

Government ICT Strategy

New world, new
challenges, new
opportunities



Presented to Parliament by the Parliamentary Secretary of the Cabinet Office by Command of Her Majesty

October 2009

Government ICT Strategy

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UK Government ICT Strategy

1. Introduction

In October 2005, Government published its strategy ‘Transformational Government enabled by IT’, which set the agenda for the next five years. The strategy focused on three broad themes to enable better service delivery through the use of Information and Communication Technology (ICT): 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 drove implementation of the strategy through the Chief Information Officers Council (CIOc). Successful delivery of this strategy has been highlighted in the Transformational Government Annual Reports and the original strategy (and subsequent extensions) is now widely copied around the world. Since publication of the original strategy, substantial progress has been made in its implementation and onward development. Notably, the CIO Council has developed an ICT Strategy for Government that builds on previous policy announcements and will deliver a high quality ICT infrastructure. The ICT Strategy is aligned with the Digital Britain Strategy, the Cyber Security Strategy, Building Britain’s Future, Excellence and Fairness, the Operational Efficiency Programme (OEP), and the recommendations of the Power of Information taskforce. Furthermore, the Office of the Government CIO has taken a proactive role in developing many of the recommendations in these strategies.

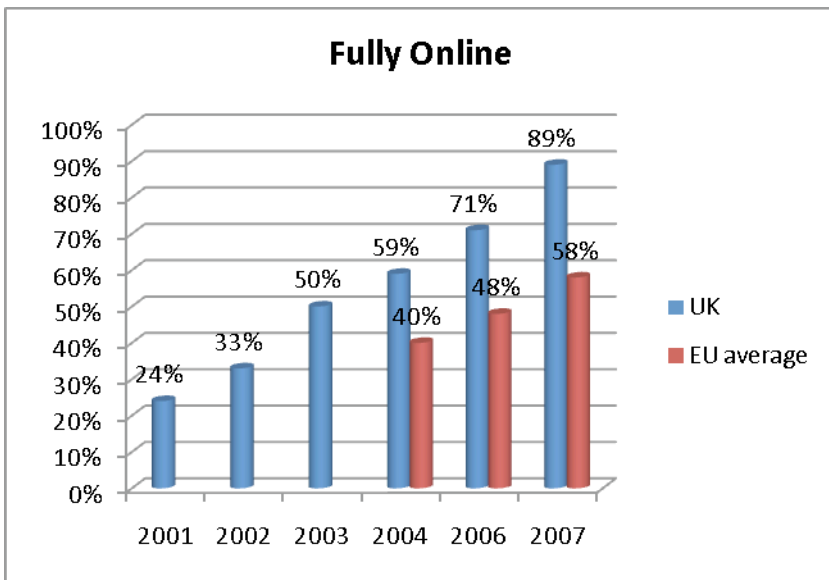
The need to continue to transform public services and to use ICT to enable transformation of the way the public sector runs and operates is accelerating. To meet increased and increasing demand within this complex technology arena, the UK public sector has built an ICT infrastructure that in many instances duplicates solutions across different areas of Government. The ICT strategy will ensure that the public sector ICT infrastructure will now go through a process of standardisation and simplification based on the premise of a common infrastructure designed to enable local delivery suited to local needs. Delivery will increasingly be through partnerships between public, private and third sectors and this strategy enables greater interoperability to underpin this model. The strategy provides high level detail on the fourteen key elements – at points it may appear technical, but this is necessary for a technology strategy.

Through implementation of this strategy, the public sector will reuse assets to maximise return on investment, deliver secure and efficient services in a consistent manner and take account of evolving risks from global threats such as climate change, economic instability and cyber-security. Only by taking a strategic, long term approach can public sector ICT begin to meet the many demands placed upon it (including delivery of the required £3.2bn savings called for by OEP from more efficient use and procurement of ICT).

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 90s. While technology has played a key role in improved service delivery, this has also been matched by a greater understanding of its potential. It has not only changed expectations but also increased demand, and made it easier for Government not only to do its day to day business, but also 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) or NotSchool.net which provides online learning for young people excluded from mainstream education.¹

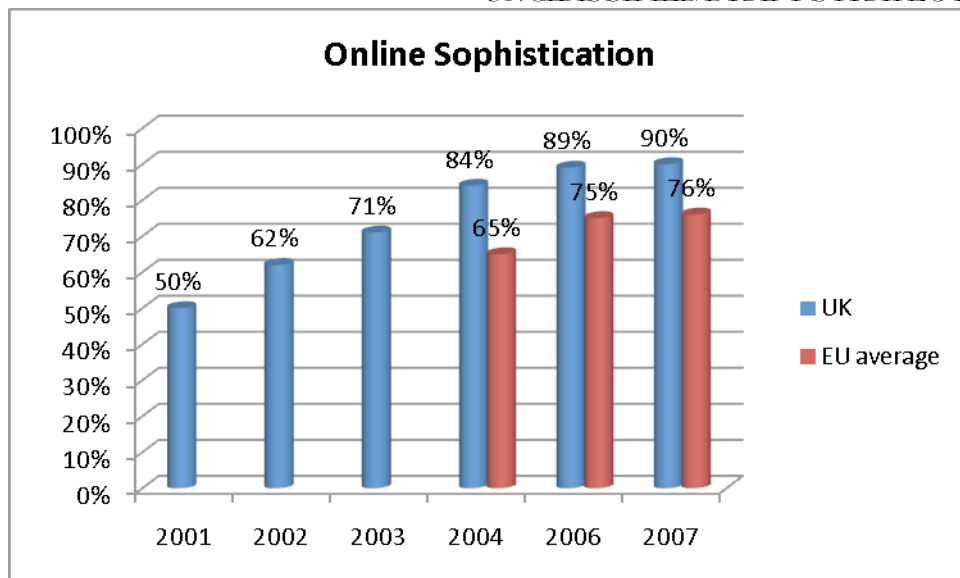
We are not alone in success, but we are one of the world leaders in using technology in the public sector. Delivery of citizen based services is benchmarked by the European Commission approximately every 18 months.² Between 2004 and 2007, the rate of growth in the percentage of fully online services delivered across the UK has exceeded the EU average.



The EU also measures the overall sophistication of online services towards the ultimate goal of a pro-active automated service. Against these criteria, by 2007 the UK had reached 90% sophistication against an EU average of 76%, ensuring that most citizens and businesses can make use of services online in addition to other routes.

¹ 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.

² 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.



Quoting from their report “online sophistication of [UK] public services scores 90%...The level of sophistication of services for citizens is almost as equally developed as those for business”. “Four of the nine “pro-active” services attain a 100% score, thus pro-active user-centric service delivery is developed above the European average”. “The UK national portal [directgov] achieved a 90% score against an average for the EU27+ of 75%”

As the chart shows, significant progress has been made in ensuring that citizens and businesses can undertake their services online in addition to other routes. In the UK, we also make significant use of Telecommunications technology to improve access to services.

2.1. Public Sector Transformation

Demand for public services and expectations of levels of service are ever increasing. Citizens and businesses expect the same levels of access and personalisation that they see from large private sector organisations such as Amazon and Tesco. They expect to be able to access their services from multiple locations and in ways that suit the user, rather than the provider of services. The UK public sector has already made real progress in simplifying access to services and meeting this increased demand.

- In 2007/08, 13m motorists renewed their car tax online (30% of total). This is a 73% increase on last year’s figures
- 5.8 million self-assessment tax returns were completed online which is a 56% increase on last year’s number
- Directgov now has over 15 million visits a month, and the customer satisfaction rate for Businesslink.gov.uk is over 90% (as reported in its May 2008 survey), which puts it ahead of the best commercial comparators such as Amazon.com
- NHS Choices had 2m visits by the end of the 07/08 financial year

The pervasive use of ICT goes beyond the public sector. In the UK, the ICT Industry employs about 1 in 20 people. There are over 100,000 ICT companies and many sell to the public sector. Half of Europe’s productivity gains in the last few years have been attributed to ICT investment. So much so that 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 skill set of those employed within ICT - 55% of ICT people are qualified to at least level 4, nearly double that of the UK working population.

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 employs in total over 10% of the entire UK workforce, at some 135,000.

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

There are many transformational technologies that will become mainstream in less than five years³. Those of particular interest in a UK government context are: interactive (web 2.0) tools and processes, cloud computing technology and service-oriented architecture (SOA). SOA provides a set of governing principles and concepts that define how services will operate with each other and requires a common approach to the detailed information (metadata) associated with services. Longer term there is potential for context based delivery architectures to have an impact.

Emerging technologies, such as cloud computing will have a dramatic effect on how public sector ICT is delivered behind the scenes. From an external perspective, citizens and businesses are likely to notice an increase in use of web 2.0 and social networking tools and methodologies. These will help improve public sector interaction with citizens and businesses, providing opportunity for empowerment and participation, promoting transparency and improving services. Internally, the use of Cloud technology enables different business models to be developed for the procurement, use and re-use of applications. Hosting applications within the Government Cloud (G-Cloud) means that organisations will be able to pay per use for applications. They will be able to access a software licence that is assigned to the crown and transferable across the public sector; organisations will be able to adopt a 'pay as you go' model - paying only for the time applications are actually in use. Implementation of a service-oriented architecture will enable delivery of the G-Cloud and Government Application Store, promoting reuse and efficiency in a secure environment.

