example, www.cesg.gov.uk/servicecatalogue/Product-Assurance/CAPS/Pages/CAPS.aspx
[66] We understand that many suppliers on the G-Cloud frameworks have not been accredited to host sensitive information.

Department for Work and Pensions and the Department of Health. Several others are specialist buying organisations which either purchase or set up frameworks on behalf of their public sector members. These include:

- CCS: having recently taken on the role of the former GPS, the CCS runs a number of frameworks which are available to buyers across the public sector, including G-Cloud.[67]
- Local government procurement organisations: there are currently four major regional procurement organisations[68] which have established a number of frameworks on behalf of their members. They also collectively run national frameworks,[69] sometimes in conjunction with the CCS or other government departments.
- Other procurement organisations: there are currently six regional procurement organisations operating on behalf of higher education providers[70] and two on behalf of further education providers,[71] as well as others which operate across the public sector.[72] These organisations also establish and operate frameworks on behalf of their members.
- Local authorities (LAs): as well as purchasing for themselves, LAs purchase ICT on behalf of the schools under their control.[73]
- Buying organisations in the devolved nations such as the Scottish Government (which operates several national frameworks in Scotland), the Welsh national procurement service, and the Department for Finance and Personnel which procures ICT on behalf of several government departments in Northern Ireland.

[67] Some of these are clearly designed for certain buyer types, such as the 'Local Government Software Application Solutions' framework (RM865)
[68] These are the Yorkshire Purchasing Organisation (YPO), Eastern Shires Purchasing Organisation (ESPO), North East Procurement Organisation (NEPO) and Central Buying Consortium (CBC).
[69] Through their own umbrella organisation, the 'Pro5 Group'.
[70] These are the North Western Universities Purchasing Consortium (NWUPC), Southern Universities Purchasing Consortium (SUPC), North Eastern Universities Purchasing Consortium (NEUPC), London Universities Purchasing Consortium (LUPC), Higher Education Purchasing Consortium, Wales (HEPCW) and Advanced Procurement for Universities and Colleges (APUC) (Scotland).
[71] APUC and the Crescent Purchasing Consortium (CPC)
[72] Such as Eduserv.
[73] This includes schools' MIS: see Annexe B for further details.

4 OVERVIEW OF COTS SOFTWARE AND OUTSOURCED IT

4.1 This Chapter presents an overview of the two product categories that are the focus of our market study: COTS software and outsourced IT. For each of these in turn, we begin by setting out our definition of the product category, before setting out levels of public expenditure, how they are purchased, how they are supplied and the major buyers and suppliers. We also provide an overview of our findings on contract terms. We conclude by noting the overlap between the two categories. For further details on each of the product categories, see Annexe B (for COTS software) and Annexe A (for outsourced IT).

COTS software

Overview of software

4.2 Software can be defined as any set of machine-readable text ('source code') that instructs hardware to perform user-specified tasks. Since hardware requires software to function,[74] it is a vital component of everyday computing. Examples of commonly-used software programs are spreadsheets and computer operating systems.

4.3 Some types of software can only function alongside other software. For example, a word processing software program would not be able to run without an underlying 'operating system' also running on the same machine. There are three main categories of software:

- **Applications** are software programs designed for use by non-technical end-users. These are the software programs with which most users have their primary interaction. Application software almost always requires an underlying operating system in order to be run on a computer. Examples include word processing software and specialist accounting software.
- **Operating systems** translate requests from other software types (for example for a calculation to be performed) into data processing

[74] For example, software is required for a monitor to display text when the user types on a keyboard.

instructions for the computer's various hardware components.[75] Examples include Microsoft's Windows, Apple's OS X and Linux.[76]

- **Middleware** is an intermediate software layer running between operating systems and application software, allowing multiple applications to communicate and share or access common data. For the purposes of this report, 'middleware' includes relational database and web server products. Middleware can offer similar features to operating systems, but to a subset of applications that run on top of it.

4.4 The degree of freedom a customer has to use and manipulate software depends on the terms under which it is purchased or licensed:

- COTS software, which we have considered in the market study, is mostly proprietary in that it is supplied under licensing agreements which impose various restrictions on its use. The producer usually retains key intellectual property rights such as trademarks, copyright and patents. COTS software is usually supplied on a licensed basis, but it can also be rented on a cloud-based SaaS basis, as discussed in Chapter 3.
- Some software programs are available on a free and open-source (FOSS) basis. Users of these programs are able to access and manipulate their source code, often in order to directly modify the programs themselves. FOSS software may also be supplied under licences with less restrictive terms (for example those concerning the scope of modifications and redistribution).

4.5 Software programs are often supplied alongside other products including other pieces of software or software modules, maintenance and technical support services, cloud hosting solutions, or other goods and services provided under outsourcing contracts. The amount of such bundling depends on the types of software being considered, and is discussed in detail in Annexe B.

[75] Such as the Central Processing Unit (CPU) and Random Access Memory (RAM).
[76] Operating systems may offer additional functionality, such as the 'control panel' feature of Microsoft Windows

COTS software covered in this report

4.6 In this market study it was not feasible to cover every type of software product supplied to the public sector in detail. We therefore focused on a subset of software products available on an off-the-shelf basis. We chose to focus our attention on software products highlighted in response to our CFI, and which evidence suggested are provided by a small number of suppliers with large shares of supply.

4.7 The software products we selected represent a mixture of software designed for specific public sector groups (such as LAs or schools) and software which is used across the public sector. We note that other software products share similar characteristics to those we have chosen, and we expect many of our findings in relation to these specific products to be more widely applicable across the ICT sector.

4.8 The software products we have focused on are:

- **Schools' management information systems (MIS):** this software is used by schools to support their management and administration by maintaining central records about students and staff. It usually comprises a number of distinct 'modules' which relate to different functions the software is able to process, such as timetabling and admissions management.
- **Social housing software:** this software is used by LAs to manage their portfolio of properties, associated tenants and leaseholders, waiting lists, allocations of properties, and to carry out their duties in relation to the homeless.
- **Planning software:** this software is used by LAs to process planning applications and appeals.
- **Pension administration software:** this software is used by LAs to administer occupational pension schemes.
- **Enterprise resource planning (ERP) software:** ERP software underpins an organisation’s main finance and management processes. Its functionality comprises the processes of accounting, payments and invoicing, HR and payroll and other related services. Buyers can purchase a single 'integrated' ERP product or a range of

products covering each of these different functions. ERP software is widely used across the public and private sectors in the UK and worldwide.

- **Customer relationship management (CRM) software:** CRM software enables organisations to manage their communications with suppliers, customers and other stakeholders in order to deliver their services. Like ERP software it is widely used in the private sector across the globe; in the public sector it is commonly used by local government to aid its public engagement.

Software-related services

4.9 For each of the software products covered in this report, buyers usually purchase support and maintenance services in addition to the software licence. These services, which are usually (but not always) provided by the software vendor, include the release of periodic updates, fixes to 'bugs' in the software code, and front-line helpdesk support. These are usually purchased by the customer directly but in the case of schools' MIS are often provided through their LA.

4.10 Some software types usually require additional services: for example data-heavy ERP and CRM software usually require a third party supplier (often not the software vendor) to implement the software and possibly host it on their own servers.

4.11 We refer to these services as 'software-related services'. Further details for each software type are provided in Annexe B.

Expenditure levels

4.12 Estimates of UK public sector expenditure on all COTS software licences range from £1.7 billion to £2.2 billion per annum.[77] Local government is the largest public sector buyer of COTS software, accounting for more than a quarter of total public sector expenditure

[77] Source: Kable and TechMarketView expenditure estimates.

on these products; other large buyers include healthcare providers and central government bodies.[78]

4.13 The software covered in this report includes both software that underpins multiple business-critical systems and is used globally across the public and private sectors (ERP and CRM products), and those which are designed specifically for certain parts of the public sector (social housing, planning and pension administration software products, and schools' MIS). Table 1 below shows that expenditure on ERP and CRM licences and software-related services is correspondingly greater than on the other software types, and far greater outside the UK public sector than within it.

Table 1: Levels of expenditure on COTS software and related services (£m), 2011/12

Customer	ERP	CRM	Schools' MIS	Social housing	Planning	Pension admin
UK LAs (2012-13)	201	82		57	13	12
Schools (2010)			122-128			
Worldwide (£m)	15,458	11,416	N/A	N/A	N/A	N/A

Source: ERP, CRM, social housing and planning software: Kable;[79] cloudcomputing-news.net (reporting Gartner 2012 data, converted from USD);[80] schools' MIS software: Becta (2010);[81] pension administration software: OFT estimate.

Procurement approach

4.14 It is common for public sector buyers to procure COTS software through both direct OJEU processes and centralised frameworks (such as those run by the GPS). Our analysis of OJEU contract awards indicates that in any given year, each approach accounts for around one half of total expected contract values.[82] Buyers also often

[78] Buyers in these three categories account for two thirds of total UK public sector expenditure on COTS software licences. Source: Kable expenditure estimates.
[79] 'Joined-up local government', Kable, August 2013 and 'Competition and complexity', Kable, May 2013.
[80] www.cloudcomputing-news.net/blog-hub/2013/jun/19/gartner-predicts-crm-will-be-a-36b-market-by-2017/
[81] 'School management information systems and value for money 2010', Becta, September 2010.
[82] It is not possible to conclude from this finding whether in any given year more expenditure goes through frameworks or direct processes because (i) reported contract values relate to expected, rather than actual, expenditure through frameworks and (ii) contract durations differ and are not always reported. For example a

approach suppliers directly rather than run competitive processes (for example where the value is lower than the OJEU thresholds).

4.15 The preferred procurement approach varies according to the needs of the buyer and the type of software being purchased. Many of the software types covered in our study are available for purchase through dedicated frameworks run by CCS or regional purchasing organisations,[83] although our findings suggest that these are not widely used; for each of the three types of software designed for LA use (social housing, planning and pension administration software) and for schools' MIS, direct purchasing is more common. ERP and CRM products are usually procured directly using OJEU processes rather than through frameworks. Further details on procurement practices are provided in Annexe B and Annexe C.

4.16 During the market study we heard that public sector buyers often have different requirements, such that software and related services require customisation, leading to bespoke solutions. This finding has also emerged from other studies,[84] and is reflected in the choice of OJEU procurement processes: software tenders are five times as likely to use the competitive dialogue process as all goods and services, and half as likely to assess bids by reference to price alone,[85] both indicators that software procurement is relatively complex.

Supply chains

4.17 Rather than sell to public sector buyers directly, large software vendors often supply their products through one or more third party distributors or resellers (known as 'channel partners'). Some suppliers have very large networks of channel partners that build upon,

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large total contract value may relate to a multi-year framework, meaning that year's expenditure is considerably lower. Frameworks in our database only related to 12 per cent of contracts by volume, but were worth on average 8.5 times as much as direct sales.

[83] For example the GPS and the Pro5 group of regional purchasing consortia jointly run a 'Local Government Software Application Solutions' framework with separate lots dedicated to social housing and planning software, and in partnership with the Department for Education the GPS runs an 'Information Management and Learning Services' framework with a separate lot dedicated to schools MIS.

[84] For example in a study by Europe Economics for the European Commission in 2012: 'A large proportion of the ICT purchased by public authorities involves a degree of customisation or bespoke design. Nearly 70 per cent of survey respondents said that the ICT they procure consists of either purely bespoke products or services such as…custom-made solutions and software, or a combination of off-the-shelf products and bespoke solutions'. See 'Guidelines for Public Procurement of ICT Goods and Services: SMART 2011/0044 D2 – Overview of Procurement Practices', Europe Economics, 2012, paragraph 5.4, available at http://cordis.europa.eu/fp7/ict/ssai/docs/study-action23/d2-finalreport-29feb2012.pdf

[85] Source: OFT analysis of the OpenTED database. This finding covers the period 2 March 2010 and 27 April 2013.

distribute and integrate their products,[86] and often provide additional software-related services.[87]

4.18 Most of the software products we have considered, however, do not make such wide use of channel partners, and are usually purchased directly from the software producer. They can, however, also be purchased from suppliers of outsourced IT, with software vendors being subcontracted to supply their software and related support and maintenance services. This is a model often used in the supply of ERP and CRM software.

4.19 A different supply chain is often observed for MIS purchased by schools under LA control, where the LA often purchases multiple software licences and acts as a reseller to individual schools.[88] The LA would then also provide maintenance and support services from its own in house team.

Outsourced IT

Overview of outsourced IT

4.20 IT services can be deployed on an in-house or outsourced basis. In-house deployment occurs where a public body retains its own IT team in order to identify, procure and integrate the various hardware and software it requires. For example, an in-house IT team may have the responsibility of purchasing hardware and software licences, maintaining and upgrading this software (if this is not provided for by the software vendor or a third party), building and customising bespoke software applications, and integrating the resulting systems and software solutions across the organisation.[89] Outsourced IT, on

[86] For example, Microsoft claims to have a partner network of 640,000 companies worldwide. See http://bit.ly/1bptSLo.
[87] Common types of channel partners include 'resellers' and 'value-added resellers' which supply buyers on a retail basis (the latter provide additional services such as software customisation); 'distributors' which act as intermediaries in the supply chain and which may provide additional value-added services to retailers such as financing arrangements; and 'independent software vendors' (ISVs) which build their own software solutions based on other COTS software products (for example Microsoft has its own ISV royalty licensing program enabling ISVs to sell-on their solutions).
[88] Evidence shows that around 40 per cent of schools would procure this way next time they wish to purchase or renew their MIS licence. See 'Pass Mark for ICT', Kable, October 2013.
[89] A computer 'system' in this instance is simply the combination of hardware and software that together satisfy all or part of that organisation's ICT requirements. Note that the ICT team may need to procure certain other services when purchasing, deploying and integrating software and hardware.

the other hand, is an arrangement whereby third party service providers supply and deploy one or more of these services.

4.21 In the vast majority of contracts we consider to be outsourced, one supplier, known as the prime contractor, has responsibility for integrating the various goods and services it produces or procures through its own supply chains, and for managing the suppliers within these supply chains. Larger organisations sometimes outsource multiple functions to different prime contractors.

4.22 All major categories of IT services can be and are supplied on an outsourced basis. Specifically, we consider outsourced IT to comprise one or more of the following services:

- **Applications development:** the design and development of software applications and solutions, tailored to the specific needs of the customer.
- **Outsourced applications licensing, support and maintenance:** the provision of off-the-shelf software licences and add-on services such as technical support and maintenance.[90]
- **Desktop outsourcing:** the management of the desktop environment (including computers and other devices), including operating system software installation, maintenance and updates, security and helpdesk services.
- **Data centre outsourcing:** the provision, maintenance and management of data centres or data centre capacity, as well as related services such as disaster recovery, data storage and remote applications hosting.
- **Service Integration and Management (SIAM):** the coordination of the delivery of ICT goods and services and the management of some or all of the suppliers in the supply chain for specific contracts.

4.23 Each of these services usually forms the basis of a separate service 'tower' under the towers delivery model discussed in Chapter 3.

[90] This differs from non-outsourced software licences and support and maintenance services supplied directly by the software vendor or by a third party.

Expenditure levels

4.24 The UK is one of the world's largest consumers of all outsourced services. The UK public sector accounts for an estimated 85 per cent of all public sector outsourcing in Europe, the Middle East and Africa (EMEA), and over 50 per cent of total expenditure on outsourcing in the UK.[91]

4.25 For outsourced IT specifically, the picture appears to be little different. As shown in Figure 1, the UK public sector spent an estimated £4.8 billion on outsourced IT in 2011/12; thus accounting for the majority of IT services purchased by the public sector, and around 35 per cent of its total expenditure on all ICT. The UK public sector appears to have more of a preference for large-scale outsourcing than other European nations: in contrast, it is estimated that the proportion of all public sector IT services that are outsourced in each of France, Germany and Spain is roughly half that of the UK.[92]

4.26 Central government is the largest public sector buyer of outsourced IT services, accounting for almost 40 per cent of total public sector expenditure on these products.[93] Its expenditure levels, which are more than double those of the next largest buyer categories (defence and local government), reflect the fact that a large majority of central government departments outsource their IT functions compared to fewer than half of local government buyers.

Procurement approach and procedures

4.27 Outsourced IT services may be procured individually or as part of aggregated bundles of ICT goods and services.[94] They can also be purchased alongside business process services, which are not ICT-specific. Such an arrangement is typically referred to as business process outsourcing ('BPO'). BPO is particularly common in local government for business processes such as customer services, tax

[91] www.publictechnology.net/news/uk-public-sector-now-largest-outsourcing-market-outside-us/37659
[92] Source: Pierre Audoin Consultants analysis, provided to the OFT by T-Systems.
[93] Source: Kable expenditure estimates.
[94] As an example, the 2012 Ministry of Justice NOMS procurement included 'infrastructure provision (desktop PCs, laptops, networks, fixed telephony and application services) to prisons, headquarters sites and data centres as well as…service management and support'. See http://central-government.governmentcomputing.com/news/moj-awards-235m-noms-desktop-contract-to-hp for further details.

collection and benefits payments, and finance and human relations. Local government buyers are estimated to procure around two thirds of their outsourced IT services through BPO contracts, compared with around 20 per cent in central government.[95]

4.28 Our analysis indicates that public sector organisations mostly procure outsourced IT services individually, on a non-framework basis.[96] It is less common for buyers to approach suppliers directly than for the procurement of COTS software.

4.29 During our market study we heard that outsourced IT projects tend to be supplied on a bespoke basis, in accordance with buyers' tender specifications, and that these contracts can be very complex. This finding has also emerged from other studies,[97] and is reflected in the choice of OJEU procurement processes: customers are more than 10 times as likely to use a competitive dialogue process when procuring outsourced IT services as when procuring other goods and services, and half as likely to assess bids by reference to price alone.

Supply chains

4.30 Suppliers of outsourced IT services either sell directly to end-users (as prime contractors), or to/via a prime contractor further down the supply chain (as subcontractors).

4.31 Prime contractors may purchase hardware and COTS software licences directly from producers or from their channel partners for inclusion as part of their overall service offering. They may also provide or subcontract out other services such as software maintenance and support or training. The largest outsourced IT contracts can make use of very large and varied supply chains, often including a large number of smaller suppliers.[98]

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[95] BPO contracts often include a large proportion of services that are not ICT-related. It is estimated that outsourced IT accounts for an average of only 20 per cent of IT-related BPO contracts in local government. Source: Kable outsourced IT database

[96] Around 40 per cent of OJEU-procured contract values between March 2010 and April 2013 related to framework awards (source: OpenTED database). As explained at footnote 82 it is not possible to conclusively state that in any given year the public sector spends more on outsourced IT through direct purchases, although this seems likely.

[97] See footnote 84.

