Executive Summary

Terms of Reference
In February 2007, the Shadow Chancellor commissioned a review of the opportunities to create a level playing field for open source and proprietary software in UK government procurement.

The review was given the following terms of reference:

To identify the bureaucratic obstacles that are blocking the take up of open source technology in government procurement.

To identify the benefits to taxpayers of creating a level playing field for open source and proprietary software in UK government procurement.

To identify the policies that need to be introduced in order to achieve these benefits.

Key Findings and Recommendations
IT forms a major component of the government’s investment programme and it is well known that some of the major projects have not delivered the benefits predicted. Overspending on major projects (the NHS Supercomputer for example) has become to appear sadly inevitable and the delivery of value for money to taxpayers by UK Government through the use of IT has started to look increasingly unlikely. This paper attempts to provide some explanation for these issues and proposes remedies.

This review has identified considerable potential savings and process efficiencies that could be achieved if a level playing field for open source and proprietary software in UK government procurement were achieved. Further the study identifies how the use of

• open procurement processes
• open data standards, and
• effective technology and commercial leadership within UK Government

can lead to major operational savings and performance enhancement across government whilst reducing risk and the tendency to overspend.

It is very difficult to identify the spend on IT across UK Government, let alone obtain figures for total cost of ownership of systems or the return on the considerable investment made by taxpayers. The data is not systematically collected as it is in other organisations.

However the current government CIO indicates that the government has been paying twice as much per computer “seat” as it could have been – this alone is an overspend of the order of £600m per year, every year.\(^1\)

This team has tried to identify clear areas of savings in current spend and also proposes a change in approach to government IT that will reduce exposure to large,

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\(^1\) Gartner Fellows Interview, November 2007.
over-budget IT programmes. Case studies from across the UK and the world have been analysed and are indicative of the potential for success of moving from a proprietary software model to a mixed economy where open standards are applied.

In this paper we identify the ways in which UK Government can reap these same benefits.

We conclude that our proposals for savings will require certain strategic investments including a more effective controlling function in Operational IT and expenditure. We propose that this investment can be directly funded by small amounts of the savings that our proposals will generate.

We conclude that on the basis of the changes to procurement, sourcing, licensing and staffing proposed in this document, a saving of 10% of Government IT expenditure would not be an unreasonable goal. According to the estimates provided to us by UK Government this would indicate a savings figure of approximately £1.2 bn.

The savings would come not just from reduced licensing costs and buying equipment at the market rate, but importantly by freeing government bodies (and citizens) from costly long-term, monopoly supply situations.

Whilst it is a given that Open Source Software (OSS) and the Open Standards approach has found strong take up in the private sector (and in governments across the world) there has been little take up in this country to date.

It is clear that the current system of government IT procurement does not constitute a level playing field – there are significant cultural and institutional barriers within government that prevent the adoption of open source software.

These barriers include:

- An entrenched preference within government for large scale top-down IT projects delivered by brand-name suppliers;
- A counter-productive culture of secrecy surrounding government IT procurement;
- Widespread use of long-term IT contracts, often for extremely large scale projects; and
- Lack of awareness amongst public sector IT managers about open source software options and the scope for their implementation.

We conclude that significant reform of the government procurement process is needed to remove these barriers and create a level playing field for open source software.

These are summarised as seven proposals:
1. Build and maintain an XML open gateway for data standards for major government IT systems.

2. Use Open Procurement processes with programmes and projects divided into modules.
   - No government IT contract should last for more than 24 months
   - No single government IT contract with a value of over £100 million.

3. Publish and actively promote clear check-lists and support, supported by referenceable best practice, for transitioning an IT infrastructure to a mixed economy of proprietary and OSS components.

4. Revise OGC Gateway processes to make it more difficult to ‘automatically’ select ‘closed’, proprietary architectural and commercial solutions.

5. Establish a strategically and commercially empowered Government CIO, supported by a well-funded, high-profile centre of excellence with proactive reach across government.

6. Introduce a Competency Model in order to ensure quality of resource to employers, employees and government. Should be incorporated as the primary definition of skill requirements in government IT contracts.