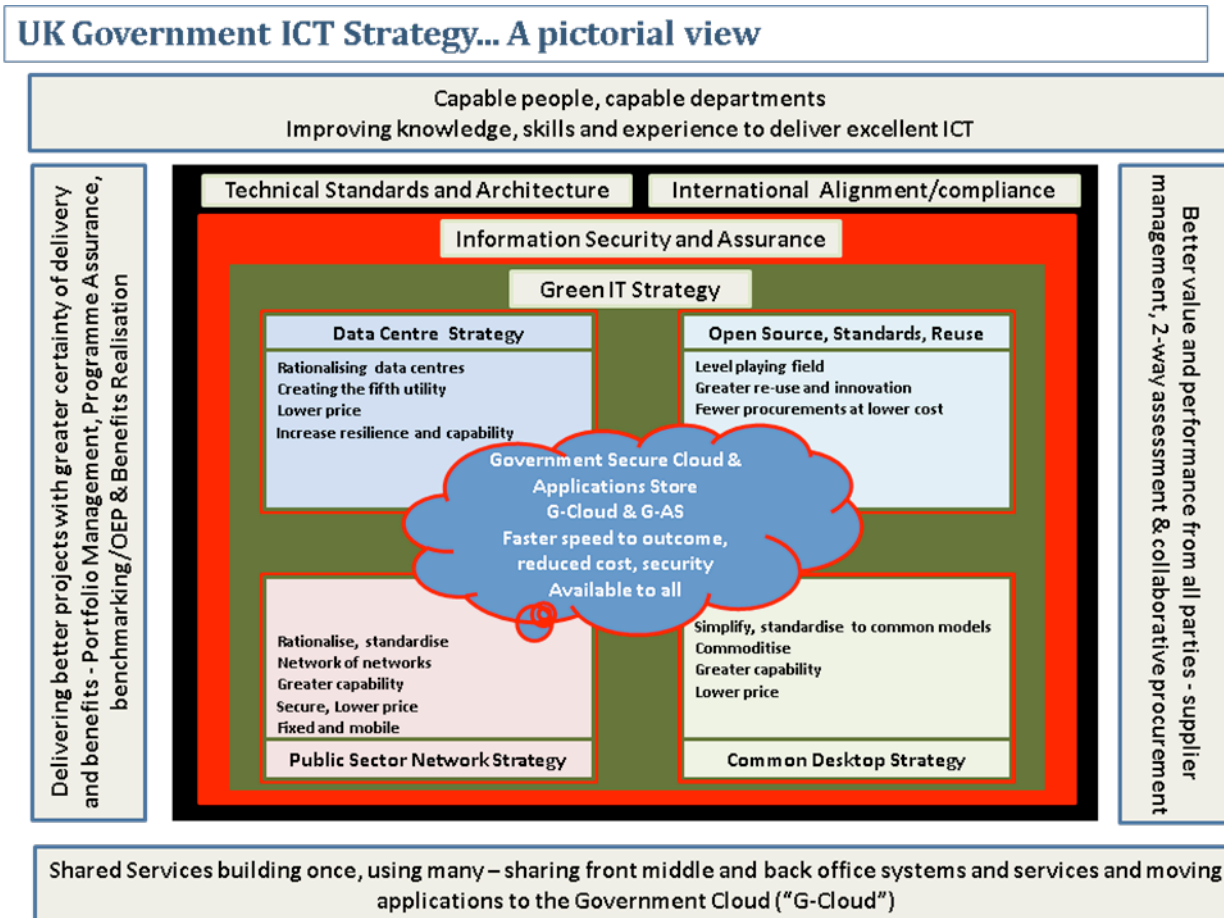
In the longer term - 2015-2020 - additional emerging technologies will begin to be identified. Semantic technologies, when used in software, will separate data and content files from application code and meanings. This means that changes can be made more quickly, more cheaply and with reduced risk. Semantic technologies can also be applied to the internet (Semantic web) so that computers can find, share and combine information on the web. This means that computers will be able to undertake many of the transactional tasks (such as searching for public services available in your local area) that currently require human intervention. Location-aware services and developing technologies that enable more energy efficient operations are also likely to play a large part in shaping government's future ICT infrastructure, assets and processes. There are also technology developments that 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. For instance, removing the need to use a keyboard or a pointing device will bring a step forward in the use of ICT in all healthcare settings. This strategy provides the flexibility for new technology developments and sector specific requirements to be incorporated as they arise.

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 £16bn 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 by Dr Martin Read.

³ Hype Cycle for Emerging Technologies 3, Gartner 2009

3. Summary of the ICT Strategy

In 2020, public sector ICT will provide secure services to citizens, businesses and public servants, where they need it, how they need, when they need it and at a price the tax payer can afford.



The ICT Strategy supports delivery of core public sector goals:

- Improving public service delivery
- Improving access to public services
- Increasing the efficiency of public service delivery

These goals are set in Digital Britain, Building Britain’s Future, Excellence and Fairness, and the Operational Efficiency Programme. Each Department, Local Government and Wider Public Sector organisation also has their own business strategy to deliver specific services and commitments. The ICT strategy for Government provides a standardised, flexible and efficient infrastructure which enables delivery of individual departmental business objectives. It provides public servants with the confidence that they can deliver their objectives effectively and securely in a sustainable manner. It reduces inefficiency, replication of systems and duplication of effort.

The strategy will go further by providing Accounting Officers with the confidence that services available across the public sector have met procurement legal requirements and provide value for money to their business. This will be assured through the Supply Management strand which is accountable for pan-Government procurement of ICT products and solutions. The governance structure will ensure that Information Assurance 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 public sector mandatory Information Assurance and Security requirements. Most importantly, it will enable delivery of pan-Government objectives whilst maintaining local control over delivery and personalisation of services.

The UK public sector is facing significant pressures:

- Citizens are demanding access to services at times and in ways that are convenient to them rather than the provider
- Citizens and businesses have higher expectations of the levels of service and interaction they require from service providers
- The boundaries between public sector, third sector and private sector service provision are becoming increasingly blurred
- The global economic downturn of 2008/2009 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 ICT services and systems can be fully exploited to enable organisations to meet the challenges they face. The strategy addresses core infrastructure, standardisation and simplification of technical standards and designs, embedding of core policy and building of capable people – both internal and external to the public sector.

3.1. Common Infrastructure

The ICT strategy will create a common, secure, flexible infrastructure that is available to the public sector. To achieve this, the strategy sets out the vision for:

- **The Public Sector Network:** A single holistic telecommunications infrastructure that will deliver converged voice and data communications. The PSN will deliver at least **£500m savings per annum**⁴ by 2014 and facilitate delivery of services to any location, running over a core network that is secure, based on open standards, interoperable, energy efficient and competitive
- **The Government Cloud (G-Cloud):** A Government cloud infrastructure that enables public bodies to host their ICT systems from a secure, resilient and cost-effective service 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 G-Cloud is a **key enabler of the £3.2bn savings** outlined in the Operational Efficiency Programme as it provides the access point for ICT services, applications and assets
- **Data Centres:** In order to deliver large cross-Government economies of scale, meet environmental and sustainability targets and provide secure, resilient services, it is necessary to significantly rationalise the current base of data centres in use by the public sector. Aligned with development of the G-Cloud, is a programme of activity that will consolidate and reduce the number of data centres in use from the current many hundreds to 10-12. This will deliver highly resilient, secure data centres that reduce cooling and power consumption by up to 75% on current infrastructure. It will also reduce IT infrastructure costs by up to **£300m per annum by 2020**⁵.
- **Government Applications Store (G-AS):** The Government Application Store (G-AS) will be an online portal that enables sharing and reuse of 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 £500m per annum by 2020**⁶.
- **Shared Services:** In recent years, the Shared Services culture has been building both within and between departments providing Finance, HR and Procurement services. This approach has saved both money and headcount and over 80% of civil servants are now supported by a shared service solution. By 2020, Shared Services will be provided via the G-AS and G-

⁴ Public Sector Network business case, 2009

⁵ Strategic Supply Board Study 2009

⁶ Op. cit.

Cloud to further exploit opportunities. Shared Services will deliver **£4bn savings**⁷ as outlined in the Operational Efficiency Programme.

- **Desktop Services:** 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, built and run their desktop service. The ICT strategy will provide the public sector with a set of common desktop designs and all suppliers will be required to deliver common designs and shared services at the lowest price available. These designs will conform to Information Assurance (IA) and Sustainability requirements and will deliver significant economies of scale. A £100pa saving in operating cost per public sector desktop would yield a **saving of £400 million**⁸ per annum.

3.2. Common Standards

All products, services and assets contained in the ICT infrastructure will benefit from a suite of common standards. This will assure security, interoperability and common data standards which will facilitate easier data sharing and joining up of public services.