[98] For example, Capgemini, as the prime contractor under the Aspire contract, has used around 360 subcontractors, which have cumulatively earned a reported 65 per cent of the contract value. See

Findings on contract terms

4.32 Analysis of the Kable outsourced IT database reveals the following high-level facts (each of which is broadly consistent with stakeholder responses during the market study):[99]

- Contract durations are on average over nine years long.[100] Evidence suggests that this may be twice the length of their global counterparts, which is in part driven by the above-average durations of the very largest contracts.[101] There is some suggestion that new contracts are shorter than existing contracts, and that average contract duration is falling over time.[102]
- Contract values are highly variable, and highly skewed, with a small number of contracts accounting for the majority of total values. While around 40 per cent of contracts have an annual IT value of under £1m, the very largest central government and defence contracts are worth upwards of £50m per annum. The largest 10 contracts account for almost half of all current outsourced IT expenditure.[103]
- Contract scopes are also highly variable. Some contracts in the past few years that have include outsourced IT services have included ('bundled') 10 or more separate product and service categories as defined by the European Union,[104] although around two thirds of contracts have included just one.[105]

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http://bit.ly/1boloYd and www.computing.co.uk/ctg/news/2286959/hmrc-reveals-over-gbp37bn-spend-with-capgemini.

[99] See Annexe 2 for further details on contract terms.

[100] This average is calculated by weighting contracts by their annual IT-related value. Note that the average may be higher, since currently active contracts may be extended beyond the date of contract expiry.

[101] Contracts with higher per-annum values tend to have longer durations. The largest 10 outsourced IT contracts, for example, have an average duration of almost 11 years.

[102] See Annexe A for further details.

[103] This analysis only includes actual call-offs from multi-supplier frameworks.

[104] So-called 'Common Procurement Vocabulary (CPV) codes', at the two-digit level.

[105] The most common being 'IT services', 'software packages and information systems' and 'business services'. Source: OpenTED database.

Overlap between outsourced IT and COTS software

4.33 It is important to note that there is an overlap between 'outsourced IT' and 'COTS software and related services'. There are two elements to this overlap:

- First, both include outsourced maintenance and support, and development services. In terms of the software products we have focused on, this overlap is likely to be largest for ERP and CRM software products, since purchasing maintenance and support services for these software products is often essential, and they are often provided by outsourced IT providers.
- Second, both include application hosting services. This is again especially but not only true for ERP and CRM software. As well as being able to either contract an outsourced provider to host the software in that supplier's own data centres, or to select a supplier to operate the organisation's own data centres,[106] public bodies may also choose to host their own software with a cloud-based provider, or rent the relevant software on a SaaS basis.

4.34 The overlap, which accounts for more than one third of all COTS licences and software-related services,[107] is more accentuated in central government and defence,[108] where buyers are larger, more differentiated and have more complex IT demands. It is less accentuated in local government, health and education,[109] where buyers are smaller and more similar.

[106] Note that customers may still own their own and manage their own data centres. It may be the case that data centres remain buyer-owned, but are managed by a supplier under what is commonly known as a 'managed service' contract.
[107] Source: Kable expenditure estimates
[108] For these two buyer types, over 45 per cent of expenditure on software and related services is accounted for by outsourced software services. Source: Kable expenditure estimates
[109] For these three buyer types, less than 35 per cent of expenditure on software and related services is accounted for by outsourced software services. Source: Kable expenditure estimates.

5 OUR APPROACH

Introduction

5.1 In this section, we set out our approach to evaluating competition for the supply of ICT to the public sector.

5.2 Following the call for information published on 15 October 2013, we have focused our assessment of the ICT sector on (i) COTS software, including ERP, CRM, Housing and Planning, Pensions and Schools and (ii) outsourcing.

5.3 Our evaluation of these sectors is thematic: we evaluate certain recurring themes that determine whether the ICT sector is working well. We consider:

- Market power: Where suppliers have market power, they are able to act to a certain extent independently of their customers. This can lead to buyers being worse off through higher prices, lower quality or some other means.
- Buyer conduct:[110] A market that functions well typically involves buyers that have the incentive and ability to make good purchasing decisions, which (i) make that buyer better off and (ii) promote effective competition in the market.
- Supplier conduct: Certain conduct by suppliers can restrict or distort competition in the market, which in general will make buyers worse off.

5.4 We consider each of these themes in turn, but it is important to note that there are significant interactions between them. For example, some types of supplier or buyer conduct impact on our assessment of market power. We discuss these interactions below, but in general the various parts of our competitive assessment should be considered as a whole.

[110] Our assessment of the buy-side of the market is limited to the extent it is relevant to a competitive assessment of the market. We do not, for example, evaluate any of the buy-side issues related to effective project delivery or risk management.

Market power

5.5 Market power arises where an undertaking does not face effective competitive constraints. Market power is not absolute, but is a matter of degree; the degree of power will depend on the circumstances of each case.

5.6 Market power can be thought of as the ability profitably to sustain prices above competitive levels or restrict output or quality below competitive levels. An undertaking with market power might also have the ability to harm the process of competition in other ways; for example, by weakening existing competition, raising entry barriers or slowing innovation.

5.7 In the following paragraphs, we set out our approach to assessing market power in this market study.

Competitive constraints

5.8 A formal assessment of market power firstly requires the definition of an economic market, which involves assessing the competitive constraints on the suppliers of a product. We do not define markets in a formal sense. Any subsequent use of the word 'market' should not be interpreted as meaning a formal economic market.

5.9 We do, however, discuss some of the competitive constraints where we have been provided with relevant evidence. We consider:

- competitive constraints on the demand-side, in which we evaluate whether buyers would switch away to other products in response to a price rise
- competitive constraints on the supply-side, in which we evaluate whether suppliers of other products would impose a constraint by changing their production; and
- competitive constraints from outside the UK, as well as any other relevant geographic issues.

Actual competition

5.10 Actual competition depends on the extent to which an incumbent supplier of a product or service faces competition from existing competitors in the market. Our assessment considers:

- concentration: the extent to which the market is concentrated, and
- competitive fringe: in addition to concentration, we consider the extent to which the competitive fringe, including SMEs, is able to exert a constraint.

Potential competition

5.11 Potential competition depends on the extent to which competitors could enter the market and compete with incumbents. If barriers to entry are high then potential competitors are unlikely to exert a competitive constraint on incumbents.

5.12 We draw a distinction between 'natural' barriers to entry that are inherent to the market, and barriers that are 'artificial'. For example, entry into a software market necessarily involves incurring sunk costs to develop software code, which are an example of a natural barrier to entry. It may be, however, that some behaviour on the part of suppliers or buyers is creating artificial barriers to entry or artificially inflating existing natural barriers to entry.

We assess:

- Natural barriers to entry, on the basis that they give incumbents market power.
- Artificial barriers to entry, in particular procurement processes that may limit entry (such as requirements regarding security clearance, pre-qualification questionnaires and prior experience).

Switching costs

5.13 Switching costs give incumbents an advantage: if the incumbent knows that the buyer would incur a substantial cost to switch to a

competitor, then the incumbent can charge a higher price than the competitor without the buyer switching away. In that sense, switching costs are a determinant of market power that affects both actual competition (high switching costs limit actual competition even in a market with low concentration) and potential competition (switching costs are a barrier to entry, in that potential entrants perceive they will not be able to compete for customers).

5.14 An important part of our competitive assessment, therefore, is to assess the existence of these switching costs. Similar to our assessment of barriers to entry, we consider natural switching costs and artificial switching costs:

- Natural switching costs may include the costs of migrating systems, obtaining new licences or organisational disruption and retraining staff.
- Artificial switching costs may include:
  - uncertainty over exit provisions in contracts
  - licence fee structures
  - excessive product customisation, and
  - interoperability issues, particularly regarding the form of data storage.

Tacit coordination

5.15 Even where firms do not individually have any market power, they may collectively have market power if they are tacitly able to coordinate. Tacit coordination is not an explicit agreement to maintain higher prices, but instead the process by which over time suppliers may implicitly keep prices high to avoid mutually damaging price competition.

5.16 It is not possible to identify tacit coordination directly. We look at some of the factors that may make tacit coordination more likely to arise, and if so, to be sustainable.

Buyer power

5.17 Even where actual and potential competition is limited, suppliers may not have significant market power if buyers are able to exert countervailing buyer power. In theory, a single large purchaser such as the public sector should be able to exert significant buyer power. Our assessment considers whether this is the case, and if not how it could be improved.

Buyer conduct

5.18 Markets work well where purchasers have the incentive and ability to make informed decisions about their purchases. This is particularly important in markets with long-term contracts, where buyers that make sub-optimal decisions are locked-in for a certain period of time. We discuss the following:

- access to relevant skills and expertise
- purchasing practices
- switching
- information collection and benchmarking.

Access to relevant skills and expertise

5.19 We consider whether buyers, particularly smaller buyers such as schools, have the necessary expertise to make informed decisions regarding ICT provisions. Even larger buyers may not have the necessary expertise for complex projects.

Purchasing practices

5.20 It is possible that the actions buyers take when procuring ICT may prevent the market from working as well as it could do. For example, overly onerous costs to suppliers of bidding for contracts may exclude smaller firms from the process, which may have an impact on how competition works in the market.

5.21 In addition to the costs of bidding, we consider the design of frameworks, excessive security requirements for successful bidders and excessively long contracts.

Switching

5.22 We look at two ways in which buyer conduct could lead to insufficient switching:

- Risk aversion: Buyers may be overly risk averse when making ICT purchasing decisions, which may be leading them to be biased towards large, incumbent providers.
- Managing the switching process: Buyers may be failing to manage the switching process as well as they could do, in particular by failing to adequately provide for exit/termination in contracts.

Information collection and benchmarking

5.23 In some circumstances purchasers are unable to evaluate comprehensively the bids they receive. One possible solution to this would be to benchmark bids against those received by other suppliers in the market; however, relatively little benchmarking may take place in some markets, primarily because the necessary information is not collected.

Supplier conduct

5.24 We have identified three broad areas in which supplier conduct could prevent the market from working as well as it could do:

- exploiting information asymmetries
- increasing switching costs
- exploiting the fact that buyers are locked-in to contracts.

Exploiting information asymmetries

5.25 There may be information asymmetries between buyers and suppliers. For example:

- Suppliers may have greater information regarding the technical obstacles to switching provider, and it has been alleged that they may exaggerate those obstacles to discourage switching and
- Suppliers may exploit the buyer's imperfect knowledge of the IT solution required to meet its needs by over-specifying the agreed service (that is, including services or features that may not be required).

Increasing switching costs

5.26 Suppliers may be increasing switching costs in the following ways, amongst others:

- Complex pricing: Imposing complex or opaque pricing that makes it difficult for buyers to compare the prices offered by suppliers.
- Refusing to participate in frameworks: Incumbents can refuse to participate in framework tenders, thus reducing the ability of the buyer to compare the incumbent's offer with those of other suppliers.
- Increasing transition difficulties: Suppliers may deliberately delay or make more costly the transition to an alternative supplier.

Exploiting lock-in

5.27 In some cases buyers may have been exploited once they have been locked-in to a contract through:

- High prices for new products: As new products or requirements occur throughout the contract, suppliers may be able to charge unreasonable prices if the buyer is locked-in.
- Imposing new products: The supplier may be imposing unwanted, unnecessary and more expensive products or upgrades on the locked-in buyer.

5.28 We briefly consider whether this is a 'waterbed effect', whereby any additional rents the supplier is able to earn once the buyer is locked-in are competed away at the point of contract initiation.

6 MARKET POWER

6.1 In this section we assess the extent of any market power that ICT suppliers may have. First we briefly discuss the economic analysis of bidding processes, which are commonly used in the sector. We then consider the number and size of current suppliers to the sector as well as the existence of other competitive constraints on current suppliers. We look at what barriers there may be to buyers switching between current suppliers, recognising that these also create barriers to new suppliers bidding for contracts. We then consider whether there may be additional barriers to new suppliers entering the market. The next section considers whether and, if so, to what extent the conditions may exist for tacit coordination to arise and be sustained among the suppliers of any products or services. We then go on to consider the existence of buyer power and the extent to which this could mitigate adverse consequences of supplier market power. Finally, we conclude on the extent of suppliers' market power in the sector.

Bidding markets

6.2 Markets with 'reverse auction' processes - such as the OJEU process commonly used to procure public sector ICT products and services - may be thought to result in more intense competition than conventional markets. A 2007 study conducted for the OFT noted that, in such markets, two commonly held views have been:

- that the nature of a winner-takes-all outcome should lead to vigorous competition, with just two bidders sufficient to achieve a competitive outcome,[111] and
- that '[any] competition concerns are alleviated by the fact that the bid-taker generally enjoys some form of countervailing power'.[112]

6.3 However, the study goes on to explain that these commonly held views are not generally correct, finding that 'markets characterised by bidding processes are likely to face similar [competition] issues to more conventional markets'.[113] We consider relevant aspects of bidding processes in our competitive assessment below.

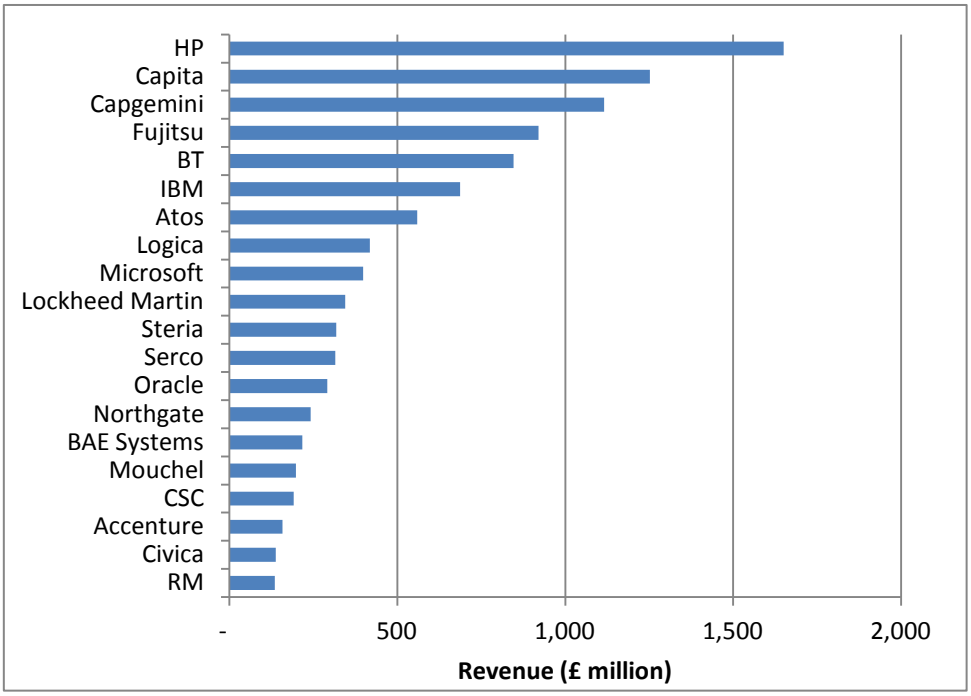
[111] Following the same logic as Bertrand competition with homogeneous products.
[112] OFT Economic Discussion Paper 'Markets with bidding processes' paragraph 3.25.
[113] Ibid. paragraph 1.2

Actual competition

Current shares of supply

6.4 Concentration measures derived from shares of supply can provide an initial view as to how competitive a market might be by identifying whether there is likely to be sufficient choice in the sector to sustain competition between the current suppliers.[114] We do not find the supply of ICT to the public sector as a whole to be very highly concentrated. Figure 6.1, below, presents the public sector revenues, according to analysts TechMarketView, of the 20 largest suppliers.[115]

Figure 6.1: Revenues of leading ICT suppliers to the public sector (company FY ending 2012/3)



Source: TechMarketView 'UK Public Sector SITS Supplier Landscape 2013-14' (2014)

6.5 Figure 6.1 shows that, although there are some large suppliers to the sector, it does not appear highly concentrated and the shares of the

[114] See Section 3.5 of the OFT/CC Merger Assessment Guidelines: www.oft.gov.uk/shared_oft/mergers/642749/OFT1254.pdf

[115] TechMarketView note that there are a lot of 'pass-through' revenues within the figures quoted due to the level of subcontracting in the market, which gives rise to double-counting. As such, it is not possible to compute accurate market share figure from this data and market size numbers alone. We do note that these data are consistent with Kable's estimates of the same. One source of differences between the two is that Kable's data excludes defence contracts.

largest suppliers are relatively evenly distributed.

6.6 The analysis of these shares of supply is only meaningful to the extent that the products and services within the sector form a single economic market(s). If a product market is defined too narrowly then market shares will be overstated because not all competing products and services will be included; whereas, if it is defined too widely, shares of supply could be understated if there is higher concentration in some individual economic markets therein.

6.7 Shares of supply of different products and services within the sector vary significantly. We have found evidence suggesting that concentration of supply in some of these areas may be considerably higher.

Table 6.1: Leading suppliers shares of supply for outsourced IT and selected software types

Outsourced IT suppliers	Share (%)	ERP suppliers	Share (%)	Housing suppliers	Share (%)	Schools' MIS suppliers	Share (%)[116]
Supplier 1	18	SAP	[15-20]	Northgate	[40-45]	Capita	83
Supplier 2	12	Oracle	[10-15]	Capita	[20-25]	RM	8
Supplier 3	8	Capita	[5-10]	Civica	[10-15]	Advanced Learning	6
Supplier 4	8	Civica	[5-10]	Orchard Information Systems	[10-15]	Pearson	1
Supplier 5	8	Northgate	[5-10]	Abritas	[0-5]	Others	2
Supplier 6	8	Unit4	[0-5]	Others	[10-15]		
Supplier 7	8	ACS	[0-5]				
Supplier 8	6	Others	[35-40]				
Others	24						

Source: Kable data and Kable report 'Competition and complexity: An overview of the local government applications market' (May 2013); 2013 Autumn School Census submission to DfE

6.8 From this we note in particular that the supply of schools' MIS software is comparatively highly concentrated. We also have evidence that the supply of administration software for local government pension funds and planning software are highly concentrated. (See Annexe B for full discussion of this).

[116] This data comprises shares of supply by number of schools, rather than revenue, and relates to England only, rather than the whole of the United Kingdom.

Competitive constraints from other suppliers

6.9 Other suppliers, who do not have significant shares of supply to the UK public sector, may also constitute a competitive constraint if they have the capability to bid for contracts quickly and without incurring substantial sunk costs.[117]

6.10 We have identified several categories of supplier which may act as a competitive constraint on existing suppliers of ICT products and services to the UK public sector:

- For certain types of outsourcing and software, there are suppliers whose existing products or services could be relatively easily modified to become a credible substitute for the incumbent suppliers' goods or services in a 'neighbouring' market. For example, a major ERP supplier has recently developed competing software for social housing administration based on its existing ERP platform.[118]
- For some products and services, there are suppliers who have no or minimal contracts with the UK public sector even though there are only limited requirements that are specific to the UK public sector.[119] These suppliers may also provide a competitive constraint. Competing for UK public sector contracts is considerably easier for such suppliers than for an entirely new supplier. We note the example of schools' MIS software, where some suppliers that have large shares of supply overseas have only supply a small share of UK state schools. Some also have a higher share of supply to private schools. However we do note that one such firm is now exiting the UK market altogether.
- Many smaller firms supply the UK public sector as subcontractors under large combined contracts. Although only large established suppliers can credibly bid for the largest contracts, such contracts often group together a range of different (although related) services,

[117] Consistent with OFT Economic discussion paper 'Markets with bidding processes ' paragraph 4.36 'Potential suppliers may include not just those who have recently supplied similar products, but also those who could potentially meet such bespoke requirements.'
[118] Although, in this instance, it may be that the competitive constraint is limited as we understand the supplier focuses on providing products and services for the largest and most complex organisations.

which large suppliers can then subcontract to a range of other SME specialist suppliers. Where economies of scale are less significant and there is scope for this subdivision, competition between SME providers for the subcontracted work can constrain the total costs of the overall contract. The benefits of this constraint can then flow to the buyer through the potential for smaller suppliers to scale up to challenge lead contractors or the potential for buyers to subdivide contracts themselves and to contract directly with smaller suppliers. We have received evidence that this is mainly applicable to large central government outsourcing contracts, with one lead contractor supplying us with data showing that subcontractors received over 30 per cent of the revenue in a significant value of its contracts.