7. Conduct a full review of the ‘Technology in Business’ programme for senior employees within government. Qualification should be made a mandatory requirement for promotion to senior levels within public sector organisations.
1. A level playing field for open source software: obstacles and opportunities

IT failures and the public sector
The government currently spends around £12 billion per year on IT – equivalent to £500 for every household in the country.

Unfortunately, over the past ten years, a significant proportion of this spending has been wasted. This is due in large part to the endemic pattern of cost overruns and high-profile project failures that has blighted government IT procurement.

A litany of IT failures

The NHS ‘supercomputer’

In 1998, Labour announced a mammoth IT scheme to log every person’s medical records on a central NHS computer.

It was initially estimated to cost £2 billion, but this figure has subsequently soared to £15 billion. The completion date has been continuously pushed back – and is now at least 30 months behind schedule.

According to a recent National Audit Office report on the IT project, neither the Department of Health nor the Treasury sought to quantify the benefits of the scheme – and whether the massive expenditure is justified:

"It was not demonstrated that the financial value of the benefits exceeds the cost of the Programme. The Treasury’s guidance states that benefits should be valued when possible, but recognises that sometimes they cannot be. In this case, the Treasury has accepted the Department’s approach and has approved all expenditure so far made and planned."

Home Office Probation Service computer system

The National Audit Office has criticised almost every aspect of the IT system, which was supposed to provide a national infrastructure for the probation service.

The system has so far cost £118 million - 70 per cent more than initially projected.

The management system CRAMS was initially budgeted at £4 million but has reached £11 million – and this figure is still increasing. The network is technically in

2 See, for example, www.parliament.uk/post/pn200.pdf; or http://www.publications.parliament.uk/pa/cm/cmpublic.htm; Open Source, Open Standards: Reforming IT Procurement in Government
Child Support Agency (CSA) IT system

The CSA IT system was originally intended to cost £400 million, but a catalogue of errors and mismanagement has resulted in the bill rising to £1.1 billion.

In addition to the massive cost overrun, the computer system has also overpaid 1.9 million people and underpaid 700,000 people.

The chairman of the Public Accounts Committee described the CSA system as one of the "worst public administration scandals in modern times". A damning PAC report concluded that the Department of Work and Pensions had failed to recruit sufficient high-calibre IT professionals to challenge critically the assurances given by IT suppliers.

The problem: ‘closed’ procurement

The erosion of government IT expertise
Over the past decade, the Labour government has largely relied on private sector contractors to deliver its programme of IT projects.

This is inevitable, given that the civil service has limited capacity to become a major software house or systems integrator. However, the rapid growth of IT outsourcing under Labour, including the wholesale outsourcing of IT in some departments and public bodies, has contributed to a significant erosion in the government’s capacity to act as an ‘intelligent customer’ of IT services.

The extent of this failure to achieve value for money is evident in a recent report for the Department for Business Enterprise and Regulatory Reform by Compass Consulting3:
- A government agency paying 65% above market rate for servers and storage
- A major government department paying 20% more for outsourced desktop, servers and infrastructure despite its scale
- A government body paying 34% above the average market rate for end-to-end IT outsourcing
- An executive agency paying 17% above the industry average for standard professional services

3 Compass Consulting, July 12, 2007 & Computer Weekly, 2 April 2008
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Furthermore, whilst major departmental outsourcing projects to a single supplier are often seen as desirable because risk is ‘transferred’, in reality limited risk is rarely if ever transferred. Ultimately, if a core IT system becomes unavailable, it is the procuring department that bears the risk.

As a result, government projects involving wholesale outsourcing of IT have generally delivered poor value for money and poor levels of service quality.

*The scale of government IT projects has significantly increased the risk of failure*

This institutional weakness and lack of cost management structures has been compounded by the massive scale of IT projects that the Labour government has chosen to procure. As successive IT failures have highlighted, these massive projects increase the risk of project failure and create considerable difficulties and operational challenges.

In addition, the scale of these projects narrows the field of suitable companies to a relatively small selection of multi-national suppliers, reducing competitive tensions and undermining the government’s capability to demand value for money.

*Proprietary software and vendor lock-in*

The current government’s system of IT procurement is characterised by vendor lock-in.

This means that the public sector procuring agency is typically dependent on a single IT contractor for a fixed, often long-term period, and cannot move to another contractor without incurring substantial costs.