- **Architecture and Standards:** The technical architecture and standards work underpins all elements of the ICT strategy. This work will ensure that each element of the strategy can interoperate and be reused across the public sector, delivering agile public services that are efficient, responsive and tailored to meet the needs of citizens and businesses.
- **Open Source, Open Standards, Reuse:** Traditionally, the public sector has relied on Commercial Off The Shelf (COTS) software from global providers. This restricts the ability of the public sector to reuse solutions, reduces flexibility to manage assets efficiently and prevents the public sector from switching suppliers when problems occur. The Open Source, Open Standards, Reuse strategy will provide the public sector with Open Source alternatives to COTS software that meet public sector requirements for Information Assurance, resilience and ongoing support and integration with existing systems. Government already commits to only using 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 more carbon than the aviation industry and use and emissions continue to grow. Recognising this, the Greening Government ICT strategy sets 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 & Assurance:** Recent data losses within the public sector have rightly raised the profile of Information Assurance (IA). However, without appropriate levels of data sharing, Government will be unable to meet its aim of joining up services and providing easier access to personalised services for citizens and businesses. Effective, proportionate management of information risk is essential to meet the challenge of delivering personal services enabled by ICT, as well as making us more effective and efficient. Work to enhance Information Security & Assurance through the National IA Strategy cuts across all elements of this ICT strategy and is embedded within all work-streams. The ICT strategy will deliver a secure and proportionate infrastructure that will allow public sector bodies to match their information risk appetite with their information risk exposure - users of that infrastructure will be able to take IA for granted without feeling that their effectiveness has been compromised.

3.3. Common Capability

⁷ Operational Efficiency Programme: Back Office operations and IT, May 2009

⁸ Strategic Supply Board study 2005

Cultural change is a critical success factor for the delivery of the ICT strategy. People and their skills are the key element of delivery of an ICT infrastructure that meets the requirements of users, customers and stakeholders. The ICT strategy incorporates building capability as well as capacity in ICT.

- **Professionalising IT enabled change:** The Government IT Profession focuses on driving public sector organisations to strive for IT excellence. At the heart of this work is the Government IT Profession skills and competency framework which 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. 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.
- **Reliable Project Delivery:** Reliable project delivery was introduced in response to perceptions of significant IT failure in the public sector. Cabinet Office work closely with the Office of Government Commerce (OGC) to focus reporting and effort on those major programmes and projects that have a high complexity and associated high delivery risk. Taking a more structured approach to skills matching, reporting and management of portfolios will be a key enabler for consistent high delivery of public sector ICT programme and projects.
- **Supply Management:** Approximately 65% of Government ICT is outsourced to the private sector. Whilst this brings capable resources and efficiency, Government has not always managed these relationships effectively. The Supply Management work-stream will build on the work already undertaken by the CIO Council, OGC and our Industry 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:** 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. Cabinet Office also has regular interaction with peers from the USA, Australia, Canada and New Zealand. The UK is recognised as a world leader in the use of ICT in delivering public services. Sharing best practice and solving common problems will ensure that we continue to exploit technology to its full effect in our efforts to deliver constantly improving services.

3.4. Implementation

This strategy sets out the direction for Government ICT through to 2020. It will not be delivered by bodies such as the CIO Council or central departments such as Cabinet Office of HM Treasury. It will be delivered and implemented through individual public sector organisations who want to exploit the infrastructure available to them to enable delivery of their business plans and objectives. It is therefore critical that the delivery structures of the strategy (governance) reflect the needs and experiences of front-line delivery organisations.

The CIO Council have agreed a governance structure that merges CIO Council lead, central Government input (Cabinet Office), Commercial expertise (a public sector representative from the OGC Collaborative Category Board), Technical expertise (nominated by the CTO Council) and a Delivery lead from a public sector organisation. This will provide all public sector bodies with the opportunity to shape and develop the implementation of the ICT strategy to ensure that solutions never lose sight of the need for improved public services as well as increased efficiency. It will also ensure that local requirements and the need for flexibility are not overtaken by a 'one size fits all' approach that will negatively impact service delivery. In order for the strategy to fully deliver its potential, CIOc will work with the Department for Communities and Local Government (DCLG) and its partners to promote and embed lasting improvements to ICT across the public sector. This will mean working initially with the Local Government CIO Council (LCIOC) and the Local Government Association (LGA) to develop a shared vision for public sector ICT to enable local authorities to align with Government's ICT strategy for the wider public sector.

UNCLASSIFIED/DRAFT STRATEGY

This is a substantial strategy for Government. Transforming services against a backdrop of such 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.

4. The ICT Strategy for Government

The ICT Strategy for Government can be depicted by the following diagram:

UK Government ICT Strategy... 14 strands of activity

1	The Public Service Network (PSN) strategy	Rationalise, standardise, a "network of networks", greater capability, secure, lower price. Fixed and mobile
2	Government Cloud (G-Cloud)	The "fifth utility". Rationalisation of ICT estate, greater speed to outcome, reduced cost, increased capability and security
3	The Data Centre Strategy	Rationalising data centres, creating the "fifth utility", reduce cost, increase resilience, and capability
4	Government Application Store (G-AS)	Faster procurement, greater innovation, faster speed to deliver outcomes, reduced cost
5	Shared services moving to the G-Cloud	Continually moving to shared services for common activities. Moving, and growing, shared services into the Government Cloud
6	The Common Desktop Strategy	Simplify, standardise, common models, commoditise, greater capability, lower price
7	Architecture and Standards	Creating the environment that enables many suppliers to work together, cooperate, interoperate in a secure seamless cost efficient way
8	Open Source, Open Standards and Reuse	Level the playing field. Greater reuse, less procurements, lower cost, greater innovation
9	Greening Government ICT	Sustainable, more efficient ICT at a lower price
10	Information Security and Assurance Strategy	Protecting data (citizen and business) from self harm and the unscrupulous.
11	Government IT Profession	To deliver what is being asked of us, improve capability, knowledge, skills and experience of those involved in ICT enabled business change
12	Delivering better projects with greater certainty of outcome	Using portfolio management and active benefits management to ensure we undertake the right projects in the correct way and realise the full value
13	Supply Management	Working together to ensure our we all play to their strengths, improve their weaknesses and deliver our commitments.
14	International Alignment and Compliance	Ensuring we help shape treaties and directives to ensure they fulfil the UK national requirement and then working across ICT to ensure UK delivery

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

4.1. The Public Sector Network Strategy

The Public Sector Network (PSN) strategy sets out to develop a single holistic telecommunications infrastructure for the whole of the public sector, rather than each public body designing, developing, installing and maintaining its own; an approach which has led to fragmented, unreliable and expensive service delivery.

The PSN Programme has been established to:

- Deliver converged voice and data communications
- Create a coherent design and facilitate market delivery of interoperable services
- stimulate the private sector to deliver PSN services and create the ‘Government Conveyance Network’
- Virtualise the network infrastructure across the public sector through creation of a network service marketplace operating to common standards and processes within an agreed governance structure
- Plan the transition of public sector organisations to the new approach and implement the governance regime to manage the environment

The PSN is expected to deliver at least £500m per annum savings by 2014 and public sector bodies will be able to use PSN 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 market place where competitively priced, commoditised services can be obtained on a utility basis and suppliers compete to introduce innovation.

PSN will introduce a move towards Internet Protocol based voice services utilising the networks already built for data services. There are currently over 4 million public sector voice lines, giving significant scope for cost savings through utilisation of these existing networks. Additionally a ‘roaming’ capability will ensure that mobile handsets will achieve further economies by operating over the PSN whenever possible.

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 - this will often be at locations outside of the office environment. The PSN will virtualise the network to allow the delivery of services to any location and, through standards, will enable Unified Communications (UC) in terms of voice, video and collaboration capabilities.

The core network infrastructure of the PSN will be:

- Secure by design
- Based on Open Standards
- Interoperable -supporting the transition from legacy systems
- Energy efficient
- Highly cost competitive

PSN will provide a number of core services, including:

- **Government Conveyance Network (GCN):** Used to interconnect supplier data networks and other services in terms of network transport, a composite ‘mesh’ of core industry networks in which any operator can participate provided they meet stated capability and standards criteria
- **Service Information Monitor (SIM):** A repository of data providing an appropriate end-to-end view of service information and service inter-dependency, underpinning service and performance management across services and suppliers. This will ensure that the most likely cause or origin is identified for the vast majority of service events and incidents
- **Standardised common services:** Other services that PSN will provide include common user Authentication standards, federated Intrusion Detection services, secure file transfer, federated email services, a Domain Name System, secure internet access and directory integration

The aim of the PSN programme is to enable the delivery of shared services through delivery of Infrastructure as a Service (IaaS), application Platforms as a Service (PaaS) and ultimately Software as a Service (SaaS). This will also both ensure and assure continuity of business and improvement through continued infrastructure capability enhancement and smooth transition.

The PSN Delivery programme will deliver a core set of PSN network and central services by the end of 2010, alongside a procurement directory that enables an innovative and responsive Network Services marketplace. By the end of 2012, all GSi and MTS customers will migrate to PSN services and 80% of public sector users will utilise the PSN marketplace. Further development work will ensure that 95% of Network Services procurements are through the PSN services directory by the end of 2015 and all government voice systems will move from the Public Service Telephone Network (PSTN) to delivery using VOIP by 2017.