Competitive constraint from secondary markets

6.11 A secondary market arises wherever suppliers of a product or service also (subsequently) supply other products or services that are ancillary to, or complementary with, the products or services sold in a 'primary' market.[120]

6.12 If, having made a purchase in the primary market, the buyer faces barriers to switching away from their incumbent supplier then that supplier can potential exploit this. For example it could raise prices of secondary market products above the competitive level that would prevail if that market existed in isolation.

6.13 However, the extent of possible harm to the buyer may be reduced, because the possibility to extract these additional profits in the secondary market creates an incentive for suppliers to compete more intensely in the primary market than they otherwise would. This can lead to, for example, prices in the primary market that are actually below competitive levels. This offsetting effect is called the 'waterbed' effect.

6.14 It is possible that competition in the primary market may be sufficiently intense that all the additional profits earned in the

[120] OFT Discussion Paper 'The Economics of Secondary Product Markets' (2012)

secondary market are 'competed away' in the primary market. In this case, no economic harm arises to buyers from the suppliers' exploitation of switching barriers; the waterbed effect is said to be 'complete'.

6.15 We believe the supply of both outsourced IT services and software can be considered to have secondary markets. It is often the case that outsourced IT contracts do not specify in advance the exact scope and value of the contract. It may be that certain requirements only come to light post-contract award, or that new products and services becoming available during the life of a contract. It may also be that cost mark-ups or daily rates are specified, but that quantity or worker-hour requirements are not known in advance. Similarly, in software, the exact scope of support is often not known in advance and cost mark-ups or daily rates may be specified but quantities or worker-hours are not known. These additional products and services that are agreed upon after the initial contract is awarded appear to constitute a secondary market.

6.16 The waterbed effect is more likely to be incomplete where buyers have less information than suppliers about secondary market prices; where buyers have differentiated or unique requirements and where suppliers are able to effectively price discriminate. Suppliers may then be able to mis-sell products, obfuscate secondary market product prices or price discriminate. We consider that some of these characteristics appear to exist in the supply of ICT to the public sector. Although we cannot definitively conclude whether the waterbed effect is complete in this market, we take its existence into account when considering the impact of barriers to switching that we discuss below.

Barriers to switching

6.17 Barriers to switching can limit competition even in a market with low concentration. They also create a barrier to entry because new suppliers will be dissuaded from entering the market if buyers face disincentives to switching.

6.18 We assess the available evidence on the incidence and magnitude of switching costs across the different ICT products and services

procured by the public sector. From this, we assess whether, individually or in combination, they create significant market power for the large suppliers of some ICT products and services.[121]

Natural switching costs

6.19 We considered the following possible natural switching costs:

- staff time cost of procurement process and switching
- system implementation costs/fees
- financial and time cost of retraining public sector staff/users.

Staff time cost of procurement process and switching

6.20 Irrespective of the level of any external financial costs incurred, there will be an 'opportunity cost' in terms of the time spent by senior management and other staff on the procurement process. This includes time spent on designing the invitation to tender including specifying the required products and services; reviewing bids and meeting bidders; negotiating with bidders and monitoring implementation and delivery.

6.21 For smaller and simpler contracts, this could be considered as part of business-as-usual work undertaken by the procurement team; however, for larger contracts, buyers told us that this is likely to involve significant amounts of staff time on which there are many other competing demands.

System implementation/migration fees

6.22 In addition to the costs of procurement, if an organisation decides to switch supplier, there may be significant costs of migration of services. This is particularly the case for certain types of software which are required for the delivery of core public services or may be integral to the day-to-day operational activity of the organisation.

[121] Note that, where we do not have the data from which to make a reliable estimate of the incumbent win rate, we rely on other evidence.

6.23 Within outsourcing, buyers and suppliers noted the existence of some factors that mitigate the potential costs of changing supplier, such as TUPE provisions[122] for the transfer of staff.

6.24 In the case of software, the costs of data migration were highlighted as an important element of costs, with the migration of poor quality data or data stored in custom formats driving costs up. Some buyers cited transition periods of six months or more and, in a few cases, as long as 18 months.

Financial and time cost of retraining public sector staff/users

6.25 We found that many ICT products and services in the public sector have a very large user base, particularly certain types of software such as schools MIS (used by administrative staff as well as by many teaching staff) and ERP software, which may be used in some form by most LA staff. These users are very often not ICT professionals themselves, but use ICT products and services to support their delivery of services. Switching supplier will therefore require these staff to be retrained, which will take time and may be an external cost if sourced from the supplier, as we heard is common.

Artificial switching costs

6.26 We reviewed the available evidence to assess the possible impact of some key 'artificial' switching costs, including:

- costs specific to public sector procurement
- licence fee structures
- use of custom products/services.

[122] TUPE (Transfer of Undertakings (Protection of Employment)) Regulations protect the rights and terms of employment of employees when their legal employer is transferred to new ownership.

Costs specific to public sector procurement

6.27 We found that the particular requirements of public sector procurement processes may give rise to a barrier to demand-side substitution. Buyers of both outsourcing services and software have highlighted that the high cost of procurement processes has influenced their decision to tender or otherwise. In particular, smaller buyers of software such as schools and small local authorities may be reluctant to conduct a competitive process if they cannot do so through a framework, particularly if the expenditure reaches the threshold for a full OJEU process to be required.[123]

Licence fee structure

6.28 Concerns about switching costs that arise from licence fee structures relate primarily to the market for software, rather than outsourcing services. Traditionally, suppliers charge an upfront fee for the required number of 'perpetual' licences and then an annual support and maintenance charge (which may, or may not, include upgrades) which is a fixed proportion of the up-front licence cost (around 20 per cent is typical).[124]

6.29 Therefore, at a tender, an incumbent has a built-in cost advantage over alternative suppliers because the buyer does not have to purchase a new perpetual licence for the incumbent's product but would have to do so for competing products. Although suppliers themselves did not emphasise this as a barrier to winning new work, a significant number of buyers and others with knowledge of the market said that it influenced their evaluation of the benefits of switching.

6.30 We therefore believe this is likely to limit the competitive constraint provided by alternative suppliers. We note, however, that the growth of alternative business models such as SaaS with a 'pay as you go' fee model should reduce the extent of this incumbency advantage over time. Some suppliers highlighted that a 'perpetual' licence model

[123] See Annex C for further details on the different OJEU processes and when they are required under EU procurement law.
[124] As corroborated by analyst reports and evidence submitted by suppliers and buyers.

makes it easy to run new and old systems in parallel during a switch-over.

Use of custom products/services

6.31 The use of customised products and services can have both positive and negative implications for market outcomes. It may enable the buyer's functional needs to be met more fully and effectively. However it can also significantly increase the future cost of switching to an alternative supplier. This is because switching will either require the new supplier to develop a customised product or service that directly corresponds to that of the existing supplier, or the buyer will need to reconfigure internal processes and retrain staff to enable the use of a more standardised alternative product or service.

6.32 Suppliers, ICT professionals at buying organisations and independent market commentators have all highlighted the widespread use of customised products and services as a feature of both outsourced IT provision and some types of software.

6.33 Other sources of evidence corroborate that IT services procured by the public sector are often highly customised. A majority of respondents from across the EU to a survey commissioned by the European Commission[125] reported that most of their products and services are customised and 40 per cent feel 'locked-in' to existing products and suppliers. The OFT's analysis of available data on public sector contract awards shows that the 'competitive dialogue' OJEU process is used in around 80 per cent of UK outsourcing contract awards by value. Buyers can only use this procedure when it is not possible to use the usual 'open' procedure and where the exact scope and specification of services is not fixed prior to the tender because it is complex and will be the subject of negotiation with bidders, generally leading to customised products and services. However we note that, due to the creation of large combined contracts discussed earlier, it may be that only some elements of the overall contract relate to customised services.

[125] Europe Economics 'Guidelines for Public Procurement of ICT Goods and Services (SMART 2011/0044): D2 – Overview of Procurement Practices' (2012)

6.34 In software, estimates from market analysts Kable suggest that software customisation is a £200m annual market. Suppliers told us that customised software had often been specified by buyers even where it might be expected that functional requirements would be relatively standardised. Both suppliers and ICT professionals at LAs explained to us that this was because software had often been customised to fit current business processes, rather than redesigning these processes to better fit 'off the shelf' software.

6.35 As we note in Chapter 8 on Supplier Conduct, the use of customisation could also be purposefully encouraged by suppliers to the extent that it allows them to charge higher prices and/or locks-in buyers in a way that benefits suppliers.

Non-financial barriers to switching

6.36 We received persuasive evidence that the low level of ICT supplier switching in the public sector is driven mainly by non-financial factors and should not be regarded as simply a cost-benefit decision. A number of possible important non-financial barriers to switching were suggested to us, including:

- risk-averse public sector buyers
- long contracts
- buyers' perceived of cost of switching
- suppliers not participating in frameworks or tenders
- incumbent suppliers obstructing transition.

Risk aversion

6.37 Suppliers and ICT professionals at buying organisations have emphasised that public sector buyers, both large and small, are very risk averse when selecting suppliers of software or ICT services. The risks of concern may include:

- Financial risks, that is, the risk that costs/fees exceed the initial estimates at the time the contract was awarded.

- Delivery risk, that is, the risk that the supplier fails to fully deliver all of the specified services or that there are issues with the transition to a new supplier.

6.38 We acknowledge that assessing the economic impact of risk-aversion on market outcomes is challenging. There is no objective benchmark of the 'right' level of risk for the public sector to take on. Clearly, switching supplier is likely to entail some risk and it may be that the consumers on whose behalf the public sector procures services do, in fact, prefer to pay a higher cost in return for the reduced risk of remaining with an incumbent supplier.

6.39 However this risk aversion may lead to poorer outcomes for two reasons. First, it clearly discourages buyers from switching suppliers, even when it would be beneficial from a financial cost-benefit perspective to do so. Second, it may give rise to further switching barriers through its impact on the design of procurement processes.

6.40 In the case of outsourcing, data security is considered a major risk. Chapter 7 on Buyer Conduct discusses obtaining security accreditation and its impact on competition in more detail. We are aware that data security in the UK public sector continues to be a matter of concern and that there have been high-profile instances of data loss. However, we believe it important that the public sector achieves a balance between mitigating data risks and achieving value-for-money.

6.41 For software, buyers told us that risk aversion is greatest where software is required for the delivery of key council services, particularly payments, such as in the case of pension administration software. ICT professionals told us that decision makers can be reluctant to switch their supplier such systems due to the high risk they perceive that, if there are problems in transition, service delivery will be disrupted. We highlight that, during our evidence-gathering we have not in fact identified any instances in which a supplier migration process has given rise to a service delivery failure.We understand that a transition can be designed in a low risk way, for example by running systems in parallel.

6.42 Suppliers identified several possible impacts that risk-aversion has had procurement processes, including: blanket requirements for bidders to

have a significant track record of supplying the public sector; contracts that set a very high bar for supplier security accreditation and contracts that put a disproportionate burden of contractual risks on the supplier versus the public sector. Such procurement processes can discourage potential new suppliers and tend to favour larger suppliers.

Long contracts

6.43 Long contracts can create a significant barrier to switching if penalty clauses for early termination make the cost of doing so prohibitive. Our analysis of outsourcing contract data shows that contracts are typically quite long and that the highest value contracts are generally the longest. For outsourcing contracts, the average contract length is almost nine and a half years.[126] In the software market, the evidence we have seen suggests that fixed-term contracts of this length are less typical, generally because the product lifecycle (that is, the period between major product upgrades/obsolescence) is shorter than this, but providers of some software types still offer contracts of up to five years.

6.44 Although long contracts do create a barrier to switching, we acknowledge that they can have offsetting benefits to buyers, particularly in the context of high switching costs. We discuss these considerations further in Chapter 7 on Buyer Conduct.

Buyers' perceived of cost of switching

6.45 Incorrect perceptions of the cost of switching may also distort public sector buyers' decisions even where they aim to make switching decisions on a financial cost-benefit basis. Some smaller suppliers aiming to expand have suggested to us that buyers have an inflated perception of the costs of switching. This is consistent with our finding that market testing and switching are relatively infrequent, which means that buyers are unlikely to have recent and reliable evidence from which to estimate such costs.

[126] Weighted by per-annum value. The unweighted average is lower, at around seven and a half years. As set out in Chapter 4, this may understate total contract length slightly as it excludes the likelihood of extension for some new contracts.

6.46 We received mixed evidence on whether buyers who have actually switched found the costs to be lower than expected or not.

6.47 In Chapter 8 on Supplier Conduct, we consider how incumbent suppliers may have the incentive to intentionally overstate switching costs in order to dissuade their current customers from switching to competitors' products or services.

Suppliers not participating in frameworks or tenders

6.48 Large incumbent suppliers may be able to raise additional barriers to switching through tactical bidding behaviour. We consider the evidence on this in Chapter 8 on Supplier Conduct.

Incumbent suppliers obstructing transition

6.49 In Chapter 8 on Supplier Conduct we also consider the evidence on whether some suppliers have not cooperated with migration to new suppliers. Such conduct may manifest itself in different ways and could also constitute a financial barrier to switching.

Conclusion on barriers to switching

6.50 We found that there are some inherent costs to switching to a different supplier of ICT products and services, particular where systems are complex, have a wide user base and the procurement is comparatively large contract for the organisation undertaking it.

6.51 Some significant additional barriers exist which are within the control of buyers and suppliers, including the structures of contracts, and buyer preferences and procurement processes that are particular to the public sector. Evidence from buyers and suppliers indicated to us that, on balance, the barriers of this type that most discourage or impede switching are not simply financial (or economic) costs of switching. Buyer risk-aversion was the most strongly emphasised factor, although a range of supplier behaviours were also identified which have discouraged switching in some products and services. Overall, these barriers are at least as significant as the inherent costs of switching, if not more so.

6.52 We recognise the other public sector objectives that underlie some of the buyer conduct that can impede switching. However, we believe well-designed measures to reduce some of these barriers could enable buyers to benefit from the greater competitive constraint on suppliers through demand side substitution.

Barriers to entry and expansion

6.53 The threat of entry by entirely new suppliers can constrain existing suppliers' ability to price above competitive levels, but only to the extent that such entry is credible; the greater the barriers to entry are, the less effective the competitive constraint will be.

6.54 The barriers to switching we have identified limit the competitive constraint between both existing suppliers and others that could easily begin supplying the public sector. They also necessarily discourage potential new suppliers from developing competing products and services because they limit the opportunities to win new customers.

6.55 We now focus upon additional characteristics of the market (other than barriers to switching) which could mean a potential new supplier is less able to compete for customers than an existing supplier.

6.56 We consider both barriers to entry that arise either inherently from the characteristics of the product or service - natural barriers to entry - or artificial barriers arising from buyer or supplier conduct.

Natural barriers to entry

6.57 Natural barriers to entry are those which flow from the nature of the products or services being supplied, such as economies of scale, economies of scope and sunk costs of entry.

6.58 Wherever a supplier incurs fixed costs, some economies of scale will exist because the supplier's costs per unit of revenue will be lower as those revenues increase. We have identified certain products and services where economies of scale arise. Unavoidable, externally-imposed fixed costs that arise during the normal course of business are a source of economies of scale, of which changes to legislation are an example. One product where these arise is local government

pensions administration software. As a result, a new entrant will be at a significant disadvantage as they cannot recover these costs from a small pool of customers without becoming uncompetitive on price compared to an incumbent with high market share. Only a company with significant scale in other markets would be able to absorb such costs and break into the market.

6.59 In general, a contract for the provision of services will define certain risks that are borne by the buyer and certain risks that are borne by the supplier. Given that the UK public sector is often relatively risk averse (as discussed above), there may also be a minimum required scale for a supplier to be able to bear the level of risk required in public sector contracts.

6.60 On the other hand, in some areas of both software and outsourcing markets, we have found examples of smaller suppliers that have been able to maintain some share of supply over time, either through targeting niche market or as part of subcontracting arrangements. An example from software is niche providers of specialist HR and payroll software, for which competing products are also offered by major ERP providers.

6.61 In their responses to us, some buyers and suppliers did highlight products and services in which there has been earlier waves of consolidation among suppliers such as ERP software (for example, Oracle's acquisition of Peoplesoft in 2004). But, as mentioned above, we also note the successful entry by suppliers with limited scale; analysts TechMarketView identify a number of SMEs that they refer to as 'Little British Battlers'. However, it is possible that the sustainability of small-scale suppliers reflects other market characteristics, such as the ability to differentiate products, rather than the absence of economies of scale.

6.62 Some trends and technologies might be expected to reduce fixed-costs of entry in the future, such as the provision of software services through the Cloud. In the public sector, the establishment of the government G-Cloud framework could substantially remove some of the fixed-cost overheads of competing for work, such as needing to establish partnerships with SIs and needing to establish large sales teams to monitor tenders and prepare bids in different formats for

different requirements. It is also more attractive to buyers because it allows them to meet their functional needs without the usual costs of hardware and communications technology.

6.63 We note that the majority of large suppliers to the sector provide a range of different products and services. Some supply both outsourcing and software to a range of different buyers. This suggests that economies of scope may be present. However, it is possible that this trend has been driven by buyers' preference in the recent past to combine different ICT products and services into one large contract, rather than any inherent cost savings from the supply of both.

6.64 Sunk costs create an entry barrier because potential investors may not be willing to incur them. This is because there is a risk that the product does not attract sufficient revenue to recover the investment (regardless of possible barriers to switching). From the evidence the OFT has seen, the extent of the sunk costs of developing new products and services across the ICT sector can vary quite significantly.

6.65 Suppliers of some types of software confirmed that the time and cost involved in developing a comprehensive rival suite of products would be high. However, others highlighted that entry to contest niche areas was comparatively low cost, particularly given recent technological developments such as the delivery of cloud-based products (SaaS).

Artificial barriers to entry

6.66 In this section, we consider whether there is evidence that suppliers' behaviour is excluding potential competitors, as well as whether buyers' conduct discourages entry, even if this may not be in the buyers' interests.

6.67 In particular, we consider the following possible sources of 'artificial' entry barriers:

- cost and length of procurement process to bidders
- framework agreements

- aggregating contracts

Costs of procurement process to bidders

6.68 A common message from suppliers, both large and small, was that the procurement processes used in the public sector can be expensive to participate in. This creates a potential entry barrier because new entrants cannot take the risk of incurring such substantial sunk costs just to have the opportunity to bid for contracts. This is likely to be particularly significant because a new entrant is likely to have a lower probability of winning each tender and so will need to participate in more in order to gain market share.