This dependence is the result of government failure to implement mandatory standards that would enable compatibility between different hardware, operating systems or file formats. As a result, government departments are typically locked in to a single contractor, who then enjoys a monopolist position with regard to future upgrades and servicing.

*A simple example of the potential cost of vendor lock-in*

A small government department wants to provide ‘Windows Mobile 6’ on its new departmental mobile phones.

The department is comprised of 100 officials using standard equipment and software implemented five years ago (Windows2000 Server, Exchange2000, Windows2000 Professional, Office2000 professional).

While implementing ‘Windows Mobile 6’ might be assumed to be a one-off cost, the use of proprietary software means that considerable additional costs may be incurred:

- An upgrade to Windows XP or Vista is required to support “Windows Mobile 6”.
- Internet Explorer 6 or later is required to use Active Sync 4.5.
- Office2007 requires Windows XP (ServicePack 2) or Windows Vista. The minimum recommended hardware for Office2007 is at least a 500Mhz processor.
256Mb RAM and 1.5Gb disk space.

- The minimum recommended hardware for Windows XP professional is a 300Mhz processor, 128Mb RAM, 1.5Gb disk space, Super VGA graphics card CD or DVD drive.

- The minimum recommended hardware for Windows Vista basic is an 800Mhz processor, 512Mb RAM, 20Gb disk space, a DirectX 9 capable video card with 32Mb RAM, DVD drive. Windows Vista Business increases this requirement to a 1Ghz processor and 1Gb RAM, 40Gb disk space, 128Mb video card.

- Exchange2003 or later is required to synchronise e-mail, calendar, contacts, tasks, and notes with “Windows Mobile 6”.

- Exchange2007 requires a Windows Server 2003 or later Active Directory environment.

- Exchange2007 requires a Windows Server 2003 or later running on 64-bit hardware with between 2Gb and 26Gb or RAM.

As a result, this minor upgrade, even in a small government department with 100 users, could cost over £100,000.

Given these ‘knock-on’ costs incurred in a closed proprietary IT system, it is therefore easy to understand why even relatively straightforward IT projects in large government departments can end up costing tens of millions of pounds.

The solution: ‘open’ procurement

In continuing to rely on a ‘closed’ system of IT procurement, the Labour government is increasingly out of step with best practice in the private sector.

Many companies, such as J Sainsbury and Prudential, that previously outsourced their IT systems to single external suppliers have now revised this policy, and adopted IT strategies that combine in-house and multi-vendor approaches4.

This approach can only be achieved through the implementation of an ‘open’ system of IT procurement.

The primary element of an ‘open’ system is the interoperability of modular IT components through the implementation of ‘open standards’ throughout the IT procurement process.

The opportunity of interoperability – ‘open standards’

The past decade has seen a rapid growth in modular, component-based architectures underpinned by open standards such as XML and e-gif that allow the use of interoperable, ‘mixed economies’ of hardware, middleware and software.

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4 For a comment about the growth in shared services and ‘out-tasking’ as alternatives to large outsourcing contracts, see http://enterprise.usa.siemens.com/products/services/rightColumnParagraphs/08/document/6servicesfolder082704tlc.pdf
This mixed economy opens up the procurement process to a much larger number of companies, including smaller companies who would previously have been frozen out of the system because of the massive scale of IT contracts under the ‘closed’ model.

The benefits of a modular, open architecture include:

- Smaller, simpler components can be built by a wider range of software and service suppliers, increasing competition and reducing costs
- Compliant components can be assembled to build a solution, enabling many software and service suppliers potentially to contribute, eliminating the ‘default’ requirement for single, monolithic suppliers
- Failing or under-performing suppliers can be replaced more easily
- Component parts of the infrastructure can be removed and replaced more quickly
- Modularity increases flexibility, enabling organisations to react more quickly to legislative and organisational change

Achieving ‘open standards’

**Proposal: The government should build and maintain an XML open gateway for data standards for public sector IT systems.**

An open interface would allow any third party to access data held in government systems in a controlled fashion. An interface specification would be published defining data which was available and the functions which could be performed on that data. These functions would include the ability to look at information and would also in some cases allow information to be updated subjected to certain safeguards that the interface would enforce. The interface would be defined using XML and would be supported by a server, operated by the government, which would respond to requests for information which would be received via the World Wide Web. The server would enforce appropriate security access controls to government data. An explanation of how XML can support greater access to source code is included below:

Many computer systems produce files that can only be read by proprietary software. As an example, the figure shown at the right is what this document looks like if you attempt to open it in a simple text editor, as opposed to the software that produced it. The effect of this is that one is potentially “locked in” to using a particular version of a particular word processing

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5 The Extensible Markup Language (XML) is a general-purpose mark up language. Its primary purpose is to facilitate the sharing of data across different information systems, particularly via the Internet. XML is recommended by the World Wide Web Consortium. It is a fee-free open standard.
package in order to share the information this file contains:

XML, by contrast, can be produced and transmitted as plain text using a variety of tools. The format of the message in terms of the pieces of information it contains can be tightly controlled so that both sending and receiving applications obtain predictable results from their communications and only appropriate, authorised transactions can occur.

The fragment shown here (re-produced from a Microsoft white paper in which a mock purchasing system is used to illustrate how diverse systems can communicate via XML) whilst not entirely “user friendly” to the layman is at least human-readable and could be interpreted by any number of XML-ready applications:

```xml
<SOAP-ENV:Body>
  <PROCESS_PO_004
    id="PROCESS_PO_004"…>
    <DATAAREA>
      <PROCESS_PO>
        <!-- Insert business information here (Purchase order for 15 wagons) -->
        <DATAAREA>
          <PROCESS_PO_004>
          </SOAP-ENV:Body>
```

**Ensuring the security and integrity of open access services**

Open gateways do not mean compromising either the security or integrity of government data. The open interface specification would, where necessary, contain security information which would have to accompany a request for information. So for example, while anybody could develop and submit a request for information only someone who had obtained the appropriate security authorisations and was able to provide them in the correct form would be permitted to access information via the open gateway.

Where the open gateway allowed the updating of information it would also be possible to enforce certain additional checks, which might include the submission of a test request, before actual updates were permitted.

**Re-organising government services through open gateways**

The open gateways, as well as providing opportunities for government to interact more effectively with third parties, also make possible the more rapid development of new automated services within government.

No longer will a new initiative which requires access to data in one of the central systems require a project that changes that central system. Instead new open web based systems can be developed which address very small particular problems but which do not compromise the integrity of the large systems.

Coupled with our proposals elsewhere in the paper for improving access by government to open source developers, open gateways hold out the prospect of rapid development of point systems which meet particular needs in government rapidly and at low cost.

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For example, a manager in a local social security office working with her staff might envisage ways of re-organising the work of the office if information in the central computer systems could be presented in a different way. Using the gateway and access to an open source development it would be possible rapidly to develop a solution which supplemented the core systems provided centrally. Furthermore, if the software proved useful it would be a simple matter for other offices to use it too.

Taking this proposal forward will require the development of a business case, high-level architecture, and governance structure for a workable XML gateway, and its implementation and maintenance by an enhanced Government CIO function (see below).

To improve the demand-side operation of the IT marketplace within government we seek to provide a centralised support function to encourage and assist public sector IT departments in engaging with the potential benefits of OSS components.

**Implication of ‘open standards’ – a level playing field for open source software**

The development of a corporate enterprise architecture should enable a more agile, open source software (OSS) friendly approach using inter-connections based on open gateway standards, provided that an organisation owns and controls its gateways.

**Open source software: a definition**

There are multiple definitions of ‘open source’, but the core characteristic is that the source code is made openly available to licensed users, making it possible for them to tailor the software to their needs and make constant iterative improvements. This is different from traditional proprietary software, where it is very difficult to look at the source code or find out how the software was programmed.

Open source software now holds a significant market share in some sectors of the software infrastructure market. It is estimated that within five years, 50% of the entire infrastructure market could be taken by open source.

The key benefits of open source software are:

- **Cost savings.** Low initial costs (often free) and savings through scope to modify source code. However, there may be transition costs and ongoing support costs (as with traditional proprietary software).

- **Promoting innovation.** The right to redistribute modifications and improvements to the code helps promote innovation and also reduces development costs.

Many of the world’s leading companies are switching to open-source software.