4.1.1. Secure Telecommunications

The telecommunications infrastructure continues to become more embedded in our current way of life, which brings with it potential fragility and vulnerability to a number of hazards, including the possibility of co-ordinated cyber attacks. This may lead to the threat of severe degradation or even failure of key HMG functions and the critical national infrastructure (CNI) as they come to rely more and more on standard commercial networks.

The key objective is the continued availability of the required communications functions for use by the identified in-scope services in the event of a failure within the commercial telecommunications networks, for whatever reason. Further work needs to be completed to consider what gap needs to be closed and what options exist. By the end of 2009/10, we will have identified the options and developed a business case for implementation.

4.2. The Government Cloud or “G-Cloud”

Recent developments in ICT have made it possible to share ICT infrastructure in a way that delivers increased flexibility and responsiveness to business needs whilst reducing costs. This change involves a move from ICT that has been procured separately by organisations as ICT infrastructure, to a new model in which ICT is provided as a utility which is known as "cloud computing". This has been likened to the changes in the electricity industry during the early part of the 20th century as organisations moved from buying their own generators to procuring electricity as a utility.

The term cloud computing was originated by the large Internet firms where the rapid change and growth in their businesses provided the driver for developing a new approach to the provision of ICT infrastructure; an approach where the provision of standard ICT services needed to support customer facing activities was separated from the detail of the computer systems in use and their physical locations. As the sophistication of this approach developed, these businesses became able to regard ICT infrastructure as a pool (or cloud) of infrastructure resources.

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

- Standards evolved that made it possible the need to be able to deploy business applications on any available computer systems, rather than just those that had been uniquely configured
- Unit costs of computer resources fell substantially as the flexibility of allocating workload to any available computer system enabled much higher system utilisation levels to be achieved

The cloud model enables further significant cost savings over and above those from data centre rationalisation - the additional benefits arise from the flexible allocation of computer resources to workload and the cloud model also enables further reduction in energy consumption and much greater flexibility.

While the cloud model is sufficiently proven for there to be clear benefits to the public sector, it is still early days. The main challenges to overcome include confidence in information assurance, achieving guaranteed service levels, and determining the standards to adopt. It is clear however that there will be a major shift in the ICT industry to the cloud model, and that the benefits will be substantial. In the relatively short term, it will be possible to mitigate many of the risks through putting in place a private cloud for government.

Our vision is to develop and implement a government cloud infrastructure that enables public bodies to source ICT infrastructure, development capabilities and software applications from a secure, resilient, flexible and cost-effective service based environment.

Work on developing the G-Cloud strategy will be initiated in the autumn 2009, and will target delivery of a prototype development infrastructure in early 2010. This will be used to validate the model for a number of initial services -with goal of having the new approach ready to use as the standard model by the end of 2010.

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

Development of the G-Cloud is the key enabler of the £1.6 billion savings from ICT outlined in the Operational Efficiency Programme report (the remaining amount comes from collaborative procurement of ICT goods and services).

4.3. The Data Centre Strategy

The data centre strategy will drive through a significant rationalisation of the data centres that provide information based services to public sector organisations. This will bring substantial savings in cost and energy consumption, and at the same time improve service standards and the ability to cope with disruption. The data centre strategy is aligned with other elements of the Government ICT strategy in particular the PSN, and provides the enabling platform for the G-Cloud and the G-AS.

Recent 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 hundreds of organisations. While procurement decisions have been progressed in the best interests of each individual organisation, at the 'big picture' level this has resulted in an increasingly costly proliferation of data centres that now 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 cross 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
- 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 the opportunity now exists to progress 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 NDPBs and Executive Agencies), and then moving into the wider public sector.

The data centre strategy will be delivered in a way that enables and leverages the new approaches pioneered by the large Internet firms for data centre design, thus enabling the G cloud "infrastructure as a service model" that will substantially drive up the efficiency of asset utilisation.

Our vision for data centres is that over the next three years, 10-12 highly resilient strategic data centres for the public sector are implemented to common standards.

Establishing these strategic data centres will enable consolidation of existing public data centres into highly secure and resilient facilities - provided by a managed number of suppliers delivering best practice. The benefits will include savings on ICT infrastructure costs in the order of £300m per annum and 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, will have significantly reduced reliability, and significantly greater and more consistent ability to recover from major incidents.

The data centre strategy will be implemented in a way that delivers benefit at the earliest opportunity. Consideration will be given to the early introduction of a data centre space brokerage service to reduce the need for new data centre space to be procured by public sector bodies - unused space exists in a number of existing facilities which will be re-used where possible. Public servants will be able to store their data in the knowledge that it is secure, accessible and sustainable.

4.4. The Government Application Store or “G-AS”

The Government Applications Store (G-AS) strategy sets out to enable a substantial reduction in the 10,000+ of unique applications and applications contracts that are currently used by public sector organisations. The goals are to enable annualised savings exceeding £500 million per annum by 2020, to heighten the public sector’s ability to respond to change, and to move to standard approaches for providing citizen and business facing services across the public sector.

The vision for the G-AS is for the reuse of existing assets to become the standard approach across the public sector for delivering new ICT solutions – including those for both policy and 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 across the entire range of ICT enabled services – from relatively common back-office requirements through to customer facing front office services that are unique to the organisation Involved.

The G-AS will be an online portal that enables sharing and reuse of business applications, services and components between public sector organisations. Even where organisations have unique requirements it is normal to find that many steps in the business process are similar to those of other organisations, even those that have radically different roles. For example the approaches used for authenticating employees, and authenticating customers, and making payments through the banking system are similar in most organisations.

The future will see each of the steps in a process being defined as a reusable service - these reusable services can then be used as the basis of new business solutions, joined together using “mash up” technology, with only any additional and unique components of the new business solution being implemented as an additional service.

The G-AS will thus enable re-use of existing assets to become the standard model for delivery of new business services. The approach will be closely integrated with the Desktop, PSN, Data Centre and G-Cloud strategies, and the combination establish the standard infrastructure platform on which reusable services will be delivered, removing today’s technical barriers.

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's available at no basic cost. Re-use 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.

New assets in the applications store will benefit from the policy that future public sector ICT procurements will be done on behalf of the Crown rather than the purchasing organisation, enabling reuse across the public sector. The G-AS will provide automated electronic support for the applications procurement lifecycle and reduce the overhead costs of reuse of applications. Providing this automated electronic support will use capabilities that are proven today - including an online store front with search and user feedback capabilities, 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.

The scope for savings by 2020 runs here into many hundreds of millions of pounds given that it is not uncommon for large government organisations each to have between 300 and 1,000 applications in its portfolio; the opportunity is to reduce this to the order of 1,000 business services for the entire public sector.

A key dependency for achieving this change will be overcoming a major cultural challenge that exists across the public sector. Business leaders are accustomed to specifying unique requirements that are then met on a bespoke basis - today’s approach is costly and leads to proliferation of systems. Under the new model there will be the expectation that existing capabilities will be re-used on an “as is” basis wherever possible. Unique requirements will be implemented only where this is unavoidable and where there is very clear business justification for the additional life cycle costs.

The CIO Council will build support for the new approach amongst senior business leadership across the public sector. 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 for example G-Cloud usage costs, support services, helpdesk calls and printed outputs. As the number of assets in the Government Applications Store increases over time, the business case for public sector organisations to progress a reuse based approach will become ever more compelling.

Work to progress the application store will continue in autumn 2009. The target is by early 2010, to define the initial "market entry approach" - enabling a pilot to commence in the first half of 2010. The initial priority will be on establishing a proof of concept service (probably for existing off the shelf software contracts that can be shared across public sector organisations) and for shared services reducing the barriers for more cross organisational deployments. Other existing shareable assets will be included at the earliest possible stage; Public sector organisations will be requested to nominate candidates for reuse from their existing asset base - there will be an evaluation and ranking exercise to select the most suitable applications.

4.5. Shared Services, moving Government Systems to the Government Cloud

The Strategy for shared services involves a number of key strands:

- Wider use of ERP systems across Central and local Government to improve efficiency
- Creating visibility of applications that can be shared across the public sector (e.g. Electronic Document and Records Management (EDRM), Ministerial correspondence, banking, vetting etc)
- Ensuring through collaborative procurement that we 'buy once and use many'
- Moving both managed services and shared applications in to the G-Cloud
- Creating the G-AS of business services and components to ensure re-use across the public sector

The adoption and wider use of Shared Services in the Public Sector has already saved money and headcount by rationalising HR, Finance and Procurement delivery and increased exploitation of current technology (shared Enterprise Resource Planning platforms). Over 80% of Civil Servants are now supported by a Public Sector Shared Service solution and the Departments running them have declared some significant savings. For example:

- DWP Shared Service 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 the realisation of £100 million worth of savings
- Shared Business Services, a joint venture between Department of Health and Steria, now serves over 100 health trusts. This shared service delivers 20-30% savings on like for like savings and has achieved 90% referencability from its customers
- We have also succeeded in delivering shared services across departments. Cabinet Office now receives their day to day Finance, HR and Procurement support from DWP Shared Services and shares their ERP platform. DSCF will use this platform and service from November 2009. Home Office and the UK Borders Agency receive back office services from NOMs Shared Service Centre and plans are in place for the Identity and Passport Service, Criminal Records Bureau and MOJ to also share this service

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 Service model.