6.69 We were told by suppliers that the costs of bidding for the largest contracts could exceed £1 million. Previous analysis undertaken for the European Commission[127] shows that total UK procurement costs to buyers and suppliers are particularly high in comparison to many other European countries; UK procurements typically require 25 per cent more person-days than the EU average.

6.70 Other sources of evidence support this. The length of procurement processes provides a proxy for their level of complexity and therefore cost. Our analysis of outsourced IT contract awards found that over 20 per cent lasted more than one year. Our analysis also highlighted a relatively high number of issued tenders that are later cancelled; time and costs incurred by buyers and suppliers on such tenders constitute additional irrecoverable costs.

Framework agreements

6.71 Framework agreements have been established partly as a means of addressing the high cost (both to buyers and suppliers) of procurement processes. Although some suppliers pointed out that bidding for frameworks can be costly (more so than for individual tenders), we note that subsequent call-offs from such frameworks are quick and low cost by comparison.

[127] PwC et al (2011) 'Public procurement in Europe: Cost and effectiveness' available at: http://ec.europa.eu/internal_market/publicprocurement/docs/modernising_rules/cost-effectiveness_en.pdf

6.72 Other suppliers have pointed out that these frameworks themselves may constitute an entry barrier because, once established, the market is effectively closed to new entrants for the duration (typically four years) of the agreement.

6.73 We would expect that the costs to buyers of procuring other than through an available framework (that is, holding an OJEU process) should ensure that frameworks receive strong uptake. However, suppliers reported instances in which frameworks had not generated a significant volume of call-offs for them. We understand that this may occur for various reasons, including frameworks having terms and conditions which made it difficult for suppliers to offer good prices and frameworks where major current suppliers did not bid. Preparing a bid for a framework is a sunk cost for a supplier, so the risk that this may not be recouped can be a further entry barrier. We separately consider cases in which suppliers have opted not to bid for certain frameworks, leading to barriers to switching, in Chapter 7.

Aggregating contracts

6.74 Another strategy by buyers to reduce the high cost of each procurement process is to combine the procurement of multiple services into single, large contracts. However, some suppliers have told us that this creates an entry barrier because, although a new entrant could credibly supply some of products and services within the contract, they would not have sufficient scale to be able to bid for the whole contract. Other suppliers to whom we spoke expressed the opposite view that, for some products and services, sufficient scale could be reached comparatively quickly and easily.

6.75 Aggregation of contracts is also potentially beneficial to the extent that there are economies of scale and/or scope in providing the products and services that are aggregated, provided that the buyer is also able to benefit from these cost advantages.

6.76 However, we believe that this potential barrier may be partially offset by the structure of the supply chain, in which the lead contractor may be a large, well-established supplier but there is often significant subcontracting of particular products and services within the contract.

It is at this lower level of subcontracting arrangements that new suppliers may be able to win some market share, which could enable them to broaden the range of services they offer.

Conclusion on barriers to entry

6.77 Considering the balance of evidence, although there is evidence of some economies of scale and that sunk costs may be significant for some products and services, significant 'natural' barriers to entry are not pervasive throughout the supply of public sector ICT.

6.78 In general, 'artificial' entry barriers, in particular those arising from buyer conduct, appear to impose a greater restriction on the ability of new suppliers to win contracts to supply the public sector. However, we acknowledge that there may be tradeoffs against other public sector objectives in seeking to reduce these barriers and that the impact of entry barriers on market outcomes depends on the extent of other sources of competitive constraint.

6.79 For some products and services where some entry barriers appear higher, such as ERP software, we observe that there appear to be significant sources of competitive constraint between existing suppliers to offset the barriers to entry by entirely new suppliers.

Conditions for tacit coordination

Introduction

6.80 We considered whether suppliers' behaviour might mean they have collective, rather than unilateral, market power.

Tacit coordination

6.81 Tacit coordination arises when the actions of suppliers of the same product or service are coordinated even where they have not entered into an explicit agreement or other arrangement to do so. Rather, suppliers are behaving in a way that maximises their long-run profitability, with an implicit understanding of how each other would

respond to future actions (as opposed to having explicit agreements or other arrangements) that results in a reduced incentive to compete more intensely on price or other characteristics. Certain conditions can make this more likely and in this section we consider to what extent these are met in the supply of ICT to the public sector.

6.82 Under tacit coordination, each supplier profits only as a result of the accommodating reactions of others. If one or more suppliers were to change their behaviour, for example by undercutting the price level that is expected by tacitly coordinating parties, this is known as a 'deviation'. A supplier could increase their market share in the short term by deviating but, for tacit coordination to be sustainable, doing so must be unprofitable for that supplier after accounting for the reaction of other major suppliers and/or new entrants. This will be the case when, among other conditions, other suppliers are able to 'punish' a deviating supplier sufficiently.

6.83 There are three general conditions for tacit coordination to arise:

- It must be 'attainable': suppliers must be able to anticipate each other's actions so as to identify and reach a mutually more profitable outcome.
- It must be 'internally sustainable': that is, it must be in each supplier's interest to behave in accordance with the terms of coordination. Central to the internal sustainability of tacit coordination is that suppliers are able to detect and subsequently 'punish' (react to) deviations in a timely manner.
- It must be 'externally sustainable': that is, it must be robust to potential competition from suppliers outside of the coordinating group.

6.84 We have not formally analysed whether tacit coordination exists in the market for the supply of ICT products and services to the public sector. Rather, we assess whether or not each of these conditions could be met by examining the relevant characteristics of these markets.[128] We acknowledge that tacit coordination will not necessarily occur even if all these conditions are observed.

[128] As set out, for example in the Competition Commission 'Guidelines for market investigation references' (part 3, section 3).

6.85 We also note that the ICT sector encompasses a wide range of different products and services. Tacit coordination may be more likely in some than in others. In the following section we assess the ICT sector by reference to the characteristics which may facilitate tacit coordination.[129]

Characteristics of markets facilitating tacit coordination

6.86 We consider the following characteristics of a market are relevant to determining the extent to which tacit coordination is likely to be attainable, as well as internally and externally sustainable:

- number of competitors and shares of supply
- number and size of fringe firms
- frequency of interaction, multi-market contact and 'lumpiness' of demand
- price transparency
- existence of outcomes on which suppliers could coordinate
- product differentiation
- barriers to entry and expansion
- countervailing buyer power.

Number of competitors and shares of supply

6.87 Markets with fewer competitors, who have more evenly distributed and stable shares of supply, are more susceptible to tacit coordination because these conditions make it more attainable and internally sustainable. First, it will usually be more attainable because each supplier has fewer competitors whose actions and reactions it must anticipate.[130] Second, it is more internally sustainable because

[129] As noted in Chapter 4, we have not sought to formally define markets in this study.
[130] As noted in Competition Commission 'Guidelines for market investigation references': 'where markets are concentrated, firms are more likely to be aware of the behaviour of individual competitors'

deviating will be a less attractive strategy[131] and it may also be easier for other suppliers to detect and punish deviations.

6.88 Most of the software types we focused on in this study are sold by a few large suppliers. For example, the largest five suppliers of both social housing and planning software to local authorities have a combined share of supply of 90 per cent. The largest five suppliers of schools MIS software appear to have an even higher share of supply. This appears to be true of many other software types. Examples include: office productivity software,[132] virtualization software, relational database management systems,[133] and local authority revenues and benefits software.[134]

6.89 However, some software types are characterised by particularly asymmetric shares of supply. For example the largest suppliers of schools MIS and local authority planning software both have shares of supply in excess of 50 per cent. Others are more symmetrical, including local authority housing software and ERP software as well as some types of software not covered in this study such as relational database management systems[135] and local authority social care software.

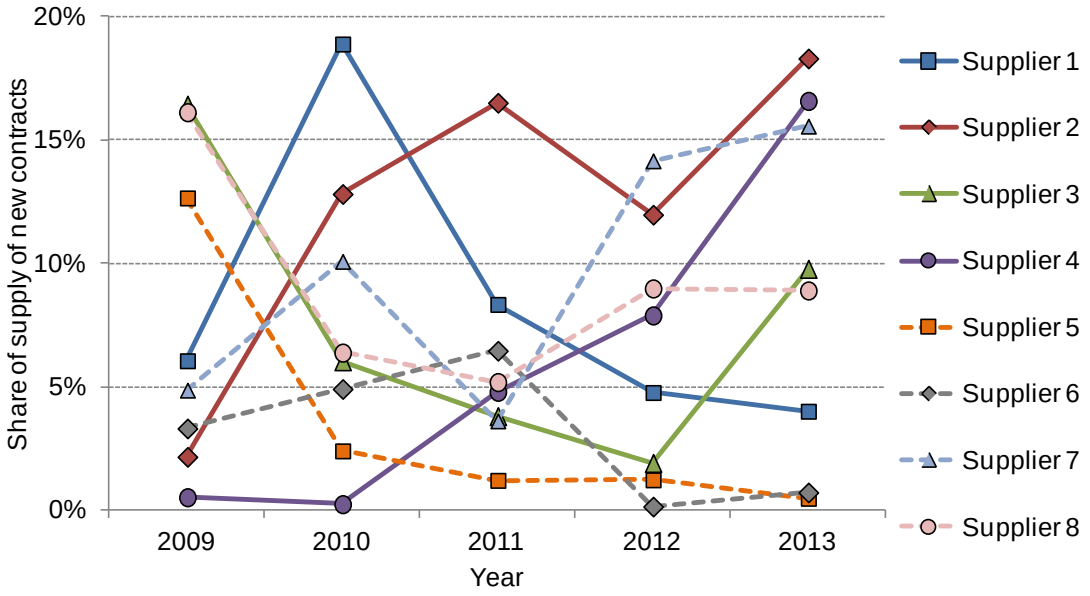
6.90 Our analysis of outsourced IT reveals a relatively large number of suppliers across the public sector.[136] The five largest suppliers of all contracts have a cumulative share of supply of less than 60 per cent, and the five largest suppliers of contracts signed between 2009 and 2013 had below 50 per cent.

6.91 While outsourced IT suppliers have much more symmetrical shares of supply over time (as shown in Figure A5 in Annexe A), this is in large

[131] To see why, note that in the short term a supplier may be able to gain a high market share by deviating. For example in an OJEU process a supplier lowering their bid will potentially have a much higher chance of winning a contract. As the number of suppliers increases, each will have a smaller share of supply under the coordinated outcome, making deviation more profitable in the short term. Equally as the dispersion of market shares increases, so does the likelihood that one supplier's share of supply under the coordinated outcome is small enough to incentivise deviation.
[132] Where in local government, for example, the top three suppliers supply over 85 per cent of this type of software.
[133] Where Gartner estimates reveal the top three suppliers in 2010/11 supplied almost 95 per cent of this type of software worldwide. See http://itknowledgeexchange.techtarget.com/eye-on-oracle/oracle-the-clear-leader-in-24-billion-rdbms-market/
[134] For which the top five suppliers have combined shares of supply of around 95 per cent. See Kable 'Competition and complexity: An overview of the local government applications market' (May 2013)
[135] See http://itknowledgeexchange.techtarget.com/eye-on-oracle/oracle-the-clear-leader-in-24-billion-rdbms-market/
[136] Around 120 suppliers held public sector outsourced IT contracts in 2013, per Kable data.

part due to low levels of re-tendering.[137] Figure 6.2 below shows that the shares of new contracts won by the eight largest suppliers over the last five years have been much more volatile than their shares of total active contracts.

Figure 6.2: Shares of supply of new contracts of the eight largest suppliers of all outsourced IT contracts, 2009-2013



Source: Kable outsourced IT database.

6.92 Given that we have not undertaken a formal market definition exercise, these observations are not conclusive.

Number and size of fringe firms

6.93 More, and larger, non-coordinating firms will reduce the external stability of tacit coordination. This is because the scope for a group of suppliers, however large, to increase prices above competitive levels through tacit coordination is reduced if other suppliers are able to expand their output in response.[138]

[137] As noted in Annex 2, two third of contracts served in 2009 had not expired by the end of 2013, nor had they been extended to beyond this date.
[138] Competition Commission 'Guidelines for market investigation references': The number and size of the non-coordinating [smaller] rivals, their cost and profit margins and (critically) their scope to expand output in relation to their current levels and to the output of the coordinating firms will determine the extent to which non-coordinating firms act as a competitive constraint.

6.94 Some software types appear to have only a limited number of small suppliers who could potentially expand due to the high collective shares of supply held by the largest few suppliers, as discussed above. In outsourced IT, although there are more such suppliers, it is not clear that these would all have the capacity to expand their output, which may imply tacit coordination would be more externally sustainable. In 2013, one in 10 outsourced IT suppliers earned more than £80 million from their public sector contracts but half of all suppliers earned less than £1 million per annum.[139]

Frequency of interaction, multi-market contact and 'lumpiness' of demand

6.95 Where suppliers interact frequently, both within and across markets, tacit coordination may be both more attainable and internally sustainable. First, more frequent contact enables suppliers to learn more about each other's business and to base their own behaviour on clear expectations about other suppliers' likely reactions. Second, it enables suppliers to 'punish' deviations more quickly.[140] Internal stability also depends on the lumpiness of purchases: if large contracts are tendered infrequently, there may be less scope for effective punishment.

6.96 Large outsourced IT suppliers appear to bid frequently for the same contracts. Analysis of evidence from one of the largest 10 suppliers of outsourced IT to the public sector reveals that this supplier is aware of having been involved in the same bidding process as each of the other nine largest suppliers on average once every 50 days over the past four years; two competitors were knowingly competed against more than once each month. Due to a lack of information for a large proportion of tenders, the true frequency is likely to have been greater still.[141]

6.97 Suppliers of outsourced IT not only compete frequently for the same contracts, they also often collaborate either as part of consortia or as

[139] This relates to the outsourced IT-specific component of the contract. Note that some, for example BPO contracts, may be larger in aggregate.
[140] For example, if large contracts are only signed every few years, undercutting other suppliers is more likely to be profitable, as other suppliers may have to wait years to punish that deviation.
[141] This is because the respondent recorded who their other (known) competitors were in only 30 per cent of tenders where it submitted a final bid, and in just seven per cent of tenders in which it was involved at some stage.

subcontractors.[142] The openness of such arrangements may enable competitors to learn about each others' cost profiles, technologies and pricing behaviour, which could influence their future competitive behaviour. We understand supplier collaboration of this type does not generally arise in software provision.

6.98 However, both outsourced IT and certain types of software are characterised by lumpy demand. In outsourced IT, for example, the largest single contract typically accounts for between 15 and 20 per cent of the total value of contracts in any one year, which partly explains the large year-on-year deviations in shares of new supply seen in Figure 6.2 above. This may, to an extent, counteract the impact of frequent interaction on the internal stability of tacit coordination, since the potential gains from winning the largest contracts may outweigh the potential punishment in bidding for smaller contracts. Moreover, the complexity of interrelationships and the larger number of suppliers involved makes coordination more difficult.

Price transparency

6.99 Where prices are more transparent, tacit coordination could be more internally sustainable, because suppliers will find it easier to detect deviations.

6.100 As noted in Annex 4, public bodies tendering for the supply of ICT products and services through OJEU processes are required to publish contract award notices indicating the winning supplier, as well as the scope and value of the winning bid. Making each of these three pieces of information publicly available to all suppliers means detecting deviation is, in theory, easy.

6.101 However, this is not conclusive. First, framework call-off values and scopes are not usually published, meaning that the prices of certain software products may be less transparent. Second, price transparency is unlikely to aid tacit coordination in isolation because, if the other conditions for coordination to be attainable are not met, firms will not be able to form an expectation of pricing behaviour

[142] This was corroborated in discussions with both buyers and suppliers and was evident from examination of data on large tenders.

under coordination, so will not have a benchmark from which to detect deviation.

Existence of outcomes on which suppliers could coordinate

6.102 Tacit coordination is more likely to be attainable where there is a clear market outcome which can form a basis of consistent expectations between suppliers on the terms of coordination. This may take the form of an exchange of information between suppliers[143] or an external signal, such as a buyer revealing its budget in advance of a tender process.

6.103 As noted in Annexe C, when public bodies tender for the supply of ICT products and services via OJEU processes, they often give an indicative contract value in advance of the process. This indicative value could form a basis for tacit coordination since it is easily observable by all suppliers.

6.104 However, the wide use of the competitive dialogue procedure in ICT OJEU processes[144] may limit the potential applicability of the indicative price, since contract scopes are typically subject to negotiation during the process, via one-on-one dialogue. Furthermore, for multi-supplier contracts, the indicative value relates to the anticipated expenditure across all suppliers and orders, so it is not informative about the specific prices and other metrics negotiated with individual suppliers.[145]

6.105 We tested whether these indicative values may form a basis for suppliers to coordinate bids. We considered a sample of 198 contract awards between 2010 and 2013, for which we were able to identify corresponding indicative and final contract values,[146] and found that 29 (15 per cent) of winning bids were between 95 and 105 per cent of the indicative price.[147] While this does not support the hypothesis that indicative contract prices form a basis for tacit coordination, it

[143] Note that certain types of information exchange are prohibited by competition law. See, for example, Chapter I of the Competition Act and/or Article 101 of the Treaty on the Functioning of the European Union.
[144] See Chapter 4 for further details.
[145] See Annexe C for further details.
[146] And for which only one value was published in both the contract notice and contract award notice documents.
[147] This did not appear to differ materially across sectors, although in some cases the sample sizes are very small.

does not rule out this possibility entirely because there could be particular products or services where this does occur.

6.106 As noted above, suppliers of outsourced IT services often also collaborate in contracts either as part of consortia or as subcontractors. The information required in bidding for such contracts may provide a basis on which to coordinate future bidding. This information may make tacit coordination more attainable if, for example, a prime contractor can use it as a basis for expectations of a future rival bid from a supplier to whom it currently subcontracts work.

Product differentiation

6.107 Where products have more similar characteristics, tacit coordination is generally likely to be more attainable.[148] This is because each supplier will have a better understanding of its rivals' products and cost structure and therefore may be more able to anticipate how they will respond to each other's competitive actions.[149] However, differentiation can also reduce a buyer's choice of suppliers, which may increase the attainability of coordination between the smaller number of suppliers of that particular differentiated product or service.

6.108 As noted in Chapter 4, within certain off-the-shelf software markets, product functionality does not materially differ between suppliers. This suggests that, in conjunction with other characteristics, tacit coordination may be more attainable. This is not likely to be true of all software products, some of which tend to be customised.