In the private sector, the adoption of open standards has enabled the widespread take up of open source components as part of a “mixed economy” of proprietary and open
source IT elements\textsuperscript{6}. As a result, OSS is now reaching a critical mass of viability. Linux’s market share, for example, is estimated at 20\% of the IT server sector\textsuperscript{7}, and OSS applications such as the Apache web server are the world’s most widely deployed in their own specific field (As of January 2008 the Open Source Apache web server powers over 78 million of the websites on the Internet\textsuperscript{8}).

The primary reason is to cut costs without compromising usability or effectiveness. Another benefit is that it’s easier for open-source software to be tailored for a company’s specific needs, and for it to be subsequently adapted over time.

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\textbf{PRIVATE SECTOR USE OF OPEN SOURCE SOFTWARE}
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Research by Gartner suggests that 95\% of the Forbes Global 2000 companies will have formal open source acquisition and management strategies by 2008\textsuperscript{9}.

More than half of all enterprises use open source technology to run their databases, cutting costs by up to 50\%, according to data from Forrester Research.

By 2011, at least 80\% of commercial software will contain significant amounts of open source code, according to Gartner\textsuperscript{10}.

According to a survey conducted by BusinessWeek, around one in five of businesses were running ‘mission-critical’ applications on Linux by the end of 2007.

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\textsuperscript{6} According to a recent survey, 99\% of Fortune 500 companies now have open source IT procurement strategies.
\textsuperscript{7} tOSSad.org (2007), \textit{Towards Open Source Software Adoption and Dissemination: Current Status of F/OSS}, 18 March
\textsuperscript{9} Stolz, M., (1999), \textit{The Case for Government Promotion of Open Source Software}, NetAction Whitepaper, \texttt{www.netaction.org}

\textsuperscript{8} Netcraft Web Server Survey Jan 2008 - \texttt{http://news.netcraft.com/archives/2008/01/28/january_2008_web_server_survey.html}
\textsuperscript{9} http://www.computerweekly.com/Articles/Article.aspx?liArticleID=216329&PrinterFriendly=true
\end{flushright}

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IBM has based its new hardware around Linux, an open source model that is now the fastest-growing operating system in the world. The company has estimated that this decision has saved them around $1 billion dollars a year.

Amazon, the world’s leading online retailer, reduced its technology expenditure by a quarter by deploying an open source Linux-based infrastructure to process millions of transactions per day.11

Public bodies around the world are also switching to open-source, and many more are currently undertaking pilot and evaluation schemes.

OPEN SOURCE IN THE PUBLIC SECTOR AROUND THE WORLD

Holland
Ten cities, including Amsterdam, The Hague and Eindhoven are currently implementing open source evaluation projects.

In December 2007 the Second Chamber of the Dutch parliament adopted a plan to switch the country's public sector over to open standards. At the same time, authorities will be called upon to use open source software wherever possible.

Spain
A near-unanimous Parliament resolution in December 2006 urged the government to promote the use of open-source software.

The region of Extremadura has migrated 70,000 desktops and 400 servers in its schools to open source software. It has calculated that this decision has already saved them over £10 million.

Austria
Vienna is currently undertaking large scale migration to open source software.

France
The Authority for Customs and Indirect Taxation has migrated to Linux citing security reasons.

South Africa
The South African government has a policy to adopt free open-source systems unless there are compelling reasons otherwise.

Brazil
The Brazilian government plans to migrate 80 percent of all computers in state and state-owned institutions to open-source servers over the next three years.

India

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The Indian state of Tamil Nadu is switching to open-source software – a move that has been estimated to cut costs by 15 to 25 percent.

**OPEN SOURCE: THE GERMAN APPROACH**

The German government is an active user of open source, and has implemented policies that actively support the take-up of open source software.

In 2001, the German Parliament ruled that open source software should be used in federal administration, wherever doing so would cut costs without compromising standards.

The Ministry of Inner Affairs plays a leading role in German open source policy. It acts as a coordinator and advises public administration within their open source implementation process.

The Ministry of Economy and Technology also plays a leading role in open source policy – educating companies on the benefits of open source and encouraging the development of new open source technologies. In 2001 it published an information brochure on open source for small and medium enterprises.