This ICT Strategy means that by 2020 there will have been a step change in the way that Shared Services are perceived, operated and paid for. The G-Cloud and G-AS will provide a one stop shop for the internal business needs of Public Sector organisations. Many back office business activities will have been commoditised and will be accessible to all public sector organisations and employees via an on-line portal. Additionally, having been procured at Crown level, the shared ICT infrastructure will be located in the G-Cloud. The greater visibility of applications afforded by the G-AS will ensure that the public sector will buy once and use many times.

In 2010, the Shared Services group will commence work with Shared Service Centres to move services to the Government Cloud and Applications Store. This will pave the way to delivery of more than £4bn savings outlined in the OEP report.

4.6. The Common Desktop Strategy

Organisations across the public sector share a common need to provide their staff with access to computer facilities including common functions (email, word processing, spreadsheets, internet browsing etc) which are regarded as essential, day to day “tools of the trade”. Historically, however, each organisation has independently specified, developed and delivered the hardware, software and networking solutions to meet that need. This has resulted in divergent product choices which impede collaboration, incur repeated procurement and development costs and miss opportunities for economies of scale in delivery.

This situation requires us to:

- **Simplify and standardise:** Common technology solutions start with common requirements.
- **Adopt common models:** Technologies developed and proven by one organisation should be available for use by others. The commercial, contractual and cultural barriers to the adoption of existing solutions must be removed
- **Commoditise:** Desktop computing systems should be available “off-the-shelf”. Bespoke development should be restricted only to facilities genuinely the unique requirement of a single organisation
- **Increase capability:** By standardising products and sharing the outputs of past investment, spending on repeatedly solving the same problems can be eliminated and resources released to focus on enhancing and adding to system functions
- **Lower price:** Procurement and delivery costs can be reduced; the re-use of established technology within and between desktop services can 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 pa it would yield a £400 million saving each year

Our aim is to see desktop computing across government delivered through common models and shared services. While it will be right and appropriate for there to be multiple desktop shared services operating in a competitive environment, each will serve a community sufficient to offer the maximum economy of scale. 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.

By 2010, we will have defined the initial set of standard desktop designs which will meet the majority of requirements in central government. New desktop implementations whether developed in-house or externally, will conform to a standard design. Common designs will drive the achievement of economies of scale in purchasing and licensing components. By 2012, confirmed standard designs will be in place and all desktop procurements using proprietary products will require suppliers to contract to deliver them to common designs and through shared services at the lowest price available to any public sector customer.

We envisage that the desktop design will evolve to converge with the cloud strategy between 2012 and 2015. In line with the Green ICT strategy, all shared utility desktop services will be carbon neutral by 2012. Their 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.

A suite of standard desktop designs is the key to delivering a significant proportion of the £3.2bn savings outlined in the Operational Efficiency Programme. The provision of these designs will provide assurance to procurement experts, Senior Responsible Owners (SROs) of programmes and Accounting Officers that solutions meet minimum Government standards on Information Assurance, Value for Money and utilise mandatory technical standards such as those in the e-Gif. 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 tax-payer.

4.7. Architecture and Standards

The architecture and standards strand underpins all elements of the ICT Strategy. Through setting the right standards we ensure that each element of the strategy can interoperate with each other, and through defining a consistent architecture we ensure that the strategy is defined in a way that can be reused and deployed across the whole of the public sector. The technical architecture describes the solutions that will be used to build the G-Cloud and G-AS. Standard reference architectures are used to define the agreed way to build reusable technical services that could run in a G-Cloud.

4.7.1. Standards

Better public services tailored to the needs of the citizen and businesses, require the seamless flow of information across government. The e-government Interoperability Framework (eGIF) 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; its main thrust was to adopt the Internet and World Wide Web specifications for all government systems. Work has now started to update the standards captured in eGIF and align them to the assets public sector is identifying for reuse.

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

- **Universal:** fundamental standards that are required by all public sector organisations (e.g. XML)
- **Common:** standards used across multiple business domains (e.g. Champions)
- **Local:** where responsibility is federated out to local domains/ businesses/ regions

Domain teams focus only on universal and common standards and 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 preference over EU standards, and EU standards will take preference over UK standards. Standards are primarily driven by the needs of citizen and business-facing services. Priority is being given to standards that serve the requirements of services or processes that are generic across many public sector organisations. Facilitation of new, joined-up services and inter-organisational process developments are also given precedence.

4.7.2. Enterprise Architecture

The first release of the cross-Government Enterprise Architecture (xGEA) focussed on building the initial portfolio of opportunities to share. The following items were identified to support this:

- An xGEA 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
- A set of processes based on industry practices for describing the exemplars and the EA models

The CTO Council has continued to focus on the necessary technical work which underpins the development and adoption of the xGEA. Work is now in progress on:

- Common infrastructure based on the open standards and proven interoperability implemented with commercial off the shelf products
- Common standards to help facilitate reuse and sharing

- Inclusion of Information Assurance into all aspects of design and build
- Rationalising government data and voice networks
- Adopting a consistent approach to identity management

4.7.3. 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 re-use of public data, benefiting the economy and fuelling innovation. The Information Domain of the CTO Council works closely with the Knowledge Council and the Making Public Data Public initiative to ensure that their aims are supported through ICT.

The CTO Council is therefore drawing together a Public Sector Information Architecture covering seven key themes:

- Semantics - the meaning of information
- Syntax - the format of information
- Data Quality - the confidence to re-use information
- Authorisation - the right to use information
- Transport - how to use information
- Authentication - who is using information
- Information Governance - the behaviour and culture to protect and exploit information

This strand will also consider how the public sector will 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 strands of the ICT strategy, particularly Data Centre rationalisation, G-Cloud and Information Assurance & Security. It also affects decision core to the public sector network as it will define bandwidth requirements and likely volumes of data transfer.

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

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 (COTS) software to run ICT systems and processes. In most instances, this comes from global commercial enterprises such as Microsoft and Oracle. This COTS software uses proprietary code and cannot easily be reused across the public sector reducing value for money, flexibility and agility. Importantly, this also impacts our opportunity to reduce risks to service delivery.

In 2004, Government formally articulated the policy that it would seek to use Open Source wherever it gave the best value for money in delivering public services. However, there were 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. Suppliers of COTS software were often opaque in their dealings with Government regarding supply chain, terms and conditions and a refusal to treat Government as a single entity. This made like for like comparisons with Open Source extremely difficult. In addition, the Government IT profession had limited skills and a risk-averse culture that limited uptake of Open Source and did not challenge suppliers about technology solutions.

In recent years, many public sector organisations have since demonstrated that Open Source can be best for the taxpayer in web hosting services, NHS infrastructure and as components in critical systems such as directgov and Electronic Vehicle Licensing. The software and wider ICT market have also developed and made Open Source products more competitive and easier to include in enterprise business solutions. Government 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) and crucially, the agreement to the Cross Government Enterprise Architecture framework. The techniques and cultures of Open Source have been adopted in other parts of Government business, for example in the London Borough of Camden development of their web content management tool and the work of the Cabinet Office Digital Engagement team.

The Open Source, Open Standards and Reuse Strategy was published in February 2009. It states that Government will actively and fairly consider open source solutions alongside proprietary ones in making procurement decisions. In addition, Government will, wherever possible, avoid becoming locked in to proprietary software. In particular it will take exit, re-bid and rebuild costs into account in procurement decisions and will require those proposing 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 COTS software. It also includes actions which will ensure Government will use open standards in its procurement specifications and will require solutions to comply with open standards. Government will continue to use only open standards for documentation such as ODF, PDF and OOXML. The G-Cloud will host the G-AS which will hold existing open source code and solutions for reuse across the public sector.

In order to achieve the key outcomes desired by Government, the CIO council have commissioned OGC and Cabinet Office to ensure implementation of the action plan. Using the governance structure in Appendix XX, the Open Source, Open Standards, and Reuse working group will deliver clear and open guidance for ensuring 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 G-Cloud. The Government Applications Stores will hold Open Source solutions that are available for reuse in the public sector and by 2015 public bodies will review existing solutions available before going to market for new solutions.

4.9. The Greening Government ICT Strategy

Government runs some of the world's largest computer systems and they are now an essential element in the delivery of public services. Hundreds of thousands of public servants can use their desktop computers to work far more efficiently than we could have dreamed possible as recently as 20 years ago.

However, ICT is a major user of energy and natural resources at 2-3% of global carbon emissions. As spending and accountability has been devolved through the public sector, the number of devices and volumes of data used by the public sector has exploded. Efficiency and sustainability have been the victims of duplication and silo working. Industry and suppliers have also grown in the same way and have treated each ICT requirement individually rather than considering the efficiencies and reduced environmental impact that could be achieved by taking a more strategic approach. Not only is this having a significant environmental impact, it is also costly and wasteful.