6.109 Outsourced IT services are often tailored to individual customers,[150] such that any two large contracts are rarely the same. However the constituent services within them may be more comparable, meaning suppliers may still have a good understanding of each others' cost structures and the likely services each will offer. In any case, where contracts are procured through OJEU processes, even where tender

[148] Competition Commission 'Guidelines for market investigations' (2012): '...relatively undifferentiated products are more easily subject to the coordinated setting of prices than situations in which each firm's offering is different from the offerings of its rivals'
[149] Product differentiation may also make tacit coordination more internally sustainable, although this impact is not clear. If customers express less of a preference for one product over another, deviations may lead to greater short-term gains in market share; however punishment for deviating may also be more effective.
[150] As noted in Annex B

specifications are unique they are often well defined, either at the outset of the process or towards the end of a competitive dialogue procedure. The scope for product differentiation may as such be restricted, meaning tacit coordination might be more attainable.

6.110 Therefore the evidence on product differentiation does not provide strong evidence on the attainability or otherwise of tacit coordination.

Barriers to entry and expansion

6.111 Barriers to entry and expansion tend to increase the external sustainability of tacit coordination because they constrain the ability of new suppliers to enter the market and undercut suppliers if coordination raises price above a competitive level.[151]

6.112 We have identified some significant barriers to entry and expansion in public sector ICT, which are discussed above. However, for certain products and services such as cloud-based software services, recent entry and expansion is likely to have made coordination less externally sustainable.

Countervailing buyer power

6.113 Strong buyer power may reduce the external stability of tacit coordination, since strong buyers can increase the incentives for coordinating suppliers to bid more competitively.[152]

6.114 We have seen examples of public bodies using their buyer power in procuring ICT product and services. That said, we assess that the public sector could improve outcomes even further by improving buying practices. Our findings on buyer practices and the potential for further improvement are set out in Chapter 7 on Buyer Conduct.

[151] The corollary is noted in Competition Commission 'Guidelines for market investigations' (2012):: 'If barriers to entry or expansion are low, the threat of entry or expansion by non-coordinating competitors will tend to undermine coordination'

[152] As noted in Competition Commission 'Guidelines for market investigations' (2012):: 'For example, a large buyer may do so by concentrating its purchases on one supplier or by offering long-term contracts and tempting one of the coordinating firms to break ranks to gain substantial new business'.

Findings on conditions for tacit coordination

6.115 We have looked to identify to what extent the conditions for attaining and sustaining tacit coordination may be met in the supply of ICT to the public sector. We have assessed this by reference to the different characteristics of these markets that may give rise to these conditions, in line with established guidance.[153]

6.116 Our analysis suggests that some of the characteristics of ICT markets which could give rise to the conditions for tacit coordination to take place are present for some ICT products and services supplied to the public sector. That said, other characteristics suggest that the conditions are not generally met. In particular:

- For outsourced IT: characteristics such as a high frequency of interaction between the largest suppliers within and across markets, transparency of contract prices, the existence of a possible focal point in the indicative contract value and the existence of barriers to entry and expansion may all act to increase the possibility that tacit coordination is attainable and sustainable. On the other hand, the large number of suppliers and the low concentration and asymmetry of shares of new contracts, the lumpiness of large contracts and the potential existence of countervailing buyer power may partly or completely counterbalance these characteristics.[154]
- For some, though not all, software products characteristics such as: the low number of competitors and symmetry of market shares; the limited number of smaller suppliers; the transparency of contract prices; the existence of a possible focal point; the similarity of products and the existence of barriers to entry and expansion may all act to increase the possibility that tacit coordination is attainable and sustainable. On the other hand, the infrequency of supplier interaction, the lumpiness of demand and the use of buyer power may partly or completely counterbalance these characteristics.

[153] Including Competition Commission 'Guidelines for market investigations' (2012):
[154] Certain features such as the degree of product differentiation are ambiguous when considered across the whole of outsourced IT.

- For other software products some or more of the characteristics increasing the possibility that tacit coordination is attainable and sustainable do not appear to apply.
- From our assessment, it is not possible to conclude on whether tacit co-ordination is actually occurring among the suppliers of ICT to the public sector. As indicated earlier, this is a very diverse sector with many different products and services, each with some unique characteristics. While the evidence available does not allow us to conclude whether tacit coordination is happening, we cannot rule out the possibility.

Allegations of explicit collusion

6.117 Taking into account the findings of the Public Administration Select Committee (PASC) in their report 'Government and ICT – 'a recipe for rip-offs': time for a new approach',[155] we investigated whether there was evidence of explicit collusion in the supply of public sector ICT. We asked buyers and suppliers to comment and provide evidence on the PASC findings.

6.118 In the responses we received, buyers did not provide any evidence of explicit collusion. Suppliers both large and small strongly refuted the allegation and said that this is a highly competitive sector with a multitude of suppliers competing fiercely for every contract. TechUK, the industry trade association, said that they did not believe there was any evidence of collusion or coordination in the sector.[156]

6.119 Given that unlawful collusion[157] between suppliers is almost invariably carried out in secret, we do not reach any conclusions about the existence of such activity.

[155] Available at www.parliament.uk/business/committees/committees-a-z/commons-select/public-administration-select-committee/news/report-on-Government-it-published/
[156] TechUK commented: 'There are more than one thousand different companies registered to bid to supply both government and the broader public sector.' 'The initial stages of tenders for single opportunities or frameworks are characterized by many suppliers registering their interest and desire to supply.'
[157] Explicit coordination is prohibited by competition law: specifically Chapter 1 of the Competition Act 1998 and Article 101 of the Treaty on the Functioning of the European Union, unless an exemption applies.

Buyer power

6.120 If suppliers have market power, this can be counterbalanced by the appropriate exercise of buyer power. In principle, the public sector may be in a good position to wield significant buyer power. This is because many areas of the public sector have complementary functional needs in terms of ICT services and as a single buyer should be able to improve their negotiating position.

6.121 ICT products and services are procured directly by a range of organisations at different levels of the public sector hierarchy, ranging from individual district councils up to multiple central government departments. As a result, some contracts will be comparatively small for a large supplier. Therefore, on an individual basis, some public sector buyers would have less market power than others.

6.122 Buyers and central government procurement specialists have highlighted to us that 'confidentiality clauses' are common in contracts in this market and that aspects of them are a significant obstacle to information-sharing. Indeed, the OFT itself encountered this issue when looking for evidence for this market study. Although we acknowledge the legitimate business need to protect commercially-sensitive information in a competitive market, we consider that this can be achieved without significantly inhibiting the effective exercise of buyer power by the public sector. We discuss this further in Chapter 8.

6.123 Some individual public sector buyers, such as major central government departments, are already large enough that they would be expected to have a strong bargaining position in negotiations even with large suppliers, that is, the contracts are of sufficient value that the supplier is likely to be willing to make concessions on price and contractual terms in favour of the buyer.

6.124 However, for some public sector organisations, we have found that demand is very disaggregated, with individual LAs (of which there are over four hundred) often directly procuring their own services. Schools, of which there are over 10 thousand, also have the independence to procure their own software, although many opt-in to deals negotiated by LAs on their behalf.

6.125 Attempts to co-ordinate the procurement of products and services are not always successful; as discussed in Chapter 7 there have been instances where major suppliers have decided not to bid for new frameworks. This has meant public sector buyers have been unwilling to use this cheap and simple means of procurement because many buyers would not consider a framework through which they could not select a major provider which, for many of them, was the incumbent provider.

6.126 Central government has been attempting to improve public sector purchasing. The recently-formed Crown Commercial Service (CCS) has negotiated standardised prices and contractual terms with some of the largest suppliers of comparatively standardised products which will apply to the whole UK public sector. While extending such agreements to smaller suppliers and/or less commonly purchased products would be inefficiently costly, we also note the introduction by the CCS of a standardised set of contractual terms for ICT suppliers. While still largely fragmented, we are also aware that the CCS is now developing a new framework for all local authority line-of-business software applications.[158]

6.127 It is important to realise that, while a buyer with more power may achieve a better price and contractual terms upfront, buyer power cannot reduce delivery risks over the course of contract. For many ICT products and services, non-price measures of supplier performance are very important in assessing outcomes and it is not possible to measure these aspects of the product or service before delivery. Once a buyer has awarded the contract, buyer power is significantly reduced by all the factors we identified as barriers to switching.

6.128 In Chapter 7 on Buyer Conduct, we assess the likely competitive impact of recent initiatives in relation to public sector procurement practices.

[158] See details of OJEU process for framework at: http://ccs.cabinetoffice.gov.uk/i-am-supplier/supplier-industry-days/local-authority-software-applications-lasa-rm1059

Conclusions on the existence of market power

6.129 Shares of supply for the whole sector level are not at a level that would generally give us cause for concern in isolation. However, within the sector, we have found that some particular ICT products and services within the sector have a small number of suppliers with a stable, high market share.

6.130 We find that competitive opportunities (as measured by OJEU tenders and procurements through frameworks) are comparatively infrequent for most ICT goods and services purchased by the public sector. We also note that the market shares of leading suppliers have remained comparatively stable over time. Infrequent competition does not necessarily imply stable market shares over time because there are a small number of (central government) contracts which individually account for the significant share of total value of public sector ICT contracts awarded.

6.131 Bidding markets make assessing the extent of competitive constraints more challenging. However, for the range of ICT products and services supplied to the UK public sector, we believe there are additional sources of competitive constraints beyond the other large current suppliers to the public sector.

6.132 We have also identified entry barriers which place a limitation on the competitive constraint from new entrants and may therefore give current suppliers greater market power. In particular, we found artificial entry barriers, created by particular procurement practices unique to the public sector, to be comparatively more significant than natural entry barriers such as economies of scale and sunk costs.

6.133 We recognise that previous reviews of government ICT procurement have correctly identified some of these barriers and we are aware of recent developments in procurement practices which aim to at least partially address them. However, it is currently too early to assess how effective these developments will be in increasing the 'contestability' of the market to new suppliers.

6.134 We have found that there are some significant switching costs and some important non-financial barriers to switching. The evidence we

have gathered shows that the incumbency advantage may be significant for some types of products and services and that both (incumbent) supplier behaviour and incentives particular to the public sector significantly discourage switching supplier.

6.135 In combination, we believe these factors give rise to market power for the incumbent suppliers of some ICT products and services.

6.136 On the balance of evidence we have reviewed we find that, in general across the sector, suppliers may have greater market power than is implied by the comparatively low concentration of shares of supply, primarily as a result of high switching costs and entry barriers. We do not believe that buyer power is typically sufficient to counter-balance this.

7 BUYER CONDUCT

Introduction

7.1 The responses we received from both suppliers and buyers suggested that buyer conduct has a large part to play in determining the intensity and effectiveness of competition in this sector. Buyer conduct has been the focus of many recent initiatives in government, and assessed by other organisations.[159] We therefore looked at the extent to which buyer conduct affects competition, but with the aim of not duplicating previous work focused on public sector procurement.

Findings

7.2 This Chapter summarises the main issues raised about buyer conduct and how it impacts on competition in the sector. We have grouped these issues into four main areas:

- Access to relevant skills and expertise: Buyers lack access to these, which hinders their ability to define ICT requirements, evaluate the suppliers best placed to meet these, and assess and challenge supplier pricing and performance.
- Purchasing practices: In particular buyer demand, procurement costs, the design of frameworks, security accreditation, and contract lengths can all impact on competition.
- Switching: Buyers may be reluctant to switch supplier as a result of various factors, including risk aversion, insufficient capability and inadequate exit provisions in contracts.
- Information collection and benchmarking: Buyers lack information about the number and quality of bids received for previously tendered contracts and supplier performance. Buyers are frequently unable to benchmark effectively in order to ensure value for money.

[159] The NAO covered buyer led initiatives in The Impact of Government's ICT Savings Initiatives, January 2013 (www.nao.org.uk/wp-content/uploads/2013/11/10298-001-Governments-managing-contractors-HC-811.pdf) and Implementing the Government ICT Strategy: six-month review of progress, December 2011 (www.nao.org.uk/wp-content/uploads/2011/12/10121594.pdf). As well as these, relevant reports have been published by the Institute for Government (System Error: fixing the flaws in Government IT, March 2011 - www.instituteforgovernment.org.uk/publications/system-error), and Europe Economics (Guidelines for Public Procurement of ICT Goods and Services: SMART 2011/0044 D2 – Overview of Procurement Practices', March 2012 - http://cordis.europa.eu/fp7/ict/ssai/docs/study-action23/d2-finalreport-29feb2012.pdf).

7.3 These types of behaviour can exacerbate some of the issues discussed in Chapter 6, in particular by raising barriers to entry, expansion and switching, worsening information asymmetries and strengthening suppliers' market power. We discuss these buyer behaviours and their impact on competition further below. Unless otherwise specified, the issues we refer to are general themes that we have identified across the sector.

7.4 Throughout this chapter, we note where government has introduced initiatives to address the issues highlighted. At the end of this chapter, we offer a brief assessment of the progress of these initiatives, although due to their relatively recent introduction and scarcity of comprehensive data, we cannot be conclusive about their impact on competition.

Access to relevant skills and expertise

7.5 Where buyers do not have access to the relevant commercial and technical knowledge it can be difficult for them to define their ICT requirements and evaluate which suppliers are best placed to meet these. It also hinders buyers' ability to challenge suppliers on pricing and performance once a contract has been awarded and may lead to reliance on a particular ICT solution or supplier.[160] Finally, a lack of access to the relevant skills and expertise can have an impact on whether or not a buyer decides to switch suppliers, by increasing the levels of uncertainty and perceived risks of purchasing particular ICT solutions.

7.6 A lack of access to these skills can also lead to suppliers, rather than buyers, driving the development of ICT solutions. We heard about cases where buyers attempted to redesign solutions but had to invest significant time and resources in doing so, for example by implementing year long contract extensions while replacement solutions were designed. We note, however, that extending contracts can facilitate a smoother transition to new solutions or suppliers.

7.7 There are initiatives underway to address gaps in access to the right commercial and technical capabilities across the public sector. For example, the Government Digital Service, Crown Representatives, and

[160] We consider how suppliers respond to buyers' lack of access to skills in Chapter 8 below.

other commercial experts in the Crown Commercial Service can supplement existing expertise within public sector organisations and offer advice on running procurements. Where buyers have been able to access commercial and technical expertise and advice, for example through these organisations, this has helped them to make better decisions about what they require and to challenge suppliers about price and performance.

Purchasing practices

7.8 Certain purchasing practices in the public sector may inhibit competition. They include the following issues, which are discussed in more detail below:

- aggregation and customisation
- design and use of frameworks
- costs of procurement for suppliers
- process for obtaining security accreditation to carry out public sector ICT work and the weight attached to this in purchasing decisions
- performance monitoring, and
- length of contracts.

Aggregation and customisation

7.9 ICT purchasing takes place in various ways and at various levels within the public sector. Individual central government departments, local authorities and schools may purchase ICT separately. In other cases, joined up arrangements may be used, for example where buyer consortia buy on behalf of a number of LAs, or where several departments use a single framework where they all require the same service.

7.10 Even where buyers choose to purchase individually, there is scope to influence how demand is shaped. They may have single contracts for the provision of all ICT, or may have multiple smaller contracts for different products and services. There are benefits to both aggregation

and disaggregation of demand, which must be considered carefully in individual cases.

7.11 Where buyers set requirements and buy ICT independently, this may result in less efficient choices. Buyers may consider their requirements to be unique and purchase highly customised solutions when a COTS solution with only minor adjustments may be just as suitable. This could be due to individual public sector organisations developing unique ways to meet policies specific to the organisation or local requirements. The housing software sector provides an example, where the processes used for the eviction of tenants can vary between different LAs.

7.12 Significant customisation of ICT solutions can lead to significantly higher costs. For example, 33 London councils carried out an exercise to develop standard data categories for collecting information on finance software packages bought by different councils. The exercise revealed a high level of customisation of COTS solutions and price discrepancies that appeared much greater than should be the case given the differences between the requirements of each council.

7.13 As noted in Chapter 6, some buyers may impose particular requirements on suppliers, such as the need to demonstrate a track record of delivery to the UK public sector, which can raise barriers to entry and expansion and subsequently result in less choice for other buyers.

7.14 Where public sector buyers purchase ICT solutions independently, they could therefore benefit from collective buying arrangements and lower prices through COTS solutions. Aggregating demand is one way of achieving this. For example, it may allow economies of scale and scope to be realised. In other cases, where a single prime contractor has responsibility for ICT across an organisation, it can be easier to manage all of the suppliers in the supply chain. However, while aggregated demand can be beneficial, it can also reduce competition overall as there will be fewer contracts available and those that are will tend to be larger, meaning certain suppliers will not have capacity to deliver them.

7.15 There are a number of initiatives aimed at addressing these issues. We consider the impact of these initiatives on competition in the sector below.

Frameworks

7.16 Well designed frameworks cut down procurement processes and costs by creating a pool of suppliers from which buyers can quickly call on for specified products. However, some frameworks have not achieved these aims and may in fact hamper competition. In particular, we note that some frameworks:

- set requirements which are overly specific, resulting in the exclusion of some suppliers who could meet public sector needs and limiting choice
- require suppliers to take on disproportionate amounts of risk or sign up to costly or unworkable conditions, resulting in some suppliers not bidding to be on frameworks or higher procurement cost, and
- overlap, making some frameworks redundant and causing sunk costs for suppliers on such frameworks.

7.17 In some cases, buyers may set up strategic frameworks, where a limited number of suppliers are selected to provide certain ICT solutions.[161] These options may make sense where there is a limited pool of suppliers able to provide appropriate solutions. However, where requirements could be met by a wider pool of suppliers such frameworks could restrict competition.

7.18 There are moves to address these issues. G-Cloud, for example, encourages buyers to use non-bespoke solutions and allows suppliers with limited or no track record of delivery to the UK public sector access to offer their ICT solutions.[162] Action has also been taken to identify and remove some frameworks that are no longer required.[163]

[162] Although note that spending through G-Cloud accounts for a small proportion of overall public sector spending on ICT.
[163] www.gov.uk/government/news/fewer-government-ict-frameworks-to-attract-wider-range-of-suppliers

Procurement costs

7.19 Stakeholders highlighted public sector procurement processes as problematic,[164] in particular that high costs discourage or prevent suppliers from bidding. Large and smaller suppliers suggested that bidding costs have been a significant factor in decisions on whether to bid for public sector ICT contracts.

7.20 Changes have been made with the aim of reducing the time and cost involved.[165] Despite these changes, suppliers told us that the procurement process is still costly and resource-intensive. They also commented that increased scrutiny and policy constraints have meant some central government procurements have been paused and later restarted, which resulted in additional costs.

7.21 The recently re-negotiated EU directives[166] provide scope for abolishing minimum turnover requirements. Doing so would help ensure suppliers with smaller revenues are not prevented from bidding for contracts. Other changes that may help include a reduced minimum response time for procurements, and increased potential for the use of self accreditation in the procurement process, which would help reduce the burden and cost on suppliers of submitting supporting paperwork when bidding for contracts.

