



National Audit Office

REVIEW

A snapshot of the Government's ICT profession in 2011

A survey of central government Chief Information Officers

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National Audit Office

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Introduction

1 This review provides a snapshot of the Information, Communications and Technology (ICT) profession in government in 2011. Based on a survey of central government Chief Information Officers (CIOs), it describes how central government departments are maintaining and developing ICT skills, capability and capacity in the current environment. The review is intended for those working in, or with, the central government ICT profession.

Leading the ICT profession in government

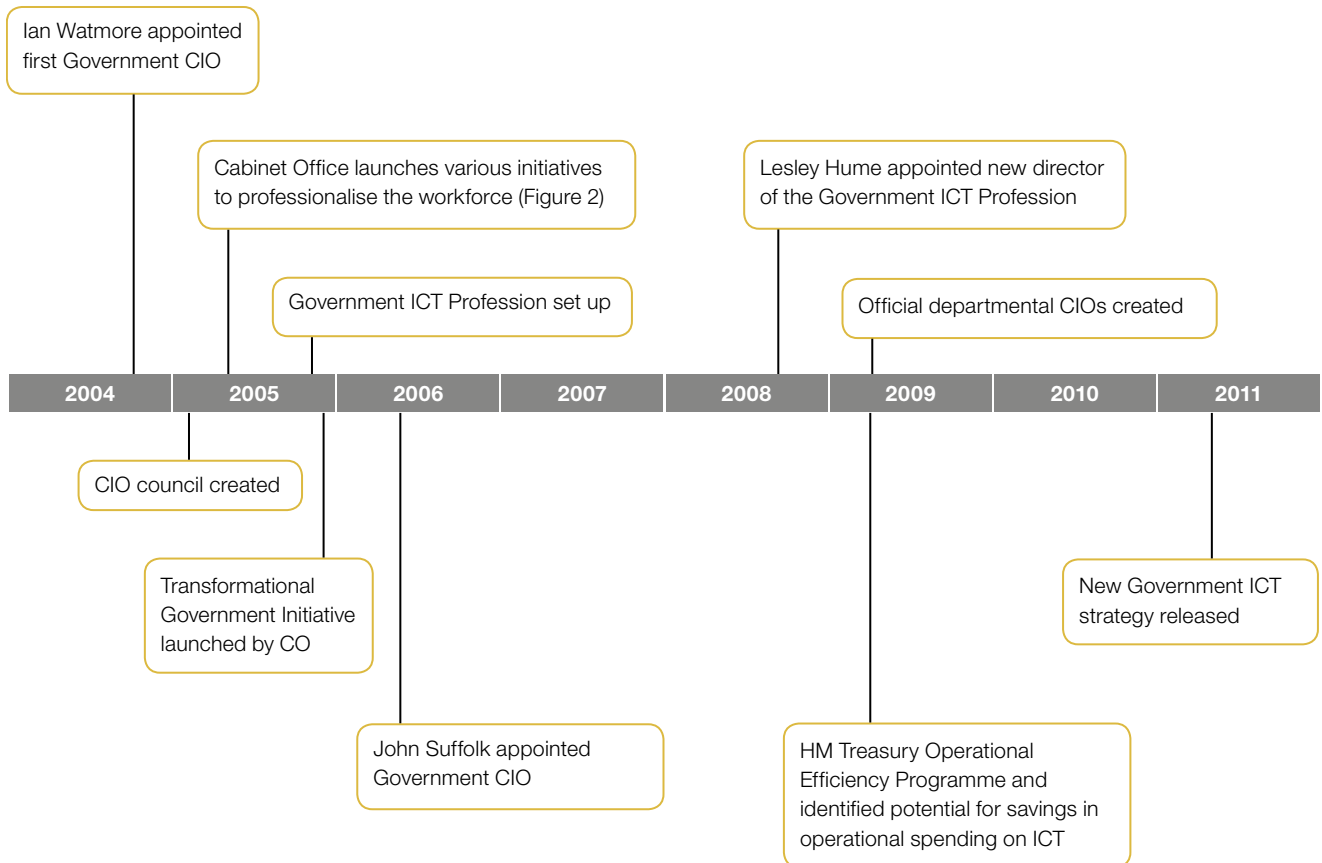
2 Cabinet Office has lead responsibility for increasing the capability of the civil service, addressing generic skills (such as leadership) as well as those relating to specific professions in government such as ICT. The Head of Profession for ICT is the Government Chief Information Officer (CIO). Cabinet Office aims to increase the professionalism of ICT within government by setting the standards, policies and guidance required so that public sector organisations have capable people and the capacity to deliver successful ICT.

3 Government is one of the most significant employers of ICT professionals in the United Kingdom. People working in government ICT include change specialists, business strategists and analysts, as well as the more traditional systems architects, software engineers, service managers and database administrators. ICT professionals are responsible for the continuous design of operating models and business processes to take advantage of rapidly evolving technology. Successful organisations will typically rely on ICT professionals to support strategic decision-making and the design of new services and not just for applications development and the running of operating systems.

4 Since 2005, Cabinet Office has taken a number of steps to establish stronger visible leadership and develop the ICT profession as shown in **Figures 1 and 2** (overleaf).

