HM Government

Government ICT Strategy

Smarter, cheaper, greener

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Smarter, cheaper, greener

December 2009

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MINISTERIAL FOREWORD

Back in 1885 the Civil Service bought its first-ever typewriter, despite stiff resistance from in-house calligraphers. About 20 years later the Government took another leap into the unknown when it invested in its first telephone, a mere three decades after the technology was first demonstrated.

Today, of course, much has changed. Modern life runs on technology, and government is no different. From computerised payment of benefits and tax credits which saves £1 billion in administration costs to online tax returns being processed at 10 per second, from broadband in all secondary schools to the hundreds of millions of X-rays and images that have been digitised in our hospitals, technology is being used to make public services more effective and more efficient.

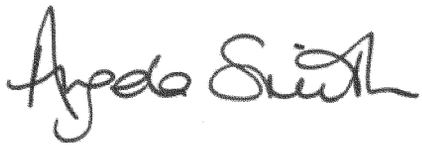
We have achieved much and there is always more we can do. We're dedicated to providing high-quality public services. Now we're moving on to the next stage, maintaining those high standards while making the systems that underpin them more efficient so that we maximise the value of every penny we receive from the taxpayer.

We need to remove unnecessary overlaps between departments and avoid costly duplication of technology. We need to standardise, simplify and move to a more shared and open world, ensuring that we continue to deliver local solutions to local needs at a price we can all afford.

Every year, the public sector spends some £16 billion on information and communication technology (ICT); this strategy sets out our approach to reduce this, over the life of the strategy, in line with our commitments in the Operational Efficiency Programme – meaning annual savings in the region of £3.2 billion.

But we shouldn't just think about the financial cost of technology – there is also the environmental cost. ICT is one of the causes of climate change, with worldwide computing industry emissions equalling those of the airline industry. We've already led the world by adopting an environmentally friendly approach to ICT and our commitment to greener technology runs through this strategy, helping us to build a more sustainable future.

We have already used technology to revolutionise public services and this innovation will continue. But we also need to adapt to the changing world and changing circumstances. We need to make the way government works smarter, cheaper and greener, and this strategy sets out how we'll use technology to achieve just that.



Angela Smith
Minister of State for the Cabinet Office

1. INTRODUCTION

In October 2005, the Government published *Transformational Government – Enabled by IT*, a strategy which set the public sector IT agenda for the next five years. The strategy focused on three broad areas where improved use of information and communication technology (ICT) could enable transformed service delivery: putting the citizen at the heart of what we do, shared services and professionalising IT-enabled business change.

The newly appointed Government Chief Information Officer (CIO) drove implementation of the strategy through the CIO Council (CIOC). As the Transformational Government annual reports[1] have highlighted, the strategy has been delivered successfully and is now widely copied around the world. Substantial progress has been made in its implementation and onward development.

Now, the CIO Council has developed a refreshed ICT Strategy for Government, building on previous policy announcements to deliver a high-quality ICT infrastructure. This is a substantial strategy for government. Transforming services against a backdrop of economic pressure requires leadership and a fundamental change in the way we specify, procure and deliver ICT to the public sector. It provides a common approach to ICT that maintains local accountability and control over implementation to meet unique delivery and business requirements.

The need to continue to transform public services and to use ICT to enable transformation of the way the public sector runs and operates has become more pressing. As the UK public sector has responded to increased and increasing demand within this complex technology arena, it has built an ICT infrastructure that in many instances duplicates solutions across different areas of government. The ICT Strategy will ensure that this infrastructure now goes through a process of standardisation and simplification, to create a common infrastructure designed to enable local delivery suited to local needs. Delivery will increasingly be through partnerships between the public, private and third sectors, and this strategy focuses on providing the greater interoperability necessary to underpin this model.

The strategy applies to all of the UK public sector, whether central government, local government, wider public sector or devolved administrations. It is aligned with the *Transformational Government* and *Digital Britain*[2] strategies, the *National Information Assurance Strategy,* the *Cyber Security Strategy,*[3] *Building Britain's Future,*[4] *Excellence and fairness,*[5] the *Operational Efficiency Programme*[6] (OEP) and the recommendations of the Power of Information Task Force.

1 See www.cabinetoffice.gov.uk/cio/ for the annual reports from 2006, 2007 and 2008.
2 Department for Business, Innovation and Skills/Department for Culture, Media and Sport (2009) *Digital Britain: Final Report*
3 Cabinet Office (2009) *Cyber Security Strategy of the United Kingdom: safety, security and resilience in cyber space*
4 HM Government (2009) *Building Britain's Future*
5 Cabinet Office (2008) *Excellence and fairness: Achieving world class public services*
6 HM Treasury (2009) *Operational Efficiency Programme*

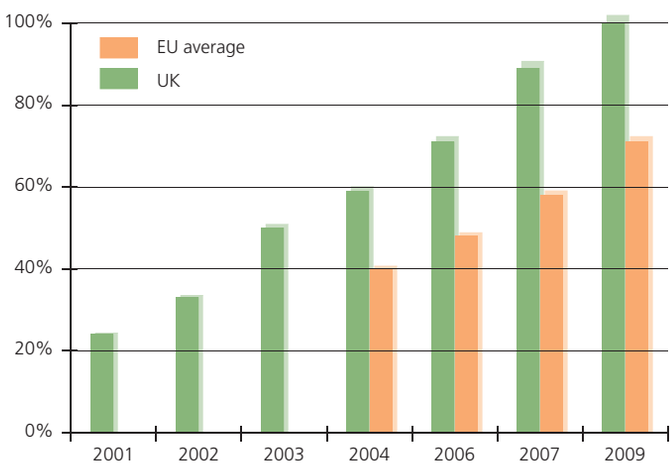
2. UK PUBLIC SECTOR ICT IN THE 21ST CENTURY

UK public services have moved on radically since 1994, when the Cabinet Office announced that all central government and agency websites would be routed through open.gov.uk. Since then, the use of technology to deliver improved public services has adapted and developed in a way that could never have been foreseen in the mid-1990s.

But while technology has played a key role in improved service delivery, this has been matched by a greater understanding of its potential. Expectations have changed, as have demands – and these changes have made it easier for government not only to carry out its day-to-day business but also to help those who most need help. Technology can be used to provide access to citizens who might otherwise be excluded from services delivered using traditional methods – for example, using websites to inform teenagers/children about the dangers of drugs (FRANK – talktofrank.com), or providing online learning for young people excluded from mainstream education through NotSchool.net.[7]

While the UK is not alone in its successful embrace of ICT, we are one of the leaders in using technology in the public sector. Delivery of citizen-based services[8] is benchmarked by the European Commission approximately every 18 months. Between 2004 and 2009, the rate of growth in the percentage of fully online services[9] delivered across the UK has exceeded the European Union (EU) average. Today, 100% of citizen-based services in the UK are fully online, compared with the EU average of just 71%.

Fully online



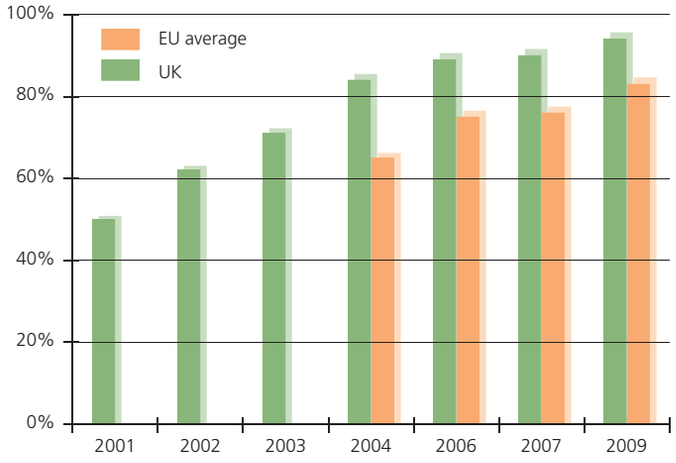
The EU also measures the overall development of online services, towards the ultimate goal of a proactive automated service. Against these criteria, by 2009 the UK had reached 94% sophistication compared with the EU average of 83% (see chart opposite), ensuring that most citizens and businesses can make use of services online in addition to other routes.

7 NotSchool.net is a national project, originally commissioned by the Department for Children, Schools and Families. It provides alternative education provision for young people who cannot cope with traditional schooling, home schooling or other specialist units (source: *The Economic Case for Digital Inclusion,* PWC 2009).

8 A citizen-based service is a service specifically focused on citizens rather than businesses or other public service recipients.

9 A 'fully online' service is defined by the EU as one that enables two-way interaction between government and the citizen. No survey was undertaken by the EU in 2005 or 2008. Measures are taken from a sample of government services.

Online sophistication



2.1 Public sector transformation

As noted above, demand for online public services – and expectations of service quality – continue to increase. Citizens and businesses expect the same levels of access and personalisation from public services as they receive from leading private sector organisations such as Amazon and Tesco. They expect to be able to access services from multiple locations and in ways that suit them rather than the providers.

The UK public sector has made real progress in responding to this increased demand, changing processes for interacting with government but also changing the law to recognise the clear shift to an online world.

- Thanks to changes in business legislation, companies can now send information to shareholders – such as their annual report – by email rather than hard copy. Some 75% of firms have taken this option, reducing printing costs and the impact on the environment.
- The Department for Work and Pensions has transformed its operations through ICT. In 2008, it issued 3,000 State Pension forecasts electronically every working day, while employers were able to submit 15,000 job vacancies online each day. This in turn freed up staff to focus on serving customers: advisers conducted 45,000 customer interviews each day, leading to around 5,000 people finding work every day.
- More than 90% of businesses now incorporate with Companies House electronically, and over 85% submit their annual returns online. In 2007/08, this equated to 3.1 million online transactions.
- The Highways Agency now provides traffic information via a 24-hour automated telephone service, its website and alerts to registered mobile phones.

2.2 ICT and the economy

ICT is also an integral part of the UK economy, employing about 1 in 20 people. As well as over 100,000 ICT companies, many of which sell to the public sector, it is estimated that there are over 35,000 IT professionals in the public sector after outsourcing. Research from e-skills indicated that the public sector in total employs over 10% of the UK's workforce, at some 135,000.

As well as being the largest employer of IT professionals in the UK, the public sector is also a significant customer to ICT vendors. The public sector spends approximately £16 billion per year on technology, which accounts for 4.6% of overall public sector expenditure (as detailed in the recent independent benchmarking undertaken by the *Operational Efficiency Programme*).

This investment is making a significant difference to productivity levels: half of Europe's productivity gains in the last few years have been attributed to ICT investment, and the gross value add per ICT job is £81,400, some 2.5 times higher than the UK average. This may be attributed to the high-level skill set of those employed within ICT: 55% of IT professionals are qualified to at least Level 4, nearly double that of the UK working population.

2.3 The impact of emerging technologies

Technology continues to change at a rapid rate, and emerging technologies will have a dramatic effect on how public sector ICT is delivered. For example, citizens and businesses are likely to notice an increase in the use of interactive tools, providing opportunities for empowerment and participation, promoting transparency and improving services. Internally, the use of new technology will enable different business models to be developed for the procurement, use and reuse of applications. Organisations will be able to take advantage of a cross-public sector software licence that is assigned to the Crown and transferable across the public sector, adopting a 'pay as you go' model and paying only for consumption or use of services.

In the longer term, which in ICT terms means between 2015 and 2020, other technologies will begin to play a role. Location-aware services and developing technologies that enable more energy-efficient operations are likely to play a large part in shaping government's future ICT infrastructure, assets and processes. Some technology developments will be more applicable within certain sectors than others. For example, developments in human-computer interaction will enable greater penetration of technology in the clinical (health) environment; removing the need to use a keyboard or pointing device will bring a step change in the use of ICT in healthcare settings.