Security accreditation

7.22 As noted in Chapter 3, in order to carry out public sector ICT work, suppliers and their staff must have appropriate security accreditation, which must match the level of security required by the buyer. The range of security levels in government can lead to fine distinctions between the accreditation required for particular types of work. In particular, distinctions between the middle levels of security can be

[164] They have also been highlighted as a potential barrier to entry in previous reports, such as the OFT's Commissioning and Competition in the Public Sector (2011). www.oft.gov.uk/shared_oft/reports/comp_policy/OFT1314.pdf

[165] For example, standardised PQQs have been introduced in central government, together with revised guidance on their use. PQQs have been abolished for spend under £100,000. The 2013 Procurement Reform (Scotland) Bill also allows Scottish ministers to issue guidance on PQQs in Scotland. These actions will help reduce complexity of bidding processes and ensure that buyers do not place unreasonable criteria on suppliers to qualify for bidding processes.
Additionally, lean sourcing principles have been introduced with the aim of reducing the time taken to complete less complex procurements to less than 120 days (see http://ccs.cabinetoffice.gov.uk/about-government-procurement-service/lean-capability).

[166] See Annexe C on procurement processes for the role of the EU directives in public sector procurement.

less well defined.

7.23 Government organisations have to sponsor suppliers' staff for security clearance, and accreditation can be both time consuming and costly to achieve, with some suppliers estimating that it could take up to a year, at a cost of £200,000. Moreover, suppliers have noted that only a limited number of suppliers can go through the accreditation process at any one time. This can impact on competition by causing suppliers without sufficient numbers of cleared staff to exit bidding processes for contracts.

7.24 Suppliers told us that buyers may favour higher security accreditation levels, even where these are not necessary for a particular contract. This may disadvantage some suppliers with lower, but suitable, levels of accreditation. However, in some cases, buyers' demands for higher security accreditation may be reasonable, depending on the ICT solution in question, and how this matches business needs. The move to a new security classification system, where the lowest three security levels will be merged into a single category[167] covering the majority of government business, may help promote greater consistency in the level of accreditation necessary for most public sector ICT.

Performance monitoring

7.25 We found that buyers are not fully equipped or do not have sufficient information to identify poor performance by suppliers or take action to address it. Poor performance means that value for money is not delivered, and can adversely affect the delivery of key public services. Where poor performance consistently goes unidentified this can lead to buyers making less efficient decisions by selecting suppliers who have not adequately delivered ICT previously.

7.26 Government has introduced measures to change buyer practice in this area and better hold suppliers to account for their performance. Central government buyers are now required to take suppliers' past performance into account during the procurement process, meaning

[167] Specifically, 'protect IL1', 'protect IL2' and 'restricted' will be merged into a single ' 'official category'. See http://gcloud.civilservice.gov.uk/2014/03/06/security-accreditation-whats-changing/ for more information.

there is more incentive for suppliers to perform well.[168] The introduction of Crown Representatives for central government's largest suppliers also means that there is a coordinated view of these suppliers' performance. Crown Representatives are also able to work together with buyers and suppliers to resolve performance issues. Moreover, a new policy[169] puts in place a regular review process for large suppliers, and provides guidance on remedial action where poor performance is identified.

7.27 The Crown Representative function also allows for better management of secondary markets, that is, work which is scoped when contracts are originally signed but the volume and price of which may not be predetermined in a detailed way. Crown Representatives are able to support buyers in negotiations for work of this kind.

Contract lengths

7.28 The pace of change in ICT means regular switching would allow buyers to make the most of new technology, which can reduce costs and improve quality. Technology can relatively quickly become advanced enough to unlock significant benefits. However, evidence suggests that in many cases buyers are choosing to stick to known solutions and suppliers.

7.29 One cause of this is long term contracts.[170] As our analysis shows, there can be considerable variation in contract durations. In outsourcing for example, contracts range from around one year to in excess of 10 years.[171] Similarly, licenses for COTS software may be purchased for a limited time or perpetually. In the latter case, buyers are not bound to replace licenses at frequent intervals.

7.30 Although buyers are strictly bound by EU directives to tender for new contracts, the length of contracts is not prescribed. Some contracts

[168] A procurement policy note, 'Taking Account of Bidders' Past Performance', was published in November 2012. Departments now issue suppliers with performance certificates in order to help other buyers assess past performance - see www.gov.uk/government/uploads/system/uploads/attachment_data/file/80220/PPN_Taking_Account_of_Bidders_Past_Performance_08-11-12_1.pdf
[169] Strategic Supplier Risk Management Policy (Nov 12) - see www.gov.uk/government/uploads/system/uploads/attachment_data/file/80222/20121108_Strategic_Supplier_Risk_Management_Policy.pdf
[170] Other barriers to switching are discussed in Chapter 6.
[171] See Annexe A for more details on outsourced IT contracts in the UK public sector.

inevitably require longer durations because of the nature of the services provided. Long contracts can also postpone significant costs of switching in some cases, such as the need to retrain staff to use new systems. Buyers also need to take account of a reasonable period of cost recovery for suppliers.[172] Shorter contracts in such cases are likely to result in fewer suppliers willing to bid. Setting optimum contract durations therefore is not straightforward and depends on the circumstances in each case.

7.31 Where long contracts are in place or necessary, flexibility can be achieved by negotiating break-points. For example, a five year contract could be broken into three points of two, two and one years. At each of these points buyers can choose to switch to new suppliers or extend the contract. Suppliers told us that buyers do not regularly make use of these break points and instead default to extensions, often because a new solution has not yet been scoped.

7.32 In central government, there is now a 'no extensions' policy, and departments are likely to be challenged for extending contracts rather than running new tenders. The 'cloud first' policy also has the potential to have an impact on the frequency of tendering, with a standard two year contract duration applying to ICT solutions bought from G-Cloud. However, the 'no extensions' policy is not applicable in all cases, for example where buyers have not been able to define what type of replacement solutions they require or where not extending the contract might risk disruption to key public services or business processes.

Switching

7.33 As noted in Chapter 6, buyers are reluctant to switch from incumbent suppliers to suppliers who may be able to provide better ICT solutions at lower cost. As well as lack of access to commercial and technical capability and lack of consistent data collection and benchmarking (see below for further discussion of these), both of which can contribute to a reluctance to switch, we consider below further factors that may cause this feature of buyer behaviour.

[172] For example, services like hosting require high levels of initial investment.

Risk aversion

7.34 Public sector organisations tend to be risk averse (see Chapter 6). A degree of risk aversion is necessary for the public sector to ensure that threats to important public services are minimised and there are undoubtedly real risks involved in switching from one ICT supplier to another, especially where ICT solutions are customised and complex. These risks need to be balanced in considering switching. Buyers' perceptions of risks can also exacerbate their reluctance to switch.

Managing exit and transition

7.35 Stakeholders told us that buyers are often not sufficiently prepared for switching, either in terms of ensuring that they are clear what alternative ICT solutions they require before contracts end or managing incumbent suppliers to ensure smooth transition. This can result in significant difficulties and costs in switching at the end of contracts.

7.36 Public sector ICT contracts may contain provisions dealing with exit from contracts and transition. However, both buyers and suppliers informed us that these are often inadequate to facilitate smooth transition. It should be noted that because public sector organisations have typically preferred long contracts, it may have been harder to predict the exact requirements for transition at the outset of contracts. We note that the new model contract developed by the Cabinet Office may address some of these issues, for example by specifying that buyers and suppliers must agree transition plans within six months of signing contracts.

Evidence of switching

7.37 Actual experiences of switching show that the cost and difficulty varies depending on the buyer and the ICT solution in question. In certain cases, switching did not appear straightforward. For example, in the case of housing software, the timescales for transition could be anything between four months and several years. In some cases, buyers may use the same solutions for long periods. For example, some buyers have retained the same housing software more than 15 years, and in the pensions administration sector some LAs have been using the same supplier for as long as 25 years.

7.38 However, we saw instances of buyers switching. For example, some central government departments contracted with new suppliers that did not have established track records in delivering to the UK public sector and adopting new ICT solutions. This suggests barriers to switching are not insurmountable.

Information collection and benchmarking

7.39 Information asymmetries exist in this sector, because suppliers have greater technical knowledge of the ICT solutions they supply. To some extent this is inherent, as suppliers will generally understand the ICT sector better than buyers whose primary activities focus on policy development and delivery. However, buyers contribute to information asymmetries in other ways.[173]

7.40 Information about the number and quality of bids for public sector ICT contracts, pricing and supplier performance is crucial in assessing the intensity of competition for contracts, and the quality and value for money of ICT solutions. However, such information is not collected on an objective, systematic and consistent basis or used effectively across the public sector. This, along with buyers' lack of access to relevant skills and expertise, serves to reinforce information asymmetries.

7.41 Buyers also carry out very little benchmarking[174] to compare suppliers' prices and performance across the public sector. This leads to a lack of information about the quality and costs of ICT solutions available. Information collection and benchmarking are two distinct but closely related issues. The lack of these activities by buyers is an issue that has been highlighted as a problem, both by the public sector itself and by reviews of public sector procurement.[175]

7.42 There is significant scope for the public sector to improve its collection and use of market data in order to drive more effective procurement decisions. Improvements have been made, for example in the

[173] Suppliers also contribute to information asymmetries. This is discussed in Chapter 8.
[174] As opposed to simply collecting information, benchmarking refers to the comparison of products and services based on predetermined measures, and may be carried out in house, or by a third party
[175] The Civil Service Capabilities Plan sets out the need to improve specialist knowledge both in procurement divisions, but also in the civil service more widely (http://d3h3a2wvb0yw5m.cloudfront.net/wp-content/uploads/2013/02/2900908-Capabilities-Plan-with-links.pdf). The NAO's 'Managing Government Suppliers' also highlights weaknesses in commercial capability and the potential to increase skills (www.nao.org.uk/wp-content/uploads/2013/11/10298-001-Governments-managing-contractors-HC-811.pdf).

collection of procurement data by the Cabinet Office and Government Procurement Service.[176] So far, this has focused on gaining a better idea of the amount spent with suppliers. There are gaps remaining, for example on comparative data on price and the number and quality of bids for contracts. A central source of this information that can be accessed by buyers would help them to understand the levels and effectiveness of competition for ICT contracts, improve knowledge of the sector and assess the impact that current initiatives are having on competition.

7.43 Some public sector organisations are working to fill these information gaps. A key aim of the new Local Authority Software Applications framework, for example, will be to establish a strong source of information about pricing and requirements from different LAs, to provide a reliable point of reference for future purchases. New frameworks and contracts are increasingly introducing clauses to ensure it is easier for buyers to share information, and we discuss this further in Chapter 8.

7.44 Even where data is collected and shared between buyers, it can be difficult to reach meaningful conclusions due to inconsistencies in data collection and benchmarking methods. Developing such consistency may be difficult, particularly in the case of highly customised ICT solutions. However, it is important if the public sector is to achieve meaningful comparisons of price and quality. Standardising requirements, for example by buying COTS solutions, would help this process.

7.45 As well as collecting their own data, public sector buyers can also use third parties for benchmarking.[177] However, this may not always be fully effective in improving quality of service and achieving better prices. It may focus too much on high level metrics, such as price per user, and cost of ICT as overall business cost. While important, these do not necessarily give buyers an in-depth understanding of all relevant factors behind the price and quality of a service. For example, third party benchmarking may identify that a solution or part of it is

[176] Improved data on government ICT spending is discussed on page 21 of the NAO's 'The Impact of Government's ICT Savings Initiatives' - www.nao.org.uk/wp-content/uploads/2013/03/ICT-savings-Full-report.pdf
[177] Stakeholders have suggested that many contracts in the public sector do in fact have benchmarking clauses and allow buyers to make use of third party benchmarking.

too expensive, but not provide the buyer with the necessary information to highlight where costs can be reduced.

7.46 Where no benchmarking takes place, buyers lack reference points for comparing prices and the quality of ICT solutions. We saw examples of where benchmarking has improved outcomes for buyers. For example, one buyer told us it was able to achieve a 40-45 per cent reduction in price on housing software by benchmarking and using knowledge of private sector pricing as a reference point. In another case, use of third party benchmarking led to a buyer achieving a 50 per cent reduction in price for outsourced applications maintenance.

7.47 We note that the new model contract from Cabinet Office provides standards for benchmarking practice, specifically that it should be an annual process conducted by a third party. It also obliges suppliers to take remedial action where performance in any respect is significantly lower than the top 25 per cent contracts in a comparative group. If buyers adopt these provisions in their ICT contracts, it should assist with the process of designing and conducting benchmarking processes, and provide them with the contractual ability to take action to improve performance.

7.48 Buyer capability and expertise is important to ensure effective use of data and benchmarking. Suppliers have told us that it can be difficult to understand their pricing models owing to the range and complexity of products and services provided under certain contracts. Buyers would need a high level of expert knowledge to understand the different elements of such pricing models. The right expertise is therefore important in ensuring buyers benefit from open-book accounting.[178]

Impact of current public sector procurement initiatives

7.49 We note that action is being taken to address the issues highlighted above. Of particular relevance are recent initiatives that focus on disaggregation, targets for the amount of business awarded to SMEs

[178] The recent Public Accounts Committee hearing on managing government suppliers highlighted that although many departments do have open book accounting provisions, they are not widely being used, which may be indicative of a lack of capability. www.parliament.uk/documents/commons-committees/public-accounts/Uncorrected%20transcript%2025.11.13.pdf

and limiting contract values.

7.50 Central government has created a presumption against large scale contracts above £100m in total value (other than in exceptional circumstances). Moreover, there are moves towards disaggregation of contracts into 'towers' for discrete services, which are linked by a SIAM contract for management of all of these towers.

7.51 Breaking up contracts into lower value towers should enable more suppliers to compete for them, which may increase competition and reduce contract values. If SMEs are able to win some of these contracts, this will contribute towards the Government's SME target. However, disaggregation may come at cost in terms of lost benefits of economies of scale and/or scope. It is not clear that additional competition from more SMEs would outweigh the loss of these scale economies. This is because, even without SMEs competing, there may be enough suppliers and potential entrants to result in competitive outcomes.

7.52 The 'towers' approach to breaking up contracts may reduce the scale and complexity of individual ICT contracts. However, both buyers and suppliers raised concerns about additional complexity for buyers of managing a greater number of contracts and suppliers. This emphasises the importance of public sector organisations having sufficient in-house capability.

7.53 The 'towers' model may prevent suppliers from having as much market power by ensuring that there are a greater number of suppliers supplying a wider range of different products and services. However, some suppliers raised concerns that the decision to prohibit suppliers with SIAM contracts from also bidding to supply any of the related 'towers' will reduce the number of potential bidders for specific contracts. Indeed some suppliers said that this had already prevented them from bidding for recent contracts.

7.54 It is too early for the OFT to evaluate and conclude on the effect of these initiatives on competition. An assessment by the NAO indicated that ICT procurement initiatives may have saved up to £144 million,[179]

[179] NAO 'The Impact of Government's ICT Savings Initiatives' - www.nao.org.uk/wp-content/uploads/2013/03/ICT-savings-Full-report.pdf

though this has been contested by some. Our preliminary assessment indicates that the impact of these initiatives on competition could be mixed.

7.55 It will be important for the public sector to carry out a complete evaluation of relevant initiatives at a suitable time and using appropriate data, to accurately determine their overall impact on competition. Without this, it will be impossible to determine whether initiatives have had a positive impact on competition and to ensure effective policy going forward.

Conclusions

7.56 Our analysis demonstrates that buyer conduct has a significant impact on the level and effectiveness of competition in this sector.

7.57 Buyers may not have access to the requisite commercial and technical expertise when procuring ICT, meaning they are unable accurately to define their ICT requirements, evaluate the best placed suppliers to meet these, and to assess and challenge supplier performance.

7.58 Independent purchasing of ICT may have an adverse effect on other buyers, increasing costs and reducing choice. Aggregating demand is one way in which problems with independent purchasing can be addressed. However, aggregation can also reduce opportunities for competition. There are benefits to both aggregation and disaggregation of demand, which must be considered carefully in individual cases.

7.59 The costs of public sector procurement processes and certain requirements placed on suppliers during these can be prohibitive and discourage suppliers from bidding for contracts.

7.60 The current system for suppliers and their staff to gain security accreditation for public sector ICT work may act as a barrier to entry and expansion.

7.61 Poor performance by suppliers impacts on the delivery of public services and value for money and, if not identified, contributes to inefficient choices by buyers. Public sector organisations are not fully

equipped to monitor and challenge suppliers on poor performance or ensure that it is addressed.

7.62 There has been a tendency in the public sector towards long contracts or licences, which limits opportunities for competition. However, longer contracts may be the most efficient option for delivering what is required in certain cases.

7.63 Public sector organisations are generally reluctant to switch suppliers. There are examples of switching by public sector organisations where the process has been smooth and the result has been lower prices and more efficient ICT, indicating that switching is not always difficult or risky. There are genuine risks in switching, but better collection and use of market data and effective exit planning can act as mitigating factors, and allow buyers to manage risks more effectively.

7.64 Buyers do not consistently collect or make effective use of market information or benchmark effectively. This reinforces information asymmetries that exist and can cause inefficient buying decisions.

7.65 Steps are being taken to address these issues. Our preliminary assessment indicates that the impact of these initiatives on competition is mixed, but it is too early to reach definitive conclusions. Nevertheless, we consider that there are additional actions that can be taken to build on and complement these initiatives. More detail on this is set out in Chapter 9.

8 SUPPLIER CONDUCT

Introduction

8.1 In Chapter 6 we considered whether there are structural characteristics of the various markets within public sector ICT that may result in competition not working as well as it could do, and in Chapter 7 we identified a number of aspects of buyer behaviour which also have an impact. In this section we assess whether certain conduct by suppliers could be causing or exacerbating some of the problems we have found. We recognise that many of the issues identified in this section are linked to issues arising from the practices and behaviour of buyers in this market.

Findings

8.2 We were told of a number of practices by suppliers which, if carried out, could give rise to concerns and which we consider below:

- Suppliers taking advantage of information asymmetries between suppliers and buyers: certain aspects of confidentiality clauses preventing public sector buyers from comparing prices, contractual specification and overstating switching risks.
- Imposing or increasing switching barriers: complex or opaque pricing, not participating in frameworks or competitive tenders, suppliers contributing towards transition difficulties and other issues leading to increased barriers to switching.
- Lock-in exploitation: high prices for new products or add-on services, imposing new products and not responding to developments.

Suppliers taking advantage of information asymmetries

8.3 The existence of information asymmetry in public sector ICT markets and how buyers contribute to this is discussed in Chapter 7. Here we focus on a number of different ways in which information asymmetries arise or are worsened primarily as a result of suppliers' conduct.

Confidentiality clauses restricting price comparisons

8.4 Many suppliers seek to include confidentiality clauses in ICT contracts with public sector buyers. We recognise that confidentiality clauses play a legitimate role in enabling suppliers to protect their intellectual property and business secrets concerning the prices and conditions of goods and services provided.

8.5 Nevertheless, we are concerned that as a result of certain aspects of these clauses, many public sector buyers, whose interests and incentives are aligned, are unable to share information which would enable them better to assess if they are getting value for money.[180] For example, we were told by one Local Authority (LA) which considered it was paying too much that it was prevented from undertaking a study of prices paid by buyers for software because of the confidentiality clauses.