The Government launched its strategy for Green ICT in June 2008. The CIO Council appointed a Green Champion for Government ICT and also supported the creation of the Green ICT Delivery Unit (GDU). One year on, Government has published a report detailing progress by Central Government, Local Government, the Wider Public Sector and Devolved Administrations. Each central department has produced a Green ICT action plan detailing the progress already made to increase the sustainability of ICT operations and the plans in place to take this further. In addition to individual departmental delivery, a number of initiatives designed to share best practice across the public sector have been delivered. Government contract terms and conditions now include sustainability requirements (Office of Government Commerce 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 UK Government is also working internationally on areas such as the Waste Electrical and Electronic Equipment (WEEE) directive sub-group and USA Electronic Product Environmental Assessment Tool (EPEAT) product specifications. A small number of case studies included in the One Year On Report demonstrate delivery of a reduction in carbon emissions of over 12,000 tonnes and cash savings of over £6.8m.

During the next 5-10 years, 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
- Government ICT will be carbon neutral across its lifecycle by 2020

In order to demonstrate success, the public sector will have to ensure that Green ICT principles are incorporated into all elements of the ICT strategy for Government, including supply chain and procurement strategies. The GDU will consider the strategy to have been successful when the assessment of whether a solution is 'Green' is as important to the financial approvals process as whether it demonstrates value for money.

The Greening Government ICT Strategy will be refreshed in the fourth quarter of 2009, to take into account environmental and technology advances. This 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 OEP. Green ICT products use less energy (and therefore cost less to run); intelligent use of green ICT can enable flexible working practices (thus supporting HR and Estates colleagues to reduce their running costs) and common international standards for products can reduce manufacturing costs and environmental impact.

4.10. Information Security and Assurance: the National IA Strategy

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. The environment has two key characteristics which will shape the Information Assurance (IA) 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
- **Convergence:** the convergence of voice and data services will support flexible working, minimising business dependence on location whilst providing access to data and IT functionality using fixed and mobile communications seamlessly

Against this complex environment, the use of information will remain 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 essential to underpin the challenge of delivering personalised services via ICT, as well as making us more effective and efficient.

The National Information Assurance Strategy (NIAS) was published in 2003 and updated in 2007. The NIAS aims by 2011 to create “A UK environment where citizens, businesses and government use and enjoy the full benefits of information systems with confidence”. However, the management of information risk has not always enjoyed the high profile it now holds. A number of reviews of high profile data losses 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
- The necessary culture to comply with policy and protect information properly was not in place

The Cabinet Secretary’s Data Handling Review (DHR) was published in June 2008. The DHR set out significant changes in the way that Government departments address IA issues, with a strong focus on personal data. These changes can be divided into 4 main areas:

- **New mandatory policy measures:** a series of mandatory minimum measures are now in place across government, 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. 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, CESA (the information assurance arm of GCHQ) have expanded their responsibilities in supporting the delivery of IA in government and have put in place a process of transformation to support their new role.

The vision for information security and assurance remains the realisation of a UK environment where citizens, businesses and Government use and enjoy the full benefits of information systems with

confidence. Good progress has been made through improvements in the handling of personal data in the last year, but in the next decade this progress must be consolidated and embedded into the way Government delivers services through ICT. In the light of the complex, converged environment set out above, IA will be built into every public sector ICT system from requirements capture through design to implementation. This will deliver the technical and process controls that will 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 IA integrated from the outset.

Three principles will underpin and enable the delivery of the IA element of the Government ICT strategy: **partnership**, **professionalism** and **pace**.

- **Partnership:** Public sector organisations will need to work together to deliver the right IA outcomes. In particular Cabinet Office will work closely with its key partner CESG (the National Technical Authority for IA) and CPNI, to drive implementation as well as to engage with the IA Industry that is vital to the success of this strategy
- **Professionalism:** There will be recognised and widespread professionalism in IA encompassing those in risk ownership roles in the public sector, Industry partners, and government IA profession specialists
- **Pace and agility:** will become the dominant characteristic of design-to-market delivery of IA capability, 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 initiative, 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 IA Strategy, which will incorporate the coordination and delivery of the cross-cutting IA elements of each of the ICT strategy work 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.

4.11. The Government IT Profession – capable people and capable organisations

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 building blocks for the Profession; setting the standards, policies and guidance required to ensure that the public sector has capable people and capable organisations, 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 frameworks - 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. We have already started building by providing the Profession with:

- The **Civil Service Technology in Business (TiB) Fast Stream** programme, for 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
- The **Capability Consultancy**, to work with organisations to enable them to implement IT professionalism

In order to enable organisations to achieve excellence, the standards, policies and guidance we plan to provide will result in an increase in the efficiency with which IT organisations operate and deliver. Increased professionalism across the IT workforce will result in the delivery of IT projects with a greater rate of success, and the delivery of IT services more effectively and efficiently. However, measuring increasing professionalism in isolation is meaningless, as it is the application of professional skills that will deliver better outcomes. Therefore, we will measure the increase in capability 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. Therefore, we will aim to drive a decrease in organisational annual spend on IT people of at least 5% year-on-year from 2010. This is predicated on increased flexibility in HR practices and headcount. In 2010, we will publish a qualifications policy to enable IT professionals to understand what they need to achieve to help progress their careers - enabling organisations to define local learning strategies and focus training budgets. By 2012, we 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, we will enable organisations to grow their own in-service talent through local talent management schemes based on a proven methodology. By 2015, with industry partners, we will develop an industry wide method of recognising exceptional IT professionalism. We also aim to establish the Government IT Profession as the definitive source of information relating to professionalism and the broader IT landscape by 2020.

4.12. Delivering projects with greater certainty of delivery and benefits

Reliable Project Delivery was introduced in 2005/6 against a background of failure (actual and perceived) of major public sector ICT projects and specifically in response to the media attacks on those projects.

Reliable Project Delivery research carried out during 2006, together with work done jointly with the NAO on its report on *Successful IT Projects*, showed that:

- the public sector failure rate was no worse than private sector but the failures were more “public”
- Organisations with successful project delivery track records:
 - Initiated the “right” projects in the first place and challenged/stop the “wrong” ones (the use of portfolio management being a common thread)
 - Applied robust control and governance to those projects they do take 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
- Issues specific to ICT-enabled business change were not being addressed

4.12.1. The Pan-Government Portfolio

In January 2007 the Government CIO introduced reporting of the Pan-Government Portfolio of ICT-enabled Business Change programmes to the PSX (e) ministerial committee with the aim of presenting ministers with a simple “dashboard” view of the major programmes which showed the state of health of the IT Portfolio as a whole. Since March 2007, the Portfolio has been reported quarterly and evolved into the single central Major Programme and Project (MPP) Portfolio - facilitated jointly by OGC and Cabinet Office. MPP includes major asset acquisitions programmes as well as ICT-enabled and other major change programmes.

Over the first two years, the information reported improved. In March 2007 departments were unable to provide full cost, quantifiable benefits and Gateway Review RAG (Red, Amber, Green) status information for 24 of the 30 projects being reported on. By April 2008 this had reduced to 4 and since April 2009 these issues have been resolved. However the quality of reporting still needs to improve. Although benefits information is now provided, there is not enough evidence of hard delivery or the impact on departmental efficiency or citizen outcomes. The assessments of “delivery confidence” reported are the departments’ own and are overly optimistic. There are known skills and experience deficiencies in the SRO and Programme and Project management functions and in governance and control which are not reflected in departmental assessments.

The Office of Government Commerce (OGC) have developed an intervention process for MPP programmes and projects needing support and the role and influence of the CIO with regard to IT-enabled business change programmes and projects has been strengthened. The CIO now has the right to intervene on programme/project or departmental specific issues surfaced via the portfolio relating to the agenda governed by the CIO Council. The Government CIO can do this across the portfolio as approved by the Government CIO Council in 2007.

4.12.2. Departmental Portfolio Management and Control & Governance

To further reduce the risk of failure, we have 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.

By the end of 2008/9 all central government departments were using recognisable portfolio management techniques. The OEP made specific recommendations which further embed our approach and we continue to work with OGC to ensure our joint guidance is aligned and coherent.

The vision is to ensure that all public-sector ICT-enabled business change programmes and projects successfully deliver consistently and drive out the maximum possible contribution to business goals at both the organisational and corporate (pan-government) level. We have developed Key Performance Indicators for Portfolio Management, Governance and Benefits Realisation and throughout this period 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 and we will expand our coverage beyond central government departments to include Agencies, NDPBs and the wider public sector by 2012. Over this period we will also work closely with the CIOs, our Government IT Profession colleagues and the OGC to help match the skills of SROs, Programme and Project Directors/Managers to the complexity of the projects they lead.

We will build on this work to 2015, 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. We will work with the OGC to ensure that the Gateway Review process is strengthened to ensure compliance with our 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 there it is compliant. We will continue to develop and use KPIs to ensure departments continually test their projects for compliance through their internal portfolio, programme and project governance.

We will also continue to support ministerial oversight so that they can actively manage the overall ICT-enabled business change portfolio of government.

Once that strengthened management is established, by 2020, we will follow the lead of the Office of Management and Budget and public sector CIO community in the USA by publicising the objectives and progress of our major projects, including naming the leaders and the results of all external assurance reviews.