This strategy provides the flexibility for new technology developments and sector-specific requirements to be incorporated as they arise.

3. SUMMARY OF THE ICT STRATEGY

This ICT Strategy supports existing core public sector goals, set in *Digital Britain, Building Britain's Future, Excellence and fairness,* and the *Operational Efficiency Programme*:

- improving public service delivery
- improving access to public services, and
- increasing the efficiency of public service delivery.

Each department, local authority or other public body also has its own business strategy to deliver specific services and commitments. The ICT Strategy provides a standardised, flexible and efficient ICT infrastructure to enable delivery of these individual business objectives. It provides public servants with the confidence that they can deliver their objectives effectively and securely in a sustainable manner. Above all, it reduces inefficiency, replication of systems and duplication of effort.

The strategy will also transform ICT procurement, giving Accounting Officers the confidence that they can use services available across the public sector which have already met procurement legal requirements and provide value for money to their business. This will be assured through the supply management strand (section 4.13), which covers pan-government procurement of ICT products and solutions.

The governance structure, meanwhile, ensures that information assurance (IA) requirements are incorporated into all strands of the strategy. This will provide assurance to Senior Information Risk Owners (SIROs) and Departmental Security Officers (DSOs) that solutions meet mandatory public sector information assurance and security requirements.

Most importantly, the strategy will enable delivery of pan-government objectives, while maintaining local control over delivery and personalisation for services that are unique to those organisations.

3.1 Using ICT to respond to existing pressures

The UK public sector is facing significant pressures. In addition to the changing expectations of service outlined in section 2.1 above, the boundaries between public sector, third sector and private sector service provision are becoming increasingly blurred. At the same time, the global economic downturn of 2008/09 will have long-term ramifications for market structures and investment models, leading to greater pressure for efficiency and savings.

The time is now right for the public sector to take a fresh approach to its ICT and to review how it can better exploit ICT services and systems to enable organisations to meet the challenges they face.

This strategy addresses these through focusing on:

- a common infrastructure
- common standards, and
- common capabilities.

3.2 Common infrastructure

At the heart of the ICT Strategy is the creation of a common, secure and flexible infrastructure that is available across the public sector. To achieve this, the strategy sets out the vision for the following:

- **The Public Sector Network:** A single holistic telecommunications infrastructure that will deliver converged voice and data communications. The Public Sector Network will deliver at least **£500 million savings per year**[10] by 2014.
- **The Government Cloud (G-Cloud):** A government cloud infrastructure that enables public bodies to select and host ICT services from a secure, resilient and cost-effective shared environment. Multiple services will be available from multiple suppliers, which will make it quicker and cheaper for public sector bodies to switch suppliers if they face service or delivery issues. The Government Cloud is a **key enabler of the £3.2 billion savings per year** outlined in the *Operational Efficiency Programme* as it provides a single access point for ICT services, applications and assets.
- **Data centre rationalisation:** A programme of data centre consolidation that will deliver large cross-government economies of scale, meet environmental and sustainability targets and provide secure, resilient services. Aligned with development of the Government Cloud, this programme will reduce the number of data centres in use from the current many hundreds to provisionally between 10 and 12 highly resilient, secure data centres. Not only will this reduce cooling and power consumption by up to 75% on current infrastructure, it will also reduce IT infrastructure costs by up to **£300 million per year**.[11]
- **Government Applications Store (G-AS):** A new gateway to enable sharing and reuse of online business applications, services and components across the public sector. Rather than create bespoke solutions each time a requirement is identified, reuse will become the norm, with anticipated **savings of over £500 million per year**.[12]
- **Shared services:** An ongoing commitment to developing the shared services culture that has been building both within and between departments in recent years for finance, human resources and procurement services. This approach has saved money and headcount: over 80% of civil servants are now supported by a shared service solution. By 2020, shared services will be provided via the Government Applications Store and Government Cloud to further exploit opportunities.
- **Desktop services:** A new set of common designs for desktop services across the public sector. While all public sector bodies need to provide their staff with access to functions such as email, word processing, spreadsheets and internet browsing, historically each public sector organisation has separately specified,

[10] Public Sector Network business case, 2009 – assumes 80% uptake as per section 4.1
[11] Strategic Supply Board Study, September 2009
[12] Strategic Supply Board Study, September 2009

built and run its desktop service – creating additional cost and complexity. Instead, there will be a set of common desktop designs which conform to information assurance and sustainability requirements. All suppliers will be required to deliver common designs and shared services at the lowest price available. A £100 saving in operating cost per public sector desktop per year would yield an immediate **saving of £400 million**[13] per year if all public sector bodies adopted best practice.

3.3 Common standards

All products, services and assets contained in the ICT infrastructure will benefit from a suite of common standards for security, interoperability and data standards, which will facilitate data sharing and make it easier to join up public services. The strands of this are:

- **Architecture and standards:** The technical architecture and standards work underpins all elements of the ICT Strategy. This will assure security, interoperability and common data standards, which will facilitate transition of supplier or product, as well as data sharing and the joining up of public services.
- **Open Source, Open Standards, Reuse:** Traditionally, the public sector has relied on commercial off-the-shelf (COTS) software or bespoke developments from global providers. This restricts the ability of the public sector to reuse solutions, reduces flexibility to manage assets efficiently and prevents government organisations from switching suppliers. The Open Source, Open Standards, Reuse Strategy provides government's approach to open source alternatives that meet public sector requirements. Government already commits to using only open standards for documentation. The ICT Strategy will build capability within the public sector to increase the amount of open source code and software in use and to make it available for reuse elsewhere.
- **Greening Government ICT:** ICT globally emits comparable levels of carbon to the aviation industry, and emissions continue to grow. Recognising this, the Greening Government ICT Strategy set two challenging targets which support delivery of mandatory SOGE (Sustainability on the Government Estate) targets:
  - government ICT will be carbon neutral by 2012, and
  - carbon neutral across its lifecycle by 2020.

  The Greening Government ICT Strategy is embedded in all elements of the ICT Strategy and will deliver significant cash savings from smarter working practices as well as reduced energy consumption, alongside lower carbon emissions.
- **Information security and assurance:** Data losses within the public sector have rightly raised the profile of information assurance. However, data sharing is an essential

[13] Strategic Supply Board Study 2005

element of joining up services and providing personalisation. This means that there must be effective, proportionate management of information risk. The National Information Assurance Strategy cuts across all elements of this ICT Strategy and is embedded within all strands. By developing the secure infrastructure, as outlined above, the ICT Strategy provides a trusted platform that will allow public sector bodies to match their information risk appetite with their information risk exposure: users of the infrastructure will be able to take information assurance for granted without feeling that their effectiveness has been compromised.

3.4 Common capability

The ICT Strategy incorporates building capability as well as capacity in ICT. The strategy can only be delivered through the people who work within public sector ICT, and a cultural change in ICT usage and procurement.

- **Professionalising IT-enabled change:** Increasing the capability of our staff will not only improve the performance of our IT, it will also reduce the amount the public sector spends on ICT consultants and contractors by some 50% by 2020. The Government IT Profession provides a focal point for increasing the professionalism of IT delivery within the public sector. The Government IT Profession skills and competency framework is now being used for recruitment, training and performance management of IT professionals. The launch of the Technology in Business Fast Stream has been extremely successful and is now the preferred route for graduate recruitment into government IT.

- **Reliable project delivery:** Reliable project delivery is a cross-government approach that was introduced in response to perceptions of significant project failure in the public sector. It seeks to provide a clear understanding of issues and to address areas of poor delivery. The Cabinet Office works closely with the Office of Government Commerce (OGC) to identify those major programmes and projects that have a high complexity and associated high delivery risk, and take a more proactive role in managing them and overseeing progress. This more structured approach to skills matching, reporting and management of portfolios will be a key enabler for consistent high delivery of public sector programmes and projects.

- **Supply management:** Approximately 65% of government ICT is outsourced to the private sector. While this brings capable resources and efficiency, government has not always managed these relationships effectively. The supply management strand builds on the work already undertaken by the CIO Council, OGC and private sector partners to deliver a step change in the efficiency and effectiveness of outsourced government ICT. This will

incorporate delivery of the ICT procurement strategy for government, which will provide the procurement vehicles to enable implementation of this ICT Strategy.

- **International alignment and coordination:** ICT does not stop at international borders and the UK public sector operates in over 145 countries. A key element of this strategy, therefore, is to ensure alignment and compliance with EU agreements, decisions and treaties to support international working. The Cabinet Office also regularly interacts with ICT peers from the USA, Australia, Canada and New Zealand to share best practice and help solve common problems. This approach ensures that we continue to exploit technology to its full effect in our efforts to deliver constantly improving services.

3.5 Implementation

This strategy sets out the direction for government ICT through to 2020. However, it will not be delivered by bodies such as the CIO Council, or central departments such as the Cabinet Office or HM Treasury. Instead, implementation will be through individual public sector organisations, exploiting the infrastructure and opportunities it brings to enable delivery of their business plans and objectives.

The CIO Council has agreed an integrated governance structure that combines expertise from central government, local government and the wider public sector as well as both technical and commercial roles. This will provide all public sector bodies with the opportunity to shape implementation of the ICT Strategy, and ensure that solutions never lose sight of the need for improved public services as well as increased efficiency. It will also mean that local requirements and the need for flexibility are not overtaken by a 'one size fits all' approach that will negatively impact service quality.

In order for the strategy to fully deliver its potential, the Cabinet Office, on behalf of the CIO Council, will work closely with the Department for Communities and Local Government and its partners across central and local government to promote and embed the principles and approaches of the ICT Strategy throughout the wider public sector. This will mean working initially with the Local CIO Council and the Local Government Delivery Council to develop a shared vision of locally delivered digital public services, enabled by ICT, which will help local authorities and their partners to align with the Government's ICT Strategy. The Cabinet Office will also work with devolved administrations to similarly develop a shared vision for their countries that aligns with the Government ICT Strategy.

4. THE ICT STRATEGY FOR GOVERNMENT

The ICT Strategy for Government is summarised below:

1	The Public Sector Network Strategy	Rationalising and standardising to create a 'network of networks', enabling secure fixed and mobile communications for greater capability at a lower price.
2	The Government Cloud (G-Cloud)	Rationalising the government ICT estate, using cloud computing to increase capability and security, reduce costs and accelerate deployment speeds.
3	The Data Centre Strategy	Rationalising data centres to reduce costs while increasing resilience and capability.
4	The Government Applications Store (G-AS)	Enabling faster procurement, greater innovation, higher speed to deliver outcomes and reduced costs.
5	Shared services, moving systems to the Government Cloud	Continually moving to shared services delivered through the Government Cloud for common activities.
6	The Common Desktop Strategy	Simplifying and standardising desktop designs using common models to enhance interoperability and deliver greater capability at a lower price.
7	Architecture and standards	Creating an environment that enables many suppliers to work together, cooperate and interoperate in a secure, seamless and cost-efficient way.
8	The Open Source, Open Standards and Reuse Strategy	Levelling the playing field for procurement, enabling greater reuse of existing tools, fewer procurement exercises and enhanced innovation – all at a lower cost.
9	The Greening Government ICT Strategy	Delivering sustainable, more efficient ICT at a lower price.
10	Information Security and Assurance Strategy	Protecting data (citizen and business) from harm – whether accidental or malicious.
11	Professionalising IT-enabled change	Improving the capabilities, knowledge, skills and experience of those involved in ICT-enabled business change through the Government IT Profession.
12	Reliable project delivery	Using portfolio management and active benefits management to ensure that government undertakes the right projects in the right ways.
13	Supply management	Working together to gain maximum value from suppliers – both for individual organisations and collectively across the public sector.
14	International alignment and coordination	Ensuring that international treaties and directives reflect UK national requirements and that the UK remains at the forefront of delivery.

It consists of 14 strands of delivery, each of which is covered in more detail in the following sections.