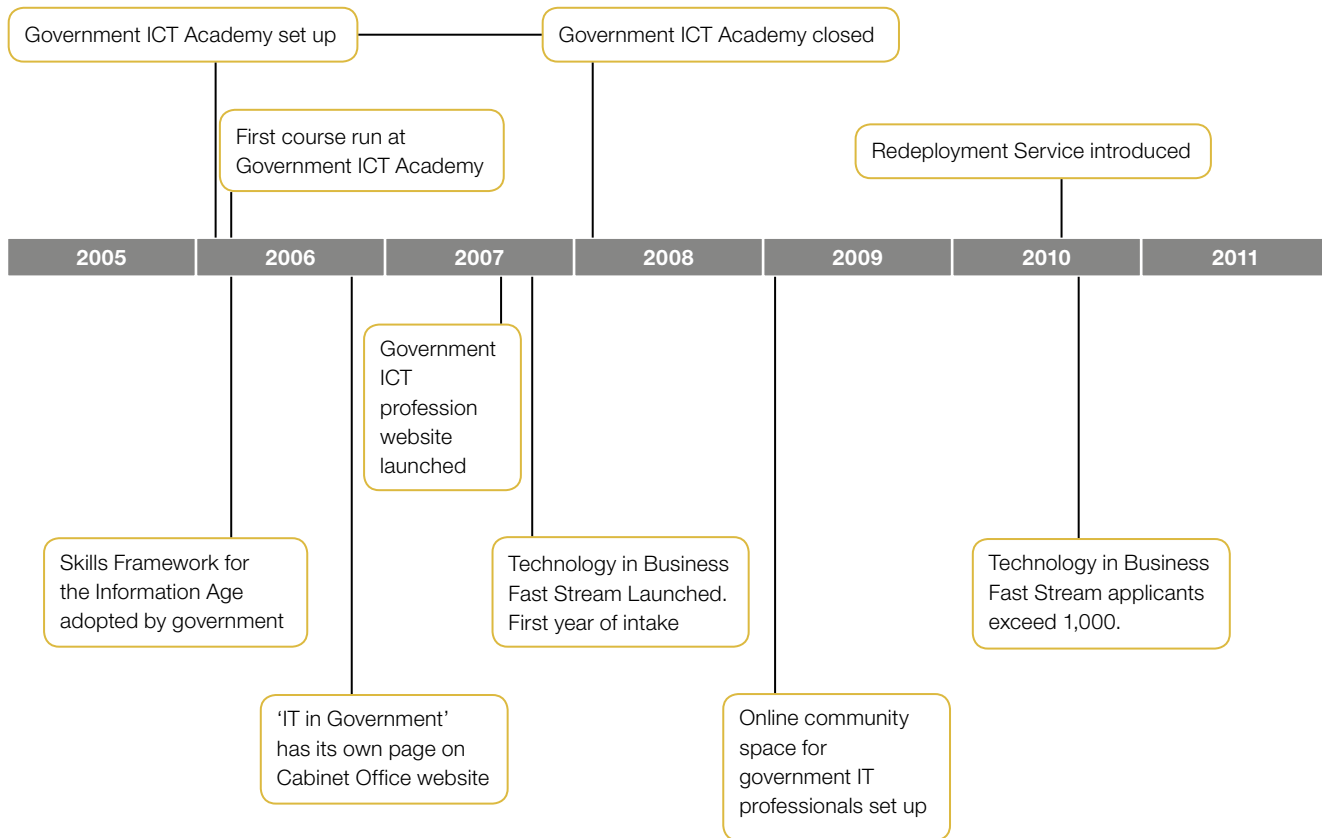
Figure 1

Establishing leadership of the Government's ICT profession



Source: National Audit Office

Figure 2
Developing the ICT profession in government



Source: National Audit Office

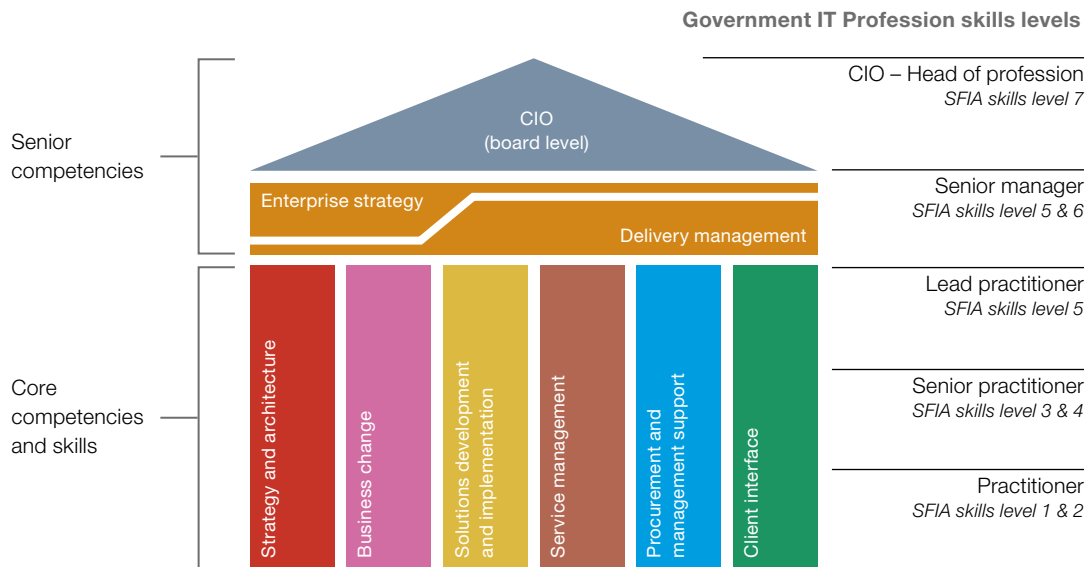
5 The key initiatives Cabinet Office now has in place to support the development of the Government's ICT profession are outlined below. Initiatives include the ICT competency and skills framework; the Technology in Business (TiB) fast-stream; the online community space for government ICT professionals; and the Redeployment Service.

The ICT competency and skills framework in government

6 In 2006-07, Cabinet Office introduced the ICT competency and skills Framework, as shown in **Figure 3**, based on the UK ICT industry standard Skills Framework for the Information Age (SFIA). The framework sets out the key competencies for ICT professionals and details the skills and attributes necessary to meet the required competencies. The framework seeks to provide a consistent approach to recruitment, performance management, workforce planning and career development in government and to support the development of networks and communities. The framework is not mandated by Cabinet Office.

Figure 3

Competency and skills framework to define government ICT roles



Source: <http://www.civilservice.gov.uk/my-civil-service/networks/professional/it/framework.aspx>

Technology in Business (TiB) fast-stream

7 In 2007-08, Cabinet Office launched the Technology in Business (TiB) fast-stream programme to develop future leaders in government ICT. By September 2011 there were 60 individuals on the programme in 10 departments. There is one intake each year to the programme and Cabinet Office reports strong competition for places. TiB is one of the most successful Civil Service fast-stream programmes with more applications for each place compared with other fast-stream programmes.¹

Online community space for government IT professionals

8 In 2009, Cabinet Office set up a dedicated online community space for government ICT professionals on the Civil Service website. This space provides access to a range of tools and services including an online directory of members; access to networks; job vacancies; training; and a knowledge bank. There are over 5000 registered members of the community space of which 1600 are active members who access the site regularly.

Redeployment Service

9 Cabinet Office introduced the Redeployment Service in August 2010 for the ICT profession. The Service was designed to allow Cabinet Office to improve ICT capability; reduce dependency on contractors; retain skills in the public sector; and support redeployment and skills matching.

¹ Comptroller & Auditor General, Information and Communication Technology in government: Landscape Review Session 2010-11, HC 757, National Audit Office, 17 February 2011.

An important time for the ICT profession

10 In March 2011 Cabinet Office published the Government ICT Strategy.² This ambitious strategy recognised that effective ICT is critical both to delivering cash savings from Government operations as well as fundamental reform of public services and economic prosperity. The capability, capacity and motivation of the government's ICT profession lie at the heart of delivering the Strategy. A number of CIOs now have new and demanding cross-government roles as well as their day-to-day departmental responsibilities to support delivery of the strategy.

11 This new push to tackle inefficiency and some of the causes of ICT project failure comes at the same time as departments face cuts in their ICT functions. Across government, ICT professionals are under pressure to do more with less, to deliver savings from contracts with ICT suppliers, to get the most from existing assets, to re-use applications and to switch to common infrastructure and services. Headcount reductions mean that many ICT professionals are juggling multiple roles and stepping into specialist positions, vacated by consultants and contractors. At the same time they are continuing to meet exacting standards of security and information assurance.

12 In response to these many challenges, the Government plans to publish a Capability Strategy in October 2011 setting out its approach to increasing ICT capability under the leadership of the new Government CIO. The capability strategy will build on current initiatives and focus on talent management, growing the Technology in Business fast-stream, as well as measures to increase the exchange of skills and best practice from the private sector.² The Strategy will also address workforce planning, as agreed at a hearing of the Public Accounts Committee in May 2011.³

NAO perspective on the ICT profession

13 This review is part of a series of NAO publications that focus on government ICT. **Figure 4** shows how this review fits with our other publications to date that have explored performance across government as well as tackling effectiveness within specific departments.

14 In our report *Information and Communication Technology in government*, we identified some key challenges the Government's ICT profession is facing.⁴

- It is still immature (both private and public sector) in comparison to traditional professions such as medicine, law or accountancy and rapidly changing. There is no core set of recognised qualifications, no regulating professional body and a very wide variety of entry points to the profession. It is also broadening as technology develops.
- Cabinet Office has faced difficulties in professionalising ICT and introducing consistency across departments. There has been no mandate to implement the skills framework and progress has been slow. The lack of management information on the real status and future needs of the profession has not helped to develop a compelling case for change or investment in the profession.
- Strategic planning for the ICT profession has not been consistently undertaken across government over the last decade. It is not clear that government has the right balance between wider strategic business skills, analytics, specialist commercial skills, service management and purely technical knowledge and operations. This has adversely affected government's performance as an intelligent customer of complex ICT and has not helped successful delivery of new public services or large-scale business change.

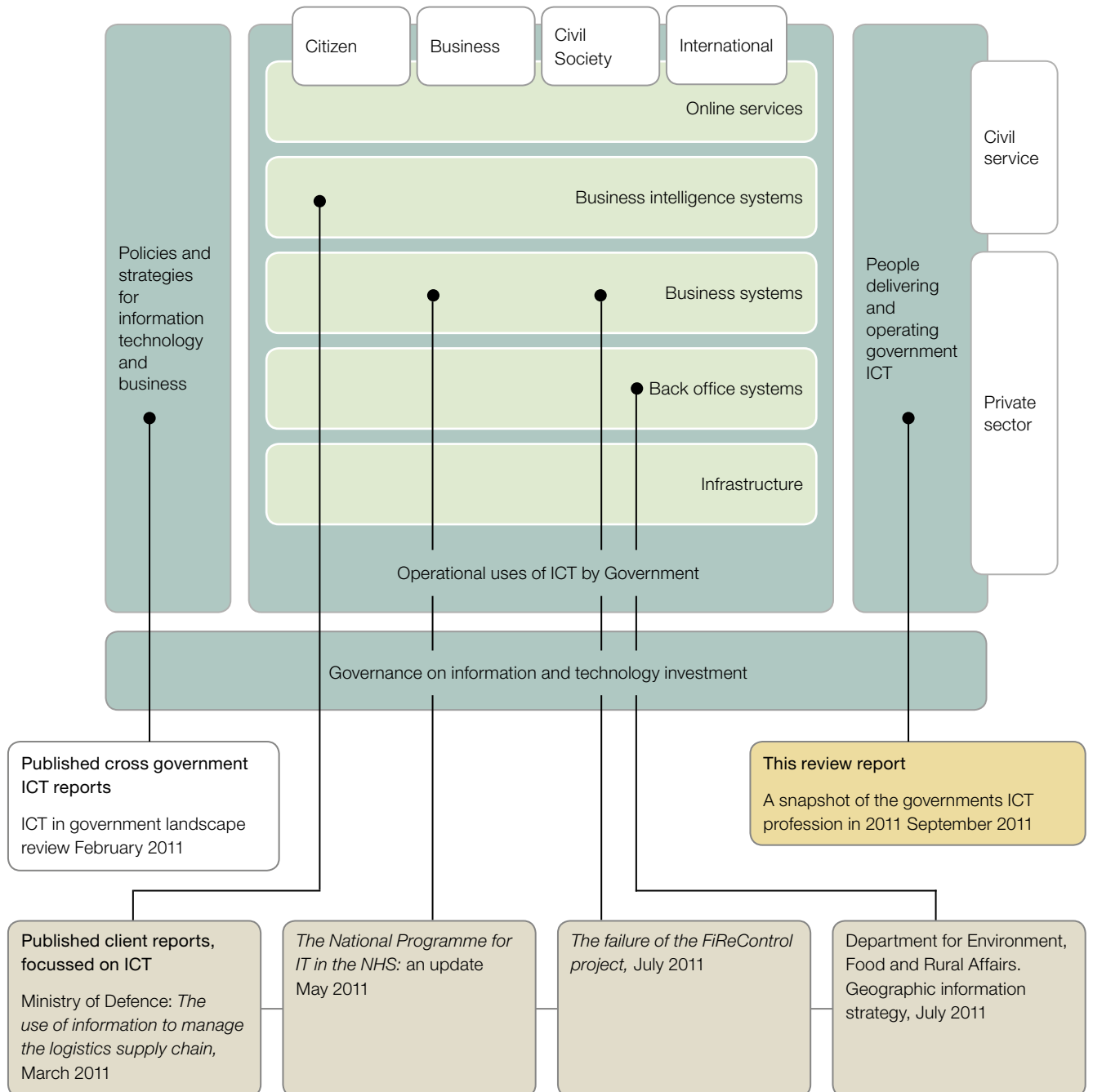
15 Our report concluded that the ICT profession is critical to government achieving value for money from all of its business change projects.