8.6 The ability of buyers to compare products and prices is an essential feature of a competitive market. If buyers are unable to compare the prices they are paying with alternative options or assess their prices against other reference points, they will be less able to drive effective competition amongst suppliers.[181]

8.7 In some isolated instances where buyers have been able to compare prices with other public sector buyers, we were told that they revealed a large price variation for the same service/product which had been used by buyers to negotiate lower prices. While we have not verified whether this was the case in this example, if true, such practices would cause us concern. By preventing such comparisons through the use of certain aspects of confidentiality clauses, suppliers are restricting buyers from making more informed decisions and assessing whether they are getting a competitive price.

[180] From a review of a number of different standard software contracts with LAs provided to us by suppliers we understand that contracts typically include confidentiality provisions which specify that all information relating to any part of the business and affairs of the other party should be treated as confidential and not used or disclosed. Some contracts explicitly give examples of a number of different pieces of information which are confidential such as prices and pricing information, the software and other materials and other technical and commercial data. There are typically some exceptions to this confidentiality, for example where disclosure is required by law, a regulatory authority or advisers to the parties which are bound by confidentiality, or where the information has otherwise become public knowledge.

[181] 'Confident and informed consumers activate competition by rewarding those providers that deliver the best services that most suit their needs' paragraph 2.7 of the report Choice and Competition in Public Services, Frontier Economics for the OFT, March 2010, which provides more discussion on this topic.

8.8 We note that there are recent initiatives by central government to address the ability of different public sector buyers to compare products and prices. For example new policy guidance has been issued to central government customers to help ensure that new contracts signed have clauses allowing for the sharing of data between central government departments.[182] We also note that the Crown Commercial Service (CCS) and the Government Legal Service (GLS) have developed a set of model terms and conditions for major services contracts called the 'Model Services Contract' for use by government departments.[183] This contract allows sharing of information within central government as set out in the policy guidance. There is also a Local Authorities Software Applications framework currently in development which includes similar provisions allowing public sector buyers to share and compare prices and services. The intention behind this is to hold information on LA contracts centrally, including various component prices and services, which can be used and accessible to other LAs as a point of reference when considering alternative software applications and assessing value for money.

8.9 We consider that the developments referred to above are a step forward in allowing public sector buyers to share information on prices and services between themselves more freely. However this continues to be a significant issue and it remains a concern in government. We were told by one government department that certain parts of confidentiality clauses in many current contracts, particularly in relation to local government buyers, remain a significant barrier to information sharing and comparability and that addressing this issue would significantly aid benchmarking.

Contractual specifications

8.10 We considered whether suppliers are able to take advantage of their greater technical knowledge of both the products and services they supply in order to influence the contractual specifications set out by

[182] For further information see 'Procurement Policy Note - Information sharing in Government procurement exercises, 3 February 2014' which specifies that central Government contracts should contain a standard confidentiality clause which allows tender, contract and supplier performance information to be shared between central government departments including their Executive Agencies and Non Departmental Public Bodies, whilst still protecting bidders from the risk of having their commercial prices or trade secrets seen by competitors. For example ensuring that all contracts with central government are entered into on behalf of the 'Crown' rather than as an individual entity, and contracts explicitly state that information provided by suppliers, including tender prices, may be shared with other government organisations.
[183] For further information on this and access to the Model Services Agreement see https://ccs.cabinetoffice.gov.uk/about-government-procurement-service/contracting-value-model-services-contract

buyers. Where buyers, for example, have a limited understanding or knowledge of the goods and services that may satisfy particularly complex requirements, they may need to have a competitive dialogue with suppliers in order to define their requirements and the type of solutions that would best meet them. There is some evidence that suppliers may take advantage of their superior product knowledge to steer buyers towards particular types of solutions when it is not clear that these are the most appropriate or lowest cost solutions available which meet the buyers' requirements. This results in buyers defining their requirements in a way that favours the existing supplier, as they may not consider alternative solutions or suppliers to be suitable. For example one government department said that buyers are often 'pre-conditioned' by the supplier with regard to their needs and solutions that can meet them, before contracts are even tendered which can exploit a lack of buyer expertise.

8.11 There are also cases where it was also put to us that suppliers may be unclear with buyers about what is and is not included in contracts because they have a greater understanding of the product and services. For example suppliers often have greater awareness of the licensing requirements than buyers and this can be used by suppliers to levy additional fees and charges, particularly where there are multiple licensing arrangements. We were told by one government department that some suppliers may exploit this information asymmetry by pricing bids with lower licensing costs but then levying additional charges following a subsequent audit of their licences. We were also told that buyers themselves are often unable to check their own compliance as licence-checking tools (which are used by suppliers for this purpose) are not typically available to the buyers. We have received limited evidence on this concern and therefore we are unable to determine the extent to which this problem arises. We recognise that this is connected to buyer's lack of access to the necessary technical knowledge and commercial expertise which we consider in Chapter 7.

Overstating switching risks

8.12 Another possible issue relates to the potential risks of switching supplier, in particular when transitioning to new systems. We consider barriers to switching and how the behaviour of buyers impacts on this

in Chapters 6 and 7. In this section we review the extent to which suppliers may exacerbate these switching barriers.

8.13 We consider that suppliers have a greater level of understanding about the types of obstacles involved in switching providers and systems than buyers, and we were told that in some cases suppliers have exaggerated the costs associated with switching in order to discourage buyers from doing so. For example, one large LA reported that their outsourced provider had exaggerated the risks associated with switching away from a software product delivered under that outsourcing agreement. The LA in question then switched successfully to a new software product. This is also a potential barrier to switching (see below).

8.14 We by no means suggest that all suppliers demonstrate this type of behaviour. Indeed we were also provided with examples to the contrary where suppliers had cooperated and assisted transition to new suppliers.

Imposing or increasing switching barriers

8.15 We considered whether incumbent suppliers have behaved in such a way as to create or increase obstacles to their customers switching supplier. Where this is the case, the cost of switching may become unviable and customers may then be locked-in to their current supplier. Furthermore if incumbent suppliers do not cooperate during transition to a new supplier this can further create additional difficulties when switching.

Complex or opaque pricing

8.16 Some public sector buyers raised concerns that ICT suppliers may be making their pricing complex and difficult to understand, which restricts the ability of buyers to challenge and compare prices. This could result in buyers making sub-optimal decisions. We recognise that this is linked to the extent to which buyers have an understanding of the products and services being offered and that the pricing model is specified by buyers themselves rather than suppliers. We understand that these concerns often arise during the contract rather than at the point the product is contracted. For example issues which have been

raised by buyers include higher than expected prices for updates or changes. Some buyers have also expressed concern that they have not understood what they are being charged for or how the charge is broken down between different components.

8.17 For many software products, prices typically comprise an initial fee for the licence (which depends on the required number and type of licences) and an annual support and maintenance charge, which is a fixed proportion of the up-front licence cost (usually around 20-25 per cent). Additional support is typically provided as a daily rate. Some buyers expressed the view that there is limited transparency of both how these additional support and maintenance charges are formulated and how these charges relate to the individual components of the overall product offering, which make it difficult for buyers to challenge prices and make comparisons across different products. We also understand that the support and maintenance charge is typically increased annually by suppliers and that, in general, although suppliers agree fees in advance for several years, they are not fixed for the whole life of the contract. Therefore there can be a lack of transparency over how the fees are formulated and what the costs will be over the long-term.

8.18 In relation to schools software, one representative organisation told us that in the past charges for particular modules and support had not been clearly set out. However we noted that measures had been taken by the supplier to ensure its invoices are clear (see Annexe B on MIS in schools). One planning software buyer also said that one supplier was in effect forcing customers to continually upgrade their software as otherwise that supplier would not continue to offer support for its product, and that these upgrades sometimes required paid consultancy (see Annexe B on planning). This suggests there can also be confusion over the extent to which prices are inclusive of upgrades or the charging of upgrades, and the extent to which such upgrades are necessary. This might also indicate that some suppliers are taking advantage of situations where customers are locked-in to the supply of products and services (see below on lock-in exploitation).

8.19 For outsourced IT contracts in particular, we were told by buyers that prices are not always provided in a transparent manner when requested, for example, overly complex information being provided by suppliers in order to comply with open book accounting provisions.

While the complexity of some outsourced IT contracts may inevitably result in information about them also being complex, it appears that suppliers could do more to ensure this information is clearer and more meaningful for buyers (for further information see Annexe A on suppliers reinforcing information asymmetries).

Not participating in frameworks or competitive tenders

8.20 There have been some concerns raised by buyers that certain major software suppliers are limiting customer choice by not participating in frameworks, or otherwise behaving in ways which undermine the viability of potential frameworks. For further explanation see Chapter 3, section on framework agreements.

8.21 During the market study buyers provided some examples of occasions where a leading supplier had allegedly either refused to join a framework or joined with an uncompetitive high price effectively ruling out its participation in the framework. We have not sought to investigate whether these allegations are borne out or whether the supplier conduct was justified. However, where suppliers have an appreciable degree of market power and have either not joined a framework, or have discouraged procurement through it, the viability of the framework is undermined and the ability of customers to compare products is limited. This is because many public sector organisations are likely to continue to buy directly from suppliers with appreciable market power, at least in the short term. Reducing barriers to switching is likely to reduce the ability of such suppliers to undermine frameworks in this way because buyers will be more likely to switch away from their current supplier.

8.22 There may be legitimate business reasons why a supplier does not join a framework or charge higher prices. This is particularly the case where the conditions specified by the framework are more onerous either in terms of risk transfer or in relation to specific requirements. We were told by a number of suppliers that they may choose not to participate in frameworks because they do not support some of the terms and conditions which must be agreed to under these frameworks. For example, in relation to schools MIS, we were told by one supplier that a number of aspects of the IMLS framework did not work well and that the requirements of the framework meant that for

the majority of its customers other procurement approaches offered a better value for money alternative (see Annexe B on MIS in schools).

8.23 A small number of buyers have also told us that suppliers in some sectors of the ICT market have also encouraged them to contract directly with them rather than embark on a competitive tender process (for example see Annexe B on pensions administration software).

Suppliers contributing towards transition difficulties

8.24 The OFT was provided with examples from both buyers and suppliers of cases where incumbent suppliers were alleged to have obstructed, or not fully cooperated with, the transition process when a public sector organisation has switched to a new supplier.

8.25 Several large central government departments alleged this type of conduct by incumbent providers of high profile systems. One department told us that the incumbent supplier had been obstructive and another department told us that they had faced a lack of cooperation when transitioning 'mission critical systems'.

8.26 A small number of incoming suppliers also alleged there were instances where they faced difficulties in transitioning work from incumbents. For example one supplier claimed that they had experienced an incumbent being 'non-cooperative' and 'evasive' during a transition process, and another noted that 'incumbent suppliers do not go out of their way to make it easy for newcomers to take on existing contracts'.

8.27 We have not verified whether these allegations are borne out but it is clear that the perception at least exists among both buyers and some suppliers that, in some cases, incumbents may be obstructive. In contrast to these examples, however, the OFT also received some evidence from suppliers and buyers (in particular in the software sectors of Housing, Planning and Schools to some extent) that switching had been relatively easy and that the incumbent supplier had cooperated with the new supplier to ensure a smooth transition.

Other issues leading to increased barriers to switching

8.28 The OFT was also informed of other alleged conduct by suppliers which, if established, might increase barriers to switching. These include:

- Suppliers implementing customised products and services which hinders the ability of buyers to switch. In addition, suppliers may also use proprietary software and solutions rather than those available under open source licences, which may contribute towards lock-in.
- Suppliers offering multi-year discounts on the fee charges for support and maintenance (see Annexe B on housing) which may have the effect of encouraging buyers to commit to longer-term contracts than might otherwise be the case.
- Suppliers creating an artificial barrier to switching through the pricing structure that has been adopted for some software products, whereby the buyer has to purchase a 'perpetual' licence for an upfront amount. This has the effect of requiring the buyer to purchase a new perpetual licence when switching, and therefore there is a significant cost saving in remaining with the incumbent supplier. We note, however, that where the time taken to switch is substantial (which can be up to 18 months in some cases) the perpetual licence allows the buyer to run two systems in parallel until the new system is installed, which could help enable the switching process.

Lock-in exploitation

8.29 We have been told that suppliers have in some cases exploited their incumbency position by acting in ways which lock customers in to a supplier's product and services, and that suppliers take advantage of this lock-in to charge high prices for new products or services, by imposing new products, or by not responding to developments.[184]

[184] We discuss the waterbed effect, which considers whether the fact that buyers may be locked-in increases competition to win the contract before lock-in, in Chapter 6.

High prices for new products or add-on services

8.30 We were told that some suppliers had been charging high prices for new products or add-on services, in addition to the main product and services agreed with buyers at the start of a contract. For example one government department told us that it has experienced suppliers which have substantial market power in the secondary market (for example during the life of a contract) charging what they considered to be higher than expected mark-ups for new products which emerged during the life of contracts. In relation to pensions administrative software, some LAs told us that one supplier had used its strong position in the market to charge high prices for software updates, such as the need to make their software compatible with the 2014 LGPS (see Annexe B on pensions administration). When the OFT put this point to the supplier it said that the costs relating to the 2014 LGPS changes reflected additional development costs and were discussed in full, in advance, and signed off by the LA user group. One buyer in a different sector also raised concerns that interfaces with other systems can be prohibitively expensive.

Imposing new products

8.31 Routine software upgrades are often included in the annual support and maintenance fee and cause little disruption to the buyer. However, there are some cases where a supplier wants to discontinue its old software and replace it with an entirely new product because the original product may be becoming outdated. If the supplier allows the buyer plenty of time to adjust its procedures and to tender for an alternative supplier if it desires to do so, such software changes are generally understood and accepted by the buyers. However, where buyers are pressurised into making a quick decision to transfer to the current provider's product without being given adequate opportunity to examine alternative suppliers, then this could be considered to exploit customer lock-in. This may also create an opportunity for the incumbent supplier to manipulate fees and non-price factors to create an incentive to adopt their new product rather than an alternative.

8.32 In pensions administration software one supplier gave notice in September 2013 that its legacy software would no longer be supported beyond the end of 2014 but that its customers may switch

to its new platform. The supplier told us that it could no longer support the existing software for technical reasons, that the end of life date had been discussed and agreed with LA representatives beforehand and that they had given 16 months notice, longer than that contractually required. As such, it stated that LAs had sufficient time to switch to an alternative supplier if they wished. Some LAs, however, told us that the timeframe from notice to discontinuation of support was, in their view, short and others that they reconsidered switching because of the constraint of getting a new system in place before the end of 2014. On the other hand, some LAs did, however, use this as an opportunity to assess the market and go to tender. For further information see Annexe B on pensions administration software.

Conclusions

8.33 We identified a number of different types of alleged practices across the different sectors within ICT that, if established, may prevent or impede effective competition in the industry.

8.34 There is some evidence that suppliers have taken advantage of the information asymmetries which exist between suppliers and buyers. For example, aspects of confidentiality clauses may prevent public sector buyers from comparing prices.

8.35 We received some evidence that, in certain cases, suppliers may have acted in ways which created additional or increased barriers to switching but also saw contrasting evidence where switching had been relatively easy and buyers had not raised any issues about the suppliers involved.

8.36 Concerns were also raised about suppliers acting in ways which restrict buyers' ability to compare prices or products and assess alternatives, which is a fundamental feature of a competitive market.

8.37 Finally some LAs expressed concerns that, in relation to pensions administration software, one supplier may be acting in ways which exploit customers who were locked-in to their products. Overall, in relation to the concerns raised about pensions administration software, it is not possible to reach any robust conclusions. It seems clear that there has not been 'customer lock-in' in the sense that LAs were

compelled to transfer to the incumbent's replacement product (some LAs switched supplier). However, it seems equally clear that at least some LAs felt that their ability to switch was constrained.

8.38 As described above we assess that some aspects of supplier conduct may lead to constraints on competition, in addition to the structural characteristics and demand side issues we identified. Some of these apply to a greater or lesser extent depending on the specific product and sector.

9 CONCLUSION AND RECOMMENDATIONS

Introduction

9.1 The aim of our market study was to determine whether the market for the supply of ICT to the public sector was working well. We assessed this by looking at practices across the sector with a particular focus on outsourced IT and COTS software, with the aim of identifying and addressing any aspects of market failure arising from competition issues.

9.2 In particular, we looked at:

- The degree of market power, by considering shares of supply, barriers to entry, expansion and switching, buyer power and the potential for tacit co-ordination.
- Buyer conduct, including consideration of buyers' technical and commercial expertise, the availability and use of information by buyers, their switching behaviour and purchasing practices.
- Supplier conduct, by looking at whether their practices contribute to problems with the availability and use of information in the sector, the ability of buyers to switch suppliers and the prices and quality of service provided.

9.3 This section will cover our conclusions in each of these areas, recap on relevant initiatives in place to tackle issues with public sector procurement and set out our recommendations for improving the way the sector works.

Summary Conclusions

Market power

9.4 Shares of supply for the whole sector level are not at a level that would generally give us cause for concern in isolation. However, within the sector, we have found that some particular ICT products and services within the sector have a small number of suppliers with a stable, high market share.

9.5 We find that competitive opportunities (as measured by OJEU tenders and procurements through frameworks) are comparatively infrequent for most ICT goods and services purchased by the public sector. We also note that the market shares of leading suppliers have remained comparatively stable over time. Infrequent competition does not necessarily imply stable market shares over time because there are a small number of (central government) contracts which individually account for the significant share of total value of public sector ICT contracts awarded.

9.6 Bidding markets make assessing the extent of competitive constraints more challenging. However, for the range of ICT products and services supplied to the UK public sector, we believe there are additional sources of competitive constraints beyond the other large current suppliers to the public sector.

9.7 We have also identified entry barriers which place a limitation on the competitive constraint from new entrants and may therefore give current suppliers greater market power. In particular, we found artificial entry barriers, created by particular procurement practices unique to the public sector, to be comparatively more significant than natural entry barriers such as economies of scale and sunk costs.

9.8 We recognise that previous reviews of government ICT procurement have correctly identified some of these barriers and we are aware of recent developments in procurement practices which aim to at least partially address them. However, it is currently too early to assess how effective these developments will be in increasing the 'contestability' of the market to new suppliers.

9.9 We have found that there are some significant switching costs and some important non-financial barriers to switching. The evidence we have gathered shows that the incumbency advantage may be significant for some types of products and services and that both (incumbent) supplier behaviour and incentives particular to the public sector significantly discourage switching supplier.

9.10 In combination, we believe these factors give rise to market power for the incumbent suppliers of some ICT products and services.

9.11 On the balance of evidence we have reviewed we find that, in general across the sector, suppliers may have greater market power than is implied by the comparatively low concentration of shares of supply, primarily as a result of high switching costs and entry barriers. We do not believe that buyer power is typically sufficient to counter-balance this.

Buyer conduct

9.12 Our analysis demonstrates that buyer conduct has a significant impact on the level and effectiveness of competition in this sector.

9.13 Buyers may not have access to the requisite commercial and technical expertise when procuring ICT, meaning they are unable accurately to define their ICT requirements, evaluate the best placed suppliers to meet these, and to assess and challenge supplier performance.

9.14 Independent purchasing of ICT may have an adverse effect on other buyers, increasing costs and reducing choice. Aggregating demand is one way in which problems with independent purchasing can be addressed. However, aggregation can also reduce opportunities for competition. There are benefits to both aggregation and disaggregation of demand, which must be considered carefully in individual cases.