PUBLIC SECTOR NETWORK

The Public Sector Network (PSN) will create a single, more secure telecommunications infrastructure. It opens up new opportunities for more efficient information sharing and will provide the operating environment for the Government Cloud.

The PSN will deliver at least £500 million savings per year and will allow voice and data services to be delivered seamlessly to any location via a private and secure version of the internet for the public sector.

4.1 The Public Sector Network Strategy

The Public Service Network will be a single, holistic telecommunications infrastructure for the whole of the public sector. It would replace the existing approach where each public body designs, develops, installs and maintains its own network – an approach which has led to fragmented and expensive service delivery. As well as reducing operating costs and complexity, the Public Service Network opens up new opportunities for information sharing and increasing local and national participation.

The Public Service Network is expected to deliver annual savings worth at least £500 million by 2014. Public sector bodies will be able to use Public Service Network contracting vehicles for all their telecommunications needs, thereby significantly reducing the costs and timescales of procurement for the private and public sectors. It will create an innovative marketplace – where competitively priced, commoditised services can be obtained on a utility basis and suppliers compete to introduce innovation.

The Public Service Network Programme has been established to create the Public Service Network and a sustainable market for delivery of Public Service Network-based commodity services. It will:

- encourage the private sector to deliver Public Service Network services
- oversee the delivery of converged voice, video and data communications
- create a coherent network design to facilitate market delivery of interoperable services
- select the open, interoperable standards on which the network will work
- motivate public sector organisations to transition to Public Service Network services
- establish an effective governance structure to establish trust between all participants, and manage the development and application of standards, and
- support the transition of public sector organisations to the new approach.

The core network infrastructure of the Public Service Network will be:

- appropriately secure
- based on open standards
- interoperable – supporting the transition from legacy systems
- energy efficient, and
- highly cost competitive.

It will provide a number of core services, including:

- **Government Conveyance Network (GCN):** this will be a composite 'mesh' of core industry networks used to interconnect supplier data networks and other services in terms of network transport. Any operator can participate, provided they meet stated capability and standards criteria
- **Service Information Monitor (SIM):** this is a repository of data providing an appropriate end-to-end view of service information and service interdependency, underpinning service and performance management across services and suppliers. The Service Information Monitor will help tackle faults and service events rapidly, by ensuring that the most likely root cause or origin is identified earlier
- **standardised common services:** the Public Service Network will provide a range of important services including common user authentication standards, standards for intrusion detection services, secure file transfer, standardised email services, a domain name system, secure internet access and directory integration.

The aim of the Public Service Network Programme is to enable the delivery of shared services. This will both ensure and assure business continuity and continued improvement through infrastructure capability enhancement.

A core set of network and central services will be in place by the end of 2010, alongside a procurement directory.

The Public Service Network will speed up the move towards internet protocol-based voice services, using the networks already built for data services. There are currently over 4 million public sector voice lines, many of which could be replaced – giving significant scope for cost savings. Additionally, a 'roaming' capability that allows mobile handsets to operate over the Public Service Network whenever possible will achieve further cost savings.

This is not just about cost: it also reflects user behaviour. In today's world, people are used to a much more mobile lifestyle and expect to be able to access their ICT services wherever and whenever is convenient – often outside the office environment. The Public Service Network will allow the delivery of services to any location and, through standards, will enable unified communications in terms of voice, video and collaboration capabilities.

By the end of 2012, all Government Secure Intranet (GSi) 'family' (including x.GSi, GCSX, PSI, GSE) and Managed Telephony System customers will migrate to Public Service Network-based services and 80% of public sector users will have started utilising the Public Service Network marketplace. Further development work will ensure that 95% of network services procurements are carried out through the Public Service Network services directory by the end of 2015, and that all government voice systems will move from the public service telephone network to delivery using voice over internet protocol by 2017.

As the telecommunications infrastructure becomes more embedded in our current way of life, the impact of disruption to that infrastructure becomes greater – whether through damage, technology failure or even coordinated cyber attacks. This may lead to the threat of severe degradation or even failure of key government functions and the Critical National Infrastructure as they come to rely more and more on standard commercial networks.

Therefore, an integral part of the Public Service Network Programme will focus on identifying how to ensure the continued availability, confidentiality and integrity of the required communications functions in the event of a failure within the commercial telecommunications networks.

GOVERNMENT CLOUD

The Government Cloud infrastructure will provide a secure and resilient shared environment through which public sector bodies can resource ICT services at greater speed and lower cost.

This is a key enabler of the £3.2 billion annual savings laid out in the *Operational Efficiency Programme*.

4.2 The Government Cloud or 'G-Cloud'

Developments in ICT mean it is now possible for different teams, offices or even organisations to share the same ICT infrastructure. The different hardware can be brought together and used to deliver increased flexibility and responsiveness to business needs while reducing costs. Essentially, it means moving from ICT that has been procured separately by organisations as their own infrastructure, to a new model in which ICT is provided as a utility. This shift, known as 'cloud computing' has been likened to the changes in the electricity industry during the early part of the 20th century, when organisations moved from buying their own generators to procuring electricity as a utility.

The term 'cloud computing' comes from the way some large internet firms responded to rapid change and growth in their businesses. They separated the provision of standard ICT services needed to support customer-facing activities from the detail of the computer systems in use and their physical locations. In other words, the physical infrastructure the company owned became a pool, or cloud, of resources, available to the whole business rather than being linked to a specific location or process. Resources were typically located in purpose-built data centres, providing optimal levels of security and reliability.

As well as enabling business flexibility, the cloud approach also provided other benefits.

- It led to the development of new standards that made it possible to deploy business applications on any available computer system, rather than just those that had been uniquely configured.
- The unit costs of computer resources fell substantially: because workload was allocated flexibly and dynamically to any available computer system, the businesses saw much higher system utilisation levels.

It also led to further significant cost savings in both capital expenditure on computing resource, as each server is carrying a bigger workload, and operating expenditure, as things like energy consumption are reduced.

While the cloud model is sufficiently proven for there to be clear benefits to the public sector, it is still at an early stage of development. The main challenges to overcome include:

- delivering confidence in information assurance
- achieving guaranteed service levels, and
- determining the standards to adopt.

However, it is clear that there will be a major shift in the ICT industry to the cloud model, and that the benefits will be substantial. Government therefore cannot afford to miss out on these opportunities and, in the relatively short term, it will be possible to mitigate many of the risks through putting in place a private cloud for government – sharing resources across the public sector.

Establishing the Government Cloud will involve a major change in the way that ICT is procured and supplied, which will in turn require significant change in both ICT suppliers and public sector organisations. Cloud commercial models are in their infancy and we will need to support the industry in developing the business case for investing in this new model.

DATA CENTRE STRATEGY

The Data Centre Strategy will reduce the number of data centres used by Government to between approximately 10 and 12 secure, resilient services.

Cooling and power consumption will be reduced by up to 75% per year and infrastructure costs by up to £300 million per year.

4.3 The Data Centre Strategy

It is time for a significant rationalisation of the data centres that provide information-based services to public sector organisations. Such rationalisation will bring substantial savings in cost and energy consumption; at the same time, it will improve service standards and increase the ability to cope with disruption. This strand is aligned with other elements of the Government ICT Strategy – in particular the Public Service Network – and provides the enabling platform for the Government Cloud and the Government Applications Store.

Development of the data centre infrastructure in the public sector has followed a similar pattern to that in most large organisations. Budgets and procurement decisions have been devolved to many different levels, meaning that while procurement decisions have been taken in the best interests of each individual organisation at a specific time, at the 'big picture' level this has resulted in a proliferation of data centres. This is not only costly in itself, but also makes it difficult to:

- achieve large, cross-government economies of scale
- meet environmental and sustainability targets
- protect against natural disasters or human-initiated incidents
- provide consistent security controls across government
- deliver ICT systems that are flexible and responsive to demand in order to support transformational government
- take advantage of new technologies in order to deliver faster business benefits, and
- procure in a way that supports and encourages a dynamic and responsive supplier marketplace.

In late 2008, members of the CIO Council and the Intellect Public Sector Council initiated joint work that concluded there was now an opportunity to develop a data centre strategy for the whole of the public sector. The intention is to consolidate public sector data centres (whether in house or outsourced), firstly in central government (including non-departmental public bodies and executive agencies), and then moving into the wider public sector. This will be delivered in line with the approaches pioneered by the large internet firms for data centre

design, thus enabling the Government Cloud, as set out in the previous section, as well as creating significant savings.

The Data Centre Strategy will be implemented in a way that delivers benefit at the earliest opportunity. One option under consideration is the early introduction of a data centre space brokerage service for the public sector which will help reduce the procurement of new data centre space: instead, organisations will be able to take advantage of unused space in existing facilities.

Over the next three to five years, approximately 10 to 12 highly resilient strategic data centres for the public sector will be established to a high common standard. This will then enable the consolidation of existing public data centres into highly secure and resilient facilities, managed by expert suppliers. As well as savings on ICT infrastructure costs in the order of £300 million a year, this will also make a significant contribution to environmental targets through a reduction of up to 75% in power and cooling requirements. These benefits will be achieved in parallel with improved service standards: the new ICT infrastructure will be more resilient, significantly more reliable and far better equipped to recover quickly from major incidents with minimal disruption to service.

The result is that public servants will be able to store their data in the knowledge that it is secure, accessible and sustainable.

GOVERNMENT APPLICATIONS STORE

The Government Applications Store will be a marketplace for the sharing and reuse of online business applications on a pay by use basis.

This will deliver reduced software costs across the public sector, and speed up procurement.

The reuse of existing solutions and a reduction in the number of applications in use across the public sector, will deliver savings of approximately £500 million per year.

4.4 The Government Applications Store or 'G-AS'

The Government Applications Store (G-AS) is a new initiative that will substantially reduce the number of unique applications and applications contracts that are currently used by public sector organisations. There are currently more than 10,000 of these: reducing them will not only enable savings exceeding £500 million a year by 2020, but will also heighten the public sector's ability to respond to change and to move to standard approaches for providing citizen- and business-facing services.

The vision for the Government Applications Store is for the reuse of existing assets to become the standard approach across the public sector – whether for policy- or efficiency-driven initiatives. In contrast to today's approach, where new business requirements almost always result in development of bespoke solutions and thus the proliferation of systems, reuse will become the norm – from relatively common back-office requirements through to customer-facing front-office services that are unique to the organisation involved.

Reuse is, in principle, already accepted as the preferred delivery approach across the public sector. However, in most cases today, it is easier to do a fresh procurement exercise.

The Government Applications Store will change this, acting as a gateway to easier sharing and reuse. It is built on the principle that, even where organisations have unique requirements, typically many steps in the business process are similar to those of other organisations – even when these organisations have radically different roles. For example, the approaches used for authenticating employees, authenticating customers and making payments through the banking system are similar in most organisations – no matter what their business is.

In the future, each of the steps in a process will be defined as a reusable service: these services can then be used as the basis of new business solutions, joined together using 'mash-up' technology. The only additional requirements will be the truly unique components.

The Government Applications Store is the key to this, enabling reuse of existing assets to become the standard model for delivery of new business services. It is closely integrated with other aspects of the ICT Strategy, including desktop services, the Public Sector Network, the Government Cloud and data centre rationalisation, which together will establish the standard infrastructure platform on which reusable services will be delivered.

The net effect will be to increase visibility of software already owned by the public sector so that other public sector bodies, and those bidding for public sector work, can see what is available at no basic cost.

New assets in the Government Applications Store will benefit from the policy that future public sector ICT procurement exercises will be carried out on behalf of the Crown, rather than an individual organisation. This will enable reuse across the public sector, safe from licensing restrictions. Wherever possible, reusable business services that are already owned by the Crown will be provided 'free at the point of use' to public sector organisations. There will be a charge only for those aspects of the service that directly impact cost – such as Government Cloud usage costs, support services, helpdesk calls and printed outputs.