² www.cabinetoffice.gov.uk/content/government-ict-strategy

³ Committee of Public Accounts Report. Information and Communication Technology in government. Fortieth Report of Session 2010-11, HC 1050, 5 July 2011.

⁴ Comptroller & Auditor General, Information and Communication Technology in government: Landscape Review Session 2010-11, HC 757, National Audit Office, 17 February 2011.

Figure 4
NAO publications focusing on government ICT



NOTE

1 Diagram showing the key components taken from Comptroller and Auditor General, *Cross-government, Information and Communications Technology in government Landscape Review*, Session 2010-11, HC 757, February 2011.

Source: National Audit Office

Scope of this review

16 In preparing this review, we surveyed central government CIOs, or their equivalent, covering the main 17 departments. We asked the CIOs for their views on the role of ICT in their departments; the capacity and capability of their ICT workforce; and Cabinet Office initiatives in place to support them.

17 Our findings are specific to central government, but they provide new perspectives that contribute to the debate on the future capacity and capability of the wider government ICT workforce. Our findings are presented under three headings:

- Executive leadership (Part One).
- Business mindset towards ICT (Part Two).
- People and skills (Part Three).

18 We do not draw a conclusion about value for money, although we have used the results from our survey to reach a view on the overall maturity of government in its use of ICT professionals in central government (Part Four). This enables us to suggest future priorities for the Government's ICT profession if it is to support the successful delivery of the Government ICT Strategy (Part Five).

Part One

Executive leadership

1.1 CIOs will need to get the buy-in of departments to the direction and objectives of the Government's ICT Strategy if the strategy is to succeed. CIOs will therefore need sufficient standing within their departments to influence progress. We asked CIOs about their executive roles and responsibilities with departments and for feedback on the role of Cabinet Office in leading and developing ICT professionals across government.

The executive role of CIOs

1.2 Across government there is limited ICT experience at departmental board level.

Our survey identified two CIOs sitting on the main board in 17 central departments. We also found that in nine departments CIOs are not aware of any board members with ICT systems or analytics experience. One department had abolished the role of CIO in April 2011. We did find, however, that all CIOs we surveyed report to a board level executive in their organisations.

1.3 Most CIOs have worked in the private sector at some point in their careers. As shown in **Figure 5**, in six departments, CIOs have worked only in the public sector. The time individual CIOs have been in post ranges from 14 years to five months.

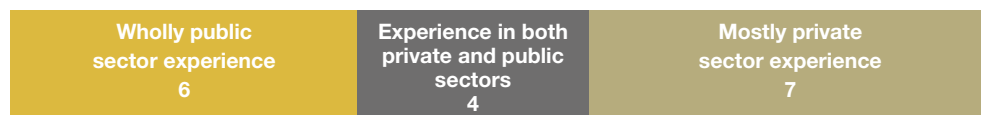
1.4 Departments recognise ICT as a profession in their organisation in different ways, though 11 departments have a Head of the ICT profession. **Figure 6** overleaf details the ways that CIOs told us that departments recognise professional skills in ICT as well as having a Head of Profession. Although CIOs agreed that departments recognise ICT as a specialist skillset, at the same time there was also the view that some departments did not particularly value or understand ICT skills.

Challenges facing ICT business units

1.5 In the current environment CIOs are facing some significant workforce and technology related issues. The key issues identified through our survey of CIOs are the recruitment freeze; capacity building; reducing cost strategically; and compliance with the spending review. The full range of issues, identified by all CIOs we surveyed, is shown in **Figure 7** overleaf.

Figure 5

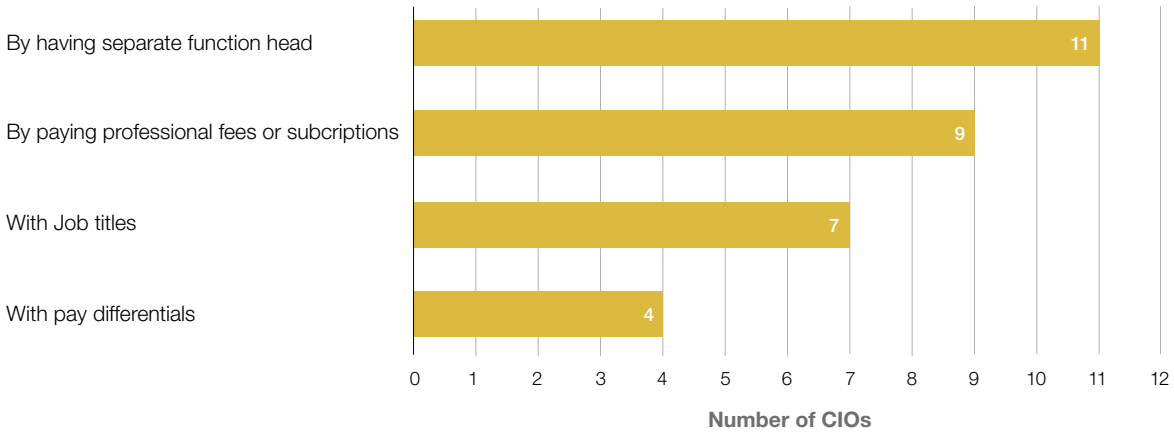
CIOs' past experience of working in the ICT sector



Source: National Audit Office survey of central government CIOs (2011)

Figure 6

How departments recognise ICT as a profession



Source: National Audit Office survey of central government CIOs (2011)

Figure 7

Workforce and technology related issues identified by CIOs (the size of the word is proportional to the number of CIOs identifying the issue)



Source: National Audit Office survey of central government CIOs (2011)

1.6 Cost reduction measures are likely to have significant impacts on ICT

professionals. ICT is an enabler of cost reduction and also a target for reduced spending. With departments planning or implementing significant cost reduction programmes, we asked CIOs about the impact of the fiscal situation on their business units. A summary of their feedback is shown at **Figure 8** and highlights key issues of staff cuts and skills gaps.

Feedback on Cabinet Office initiatives

1.7 CIOs had all used at least one of Cabinet Office's initiatives and on balance had found them all to be useful. In the Introduction we referred to a number of initiatives Cabinet Office has introduced in recent years to support ICT professionals in government. These are:

- ICT competency and skills Framework;
- TiB Fast-stream;
- online community space for government ICT professionals; and
- Redeployment Service.

1.8 We asked CIOs whether they had implemented or made significant use of any of these initiatives and if so how useful they had found them. The majority of CIOs had accessed the community space for ICT professionals, implemented the skills framework or had TiB graduates working with them as shown in **Figure 9** overleaf. They had nearly all found them to be useful.

1.9 Implementing the skills framework is taking some time. From our survey of CIOs we found that 14 departments had implemented the SFIA framework, at least in part, though three departments had no framework in place (**Figure 10** overleaf). Implementing the SFIA framework or similar had been ongoing across departments since 2004.

Figure 8

CIO feedback on the impact of cost reduction measures

We are having to re-prioritise and delay IT service enhancement projects.

A significant headcount reduction... and consequently a new operating model and a new strategic approach which will affect the roles of all IT professionals significantly.

Continual focus on cost-out and scrutiny of spend – in some ways this has helped engender a positive culture of efficiency but the constant demand for information/data is distracting. Skills shortage owing to recruitment freeze on external candidates and reduction in contractors. Requirement to broker cross-network relationships to drive out costs/savings.

Pressure to reduce costs/headcount to the lowest levels means desirable things such as career development opportunity planning, implementing SFIA etc are left on the shelf whilst we divert resource to focus on significant projects to deliver running cost savings to the dept.

... The consequences for the ICT function are not yet fully known.

The situation has been uncertain and reviews have caused some loss of momentum, but the set of future projects is now clear and we are progressing. Austerity measures have limited our ability to obtain the level of IT skills required for our portfolio.