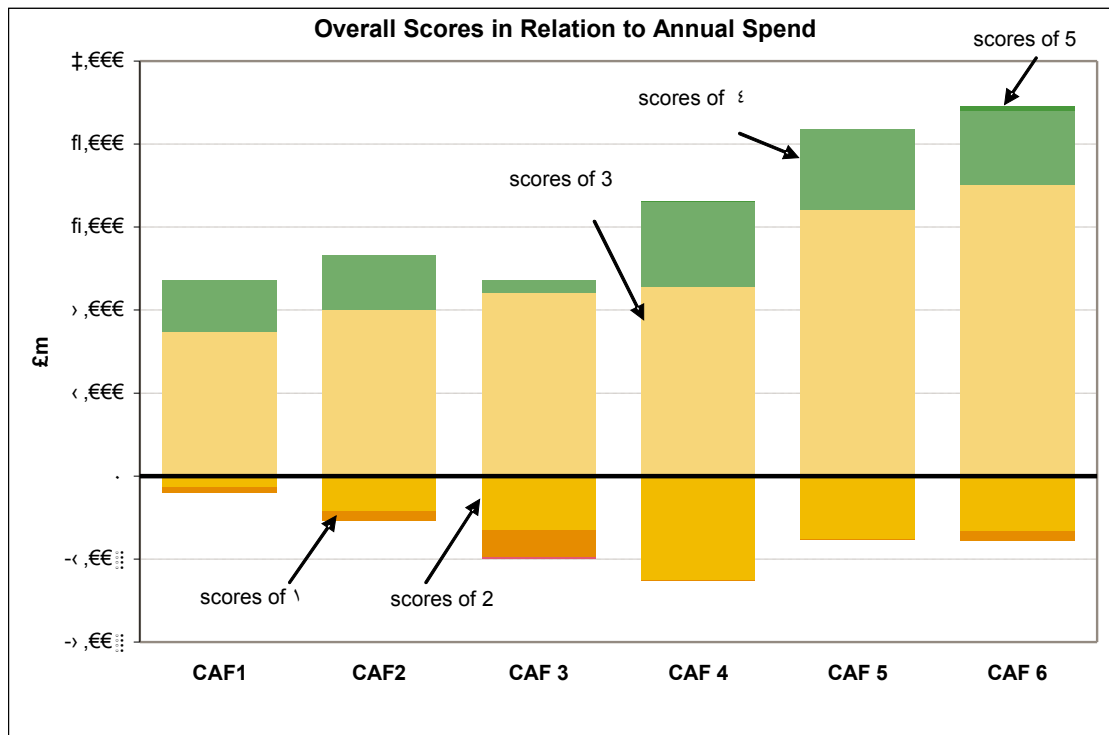
4.13. Supply Management

All businesses (whether public or private sector) rely on external suppliers to deliver some or all of their services and infrastructure. The UK public sector has a highly mature model of outsourcing ICT services and taking advantage of the economies that this can deliver. Approximately 65% of central Government ICT provision is outsourced to the private sector, unlike any other part of the public sector. This ensures that Government gets the best resources and capability to support the development and delivery of Government policies. The Gershon report of 2005 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 off one Government project to deliver another.

As a result, the Supply Management Initiative (SMI) was launched by the CIO Council in 2006, to support delivery of the Transformational Government strategy. The original objective of the SMI was to enable HMG 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
- **Value and Capability Improvement** via the Strategic Supply Board (SSB) and its associated ‘Tiger Teams’

The Office of Government Commerce (OGC) now delivers a mature framework of performance assessment through bi-annual performance reviews via the CAF. The 6th CAF report measured performance from July 2008-December 2008. It assessed 150 contracts covering annual spend of over £5bn approximately 40% of total public sector ICT spend. Since CAF1 in 2006, average performance has improved by 10% in all areas measured.

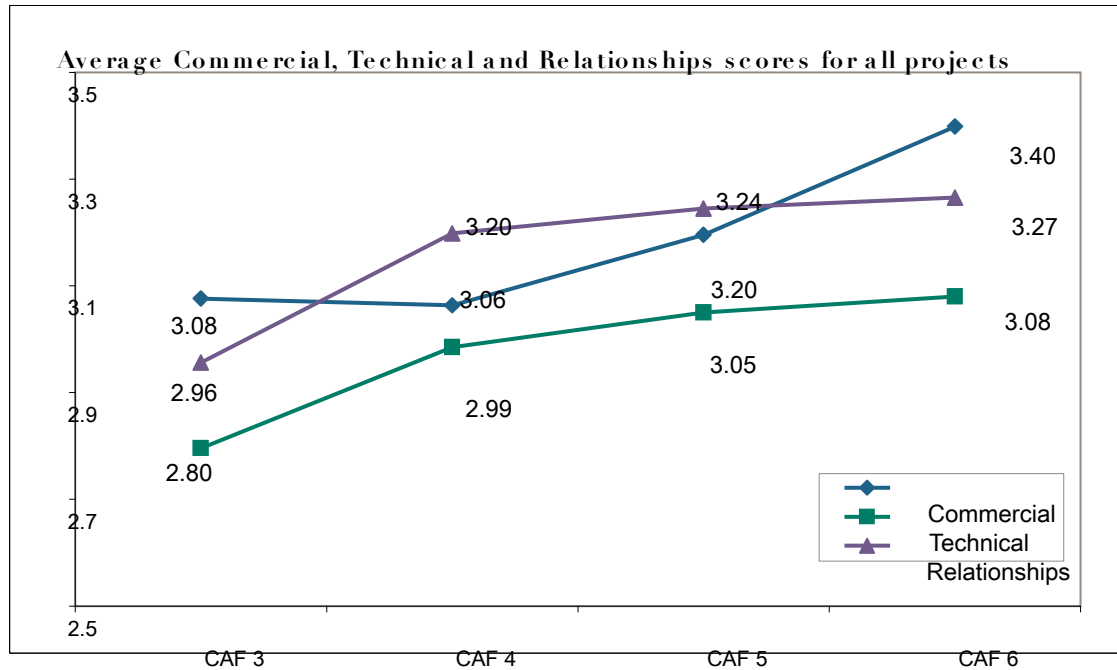


In January 2007, at the request of the CIO Council and Cabinet Office, OGC launched the CAF360 – a supplier assessment of departmental performance. This complements the departments’ assessment of suppliers and provides a rounded view of areas to drive increased delivery performance from key contracts. Individual supplier Performance Improvement Plans measure progress against the three 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') that are now being implemented by public sector bodies. These include a standard Pre-procurement Qualification Questionnaire (PQQ), Procurement Qualification Toolkit (PQT), ICT services model contract and the Joint Statement of Intent (JSI). All of these tools are available to public sector bodies via the OGC website.

However, despite four years of joint work, delivery performance has improved only incrementally and the pace of improvement is beginning to plateau. ICT programmes and projects continue to run behind time, quality and cost parameters and the average procurement of an ICT services contract takes 77 weeks.

The improvement in overall performance is shown in the following chart:



OGC, Cabinet Office, CIO Council and Industry are now developing a revised programme of work to address the joint challenges of tightening economic circumstances alongside increasing requirements for better commercial outcomes and delivery. This work will report to the CIO Council in January 2010. Elements of this review will include strengthened governance and strategic alignment to the ICT Strategy for Government (and its associated ICT Procurement Strategy), targets for CAF delivery scores to increase to 3.5 or more by 2015 and increased access to Government contracts and procurements by Small, Medium Enterprises (SMEs) by 2015.

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 is assured through the implementation of the ICT Procurement Strategy for Government which has been developed through the Office of Government Commerce (OGC).

An analysis of the public sector ICT market place, its size, planned growth and supply and demand profile tells us that there is considerable scope for efficiency and improved delivery of services. The buying arrangements of Government and subsequent delivery models have historically been too fragmented, requiring further improvements and rationalisation.

The ICT Collaborative Procurement Strategy is a key enabler to transforming 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 a least £1.6bn are achievable, whilst delivering on other important policy objectives including sustainability, enterprise and innovation.

The fundamentals of the Strategy implementation plans involves transforming Government buying arrangements and leveraging total Government spend by:

- Driving increased use of the best framework and ‘champion’ contracts whilst rationalising the number of successor agreements. A roadmap of major, strategic ‘champion’ contracts (i.e. frameworks and contracts which establish, in turn, the new benchmark for Government) will be established to underpin cross Government collaboration
- Increased competition, reuse, and wider adoption of collaborative, shared and integrated service delivery solutions across the public sector, supported by new commercial arrangements
- 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 market leverage opportunities
- Supporting Transformational initiatives such as the Public Sector Network to underpin delivery of CIO Council strategy
- Applying “Lean” principles to create a faster and more agile supply chain
- Providing strong leadership in developing the capability of the commercial community across Government
- Embedding key policy objectives into procurement including sustainability, equality, and innovation and enacting policy for Small to Medium Sized Enterprises (SMEs)

In November 2008, the SSB initiated a study into ICT (off-shoring). The SSB is examining a number of initiatives to improve ICT process efficiencies and effectiveness and has identified off-shoring as an area for further examination to assess its feasibility and suitability for application across the UK government sector. The Study’s objective is to identify and analyse the risks and opportunities associated with potentially off-shoring ICT services within the public sector.

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 strategy is a key enabler of the £1.6bn saving identified by OEP from collaborative procurement. The overall benefits of the ICT strategy and individual elements cannot be delivered without our supply partners, at all levels of the supply chain.