The Government Applications Store will provide automated electronic support for the applications procurement lifecycle and reduce the overhead costs of reuse of applications. This will be done using proven functions, including:

- an online store front with search and user feedback capabilities
- an e-procurement platform technology that automates the 'procurement to payment' process, and
- an interlinked online repository providing access to software, documentation, tools and related assets.

As the number of assets in the Government Applications Store increases over time, the business case for public sector organisations to adopt a reuse-based approach will become ever more compelling.

Moving to this way of working will be a major cultural change. Public sector leaders are accustomed to specifying unique requirements that are then met on a bespoke basis – an expensive and unwieldy approach that has led to proliferation of systems. Under the new model, the expectation will be that existing capabilities are used 'as is' wherever possible. Unique requirements will be implemented only where this is unavoidable and where there is very clear business justification for the additional lifecycle costs.

The CIO Council will work to build support for the new approach among senior business leaders across the public sector.

SHARED SERVICES

Finance, HR and procurement services are now delivered to over 80% of civil servants through shared service solutions.

We will increase efficiency through the use of a greater range of shared services across Government.

4.5 Shared services, moving government systems to the Government Cloud

The adoption and wider use of shared services in the public sector was a key part of *Transformational Government* and has already made a significant impact on the bottom line. By rationalising HR, finance and procurement delivery and making better use of current technology such as shared enterprise resource planning (ERP) platforms, major savings have been generated.

- The Department for Work and Pensions Shared Services Centre provides many HR and finance functions to the Department, its executive agencies and other parts of government. By the end of the financial year 2008/09, this led to £100 million worth of savings.

- Shared Business Services, a joint venture between the Department of Health and IT company Steria, now serves over 100 health trusts, delivering 20–30% savings on like-for-like services. Some 90% of its customers would recommend it.

Over 80% of civil servants are now supported by a shared service solution and there has been real success in delivering shared services across departments. The Cabinet Office now receives its day-to-day finance, HR and procurement support from DWP Shared Services and shares its enterprise resource planning platform. The Department for Children, Schools and Families is now also using this platform and service. The Home Office and the UK Border Agency receive back-office services from the National Offender Management Service's Shared Services Centre, and plans are in place for the Identity and Passport Service, Criminal Records Bureau and Ministry of Justice to also share this service.

The ICT Strategy now recommends an increased role for shared services, moving government systems to the Government Cloud. This will lead to:

- wider use of enterprise resource planning systems across central and local government to improve efficiency, and
- greater visibility of applications that can be shared across the public sector (for example, electronic document and records management, ministerial correspondence, banking, vetting etc.).

This will be achieved through collaborative procurement and the creation of the Government Applications Store of business services and components to ensure reuse across the public sector.

The current programme of public sector corporate service benchmarking will be used on an ongoing basis to continue to improve the performance of the back office and to drive more public sector organisations towards the shared services model.

By 2020, there will be a step change in the way that shared services are perceived, operated and paid for. The Government Cloud and Government Applications Store will together meet the internal business needs of most public sector organisations, while many back-office business activities will have been commoditised and made accessible to all public sector organisations and employees via an online portal. Additionally, having been procured at Crown level, the shared ICT infrastructure will be located in the Government Cloud. The greater visibility of applications afforded by the Government Applications Store will ensure that the public sector will buy once and use many times.

COMMON DESKTOP

We will deliver a set of standard desktop designs and adopt a shared services approach.

Government will increase collaboration between departments, reduce the number and cost of procurement exercises and increase economies of scale in delivery.

Reducing the operating cost of each public sector desktop by £100 per year, would yield annual savings of £400 million.

4.6 The Common Desktop Strategy

Organisations across the public sector all need to provide their staff with access to common IT functions such as email, word processing, spreadsheets and internet browsing which are regarded as essential, day-to-day 'tools of the trade'. Historically, however, each organisation has independently specified, developed and delivered its own hardware, software and networks to meet that need. This has resulted in very different systems which impede collaboration, incur repeated procurement and development costs, and miss opportunities for economies of scale in delivery.

To overcome this, the public sector as a whole needs to simplify and standardise, adopting common models and commoditising desktop computing, using off-the-shelf options rather than bespoke development. Where technologies have been developed and proven by one organisation, they should be available for use by others: the commercial, contractual and cultural barriers to the adoption of existing solutions must be removed.

Our aim is to see desktop computing across government delivered through common models and shared services. While it is right and appropriate that there will be multiple desktop shared services, operating in a competitive environment, each will serve a community sufficient to offer the maximum economy of scale. This suite of standard desktop designs will therefore include one based on open source operating systems and applications for office automation such as word processing, email and internet browsing. We envisage that, by 2015, 80% of central government desktops will be delivered through a shared utility service with increasing levels of adoption by the wider public sector, including local government.

Together, these changes will lead to increased capability – ICT staff will no longer spend time repeatedly solving the same problems and will instead focus on enhancing and adding to system functionality – and lower price. Both procurement and delivery costs can be reduced: the reuse of established technology within and

between desktop services will enable faster deployments with fewer faults and reduced reworking. If the operating cost of every public sector desktop were to be reduced by just £100 a year, it would yield annual cross-government savings of £400 million.

Creating a suite of standard desktop designs is the key to delivering a significant proportion of the £3.2 billion of savings per year outlined in the *Operational Efficiency Programme*. The provision of these designs will provide assurance to procurement experts, Senior Responsible Owners of programmes and Accounting Officers that their desktops not only meet minimum government standards on information assurance and value for money but also utilise mandatory technical standards. Public servants will not have to think about their desktop services – they will be robust, meet their needs and provide value for money to the taxpayer.

- Between 2012 and 2015, desktop design will evolve to converge with the cloud strategy.
- In line with the Greening Government ICT Strategy, all shared utility desktop services will be carbon neutral by 2012.
- Desktop supply chains will be required to conform to sustainability standards by 2015.
- We will share across government the lessons learnt from managing shared services so that, by 2015, effective intelligent customer models will be replicated across all shared services.

STANDARDS AND ARCHITECTURE

A set of standards and a common architecture are essential for the delivery of all elements of the ICT strategy. It enables the sharing of data between systems, provides opportunities for reuse of ICT components and facilitates transition between suppliers and products.

The use of standards ensures that as technology develops public sector ICT assets can be easily adapted.

4.7 Architecture and standards

The architecture and standards strand underpins all elements of the ICT Strategy. Through setting the right standards, we will ensure that each element of the strategy can interoperate with each other and, through defining a consistent architecture, we will ensure that it can be reused and deployed across the whole of the public sector.

4.7.1 Enterprise architecture

The cross-Government Enterprise Architecture (xGEA) was a fundamental element of *Transformational Government*. The first release focused on building the initial portfolio of opportunities to share information and processes. It was supported by:

- the cross-Government Enterprise Architecture Reference Model (xGEARM), to enable communication through an agreed set of terms and definitions

- a repository with enterprise architecture assets captured for all government to use
- an opportunity portfolio of potential exemplars, and
- a set of processes, based on industry practices, for describing the exemplars and the enterprise architecture models.

The Chief Technology Officer (CTO) Council has continued to focus on the necessary technical work which underpins the development and adoption of the cross-Government Enterprise Architecture. Work is now in progress on:

- developing a common infrastructure based on open standards and proven interoperability
- setting common standards to help facilitate reuse and sharing
- ensuring that information assurance is included in all aspects of design and build
- rationalising government data and voice networks, and
- adopting a consistent approach to identity management.

4.7.2 Information architecture

Common information architecture is vital to ensuring that information and data can flow across government to provide seamless, efficient, secure and trusted services. It provides opportunities for the reuse of public data, benefiting the economy and fuelling innovation.

The Information Domain of the CTO Council works closely with the Knowledge Council, the Location Council and the Making Public Data Public initiative to ensure that their aims are supported through ICT.

The CTO Council is currently drawing together a public sector information architecture covering seven key themes:

- semantics – the meaning of information
- syntax – the format of information
- data quality – how to give people the confidence to reuse information
- use rights – covering the right to use information
- authentication – how to establish who is using information
- transport – how to move information, and
- information assurance and governance – the behaviour and culture to protect and exploit information.

The public sector information architecture will also consider how the public sector should manage its information: for example, will the public sector hold multiple copies of information or will it be held centrally and accessed by many? This has implications for all of the strands within the ICT Strategy, particularly data centre rationalisation, the Government Cloud and information assurance and security. It also affects

decisions core to the Public Sector Network as it will impact on bandwidth requirements and likely volumes of data transfer.

The technical infrastructure and enterprise and information architectures are the foundations that underpin successful delivery of all elements of the ICT Strategy. Provision of common technical standards and designs that are available through the Government Cloud and Government Applications Store will be a key enabler of efficient reuse of solutions and assets. These standards ensure interoperability, assure information security and will maximise the opportunity from open source code and open standards.

4.7.3 Standards

Delivering better public services tailored to the needs of the citizen and businesses requires the seamless flow of information across government. The e-Government Interoperability Framework (e-GIF) set out the Government's technical policies and specifications for achieving interoperability and ICT systems coherence across the public sector. It defined the essential prerequisites for joined-up and web-enabled government, and adopted the internet and World Wide Web specifications for all government systems. Work has now started to update the standards captured in the e-Government Interoperability Framework and align them with the public sector assets that have been identified for reuse.

As part of developing the cross-Government Enterprise Architecture, the specification of ICT standards rests with the CTO Council, through its domain teams. (The CIO Council retains authority for approving the strategy.) The CTO Council will centrally manage only the standards that are required across a number of organisations and that are not specific to a particular business area (for example, education, taxation or transport). Accordingly, three types of standard have been identified:

- **universal:** fundamental standards that are required by all public sector organisations (for example, XML)
- **common:** standards used across multiple business domains (for example, champions), and
- **local:** where responsibility is held by local domains/businesses/regions.

Domain teams will focus only on universal and common standards. They will liaise with external standards bodies, monitoring their activities to ensure that government interests are supported and not compromised. Precedence is given to standards with the broadest remit, so appropriate international standards will take precedence over EU standards, and EU standards will take precedence over UK standards.

Standards are primarily driven by the needs of citizen- and business-facing services. As a result, the CTO Council is prioritising standards

that serve the requirements of generic services or processes that are used across many public sector organisations. The other priority strand is concerned with agreeing standards that will facilitate new, joined-up services and interorganisational processes.

OPEN SOURCE OPEN STANDARDS REUSE

The Open Source Open Standards Reuse Strategy will invigorate the use of open source software and open standards within the public sector.

Significant savings will be delivered through reuse of existing applications and solutions, which will become standard practice.

4.8 The Open Source, Open Standards and Reuse Strategy

Traditionally, the public sector, in common with most large organisations, has relied on commercial off-the-shelf software or bespoke developments to run ICT systems and processes. In most instances, this comes from global commercial enterprises, uses proprietary code and cannot easily be reused across the public sector – reducing value for money, flexibility and agility. Importantly, it also restricts opportunities to reduce risks to service delivery.

In 2004, the Government formally articulated the policy that it would seek to use open source software wherever it gave the best value for money in delivering public services. However, there were then many barriers to widespread adoption of open source. The software and wider IT markets were immature and did not have competitive products that were easy to include in enterprise business solutions. Meanwhile, suppliers of commercial off-the-shelf software, recognising the risk that open source posed to their business, were sometimes less than clear about supply chain issues and terms and conditions, and refused to treat government as a single entity. This made like-for-like comparisons with open source software extremely difficult. In addition, the Government IT Profession had limited exposure to open source software: in a risk-averse culture, this not only limited uptake of open source software but also meant that suppliers were not challenged about technology solutions.

In more recent years, however, many public sector organisations have demonstrated that open source products can be best for the taxpayer – in web-hosting services, the NHS infrastructure and as components in critical systems such as Directgov. The software and wider ICT markets have also developed and made open source products more competitive and easier to include in enterprise-scale solutions.