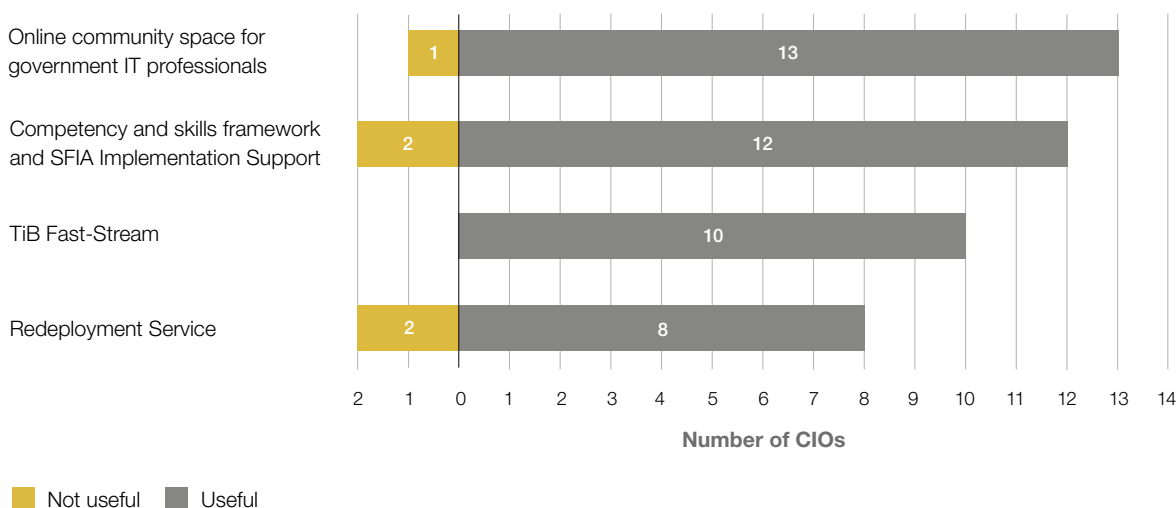
As part of our change programme, the Central Department is reducing cost by approximately 30%. IT is included within this envelope.

No money and everybody having to re-apply for jobs.

Source: National Audit Office survey of central government CIOs (2011)

Figure 9

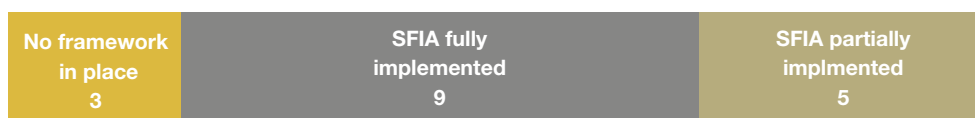
CIOs who had used Cabinet Office initiatives; and their views on the usefulness of initiatives



Source: National Audit Office survey of central government CIOs (2011)

Figure 10

The number of departments implementing a skills and competency framework



Source: National Audit Office survey of central government CIOs (2011)

1.10 Benefits of using the framework are not widely measured though most CIOs perceive it to be useful.

Five CIOs, in departments that had implemented the framework, told us that they were measuring the benefits obtained from using the framework. Benefits realised were described as:

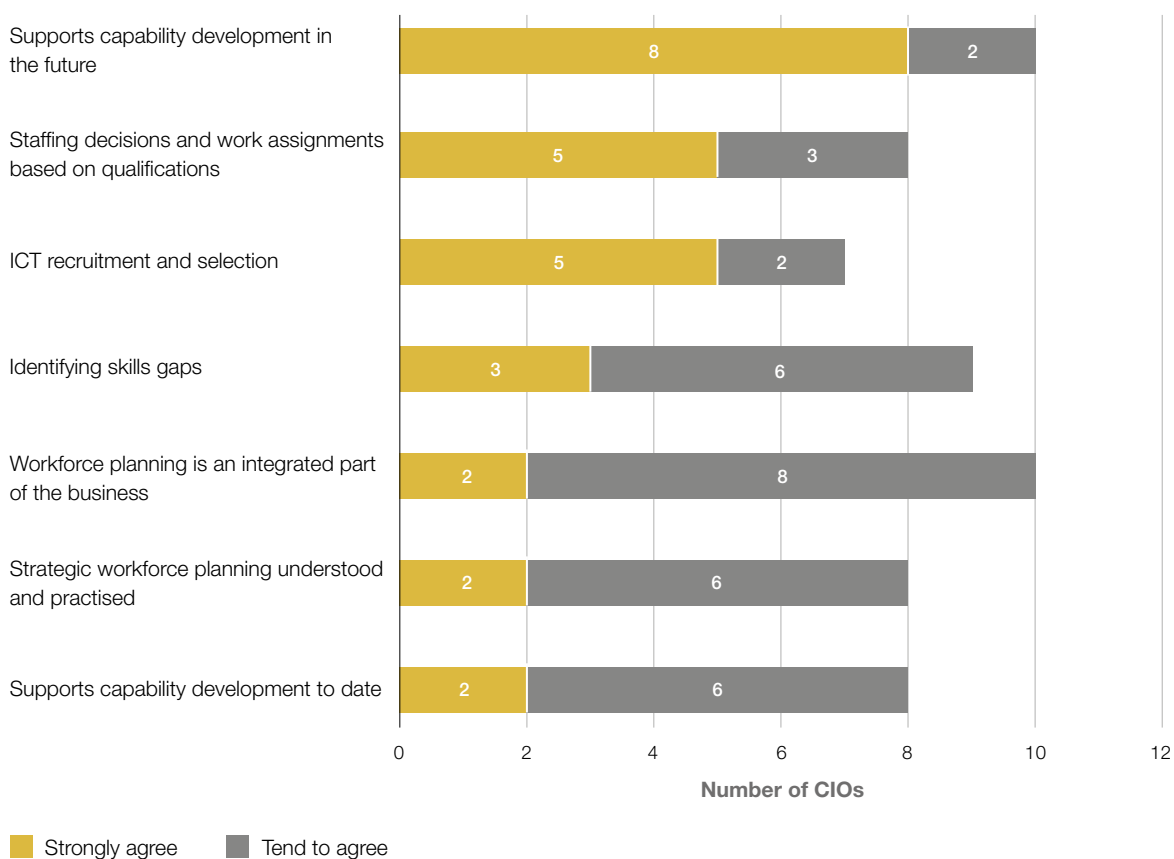
- “The framework provides a common language for IT professionalism and standards against which capability can be assessed. Other benefits depend on other initiatives being fully utilised by individuals and their line managers”
- “The ICT Transformation Programme has produced overall cost savings of £10 million, and the ICT Skills Framework has made a key contribution to this”
- “It has enabled recruitment against generic job roles”
- “(We have) saved £10,000 over 18 months”

1.11 Additionally CIOs agreed that the framework was probably delivering a range of benefits, even if they were not measuring the benefits formally. The benefits they agreed were most likely to be arising included developing capability; informing staffing decisions and identifying skills gaps (**Figure 11**).

1.12 Some barriers exist to implementing the framework. CIOs told us that budgetary constraints were a barrier to full implementation of the framework. One CIO told us that they had only partially implemented the framework and although they had plans to continue with the framework this was now a low priority. A summary of the main challenges facing CIOs in implementing the framework are shown at **Figure 12** (overleaf).

Figure 11

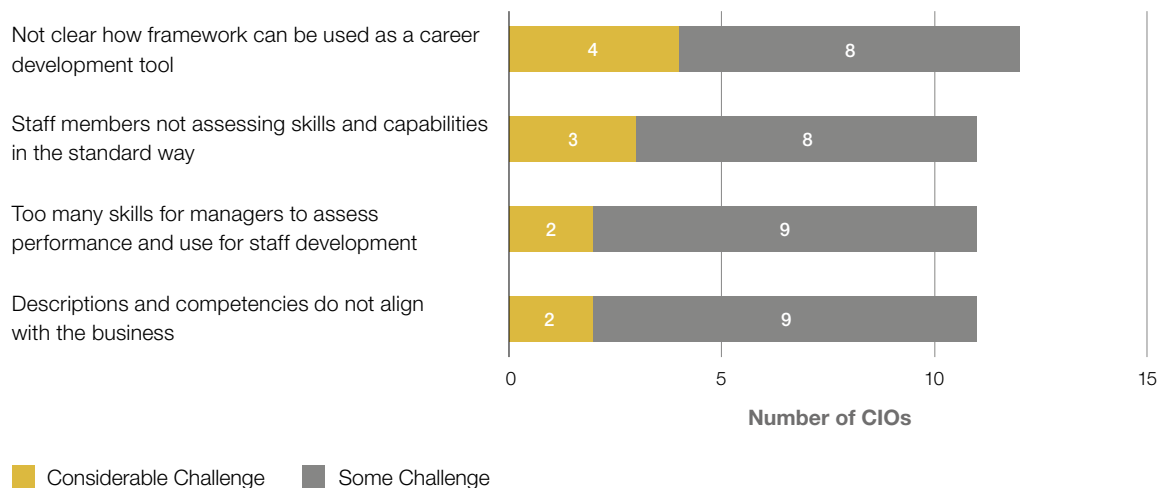
Extent to which CIOs agree on benefits arising from skills framework



Source: National Audit Office survey of central government CIOs (2011)

Figure 12

Key challenges recognised by CIOs in implementing the framework



Source: National Audit Office survey of central government CIOs (2011)

1.13 Graduates on the TiB fast-stream programme reported a varied and challenging experience.

We held two focus groups of TiB graduates to seek their views. The graduates were positive about their experiences although commented that they were not always clear about their career route. Individual career paths varied by department. They had a range of roles and responsibilities though primarily had worked in strategy and architecture, programme and project management, procurement, project assurance and account management roles. Technical experience was often limited to the department they were working in rather than meeting the requirements of government as a whole.