4.14. International Alignment and Co-ordination

The UK public sector operates in over 145 countries; there are over 4 million UK Citizens living abroad who still require public services from the UK; there are many international agreements which our technology and systems must interface with.

If we look towards Europe, UK citizens are free to live and work in any Member State and UK businesses are free to trade anywhere within the Union. Similarly, citizens and businesses from Europe are free to live and work or trade in the UK. ICT-enabled public services are often the enabler to making this happen and more simply than traditional paper-based methods. To make this a reality, Europe needs common policies and agreements which require Member States to join efforts to implement the objectives of European legislative requirements.

To deliver ICT-enabled cross-border services and policies set out in a wide range of European Union 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, to professional qualifications and social security information. Enabling such networks and agreements across 27 Member States is challenging and every effort is made to ensure Member States avoid duplicating the same solutions and instead add value by sharing common business and technical processes.

The UK is seen as one of the world leaders in ICT-enabled service delivery and makes every effort to 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, be it through ongoing policy and delivery commitments with the rest of Europe, or through 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 a European Union (EU) context: taking forward the i2010 Ministerial eGovernment Declarations, which form part of the umbrella i2010 EU Information Society strategy and delivering against the subsequent Action Plans; and, along with other Member States, providing 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 ‘OECD Network for Senior eGovernment Officials’, the ‘5-Nations CIO Group’ (members of which are the relevant government bodies in Australia, Canada, United States, 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 OGCIO is the secretariat for the European Interest Group, the aim of which is to share knowledge and best practice, solve common problems and overcome barriers in the delivery of ICT-enabled Europe Community projects and programmes.

As individual strategy leads, OGCIO officials provide 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, common ground and approaches, although more remains to be done.

- **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 and will continue to be a force of strength in overcoming obstacles which hinder our progress in the delivery of efficient and effective delivery of public services across Europe
- **Aligned interoperable strategies and technology:** in order to continue being 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, interoperability:** to deliver on the aims of the various initiatives, common frameworks and guidelines must be established. The OGCIO 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

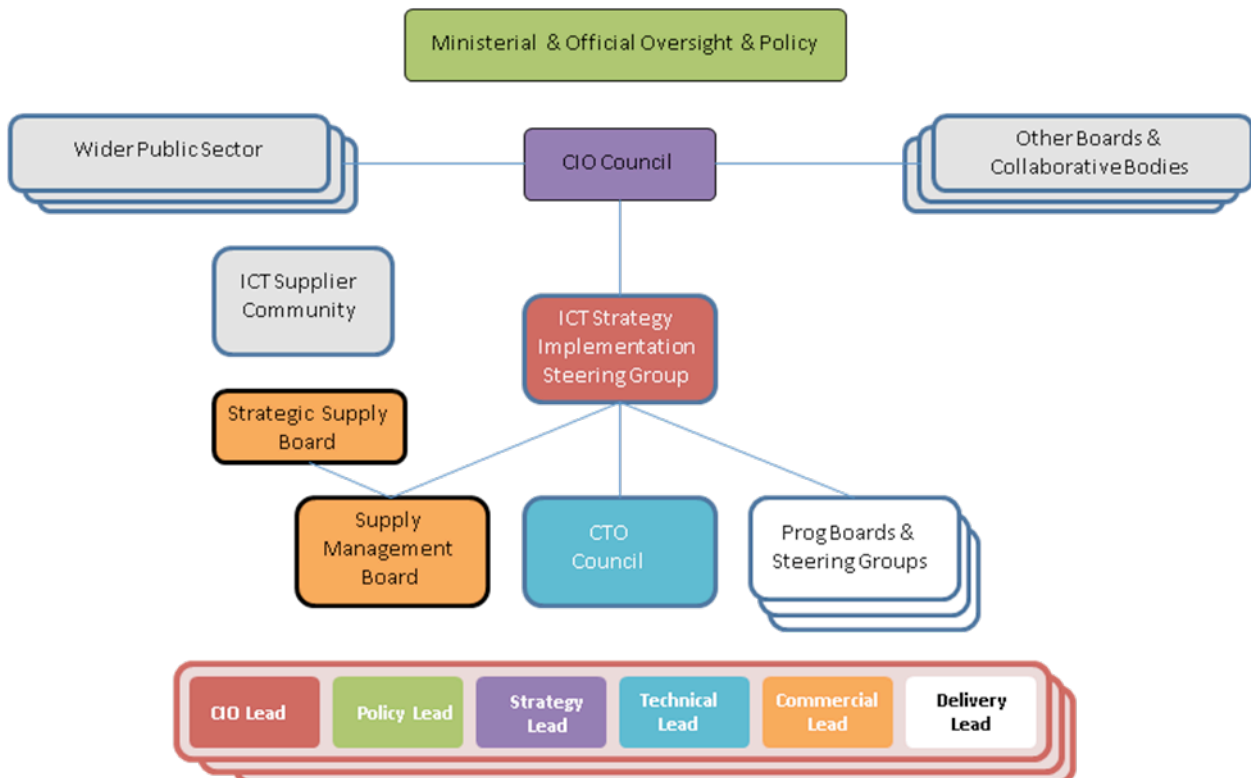
5. Governance

This ICT strategy cuts across all of the public sector, in Central Government, Local Government, Executive Agencies and Non Departmental Public Bodies. 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 that addresses 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:

- The ebb and flow of contemporary issues that will both positively and negatively impact on any one strategic objective
- That the more dependencies built into any transformation programme increases the likelihood of failure as the governance becomes overwhelmingly complicated and in itself act as a threat to success
- That the governance has to work to a set of principles rather than hard and fast rules
 - Match supply with demand
 - Anticipate generic changes
 - Identify duplication and other opportunities for standardisation and sharing
 - Challenge relatively low value projects
 - 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. Detailed governance can be found in Annex A.



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 have agreed a delivery structure (detailed in appendix A) which provides clear accountability for delivery and ensures coherence across the strategy. The public sector will take a portfolio management approach to implementation through the creation of an ICT Strategy Implementation Steering Group (ISG). The ISG will be responsible for portfolio management of each strategy work-stream to manage interdependencies, overall benefits realisation and risks to strategy delivery.

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 Cabinet Office, CIO Council and Public Sector bodies are laid out below.

5.1.1. Cabinet Office

The Government CIO is head of profession for ICT enabled business change and Information Security & Assurance. His team lead the public sector in 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 & SIRO (OGCIO) support, facilitate and ensure delivery. Cabinet Office ensures alignment of all policy and strategies and that they can be delivered in a cohesive way. Delivery is through the CIO Councils (and subordinate organisations in Health, Police and Local Government) and the CIOs in departments and public sector bodies.

In the OGCIO a highly leveraged model is in place, 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 CIO council. In the instance of Greening Government ICT, a further 86 individuals are active in developing the strategy and associated action plans. Cabinet Office supports, facilitates, mobilise and motivate resources, ensure cohesion and compliance with other strategies and remove roadblocks. OGCIO also works across government on security, identity management, Digital Britain, run the GSi infrastructure for 500,000 public servants and 450 organisations as well as lead on shared services.

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 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 are accountable for ensuring that the ICT strategy is implemented within their local environment. They are also responsible for ensuring cohesion across the strategy and for supporting delivery with resources from within their team.

Each work-stream will have a CIO Council lead that is accountable to CIO council for ensuring that their programme remains aligned to CIO council requirements and takes account of differing delivery requirements particularly from Local Government and the Wider Public Sector. They are supported by a Cabinet Office lead official (accountable for Strategy & Policy), a technical lead (from Chief Technology Officers Council), a commercial lead (from the OGC Collaborative Category Board) and a Delivery lead (from a public sector body). Each work-stream will also have its own governance for directing their programme of work (for example PSN Steering Group and Programme Board) which will be aligned to the overall ICT strategy governance.

5.1.3. Public Sector Organisations

All Public Sector organisations, whether in Central Government, Local Government, the Wider Public Sector, Non Departmental Public Bodies or agencies face the same issues regarding economic pressures and increasing service requirements outlined in section 2.1 of this strategy.

This strategy will provide 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 – reuse of existing applications, shared services, designs and solutions will become the default position. 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 and increase the risk to delivery (to the ICT strategy as well as wider in terms of Information Assurance & Security, sustainability and improving access to public services by the citizen).

5.2. Strategic Principles

Underpinning the strategy is a number of strategic principles which will be adopted by all public sector organisations in regards to their ICT strategy. These principles build on the work which began in 2005, with the launch of Transformational Government. The principles can be grouped under three core headings:

- **Better**
 - Secure from design through implementation to operation
 - Interoperable facilitating information sharing and accessibility
 - Design to improve quality of customer service
 - Faster from concept to delivery
 - Develop and exploit strong relationships with our suppliers
 - Support innovation
 - Invest in our workforce to increase capability and professionalization
 - Utilise effective portfolio, programme and project management techniques to maximise the impact of ICT-enabled change
- **Greener**
 - Support sustainable economic development
 - Deliver the green agenda
 - Energy efficient
- **Cheaper**
 - Adopt greater standardisation and simplification
 - Adopt the principles of using open standards
 - Exploit open source to deliver greater value for money
 - Re-use 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

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 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 £3.2bn
- A simplified and standardised infrastructure 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.

GOVERNANCE

REFERENCES