Government itself has addressed some of the internal barriers to open source through the development of the IT profession to re-establish skills and cultures, the establishment of the CIO Council (leading to more openness and exchange of information within the public sector) and crucially, agreement of the cross-Government Enterprise Architecture framework. The techniques and culture of open source have been adopted in other parts of the public sector: for example, the London Borough of Camden used it in the development of its web content management tool, while the Cabinet Office Digital Engagement team has also harnessed it effectively.

Building on these positive experiences, the *Open Source, Open Standards and Reuse Strategy* was published in February 2009. It states that the Government will actively and fairly consider open source solutions, alongside proprietary ones, when making procurement decisions. In addition, the Government will, wherever possible, avoid becoming locked in to proprietary software. In particular it will take exit, rebid and rebuild costs into account in procurement decisions and will require those proposing the use of proprietary software to specify how exit would be achieved.

The strategy includes an action plan that is a positive programme to ensure an effective level playing field between open source and commercial off-the-shelf software. It also includes actions which will ensure that government uses open standards in its procurement specifications and requires all solutions to comply with open standards.

Government will continue to use only open standards for documentation such as ODF, PDF and OOXML. The Government Applications Store (see section 4.4) will hold existing open source code and solutions for reuse across the public sector.

The CIO Council commissioned the OGC and the Cabinet Office to ensure implementation of the action plan. Using the governance structure in Annex A, the Open Source, Open Standards and Reuse working group will deliver clear and open guidance to ensure that open source and proprietary products are considered equally and systematically for value for money. By 2011, public bodies will store and share records of their approval and use of open source software on the Government Cloud. The Government Applications Store will hold open source solutions that are available for reuse in the public sector and, by 2015, public bodies will review the existing solutions available before seeking out new solutions.

GREENING GOVERNMENT ICT

The UK government was one of the first in the world to create and implement a strategy to reduce the carbon impact of its ICT operations.

Working across the public sector, savings of 12,000 tonnes of carbon and over £6.8 million have been delivered since July 2008. By 2020, government ICT will be carbon neutral across its lifecycle.

4.9 The Greening Government ICT Strategy

Government runs some of the world's largest computer systems and they are an essential element in the delivery of public services. However, ICT is a major user of energy and natural resources, creating as much as 2–3% of global carbon emissions.

In June 2008, the Government launched its strategy for green ICT. One year on, it published a report[14] detailing progress by central government, local government, the wider public sector and devolved administrations. Each central department has produced a green ICT action plan stating what it has done to increase the sustainability of ICT operations and what plans are in place to take this further.

In addition to individual departmental delivery, there have been a number of initiatives designed to share best practice across the public sector:

- Government contract terms and conditions now include sustainability requirements (OGC model contract).
- A supplier scoring model has been developed and is now being made available to the public sector to assess supply chain sustainability during procurements.
- The Government is working internationally on areas such as the Waste Electrical and Electronic Equipment (WEEE) Directive subgroup and US Electronic Product Environmental Assessment Tool (EPEAT) product specifications.

Case studies included in the *One Year On* report demonstrate that carbon emissions have already been reduced by over 12,000 tonnes. At the same time, the focus on greener ICT has also led to cash savings of over £6.8 million.

Moving forward, the Government has set two challenging targets:

- In line with the existing Sustainability on the Government Estate (SOGE) targets and SOGE definition for carbon neutrality, the energy consumption of government ICT on the office estate will be carbon neutral by 2012.

[14] Cabinet Office (2009) *Greening Government ICT: One Year On*

- Government ICT will be carbon neutral across its lifecycle by 2020.

The Greening Government ICT Strategy will be refreshed to reflect environmental and technological advances. The refreshed strategy will detail key activities for the Green ICT Delivery Unit through to 2020, including:

- the development of common measures of delivery
- work to be undertaken internationally to agree common product standards and requirements, and
- the development of mandatory minimum green standards for ICT products and services.

Sustainable ICT will have a significant impact on delivery of the savings outlined in the *Operational Efficiency Programme*. Green ICT products use less energy and therefore cost less to run, while intelligent use of green ICT can enable flexible working practices, thus supporting HR and estates colleagues to reduce their running costs. Finally, common international standards for products can reduce manufacturing costs and environmental impact.

INFORMATION SECURITY AND ASSURANCE

We will deliver an environment where citizens, businesses and government can enjoy the full benefits of Government information systems with confidence in their security, integrity and availability.

All public sector ICT systems will incorporate information assurance from design through to implementation and disposal.

4.10 Information security and assurance: the National Information Assurance Strategy

Effective sharing and use of information is central to the challenges facing the public sector, whether in improving health outcomes, tackling child poverty or protecting the public from crime and terrorism. Information assurance – confidence in the security, integrity and availability of information systems – is therefore essential to achieving the goal of delivering personalised services via ICT, as well as making government more effective and efficient and increasing citizen trust in the public sector's ability to manage and use data.

The Government ICT Strategy will deliver a standardised environment in which converged services can evolve to meet public sector business needs in a cost-effective and business-enabling way. This environment has two key characteristics which will shape the information assurance elements of the strategy. These can be summarised as:

- **complexity:** the government environment will comprise interconnecting services operating across multiple organisational boundaries within the public sector, and
- **convergence:** the convergence of voice and data services will support flexible working, minimise business dependence on location and provide seamless access to data and IT functionality using fixed and mobile communications.

The *National Information Assurance Strategy* was published in 2003 and updated in 2007. By 2011, it aims to create 'a UK environment where citizens, businesses and government use and enjoy the full benefits of information systems with confidence'. However, high-profile data losses have damaged this confidence, and reviews into these incidents have highlighted significant issues. For example:

- accountability for information risk was not always clear
- policy was complex and did not always keep pace with business change, and
- there was not always the necessary culture of compliance with policies to protect information properly.

The Cabinet Secretary's *Data Handling Review*, published in June 2008, set out significant changes in the way that government departments address information assurance issues, with a strong focus on personal data. These changes cover four main areas:

- **New mandatory policy measures:** a series of mandatory measures is now in place across government and the wider public sector, including encryption of removable media and compulsory testing of the resilience of systems by independent experts.
- **Cultural change:** more than 300,000 civil servants dealing with personal data have undertaken mandatory annual training. The Cabinet Office has also made privacy impact assessments mandatory for new projects, as recommended by the Information Commissioner.
- **Stronger accountability:** data security roles within departments have been standardised and enhanced to ensure clear lines of responsibility.
- **Increased scrutiny:** departments report annually on their performance in handling information risk, and the Information Commissioner has begun conducting spot checks of government departments.

At the centre of government, the governance of information assurance has been improved and strengthened with enhanced oversight now in place at ministerial and senior official levels. Furthermore, the responsibilities of the Communications-Electronics Security Group (CESG – the information assurance arm of Government Communications Headquarters) have been expanded to support the delivery of information assurance in government.

The vision for information security and assurance remains the same. In the last year, there has been good progress in improving the handling of personal data, but this progress must be consolidated and embedded into every aspect of service delivery and working culture.

In light of the complex, converged environment set out above, information assurance will be built into every public sector ICT system from requirements capture through design, implementation and disposal. This will deliver the technical and process controls necessary to enable citizens, public bodies and their delivery partners to match their risk appetite with their risk exposure, in the knowledge that systems have been designed with information assurance integrated from the outset.

Three principles underpin the information assurance element of the Government ICT Strategy: **partnership**, **professionalism** and **pace**.

- **Partnership:** public sector organisations must work together to deliver the right information assurance outcomes. In particular, the Cabinet Office will work closely with its key partner SCESG and the Centre for the Protection of National Infrastructure, to drive implementation as well as to engage with the information assurance industry.
- **Professionalism:** there will be recognised and widespread professionalism in information assurance, encompassing those in risk ownership roles in the public sector, industry partners and government information assurance profession specialists.
- **Pace:** pace and agility must become the dominant characteristics of every aspect of information assurance, from design to delivery. This includes evaluation of products and services, response to incidents and management of risk impact.

The changes and principles set out above will not, on their own, be sufficient. Information assurance is a broad and cross-cutting area of government business. The recent *Digital Britain* report, the Cyber Security Srategy and the development of knowledge and information management all have implications for the way that government protects and handles information. This will be reflected in a refreshed National Information Assurance Strategy, which will incorporate the coordination and delivery of the cross-cutting information assurance elements of each of the ICT Strategy strands.

Finally, the process of change begun by the *Data Handling Review* must be sustained and deepened. The culture of protecting information must be consolidated; policy must remain responsive, relevant, clear and accessible; and the new governance arrangements at the centre of government must fully mature.

GOVERNMENT IT PROFESSION

The Government IT Profession encompasses all public sector ICT employees and works to develop and improve professional standards, reducing our reliance on external consultants and contractors.

Increased professionalism will result in improved delivery of ICT projects and services.

4.11 Professionalising IT-enabled change

All of today's public services are underpinned by technology. The delivery of all future services will be driven by and enhanced through ICT. The skills, capabilities and value of public sector IT professionals are therefore of huge strategic importance.

The Government IT Profession aims to drive the development of a more professional government IT workforce by putting into place the right building blocks for the profession; setting the standards, policies and guidance required to ensure that the public sector has capable people and capable organisations; and delivering and managing fit-for-purpose IT-enabled projects and services.

The first of these building blocks is the Government IT Profession competency and skills framework – the basis of which is the UK IT industry standard Skills Framework for the Information Age (SFIA). This provides a common language to describe the skills and attributes required of IT professionals. Alongside promoting the development of core technical and specialist skills, the Government IT Profession also works to develop broader management and leadership skills to support the delivery of technology-enabled business change. The Cabinet Office has already started firmly establishing the Government IT Profession by providing:

- the Civil Service **Technology in Business (TiB) Fast Stream** programme, which focuses on the recruitment and development of tomorrow's IT leaders
- the **Government IT Profession community space**, providing a single place for IT professionals to come together, build communities of interest and collaborate to share knowledge and best practice, and

- the **Capability Consultancy**, a cross-government resource which works with organisations to help them increase their IT professionalism.

To enable organisations to achieve excellence, the Cabinet Office will provide new standards, policies and guidance to increase the efficiency with which IT organisations operate and deliver. Increased professionalism across the IT workforce will in turn result in the delivery of IT projects with a greater rate of success, and more effective and efficient delivery of IT services. However, measuring increasing professionalism in isolation is meaningless, as it is the application of professional skills that will deliver better outcomes. Therefore, the increase in capability will be measured in relation to IT costs, customer satisfaction and project success rates.

As the profession develops and utilises internal talent more effectively, the reliance on external contractors and consultants will diminish.

- In 2010, government will publish a qualifications policy to enable IT professionals to understand what they need to achieve to help progress their careers – and enabling organisations to define local learning strategies and focus training budgets.
- By 2012, government will be in a position to influence the provision of industry-wide learning, based on a robust learning needs analysis across the profession.
- By 2014, organisations will be equipped to grow their own in-service talent through local talent management schemes, based on a proven methodology.
- By 2015, with industry partners, government will develop an industry-wide method of recognising exceptional IT professionalism.
- By 2015, we will enable individual and collective knowledge transfer, growth and collaboration between IT professionals through our National Competency Leads and our online community.

RELIABLE PROJECT DELIVERY

Reliable project delivery has introduced a number of measures to improve the performance of ICT enabled business change across the public sector.

The Major Programme and Project Portfolio (MPP) presents a simple dashboard of major programmes and all central Government departments are now reporting against standard key performance indicators.

We will strengthen the Gateway project and programme review process to improve delivery.

4.12 Reliable project delivery

The reliable project delivery strand was introduced in 2005/06 against a background of failure (actual and perceived) of major public sector ICT projects. The aim was two-fold: firstly, to confirm the reality of the situation and provide a consistent and accurate response to it, and secondly, to introduce appropriate measures to improve it.