1.14 As shown in Figure 9, CIOs who had used the TiB programme all reported that they had found the programme useful. Graduates told us that they had received a large amount of training on the programme and some had had opportunities to broaden their skills and knowledge beyond the technical ICT function though (e.g. working in a Minister's Office, or on a corporate communications project; or on a major procurement). The graduates reported some frustrations around their role working in ICT in central government. They highlighted the problems of the impacts of policy changes on ICT; the lack of consistency between strategy and operations; and the lack of common systems across government. As one commented 'there is so much to do'.

1.15 CIOs find Cabinet Office guidance on ICT professionalism relevant and adhere to most aspects of the guidance where possible in their departments (Figures 13). CIOs told us, however, that Cabinet Office could do more to maximise its influence over departments in order to improve ICT skills in government through further guidance, toolkits, sharing of best practice and training. Some of this they suggested could be achieved through a refresh of the ICT community website.

Figure 13

Extent to which Cabinet Office guidance was relevant and used



Source: National Audit Office survey of central government CIOs (2011)

Part Two

Business mindset towards ICT

2.1 Cabinet Office has said that the use of ICT should always have a clear business purpose, such as delivering a new policy or increasing efficiency and that ICT needs to be embedded in a departments' business to achieve success.⁵ We therefore asked CIOs about the mindset of their departments towards ICT and the role that ICT plays in the business.

The role of ICT in the business

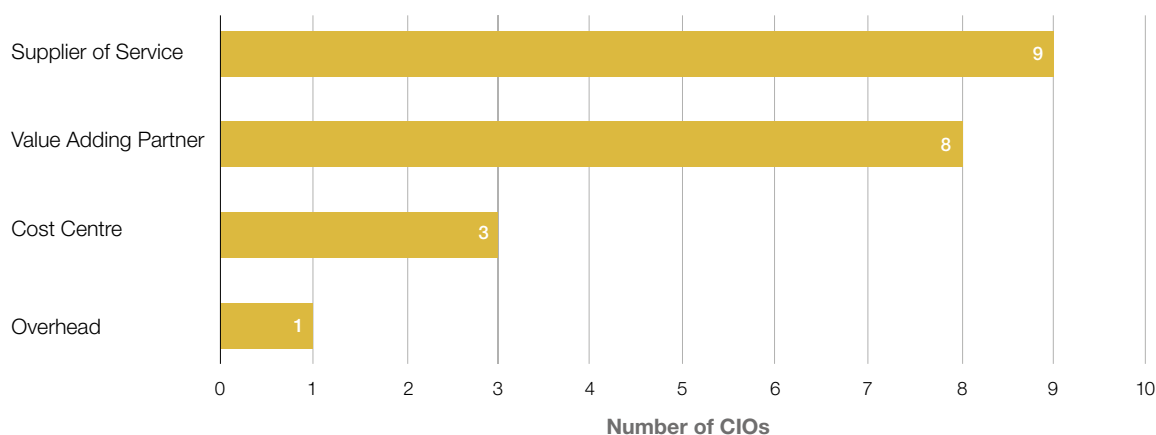
2.2 The ICT function is perceived as a partner that adds value to the business in eight departments. We asked CIOs how they thought their departments viewed ICT and their ICT business units. As shown in **Figure 14**, CIOs thought that their colleagues view the ICT function as both a partner and a supplier of services (whether in-house or outsourced), but also as a cost centre. Or as one CIO described his department's view of ICT – "at best an overhead".

The services provided by ICT

2.3 Departments provide a similar range of services with those critical to the business, around strategy and security, being delivered in-house rather than outsourced. As shown in **Figure 15**, most departments outsource ICT infrastructure and support services including administrative work and customer services and support. The majority of Departments have retained functions in-house which Cabinet Office views as strategically important to departments.

Figure 14

How CIOs think their departments perceive the ICT function



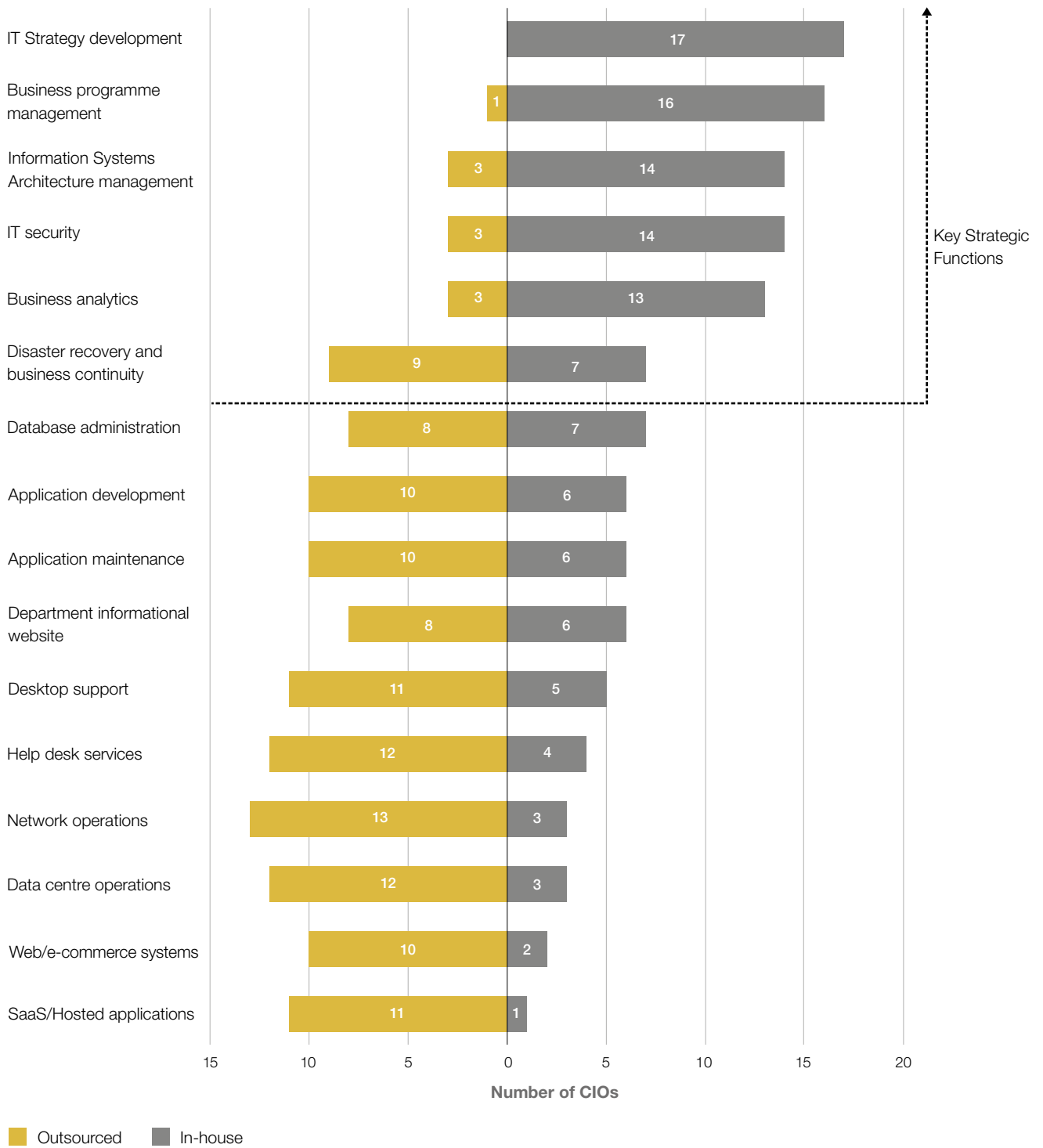
NOTE

1 Respondents could select more than one response.

Source: National Audit Office survey of central government CIOs (2011)

5 Committee of Public Accounts Report – Information and Communications Technology in government Fortieth Report of Session 2010–12 – HC 1050 5 July 2011.

Figure 15
Services provided by in-house ICT functions



Source: National Audit Office survey of central government CIOs (2011)

Part Three

People and skills

3.1 The Government ICT Strategy acknowledged that it had become too reliant on external expertise from consultants, contractors and interim staff, as well as recruiting senior ICT managers from the private sector. This had resulted in high costs and the skill base within government being eroded. These factors impact on the capability of the government's ICT workforce to successfully deliver ICT-enabled business change and services. In the current economic climate it is likely that ICT will continue to be subject to heavy spending cuts which will inevitably include job losses. Given these challenges we asked CIOs about the capacity and capability of ICT staff, barriers to recruiting staff, learning and development activities; and skills gaps.