9.15 The costs of public sector procurement processes and certain requirements placed on suppliers during these can be prohibitive and discourage suppliers from bidding for contracts.

9.16 The current system for suppliers and their staff to gain security accreditation for public sector ICT work may act as a barrier to entry and expansion.

9.17 Poor performance by suppliers impacts on the delivery of public services and value for money and, if not identified, contributes to inefficient choices by buyers. Public sector organisations are not fully equipped to monitor and challenge suppliers on poor performance or ensure that it is addressed.

9.18 There has been a tendency in the public sector towards long contracts or licences, which limits opportunities for competition. However,

longer contracts may be the most efficient option for delivering what is required in certain cases.

9.19 Public sector organisations are generally reluctant to switch suppliers. There are examples of switching by public sector organisations where the process has been smooth and the result has been lower prices and more efficient ICT, indicating that switching is not always difficult or risky. There are genuine risks in switching, but better collection and use of market data and effective exit planning can act as mitigating factors, and allow buyers to manage risks more effectively.

9.20 Buyers do not consistently collect or make effective use of market information or benchmark effectively. This reinforces information asymmetries that exist and can cause inefficient buying decisions.

9.21 Steps are being taken to address these issues. Our preliminary assessment indicates that the impact of these initiatives on competition is mixed, but it is too early to reach definitive conclusions. Nevertheless, we consider that there are additional actions that can be taken to build on and complement these initiatives.

Supplier conduct

9.22 We identified a number of different types of alleged practices across the different sectors within ICT that, if established, may prevent or impede effective competition in the industry.

9.23 There is some evidence that suppliers may be taking advantage of the information asymmetries which exist between suppliers and buyers. For example, aspects of confidentiality clauses may prevent public sector buyers from comparing prices.

9.24 We also heard complaints that, in certain cases, suppliers may have acted in ways which created additional or increased barriers to switching but also saw contrasting evidence where switching had been relatively easy and buyers had not raised any issues about the suppliers involved.

9.25 Concerns were also raised about suppliers acting in ways which restrict buyers' ability to compare prices or products and assess alternatives, which is a fundamental feature of a competitive market.

9.26 Finally some LAs expressed concerns that, in relation to pensions administration software, one supplier may be acting in ways which exploit customers who were locked-in to their products. Overall, in relation to the concerns raised about pensions administration software, it is not possible to reach any robust conclusions. It seems clear that there has not been 'customer lock-in' in the sense that LAs were compelled to transfer to the incumbent's replacement product (some LAs switched supplier). However, it seems equally clear that at least some LAs felt that their ability to switch was constrained.

9.27 As described above we assess that some aspects of supplier conduct may lead to constraints on competition, in addition to the structural characteristics and demand side issues we identified. Some of these apply to a greater or lesser extent depending on the specific product and sector.

Existing initiatives

9.28 We note that there are various initiatives underway to improve public sector procurement. In particular, we note the following:

- Improving procurement processes: Specific changes are underway to simplify public sector procurement processes and engage with a wider range of suppliers. Frameworks such as G-Cloud and Digital Services are managed by the Crown Commercial Service and 'refreshed' regularly, allowing suppliers access to public sector organisations. Large contracts are being broken down into multiple 'towers' to open up opportunities to a wider range of suppliers. In central government, clear expectations have been set regarding the length and cost of ICT contracts. In local government too there has been an increasing focus on procurement.[185] The devolved

[185] For example, recent evidence provided by both CO and DCLG ministers to the Communities and Local Government Committee suggests that local government will soon be following central government in mandating the abolition of PQQs for procurements under the EU threshold. There has also been work by LGA to develop a National Procurement Strategy

administrations have also taken significant steps to change the way they look at and procure ICT.[186]

- Improving capability: Some areas of the public sector are expanding access to relevant commercial and technical skills and expertise. Professional support from the Crown Commercial Service has improved buyer outcomes, and encouraged sharing of information and best practice. There are indications that this is helping the public sector to think differently about ICT, both in terms of the supplier base and types of solutions.

- Managing suppliers: Central government in particular has introduced measures to manage relationships more effectively with its largest suppliers;[187] to increase the understanding of the work these suppliers do and in which parts of the public sector; and to manage and monitor performance more effectively.

- Technical changes: The Government has set clear expectations about the openness of public sector ICT systems. The aim is to make these systems easier to understand and capable of being updated by different suppliers, facilitating greater reuse of existing technology. These technical changes may also enable better exchange of information either within or across public sector organisations and make it easier to switch suppliers.

9.29 Despite positive indications, many of these initiatives are at a relatively early stage and their longer term impact on competition is unclear. This is especially the case where long term contracts and legacy ICT remains in place in some parts of the public sector. Moreover, some initiatives may only extend to certain parts of the public sector or could even have an adverse impact on competition.

[186] The Scottish Government Central Government ICT Strategy published in February 2013 recommends a digital first approach, create cost effective and streamlined procurement and offer IT systems and platforms that are agile and adaptable. In 2011 the Welsh Government published their ICT Strategy for the Public Sector in Wales which is closely aligned with the UK Government ICT strategy.
[187] Primarily by designating as 'Strategic Suppliers' those companies with whom government spends c£100m or more across several departments. These suppliers were assigned a Crown Representative to lead the relationship on behalf of government. Crown Representatives initially were existing commercial directors in departments, but more recently have also been recruited externally, with most candidates having significant experience of managing suppliers from the private sector.

9.30 It is important that the public sector prepares to evaluate the impact of these initiatives at the appropriate time, to ensure what actions have worked and where improvements can be made going forward.

9.31 Notwithstanding the existing initiatives already underway, we consider there is scope for further work to improve outcomes in this sector.

Recommendations

9.32 We set out below some high level recommendations, which aim to build on and complement the relevant initiatives already underway. Specifically, we recommend that:

- **Public sector buyers should work with suppliers to address information asymmetries**, in particular considering:
  - What information should be collected about bidding, products and services, prices and supplier performance.
  - How this information can be collected in an efficient way that minimises the burden on suppliers, while ensuring that the public sector has access to comprehensive, objective data that is gathered on a consistent basis.
  - Whether there is scope for suppliers to make this information clearer and more transparent.
  - How this information can be shared within the public sector, without the risk of commercially sensitive information exchanged being shared, particularly where it may be shared between suppliers.
  - How this can be used to facilitate benchmarking, driving better value for money; to assess the intensity of competition over time and across sectors; and to evaluate the effectiveness of new proposals designed to improve the way the market works.

- **Public sector buyers should continue to seek improvements in the way they procure and manage contracts with suppliers**:
  - The OFT has highlighted a wide range of new initiatives, mainly coming from central government, that are designed to improve procurement processes and increase competition for supply. The public sector should look for ways to share experience of initiatives that work well within certain areas that could be extended to the benefit of the wider public sector.
  - Public sector buyers should consider how they could cooperate further to improve access to specialist, independent advice and shared support for tendering and managing contracts.
  - Public sector buyers should assess whether they are getting value for money by ensuring they test the market and re-tender contracts with sufficient frequency to achieve competitive prices and service levels
  - Public sector buyers should consider whether there is greater scope for standardisation of the products and services to allow them to aggregate purchases, to facilitate switching and to reduce costs.
  - In light of the introduction of new security classifications as of 2 April 2014, the public sector should consider whether technical standards and security accreditation processes, both for suppliers themselves and their staff, can be refined so as not to prevent suppliers unnecessarily from gaining the accreditation required for carrying out public sector work.
- **Suppliers should consider whether they have adequate compliance programmes in place to guard against the potential for anti-competitive behaviour.**
- **This is an important sector of the economy and the CMA should give careful consideration to prioritising an investigation into any evidence of anti-competitive behaviour.**

9.33 The supply of ICT to the public sector makes a vital contribution to the delivery of our public services and costs the taxpayer just under £14

billion a year. We believe that these recommendations build on and complement ongoing initiatives, and would contribute to improving the way competition works in this sector. The additional information gathered by buyers would allow the effectiveness of existing initiatives and recommendations to be assessed, ensuring the delivery of high quality services at a competitive price.

GLOSSARY OF TERMS

Accreditation	The process of ensuring that ICT products and services meet the correct standards in terms of security. CESG (see below) has overall responsibility for overseeing accreditation in the UK.
Application	Software that enables an end user to perform a particular task. Applications software performs functions beyond the running of the computer itself, so can be contrasted with operating software.
Audit Scotland	Auditor of approximately 200 organisations in Scotland's accounts and produces reports on value for money issues. Has published reports on ICT procurement.
Becta	British Educational Communications and Technology Agency. A non-departmental public body funded by DfE and abolished in March 2011.
Benchmark	The comparison of a service with a similar group of services in order to ascertain value for money and effectiveness.
BIS	Department for Business Innovation and Skills.
BPO	Business process outsourcing. The outsourcing of a whole business function: for example, an organisation may outsource its finance and accounting functions under a BPO contract.
Buyer	We use buyer to refer to any public sector (both central government and the wider public sector) contracting authority.
CESG	Formerly the Communications-Electronics Security Group. Sitting within GCHQ, CESG provides policy and assistance on the security of communications and electronic data, and is the national technical authority for information assurance.
CFI	Call for Information. Tool used by the OFT to gather information quickly to better understand the functioning of a market(s) to identify potential problems and decide whether further work is needed.
CMA	Competition and Markets Authority. UK Competition Authority replacing OFT and Competition Commission from 1st April 2014.
CO	Cabinet Office. Government department responsible for promoting efficiency and reform across government through innovation, better procurement and project management.
Central government	Ministerial and non-ministerial departments, executive agencies and non-departmental public bodies within Whitehall and the devolved administrations in Wales, Scotland and Northern Ireland.

Central Procurement Directorate	Part of Department for Finance and Personnel in Northern Ireland. Provides a procurement service to NI departments and other public sector bodies for a wide range of supplies and services.
CLASS	Consortium of Local Authority Superannuation Schemes. First ICT solution for the administration and calculation of Local Government Pension Schemes in 1975. Initially owned and controlled by 11 Local Authorities but transferred to Aquilaheywood in 1980s.
Cloud	Technology that allows for a 'utility' based consumption of services and products, where customers effectively rent the service they require without actually owning (for example) the underlying hardware or software licences themselves.
CloudStore	Online facility for public sector bodies to access the G-Cloud frameworks.
Competitive dialogue	A procurement procedure: a buyer broadly defines what it needs, before negotiating with a shortlist of suppliers to further hone requirements.
COSLA	Convention of Scottish Local Authorities. Representative voice of Scottish local government.
COTS	Commercial off the shelf software. Standard software products licensed to more than one buyer on a proprietary basis.
CRM	Customer relationship management software. Used in both private and public sectors: in the latter CRM software enables organisations to manage their communications with stakeholders in order to deliver services.
Customise	Create software not provided for by a COTS product in order to meet an individual organisation's business need. A supplier might build customised software from scratch, or a COTS product might be customised to better suit the needs of a buyer.
CCS	Crown Commercial Service. Executive Agency of Cabinet Office set up to centrally manage the procurement of common goods and services, improve the management of common but complex procurements and improve supplier and contract management across government.
DCLG	Department for Communities and Local Government in England.
Desktop outsourcing	Otherwise known as ‘end-user outsourcing’, incorporates management of the desktop environment (including computers and other devices), and includes operating system software installation, maintenance and updates, security and helpdesk services.

Devolved administrations	Governments in Scotland, Wales and Northern Ireland where certain powers are devolved.
DfE	Department for Education. UK government department with responsibility for infant, primary and secondary education in England.
ERP software	Enterprise resource planning software. ERP software underpins an organisation's main finance and management processes. Its functionality comprises the processes of accounting, payments and invoicing, HR and payroll and other related services.
EU directives	The international regulations covering procurement practice with which all EU member states must comply.
Framework	A procurement vehicle which through a competitive process determinesa range of suppliers able to provide a certain set of services. Buyers are then able to select one of these predetermined suppliers (through a 'call off') as a faster alternative to running a full competitive process.
G Cloud	A set of frameworks that allow the whole of the public sector to buy cloud based services on a catalogue basis.
GDS	Government Digital Service. A group within Cabinet Office responsible for transforming government digital services and delivering the government's ICT strategy across Whitehall.
LGA	Local Government Association. Cross party organisation that represents LAs in England.
LGPS	Local Government Pension Scheme. Nationwide public sector pension scheme administered locally through regional pension funds.
GPS	Government Procurement Service. Now part of the Crown Commercial Service. Executive agency of the Cabinet Office responsible for setting up a number of frameworks for use by the public sector.
Hardware	Physical computing infrastructure, which includes all types of computers (desktop, laptop, server and mainframe), as well as storage devices such as (for example, USB sticks and external hard drives) and peripheral equipment (for example, printers and toner cartridges).
Hosting	Services providing for the storage of buyer data generated by a system or webpage. Includes data centre services and hosting environments.

IaaS	Infrastructure as a service: a cloud provider owns the underlying IT hardware, which can be rented by the user during times in which they require more computational resources.
ICT	Information and communications technology. Refers to the use of computer hardware and telecommunications equipment, often in conjunction with software and a variety of related services, in order to store, retrieve, process, manipulate and share information. ICT suppliers might provide outsourced IT, hardware, communications, and software. We focus on outsourced IT and software in this report.
IMLS framework	Information management and learning services framework. A centrally managed framework providing various IT related services to educational bodies, including MIS software.
IT services	Refers to various services commonly supplied alongside, or in addition to, hardware and COTS. It includes software licensing, maintenance and support; customisation and development of software applications; hardware maintenance; systems integration; training; and consulting.
Kable	A market intelligence provider.
LA	Local Authority. Includes district councils, borough councils, city councils, unitary authorities, metropolitan boroughs and London boroughs.
Lean procurement process	A series of sourcing principles developed by government to reduce the number of days spent on the procurement process, with a target of120 days for all but the most complex procurements.
Maintenance	Services to ensure the effective running of software once it has been licensed. It has includes support, upgrades and patches.
Managed services contracts	A contract in which a supplier takes responsibility for the overall delivery of the end uesr service. A supplier providing such a contract is known as a managed service provided (MSP).
MIS	Management information system. Schools use a MIS to support their management and administration, and to fulfill data reporting obligations.
MEAT	Most economically advantageous tender. A system of evaluating supplier bids which gives weight both to price and quality of service.
Middleware	An intermediate software layer between operating systems and application software, allowing multiple applications to communicate and share/access common data. It includes database and web server products.

Module	A part of a computer program, the code of which can be distinguished from other modules and which plays a specific role in the running of the program. Modules can be changed without the need to replace an entire system.
NAO	National Audit Office. Auditor of central government departments in England and produces reports on value for money issues. Has published reports on ICT procurement.
Negotiated procedure	**A procurement procedure:** allows buyers to hold discussions with suppliers over terms and price following a PQQ and invitation to tender. Its use is heavily restricted.
NIAO	**Northern Ireland Audit Office**. Auditor of Northern Ireland government's accounts and produces reports on value for money issues. Has published reports on collaborative procurement.
NILGA	Northern Ireland Local Government Association. Cross party organisation working on behalf of Local Authorities in Northern Ireland.
OJEU	Official Journal of the European Union, where all public sector tenders valued above a certain financial threshold (according to EU legislation) must be published.
Open procedure	**A procurement procedure:** following publication of goods and services required, bids are received from any interested suppliers. There are no subsequent rounds of short-listing or negotiation.
Operating software	Software that translates requests from other types of software into data processing instructions for the computer's various hardware components.
Outsourced IT	IT services provided by a supplier which would otherwise be delivered by an in-house team.
PAC	Public Accounts Committee. House of Commons Committee responsible for overseeing government expenditures. Previously held an inquiry into improving Government procurement and ICT savings.
PASC	Public Administration Select Committee. House of Commons Committee, and is the principal select committee to which Cabinet Office are responsible. Previously held an inquiry into Government and ICT.
PQQ	Pre-Qualification Questionnaire. PQQs are used in order to assess a supplier's suitability for a contract and create a shortlist of suppliers invited to submit a final tender.

Prime contractor	The supplier which holds a contract directly with the buyer. All contract revenues initially flow to a prime contractor, which then passes some revenue to other suppliers in the supply chain.
Restricted procedure	A procurement procedure: follows the same process as the open procedure, but allows buyers to use PQQs to create a shortlist of suppliers who are then asked to submit a final bid.
RSL	Residential Social Landlord. General name for not-for-profit housing providers approved and regulated by Government.
ScotlandIS	Trade body for the digital technologies industry in Scotland.
Scottish Government	Devolved government for Scotland. Holds a range of responsibilities including procurement, health, education, justice, rural affairs, housing and the environment.
Server	Responds to requests across a computer network, allowing individual components to communicate.
SaaS	Software as a service. A cloud based service: via the web, users are able to access applications software hosted on third party infrastructure. The software is paid for on a monthly or a per-use basis.
SI	Systems integrator. Suppliers who bring various and complex components of an IT service together into a single end user experience. Often refers to a group of large IT suppliers with the resource and capability to deliver large government IT contracts.
SIAM	Service Integration and Management. The coordination of the delivery of ICT goods and services, commonly including management information and performance monitoring functions.
SIMS	The schools management information system product provided by Capita, the largest supplier of schools MIS in the UK.
SMEs	Small and medium sized enterprises. Defined by the European Commission as an organisation with fewer than 250 employees, or an annual turnover of less than €50m.
Socitm	Society of Information Technology Management. Professional body for people involved in the leadership and management of IT services for the public sector.
Software	Can be defined as any set of machine-readable code ('source code') that instructs hardware to perform certain user-specified tasks. It can be contrasted with hardware as the non-physical aspect of computing. Software can be custom-built or COTS, and can be applications software, operating software or middleware.

Subcontractor	A supplier which does not contract directly with a public sector buyer. The supplier instead receives revenue from another supplier higher up in the supply chain.
TCV	Total contract value. The value of a contract for the duration of its lifetime (excluding extension options).
Techmarketview	A market intelligence provider.
Tender	The process of taking a contract to market. A sealed bid reverse auction process is used for the tender process in the public sector: they are 'sealed-bids' in the sense that bidders are unable to observe what each other has bid, and are 'reverse' auctions since potential sellers bid to supply the buyer.
Tower model	A contractual model used for delivering large IT systems. A series of separate contracts (referred to as 'towers') provide discrete services such as end user computing or hosting, and are integrated through a SIAM contract.
Tech UK	Representative body for technology companies.
TED	Tenders Electronic Daily. The online version of the Supplement to the OJEU.
TUPE	Transfer of undertakings (protection of employment). The regulations protecting employees being transferred to a new organisation.
Value added retailers	Operate as resellers, but are distinguished by the fact that they incorporate value-added services or solutions into the software and/or hardware they re-sell.
WAO	Welsh Audit Office. Auditor of Welsh public sector organisations' accounts and produces reports on value for money issues. Has published reports on ICT procurement.
Welsh Government	Devolved government for Wales. Holds a range of responsibilities including, procurement, health, education, rural affairs, housing and the environment.
WLGA	Welsh Local Government Association. Cross party organisation working on behalf of LAs in Wales.