Research carried out during 2006, together with work done jointly with the National Audit Office on its report on *Successful IT Projects*, showed that:

- the public sector failure rate was no worse than the private sector, but the failures were more high profile
- organisations with successful project delivery track records:
  - initiated the 'right' projects in the first place and challenged/stopped the 'wrong' ones. The use of portfolio management was a common thread
  - applied robust control and governance to those projects they took forward, throughout their lifecycles
- public sector organisations were over-reliant on OGC and other best practice, rather than taking ownership of and managing the problems themselves, and
- issues specific to ICT-enabled business change were not being addressed.

In response to this, the Pan-Government Portfolio was set up and new processes for governance and portfolio management were introduced.

4.12.1 The Pan-Government Portfolio

In January 2007, the Government CIO introduced a new process of reporting on ICT-enabled business change programmes to the PSX (e) ministerial committee. The Pan-Government Portfolio aimed to present ministers with a simple 'dashboard' view of

the major programmes, showing the state of health of the IT portfolio as a whole. Since March 2007, the Portfolio has been reported on quarterly and evolved into the single, central Major Programme and Project (MPP) Portfolio – facilitated jointly by the OGC and the Cabinet Office. The Major Programme and Project Portfolio includes major asset acquisitions programmes as well as ICT-enabled and other major change programmes.

The OGC has developed an intervention process for any of these programmes and projects which need support, and the role and influence of the CIO with regard to ICT-enabled business change programmes and projects has been strengthened. The Government CIO now has the right to intervene on programme/project- or departmental-specific issues identified via the Portfolio that relate to the agenda governed by the CIO Council.

4.12.2 Departmental portfolio management and control and governance

To further reduce the risk of failure, the Cabinet Office has worked with departmental colleagues to embed portfolio management techniques and stronger governance and control measures into their own organisations. At departmental level, the process is used to reduce the risk of failure and ensure that projects are delivered on time and on budget.

By the end of 2008/09, all central government departments were using recognisable portfolio management techniques. The *Operational Efficiency Programme* made specific recommendations which further embed the Cabinet Office approach, and further work with the OGC will ensure that guidance is aligned and coherent.

The Cabinet Office has developed Key Performance Indicators for portfolio management, governance and benefits realisation and will be assessing departmental performance against them.

To date, the focus has been on central government departments. A significant proportion of the largest ICT-enabled business change projects are delivered by other organisations, so by 2012 coverage will be extended beyond central government departments to include agencies, non-departmental public bodies and the wider public sector. Over this period, the Cabinet Office will also work closely with the CIOs, Government IT Profession colleagues and the OGC to help match the skills of Senior Responsible Owners, and Programme and Project Directors/Managers to the complexity of the projects they lead.

Government will build on this work to further improve the success rate of projects and also embed compliance with overarching strategies and policies, including the Government ICT Strategy and its components. The Cabinet Office will work with the OGC to ensure that the Gateway Review process continues to be strengthened so that compliance with policies and strategies is tested at each stage in ICT-related programmes and projects. Where there is non-compliance, the programme/project will be stopped until it is compliant.

SUPPLY MANAGEMENT

The Supply Management strand will continue to build strong and productive relationships with our ICT supply base.

We will reduce total cost of ownership and improve return on investment, effectiveness and efficiency.

Targets for *Operational Efficiency Programme* savings will be set for all key suppliers to government.

4.13 Supply management

Government will only achieve efficient and effective ICT by working with the supply base to address the complexities and issues that arise from delivering multiple services in local environments. Our service providers can provide clear examples of good practice and prevent bad practice. They can share best practice from other market sectors and countries and embed government policy into the services they deliver. The supply management strand is a key enabler of the £1.6 billion per year savings identified by the *Operational Efficiency Programme* from collaborative procurement.[15] The overall benefits of the ICT Strategy and individual elements cannot be delivered without our supply partners, at all levels of the supply chain.

The UK public sector has a highly mature model of outsourcing ICT services, taking advantage of the economies that this can deliver. Approximately 65% of central government ICT provision is outsourced to the private sector – more than any other part of the public sector. This ensures that government gets the best resources and capability to support the development and delivery of policies. The Gershon Report of 2004[16] highlighted that poor relationships between government and its suppliers had negative impacts on value for money and delivery of ICT services. Additionally, suppliers were managing government better than we were managing them. This manifested itself in suppliers not providing the best resource available, not delivering their contractual commitments and, in some instances, maximising their financial return and taking resources from one government project to deliver another.

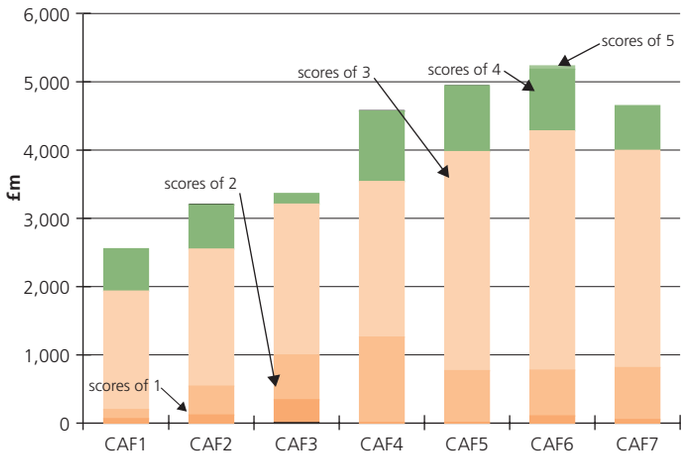
[15] The £1.6 billion per year savings is included in the £3.2 billion per year called for in the *Operational Efficiency Programme*.
[16] Sir Peter Gershon (2004) *Releasing resources to the front line: Independent Review of Public Sector Efficiency.*

As a result, the Supply Management Initiative was launched by the CIO Council in 2006, to support delivery of the *Transformational Government* strategy. The original objective of the Supply Management Initiative was to enable government to become a world-class purchaser of ICT, driving up performance, value and capability. Two strands were created:

- **performance improvement** via a Common Assessment Framework (CAF) and regular pan-government supplier forums, and
- **value and capability improvement** via the Strategic Supply Board (SSB)[17] and its associated 'Tiger Teams'.

The CIO Council designed a two-way supplier assessment framework, which is now delivered by the OGC through biannual performance reviews via the Common Assessment Framework. The seventh Common Assessment Framework report measured performance from January 2009 to June 2009. It assessed 152 contracts covering annual spend of over £4.66 billion – approximately 36% of total public sector ICT spend. Since the first Common Assessment Framework in 2006, average performance has improved by 11.3% in all areas measured.

Overall scores in relation to annual spend



In January 2007, at the request of the CIO Council and Cabinet Office, the OGC launched the Common Assessment Framework 360 – a supplier assessment of departmental performance. This complements the departments' assessment of suppliers and provides a rounded view of how and where to drive increased delivery performance from key contracts. Individual supplier performance improvement plans measure progress against key objectives and are designed to address shortfalls in delivery and measure cash savings.

A number of tools to improve programme and project delivery have been delivered by joint industry/government working groups ('Tiger Teams') and are now being implemented by public sector bodies. These include:

- a standard Pre-procurement Qualification Questionnaire

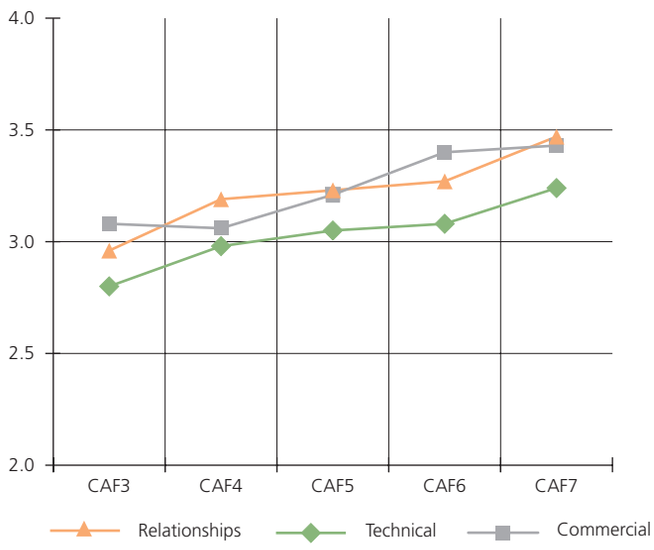
[17] The Strategic Supply Board consists of industry executives and government CIOs who work collaboratively to address structural and strategic challenges in the market.

- a Procurement Qualification Toolkit, and
- an ICT services model contract, and the Joint Statement of Intent.

All of these tools are available to public sector bodies via the OGC website (www.ogc.gov.uk).

After four years of joint work, delivery performance has improved incrementally but the pace of improvement could be accelerated. The average procurement of an ICT services contract takes between 57 and 77 weeks.[18] However, aside from procurement speed, there are other clear areas of improvement, as the following chart shows.

Average commercial, technical and relationships score



The OGC, the Cabinet Office and the CIO Council are now working with the ICT industry to develop a revised programme of work to address the challenges of increasing requirements for better commercial outcomes and delivery within tightening economic circumstances. This work will report to the CIO Council in January 2010, and will include:

- strengthened governance
- strategic alignment to the ICT Strategy for Government (and its associated ICT Collaborative Procurement Strategy)
- targets for Common Assessment Framework aggregated supplier scores to increase to 4 out of 5 or more by the end of March 2012, and
- developing a proposition to increase access to government collaborative procurements by small- to medium-sized enterprises and local government by June 2010.

4.13.1 ICT Collaborative Procurement Strategy

Delivery of the ICT Strategy for Government will require the right procurement approaches to be available to the public sector and for public sector organisations to follow a common procurement approach. This will be achieved through the implementation of the ICT Collaborative Procurement Strategy for government which has been developed through the OGC.

Analysis of the public sector ICT marketplace, its size, planned growth and supply and demand profile shows that there is considerable scope for efficiency and improved delivery of services. The buying arrangements of government and subsequent delivery models have historically

[18] Based on sample surveys by the OGC, 2006–08

been too fragmented, requiring further improvements and rationalisation.

The ICT Collaborative Procurement Strategy will transform ICT procurement in the UK public sector. In the future, common infrastructure should be bought under a single and well-understood set of arrangements, with the Crown as the purchasing authority wherever possible, allowing reuse across the public sector. Evidence from public sector initiatives, including the Public Sector Network and desktop services model, supports the view that ICT savings of at least £1.6 billion per year are achievable through such an approach, while delivering on other important policy objectives including sustainability, enterprise and innovation.

The fundamentals of the procurement strategy involve transforming government buying arrangements and leveraging total government spend by:

- driving increased use of the best framework and 'champion' contracts while rationalising the number of successor agreements; a list of major, strategic 'champion' contracts (i.e. frameworks and contracts which establish the new benchmark for government) will be established in order to underpin cross-government collaboration
- increasing competition, reuse and wider adoption of collaborative, shared and integrated service delivery solutions across the public sector, supported by new commercial arrangements
- continuing the drive to encourage suppliers to use open source software
- adopting a greater level of standardisation of supply, particularly for infrastructure, using industry standards developed by the CIO Council and drawing on industry best practice as the basis for future procurement reform
- developing 'major' supplier strategies and identifying opportunities for market leverage
- supporting transformational initiatives such as the Public Sector Network
- applying 'Lean' principles to create a faster and more agile supply chain
- providing strong leadership to develop the capability of the commercial community across government, and
- embedding key policy objectives into procurement including sustainability, equality and innovation and enacting policy for small- and medium-sized enterprises.