ICT skills capacity and capability

3.2 The size and composition of ICT functions in departments varies significantly across government. The number of ICT staff working in departments ranges from over 1,000 in Ministry of Defence; HM Revenue and Customs; and Department for Work and Pensions, to less than 50 in departments such as Department for Transport and HM Treasury. These numbers relate to only those staff working in the ICT business unit, rather than ICT professionals working elsewhere within departments.

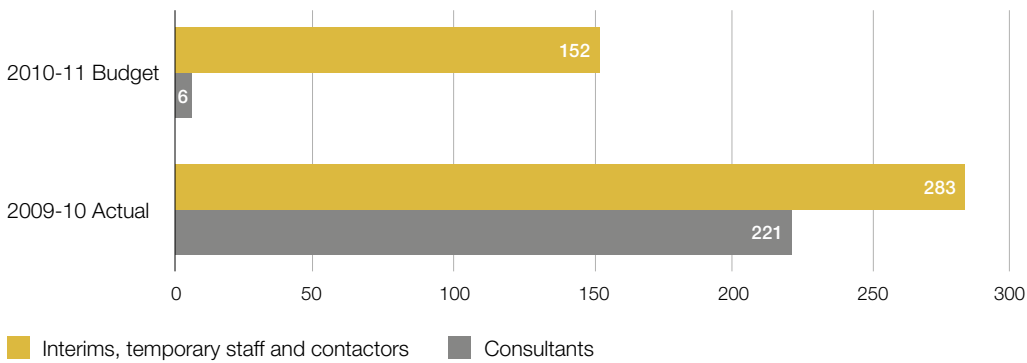
3.3 There is limited succession planning in place for ICT professionals. To protect ICT capability, departments need to have succession planning in place. We asked CIOs about succession planning in their departments. Of nine departments who were able to respond, two had succession plans in place, six had partial plans and one department had no plans.

3.4 With current budget constraints the number of interims and consultants working in departments has fallen significantly. Eight departments were able to provide us with data on the number of ICT consultants, interims and contractors working for them both in 2009-10 and 2010-11. Very few consultants are now employed in departments with many needing to be replaced by internal ICT staff (**Figure 16**). We asked CIOs how reliant they were on consultants and interims in delivering complex projects. Most CIOs were satisfied with the extent to which they were relying on external resources though in five departments CIOs considered that they were over reliant on these resources.

3.5 CIOs want support from Cabinet Office in transferring skills and knowledge from the private sector. The number of external ICT consultants has fallen significantly and skills will need to be replaced in house. We therefore asked CIOs about the role that Cabinet Office should play in supporting the transfer of skills. Although three CIOs told us that they see this is a role for departments, most others considered the responsibility for skills transfer lay with Cabinet Office. One CIO suggested that identifying the skills that need to be transferred from the private sector into central government might provide some focus for developing graduates on the TIB scheme. As consultants have already moved out of departments there is likely to be some challenge for Cabinet Office in addressing this issue.

Figure 16

Interims and consultants employed in central departments (based on data from 8 departments)

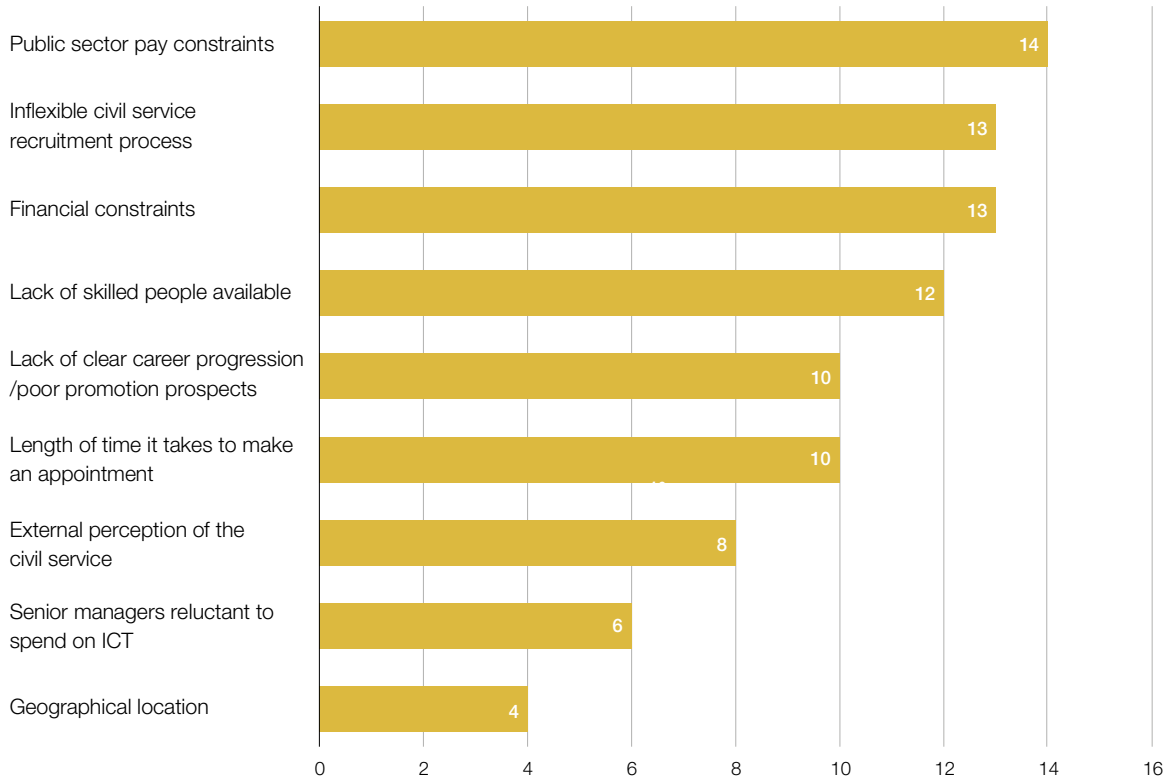


Source: National Audit Office survey of central government CIOs (2011)

3.6 Civil Service recruitment processes and pay constraints are acting as barriers to retaining and recruiting staff. CIOs told us that the key barriers to recruiting and retaining ICT staff were public sector pay constraints, the inflexibility of Civil Service recruitment processes and a lack of skills as shown in **Figure 17** overleaf.

3.7 CIOs see a specific demand for strategic and managerial roles in ICT within their departments in the future. We asked CIOs which ICT roles would be in demand over the next two to five years. As shown in **Figure 18** on page 23 demand is highest for those with business skills such as programme and project managers, procurement specialists and business analysts.

Figure 17
Barriers identified by CIOs to recruitment and retention



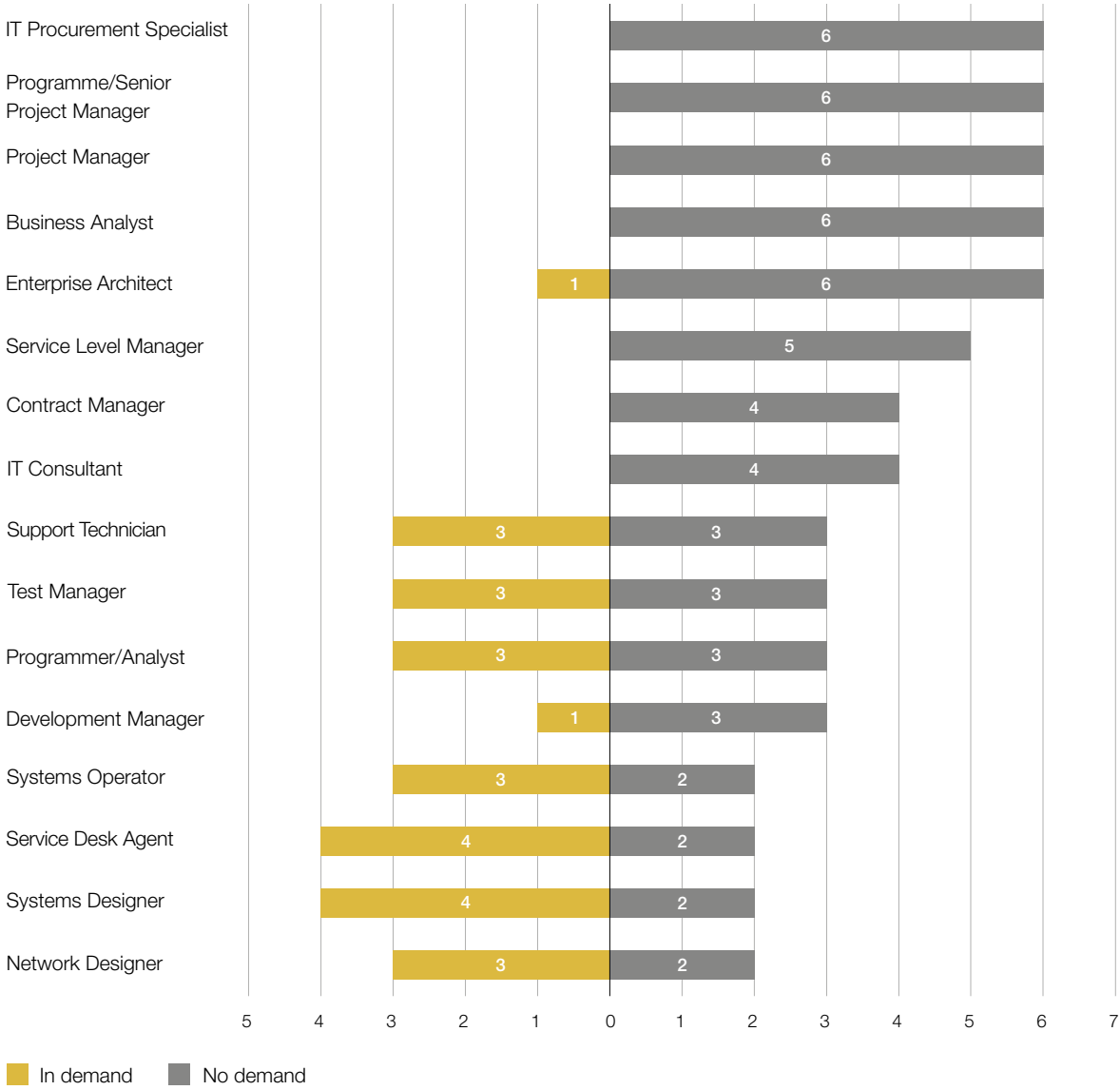
Source: National Audit Office survey of central government CIOs (2011)

3.8 CIOs identified gaps in ICT capacity and capability that could significantly affect ICT services in their departments.

CIOs identified a number of skills that needed to be improved in their business units. These skills included architecture analysis and design, information security and business analysis on the technical side. CIOs also identified gaps in business skills including managing contractors and stakeholders and on programme and project management (Figure 19 on page 24). The NAO’s recent report *Identifying and meeting central government’s skills requirements*⁶ identified gaps in ICT skills as a significant issue in central government. In the report 40 per cent of senior staff from across government identified ‘very’ or ‘fairly’ significant gaps in ICT skills in their organisations.

6 Comptroller & Auditor General, *Identifying and meeting central government’s skills requirements* Session 2010-12, HC 1276, National Audit Office, 13 July 2011

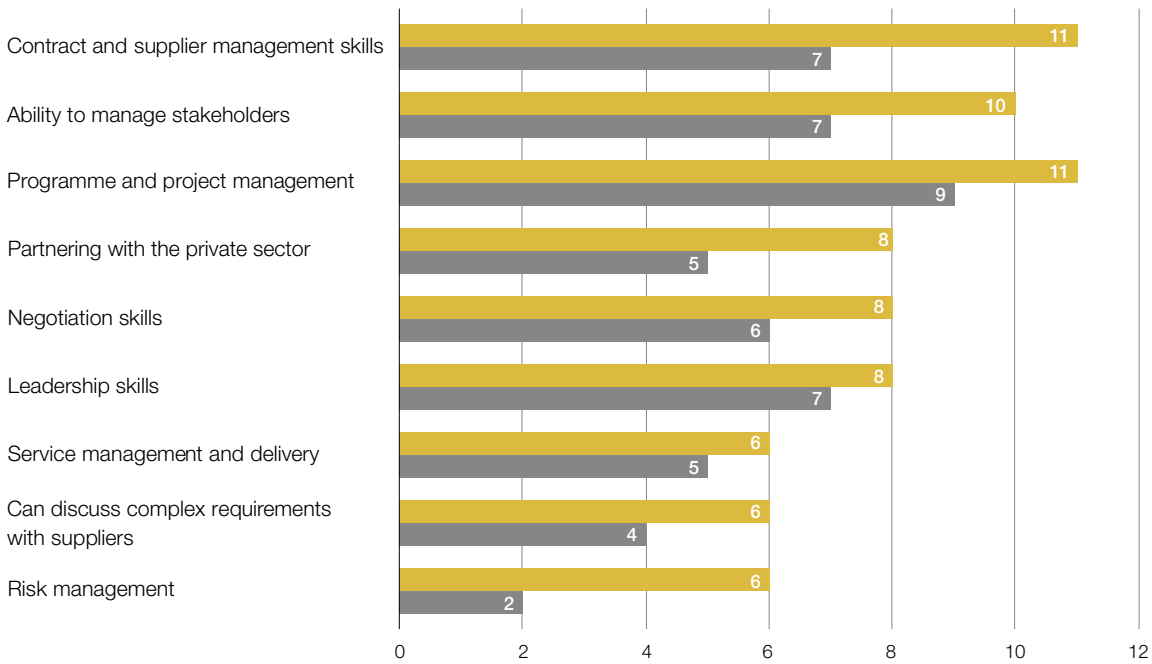
Figure 18
CIOs perceived demand for ICT professionals in government



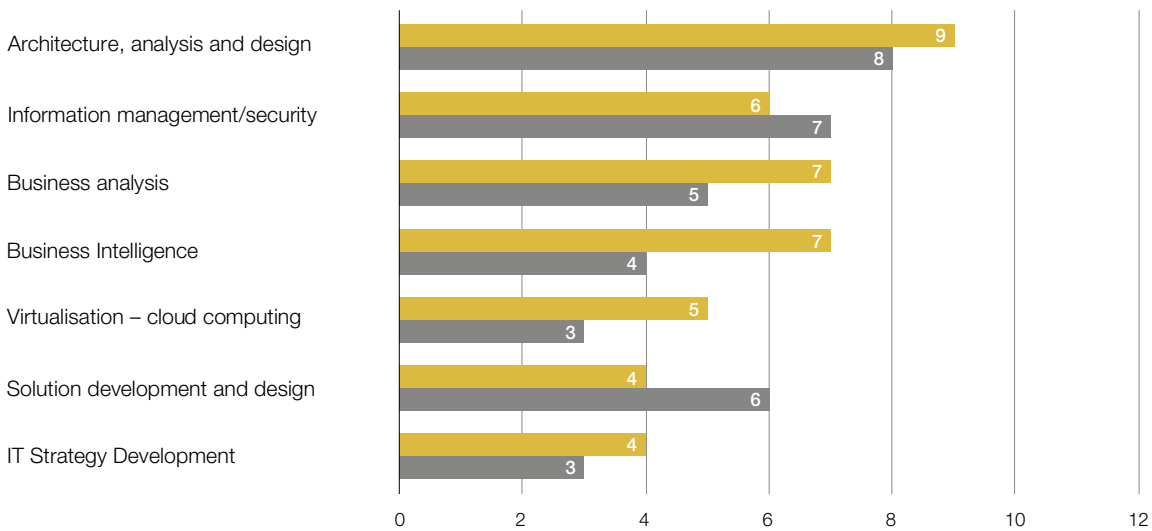
Source: National Audit Office survey of central government CIOs (2011)

Figure 19
CIOs' perceptions of capacity and capability gaps in their departments

Business skills



Technical skills



■ Capability ■ Capacity

NOTE

1 Number of departments with perceived skill gaps shown.

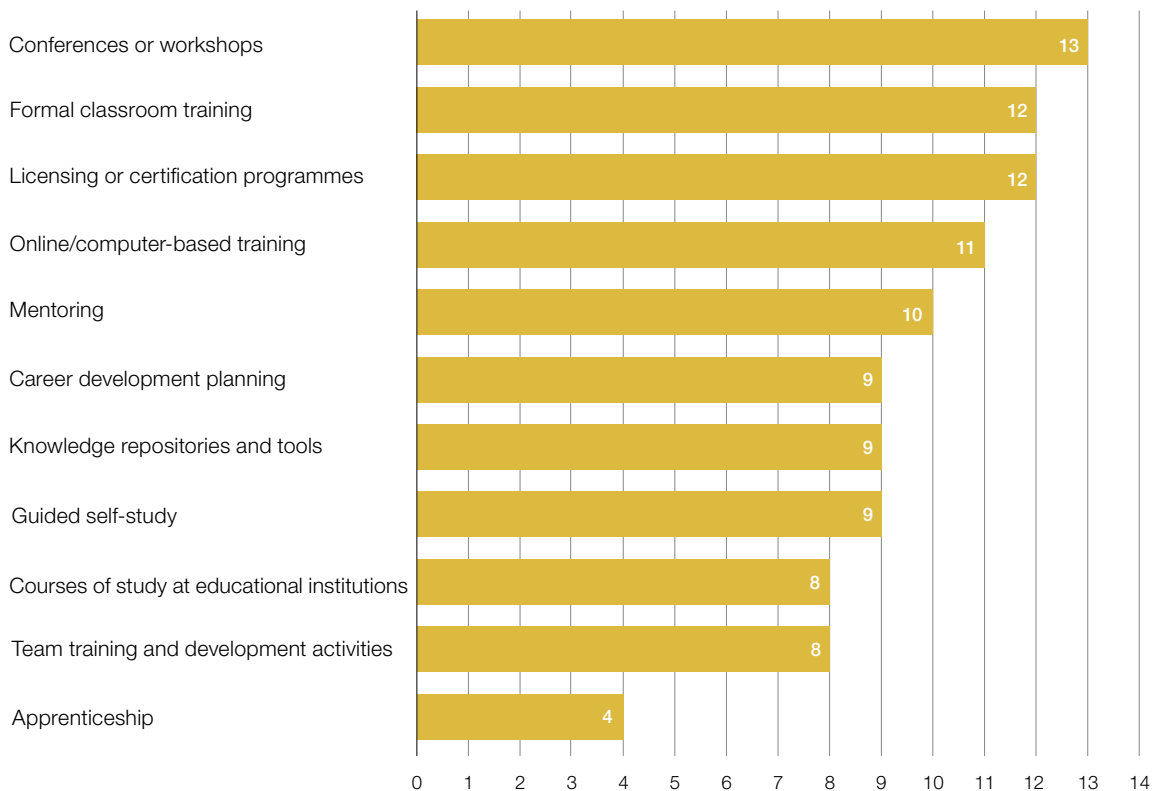
Source: National Audit Office survey of central government CIOs (2011)