In November 2008, the Strategic Supply Board initiated a study into ICT off-shoring, which it identified as a potential way to increase efficiency and effectiveness. The objective is to identify and analyse the risks and opportunities associated with off-shoring ICT services within the public sector. It will assess feasibility and suitability for implementation across government in areas such as application development, while recognising the significant and valid concerns regarding secure management of personal data.

INTERNATIONAL ALIGNMENT AND CO-ORDINATION

Working across borders and alignment with international agreements is critical to the delivery of effective ICT solutions.

To deliver cross-border services and policies set out by the EU, Member States need secure electronic networks, agreed data protocols, and common information framework.

Our engagement goes beyond Europe and reaches out to international forums across the world.

4.14 International alignment and coordination

The UK public sector operates in over 145 countries; there are over four million UK citizens living abroad who still require public services from the UK and many international agreements with which our technology and systems must interface and comply.

Within the EU, UK businesses are free to trade, and UK citizens are free to live and work, in any EU Member State. Similarly, citizens and businesses from any EU Member State are free to live and work or trade in the UK. ICT-enabled public services can make this happen more simply than traditional paper-based methods. However, to take full advantage of this freedom, Europe needs common policies and agreements around ICT, and this requires Member States to work together to implement European legislative requirements.

To deliver the ICT-enabled cross-border services and policies set out in a wide range of EU agreements, decisions and treaties, Member States need secure electronic networks, agreed data protocols and common information frameworks to work to. The information sent over these networks varies widely – from farm subsidies to vehicle details, professional qualifications and social security information. Creating such networks and agreements across 27 Member States is challenging, and every effort must be made to ensure that Member States avoid duplicating the same solutions.

The UK is seen as one of the leaders in ICT-enabled service delivery, and we continue to share our experience with other governments around the world. Learning from our international peers helps the UK to improve existing services and innovate in new areas.

Historically, the Office of the Government CIO and its predecessors have engaged internationally through ongoing policy and delivery commitments with the rest of Europe, and multinational networks for knowledge and best-practice sharing, such as the Organisation for Economic Co-operation and Development (OECD).

The Office of the Government CIO also maintains two substantial commitments within an EU context:

- taking forward the i2010 Ministerial eGovernment Declarations, which form part of the umbrella i2010 European Union Information Society strategy, and delivering against the subsequent action plans, and
- providing, along with other Member States, committee oversight of the current Interoperable Delivery of European eGovernment Services to Administrations, Businesses and Citizens programme.

We are also involved in other wider networks such as the Organisation for Economic Co-operation and Development Network for Senior eGovernment Officials, the 5-Nations CIO Group (members of which are the relevant government bodies in Australia, Canada, the USA, New Zealand and the UK), the International Council for IT in Government Administration and the European Public Administrations Network.

Bringing together senior policy and delivery officials across government and the devolved administrations, the Office of the Government CIO is the secretariat for the European Interest Group, which aims to share knowledge and best practice, solve common problems and overcome barriers in the delivery of ICT-enabled EU projects and programmes.

As individual strategy leads, the Office of the Government CIO officials also provides specialist policy and delivery guidance to other government departments who work on their own sectoral commitments to Europe. Much progress has been made in recent years to build understanding and common ground and approaches, although more remains to be done. Our focus, looking ahead, is on the following:

- **Sharing best practice** – We will engage further with our international and European counterparts, learning from their best practice in service delivery. We will work with other European Member States to overcome obstacles that hinder delivery of efficient and effective public services across Europe.
- **Aligning interoperable strategies and technology** – In order to remain at the forefront of ICT strategy development, we will continue to engage with European and multinational networks. Without the support of our external peers, we risk developing our own strategy in a vacuum. When so much of our service delivery crosses borders, it is imperative that we maintain these links.
- **Simplification, standardisation and interoperability** – To deliver on the aims of the various initiatives, common frameworks and guidelines must be established. The Office of the Government CIO will increase its engagement in the development and implementation of the European Interoperability Strategy and Framework. Without common agreement, duplication will be rife and business processes multiplied unnecessarily.

5. GOVERNANCE

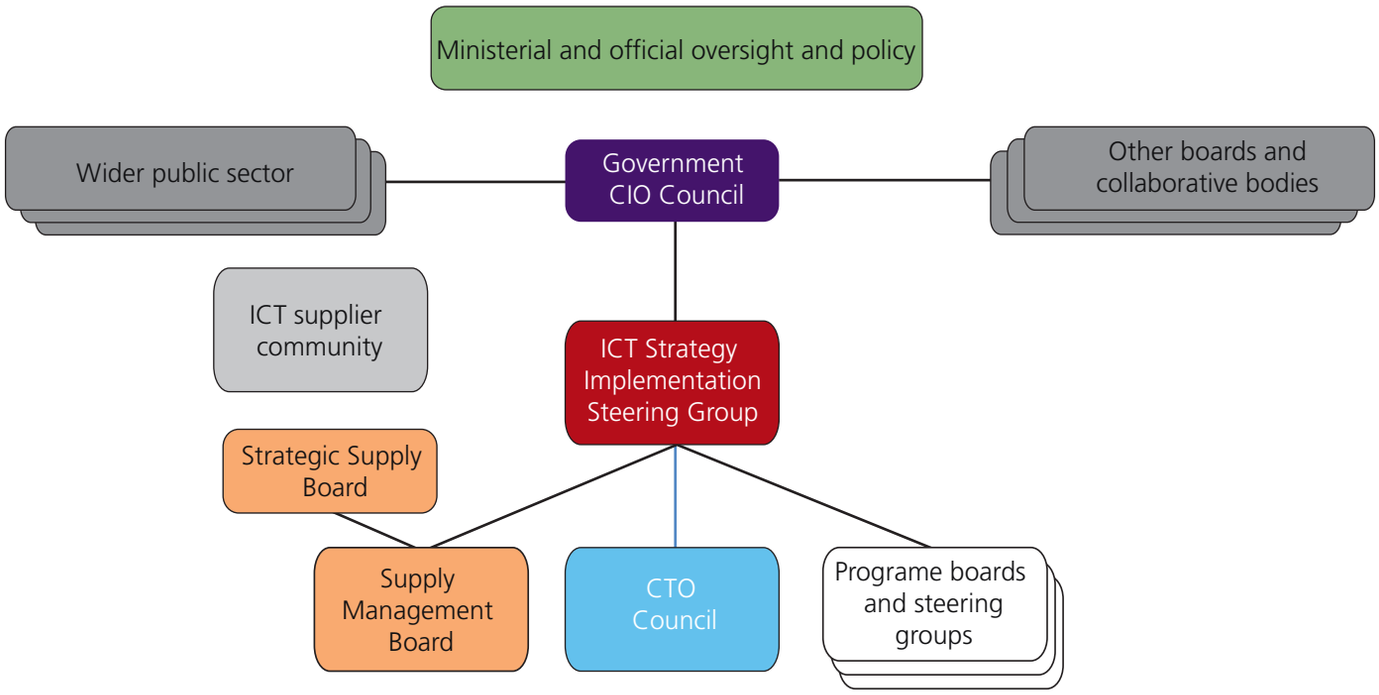
This ICT Strategy cuts across all of the public sector, including: central government, local government, executive agencies, non-departmental public bodies and devolved administrations. Each part of government has its own governance structure, its own accountability structure and its own agenda and set of priorities. This creates a complex governance requirement to address the (sometimes conflicting) priorities of Government strategies – of which this is only one.

A critical success factor of any major programme is a governance framework that recognises that:

- the ebb and flow of contemporary issues will both positively and negatively impact on any one strategic objective
- the more dependencies there are built into a programme, the greater the likelihood of failure, as governance becomes overwhelmingly complicated and in itself a threat to success, and
- governance has to work to a set of principles rather than hard and fast rules. Those principles are:
  - match supply with demand
  - anticipate generic changes
  - identify duplication and other opportunities for standardisation and sharing
  - challenge relatively low-value projects, and
  - set priorities when competing for scarce capacity.

For any Government strategy, clear accountability to and oversight from ministerial committees and policy is critical. Ministerial accountability for the ICT Strategy lies with the Minister for the Cabinet Office. At an official level, accountability is through a number of oversight boards such as the Civil Service Steering Board, the Information Assurance Oversight Board and the Corporate Function Board.

Government ICT Strategy governance model



Successful implementation of the strategy requires a governance structure that is focused on delivery across the public sector and takes account of the interdependencies between strategy elements. The CIO Council has agreed a delivery structure (detailed in Annex A), which provides clear accountability for delivery and ensures coherence across the strategy.

The overall approach will be based around portfolio management, through the creation of an ICT Strategy Implementation Steering Group (ISG). The ISG will be responsible for portfolio management across all strands of the strategy to manage interdependencies and risks to strategy delivery and take responsibility for the realisation of the overall benefits.

5.1 Roles and responsibilities

Effective delivery of the strategy will require collaboration and strong leadership across the public sector to agree priorities and resolve conflict. The immediate implications for the Cabinet Office, the CIO Council and public sector bodies are laid out below.

5.1.1 Cabinet Office

The Government CIO and Senior Information Risk Owner (based in the Cabinet Office) is head of profession for ICT-enabled business change and information security and assurance. His team lead the design, approval and delivery of the overall ICT Strategy and its supporting elements. Work is allocated to departmental CIOs, and the Office of HM Government CIO

and Senior Information Risk Owner support, facilitate and ensure delivery. The Cabinet Office ensures alignment of all policy and strategies and that they can be delivered in a cohesive way. Delivery is through the CIO Council (and subordinate organisations in health, police and local government) and the CIOs in departments and public sector bodies.

The Office of HM Government CIO consists of a small central support team facilitating local delivery. For instance, for Green ICT, one Cabinet Office official supports a lead CIO from a department who leads this work on behalf of the CIO Council. A further 86 individuals are active in developing the Greening Government ICT Strategy and associated action plans. The Office of HM Government CIO also works across government on security, identity management and *Digital Britain*, and runs the GSi infrastructure for 500,000 public servants and 450 organisations as well as leading on shared services.

The Cabinet Office supports, facilitates, mobilises and motivates resources, ensures cohesion and compliance with other strategies, and removes barriers.

The level of commitment from the public sector to delivery of the ICT Strategy and its associated elements is evident from the resources made available to the Cabinet Office to support delivery of individual programmes of work. These resources are often delivering public sector activity in addition to their local accountabilities and objectives.

5.1.2 CIO Council

The CIO Council is accountable for developing the strategy and ensuring that it is implemented in their organisation. It is also responsible for ensuring cohesion across the strategy and for supporting delivery with resources from within its team.

Each strand in the ICT Strategy has a CIO Council lead who is accountable to the CIO Council for ensuring that their programme remains aligned with CIO Council requirements and takes account of differing delivery requirements – particularly from local government, the wider public sector and devolved administrations. These leads are supported by:

- a Cabinet Office lead official, accountable for strategy and policy
- a technical lead, from the CTO Council
- a commercial lead, from the OGC Collaborative Category Board, and
- a delivery lead, from a public sector body.

Each strand will also have its own governance for directing the programme of work (for example the Public Sector Network Steering Group and Programme Board), which will be aligned to the overall ICT Strategy governance.

5.1.3 CTO Council

Technology changes offer a real opportunity for the public sector to maximise services and increase efficiency. The CTO Council is responsible for horizon scanning on behalf of the CIO Council – identifying emerging technologies that could be used to improve the delivery of public services and meet known public sector challenges and business drivers.

5.1.4 Public sector organisations

All public sector organisations, whether in central government, local government, the wider public sector, non-departmental public bodies or agencies or devolved administrations, face the same issues regarding economic pressures and increasing service requirements outlined in section 2.1 of this strategy.

This strategy provides the UK public sector with a secure, efficient infrastructure that is available to all. All public sector CIOs are accountable for implementation of the strategy within their local environment. As a guiding principle, CIOs are expected to take the approach that simplified and standardised corporate services are the norm, and that reuse of existing applications, shared services, designs and solutions will become the default position. Any customisation of solutions will be challenged by CIO Council peers, as well as Accounting Officers, as this will reduce the potential economies of scale available to the public sector. It will also increase the risk to information assurance and security, sustainability and improving access to public services by the citizen, as well as delivery of the ICT Strategy.

5.2 Strategic principles

The strategy is underpinned by a number of principles, which will be adopted by all public sector organisations in their own ICT strategies. These principles build on the work that began in 2005 with the launch of *Transformational Government*, and can be grouped under the following three core headings:

- **Smarter**
  - Design to improve quality of customer service
  - Ensure security from design through implementation to operation
  - Focus on interoperability to facilitate information sharing and accessibility
  - Work faster from concept to delivery
  - Develop and exploit strong relationships with our suppliers
  - Support innovation
  - Invest in our workforce to increase capability and professionalisation
  - Utilise effective portfolio, programme and project management techniques to maximise the impact of ICT-enabled change

- **Cheaper**
  - Adopt greater standardisation and simplification
  - Adopt the principles of using open standards
  - Exploit open source software to deliver greater value for money
  - Reuse existing assets as the preferred option
  - Exploit a more competitive marketplace
  - Work collaboratively to procure and manage common solutions
  - Develop agreed models for funding cross-public sector ICT programmes
  - Benchmark ICT costs annually
- **Greener**
  - Support sustainable economic development
  - Deliver the green agenda
  - Ensure energy efficiency

6. CONCLUSION

The UK public sector faces major challenges. The scale of services delivered across organisational and international boundaries, the requirements of customers and the need for ever-increasing efficiency, together mean that we cannot continue with a fragmented infrastructure that duplicates processes and solutions. This strategy delivers two significant benefits to the public sector over the next 10 years:

- a secure and resilient infrastructure providing flexible and efficient services to the public sector and delivering savings of over £3.2 billion per year, and
- simplification and standardisation of ICT across the public sector that enables interoperability and data sharing, where appropriate, to deliver improved public services to citizens and businesses.

This is a substantial strategy for Government. Transforming services against a backdrop of economic pressure requires leadership and a fundamental change in the way we specify, procure and deliver ICT to the public sector. This strategy provides the means to achieve the benefits outlined above.

CIOs and their businesses will implement the strategy and provide transformed ICT that supports and enables the public sector to meet its core aim of improving the lives of the citizens and businesses it is here to serve.

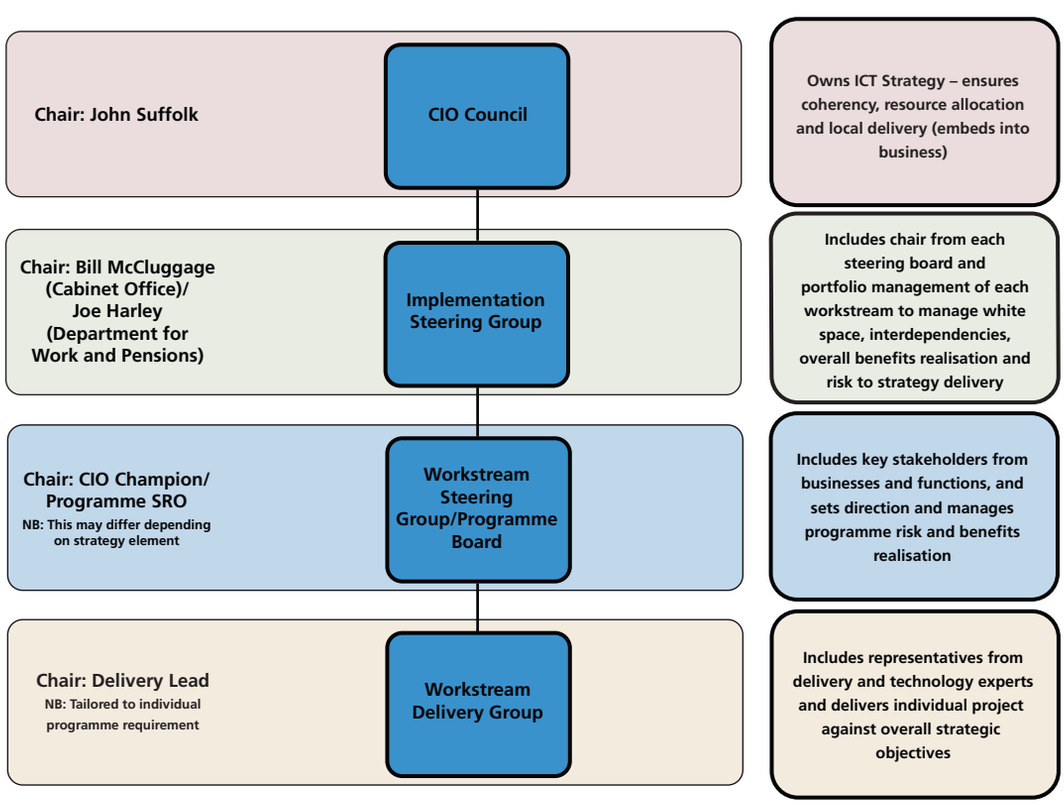
ANNEX A: GOVERNANCE

The ICT Strategy for Government applies to all of the UK public sector, whether central government, local government, wider public sector or devolved administration. It provides a common approach to ICT that maintains local accountability and control over implementation to meet unique delivery and business requirements. The CIO Council has agreed an integrated governance structure that combines CIO, central government, technical, commercial and local government/wider public sector expertise. The Cabinet Office, on behalf of the CIO Council, will now work with the Department for Communities and Local Government – and its partners – to promote and embed the principles and approaches of the ICT Strategy across the public sector. The Cabinet Office will similarly now work with the devolved administrations to align with the ICT Strategy.

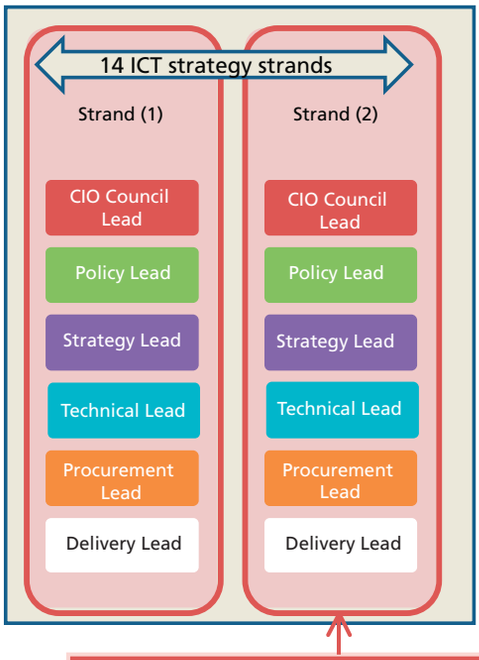
The governance structure has been agreed for delivery of the strategy as a whole, as well as for each of the 14 strands. The detailed governance for each strand can be found on the Cabinet Office website, within the IT in Government section.

In developing the strand governance structure, the CIO Council has also agreed the principal roles and their responsibilities.

Overview of ICT Strategy for Government governance structure



UK Government ICT Strategy: governance principals



The sum of the six elements across the 14 strands equals the Government ICT Strategy. Deputy Government CIO (Bill McCluggage) is responsible for the production and cohesion of the strategy.

The CIO Council Lead is accountable for ensuring that the strand fulfils the requirements of the CIO Council and that the Council is kept up to date.

The Policy Lead determines the 'what' and gains agreement from ministers. The Strategy Lead determines the 'how'. They may be the same person.

The Technical Lead is accountable for ensuring that, technically, the strand conforms to the agreed standards and architectures. They sit on the CTO Council. They help shape the standards, architectures and technical approaches.

The Procurement Lead is accountable for ensuring that the procurement requirements for this strand are built into the overall procurement strategy. They determine the procurement strategy for this strand. They sit on the Supplier Management and Procurement Board.

The Delivery Lead is responsible for programme delivery against objectives from initiation, including establishing the tools and support to enable the CIOs to embed into Business as usual.

The CIO Council Lead is responsible for the delivery of this strand on behalf of the CIO Council. They are accountable for implementing a governance structure that will deliver the requirements. The vertical strand are a team that are accountable for full delivery; they all report to the CIO Lead.

The team must look horizontally and ensure that their requirements are covered in any other stream, i.e. that information security is covered in all appropriate streams.

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ANNEX C: GLOSSARY

Architecture	The technical architecture provides a blueprint for the organisation of strategies, capabilities, processes and infrastructure to deliver business goals.
Chief Information Officer (CIO)	The executive in an organisation responsible for the information technology and computer systems that support delivery of strategic goals and outcomes. The CIO is focused on ICT strategy formulation, planning and strategic alignment with corporate objectives.
Chief Information Officer Council	The Chief Information Officer Council brings together CIOs from across all parts of the public sector to address common issues.
Chief Technology Officer (CTO)	The executive in an organisation focused on technical issues. The CTO is concerned with architecture, design and development, security, operational integrity, system support and maintenance across the IT organisation.
Cloud computing	The use of the internet to deliver ICT resources rather than hosting and operating these resources locally.
Data centre	A facility used to house computer systems and associated components. Data centres are classified according to the criticality and sensitivity of operations being run through them.
Desktop services	Devices and services used by individuals to access functions such as email, word processing and internet browsing.
Devolved administrations	Northern Ireland, Scotland and Wales each have their own Government or Executive, led by a First Minister and devolved legislature. Each country has devolved powers that have been defined in law.
Government	Generally taken to mean central government. The Government ICT Strategy applies to all of the UK public sector including central government, local government, wider public sector and devolved administrations.

Government Applications Store (G-AS)	The G-AS will provide a gateway to sharing and reuse of online business applications, services and components between public sector organisations.
Government Cloud (G-Cloud)	An internet-based ICT infrastructure that enables public bodies to host, select and use ICT systems from a secure, resilient and cost-effective service environment.
Information and communication technology (ICT)	An umbrella term that covers all technical means for managing, using and communicating information. It is most often used to describe digital technologies such as methods of communication, communications equipment and techniques for processing and storing information.
Information assurance	Information assurance is the practice of managing information-related risks around confidentiality, integrity and availability. In reality this means that information assurance is about ensuring that authorised users have access to authorised information at the authorised time from authorised locations.
Infrastructure	The equipment and installations that provide the basis for ICT operations and services, for example data centres and communications networks.
Interoperable/interoperability	The ability of diverse systems and organisations to work together without the need for manual intervention. In ICT, this generally means that systems use the same basic standards (protocols) to ease communication and data exchange.
Local government	Local authorities have a wide range of powers and duties. National policy is set by central government but local councils are responsible for all day-to-day services and local matters.

Open source	Open source software is software for which the rights to source code and other rights normally available to copyright holders are freely available. This allows users to collaboratively use, change and improve software and redistribute it. Whie open source software can be free to obtain, there are associated support and maintenance costs, which mean that there is typically some financial outlay involved throughout its lifecycle.
Open standards	A technical standard that is available to all users regardless of the organisation they belong to.
Public Sector Network (PSN)	A programme of activity that will deliver a single, holistic telecommunications infrastructure providing converged voice and data communications.
Shared services	Those business processes and functions that are common across organisations that are sourced once and used many times. For example, payroll, human resources and finance processes are required in all organisations. Rather than each organisation running separate functions, these can be grouped and used more efficiently through a shared-service approach.
Skills Framework for the Information Age (SFIA)	A framework providing a common language to describe the skills and attributes required of IT professionals.
Technical standards	Technical standards provide the guidelines that ensure ICT systems and services are able to work together, regardless of when they were specified and who is providing them. These technical standards may be open – available for all to use and modify – or proprietary – unique to a specific organisation.
Wider public sector	All areas of the public sector not covered under central and local government – for example the National Health Service, police forces, fire services.

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