3.9 Departments use a range of approaches to develop ICT capability. The main development activities for ICT professionals are conferences, workshops and formal classroom training as shown in **Figure 20**. Knowledge transfer also takes place through mentoring and team development activities. Ten departments measure the impact of activities on improving skills. They do this through satisfaction surveys or performance management systems, which focus on the impact of the activity on the individual. Departments do not tend to focus evaluation on measuring the impact of ICT training activities on the business. This is consistent with the NAO report on skills in central government.⁷ The report found that the effectiveness of learning and development in central government is not routinely evaluated by departments and also tends to focus on individual rather than business benefits, where it does take place.

3.10 There are few examples of workforce planning activities in departments. CIOs told us that some departments understand workforce planning and seek to integrate it into their business planning cycles, though there were few practical examples. One CIO described workforce planning for ICT staff in their department as “relatively immature” while others told us that limited resources were available for such activities.

Figure 20

Activities provided by departments to develop ICT capability



Source: National Audit Office survey of central government CIOs (2011)

⁷ Comptroller & Auditor General, Identifying and meeting central government's skills requirements Session 2010-12, HC 1276, National Audit Office, 13 July 2011.

Part Four

Overall maturity

4.1 Gartner, the information technology research and advisory company, has developed an IT maturity matrix for an organisation. The matrix defines five levels of maturity and focuses on seven essential dimensions of ICT maturity. Our work has provided us with sufficient evidence to make a judgement on three dimensions of this matrix.

- executive leadership of ICT;
- the business mindset towards ICT; and
- ICT people and skills

4.2 **Figure 21** shows our view on the maturity that government has reached overall for each of these dimensions.

4.3 We acknowledge that maturity levels will vary across departments and across programmes within departments. At the same time we are also not advocating that every departmental ICT function in central government should be aiming for the top level of maturity for each dimension. Instead departments should focus on the target level of capability that they need to reach to meet the business demands of their department while complying with the new Government ICT Strategy.

4.4 This maturity assessment, at the strategic level, demonstrates that there is more the Government and Departments could do to:

- raise the influence of CIOs in departments;
- move the ICT profession from a support service or overhead to taking an active or lead role on business decisions; and
- develop people to a level so that they become leaders and bring ICT into the heart of the business.

Figure 21

NAO assessment of maturity levels of central government across three of the Gartner key domains for ICT functions

	Executive leadership	Business mindset toward ICT	People and skills
Functional 1	The CIO is not a member of the senior leadership team and does not report to a board-level executive.	IT is a provider of functional infrastructure.	IT skills are focused on "run the business" requirements.
Enabling 2	The CIO is not a member of the senior leadership team but reports to a board-level executive.	IT is a reactive service provider that responds to business plans, wants and needs for IT.	IT people and skills align with the application systems and technology solutions IT supports.
Contributing 3	The CIO is a member of the senior leadership team and reports to a board-level executive.	IT is a proactive service provider working with business leaders to improve business performance.	IT blends business and technical skills. Industry skills are valued.
Differentiating 4	The CIO reports to the CEO and is a member of the most senior management team.	IT is a leader in using technology and information to differentiate the business.	IT has good knowledge of business strategy, operations, products and services. Some cross-organisation skills are also available.
Transformational 5	The CIO is a member of the executive leadership team. The CIO influences the board of directors or may be a member of the board.	The IT team is composed of innovators and experts in the leading-edge application of technology.	IT people and skills are comparable to those of business executives and leaders. Leadership of transformational technology is valued.

■ NAO assessment of level of maturity

Source: adapted from Gartner, September 2010, *IT Score for CIOs and Senior Executives: "Maturity at a Glance"* Approved for use by Gartner until March 2012

Part Five

Priorities for the future

5.1 The ICT skills agenda is a major challenge in the current environment. At the same time taking the ICT profession to a new level of maturity is critical to delivering the Government ICT strategy.

5.2 Based on our view of the current maturity of the ICT profession in government (Part 4) from the findings of our survey of CIOs, we have identified the following priorities for the Government's ICT profession. Given the pressure on budgets these priorities focus on Cabinet Office and government ICT professionals building on existing initiatives and work in progress rather than developing new activities.

5.3 The highest immediate priority for Government is to continue to **motivate and reinforce the value of its ICT profession**. As the pressure mounts to save money and innovate in technology-intensive services, staff need to feel supported and valued as financial rewards diminish. ICT leaders need to dig deep to manage their teams whether in development projects, service management or operations. CIOs themselves need to continue to reinforce their standing in departments ideally by sitting on departmental boards or, if this is not appropriate, finding other ways to develop their influence so that ICT is properly included in strategic and business decisions.

5.4 Departmental ICT staff may benefit from a **greater sense of belonging to the Government's ICT profession**. Cabinet Office has taken some significant steps over the last five years to create the Government's ICT profession. It has built some of the essential infrastructure and processes with a skills and competency framework, an online community space, the TiB fast-stream programme to develop future leaders and a redeployment service in place. However, the effect of these initiatives has been hard to measure and our survey suggested the impact has been limited. With a stronger sense of belonging to a cross-government ICT profession there may be more collaboration between operational and project teams across government, which should increase the benefits from cost reduction measures.

5.5 An effective community of practice is always underpinned by an active **communications network led by the profession for the profession**. Cabinet Office provides a web-space for ICT professionals to come together and share best practice, and this was received positively by the CIOs we surveyed. However, active membership needs to increase. A lot of the work that is underway as part of implementing the Government ICT strategy would provide good content for the website. The website would also be a suitable platform for keeping the broader ICT community across government aware of progress on implementation. Building up the online resources will enable the profession to collaborate more and will be a cost effective approach to increasing knowledge transfer.

5.6 ICT leaders will have to **find innovative ways to develop skills to fill roles**. While the challenging economic climate makes establishing a profession more difficult, government cannot ignore the capability gaps because it is so reliant on ICT to conduct its future business. CIOs all described the same business and technical skills as being in short supply, including supplier management and architecture design and analysis. The gaps have the potential to widen as training budgets are reduced. We have seen examples, however, where learning strategies use more novel ways than formal classroom training to develop ICT talent, including structured on-the-job experience and mentoring. Greater collaboration across departments and with suppliers might also help to make optimum use of the skills that the profession already has to offer.

5.7 Government must pay **more attention to workforce planning, deployment of staff and knowledge management**. At a time of significant flux and change in people – within the departments' workforce and their ICT suppliers and as a result of the recent loss of consultants and contractors – there is a need to manage knowledge transfer effectively. Where necessary, government must find practical ways to recover lost skills. The need for workforce planning at tactical as well as strategic levels has never been greater. A government-wide approach would limit exposure in key risk areas.

5.8 Cabinet Office needs to **market the profession to increase the understanding of its value and its credibility** within the civil service. Increased government-wide awareness of what it takes to deliver ICT-enabled business change and how to use the profession in designing new policies and services or machinery of government changes at an early stage will bring benefits. With more services being delivered through technology channels, there is a real need to ensure that service delivery is being driven by a skilled and capable ICT workforce.

Methods

1 Survey of central government Chief Information Officers (CIOs)

- Opinion survey of Chief Information Officers (CIOs) in central government sent to 17 main departments. All departments responded.
- Quantitative survey to collect ICT staff and financial data.

2 Document review

- Reports from the NAO and the Committee of Public Accounts.
- Documents from e-skills UK, the British Computer Society, Intellect, Gartner, and the online community space for government IT professionals which were in the public domain.

3 Focus Groups

- Two focus groups with graduates on the Technology in Business Fast-stream programme.

4 Interviews and conferences

- Interviews with Cabinet Office, e-skills UK, the British Computer Society, the Australian Computer Society and the Canadian Information Technology Professionals to understand the background to establishing an ICT profession.
- Attendance at the Westminster Forum session on Essential skills for the ICT industry in February 2011.

Where to find out more

The National Audit Office website is
www.nao.org.uk

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