Price is only one of the factors cited for Germany’s transition to open-source. Raising security by diversifying the software mix, and reducing dependence on a single supplier are other reasons given.

- The German Bundestag uses Linux on its 150 servers
- The police force in Lower Saxony has switched to Linux on 11,000 workstations.\(^1\)
- The Ministry of Finance has an Apache/Linux-based intranet system that supports 15,000 users.

**OPEN SOURCE: THE JAPANESE APPROACH**

The Japanese government is moving its entire payroll system over to an open-source platform. The switch is expected to cut operating costs by half.

This move follows a governmental edict that a greater proportion of the $10 billion government IT budget should be used to procure open source software. This measure was designed to diversify the state IT software infrastructure, strengthen security and

drive down costs by increasing competition amongst vendors.

In response to this announcement, ten leading IT companies, including Oracle, NEC, IBM, HP, Hitachi and Dell have formed a consortium to develop and sell open source infrastructure and software for the Japanese market.

In addition, successive UK government and EU reports have shown that public bodies can save significant sums by switching to open-source.

**2004 OGC report into the feasibility of open-source software use in government**

“On the basis of the empirical evidence and experience reported from the trials sites and elsewhere, the current study has concluded that:

- Open Source software is a viable and credible alternative to proprietary software for infrastructure implementations, and for meeting the requirements of the majority of desktop users
- Adoption of Open Source software can generate significant savings in hardware and software costs for infrastructure implementation, and reduce the licensing costs and hardware refresh requirements for desktop implementation.”

**2004 BECTA (technology agency of DfES) report into the use of open-source in schools**

The BECTA report looked at fifteen schools that had introduced an open source element in their IT infrastructures.

These schools had introduced open source solutions in three main ways:

1. To run the schools servers and provide school-wide services such as internet access.
2. To provide the operating systems for classroom and administrative computers.
3. For applications software for classroom and administrative computers.

The BECTA study found that on average, primary schools using open source software cut their IT costs per PC by 50%.

Staff satisfaction was also higher in schools where open source software had been introduced. As a result, BECTA concluded that “open-source solutions can be implemented successfully and with obvious cost benefits as a networking solution.”

**Implication of ‘open standards’ – smaller, more manageable IT contracts**

Reducing risk is achieved by making the scale of change smaller, more manageable, incremental and evolutionary, rather than a revolutionary big-bang. The scale and
scope of smaller IS projects makes successful delivery more likely, and using open techniques allows for a more agile (and competitive) approach to change over time.

Open standards mean that this can be achieved - large complex projects can be broken down into smaller projects.

**Proposal: No government IT contract should last for more than 24 months**

**Proposal: No single government IT contracts with a value of over £100 million**

**Cultural barriers to ‘open procurement’**

There are considerable additional cultural and institutional barriers within the public sector that, unless addressed, would significantly hamper the implementation of ‘open standards’ and ‘open procurement’ in government. These include:

- ‘Political influence’ within public sector bodies, including well-established relationships with major software vendors and service providers
- Cultural resistance to change – especially to changes in the desktop infrastructure - due to budget holders’ reluctance to communicate and share with peers in other departments
- Lack of awareness amongst government IT managers about the opportunities for achieving a mixed economy of OSS and proprietary software, in particular their current viability
- Misplaced risk aversion, with many of these software vendors and service providers promoting scare stories about OSS and smaller scale providers.

**Proposal: Publish and actively promote clear check-lists and support, supported by referenceable best practice, for transitioning an IT infrastructure to a mixed economy of proprietary and OSS components.**

There is a massive potential for cost saving on a case-by-case basis. As shown in these case studies, savings on software cost and licensing can also be channelled into customisation and development to produce a better service.

Perhaps most importantly for central Government this type of open source development is a public good (in the true economic sense) offering zero marginal cost. Custom developments performed on a system for one authority can be used on a national basis with no additional licensing or software costs. Development costs could be shared nationally rather than having each individual authority paying for a separate license and for their own individual customisation (which will often be the same as that required by other authorities) from a proprietary software vendor.
Revision of current OGC Gateway processes

Proposal: Revise OGC Gateway processes to make it more difficult to ‘automatically’ select ‘closed’, proprietary architectural and commercial solutions, often delivered within unnecessarily large, complex projects.

We propose the next Conservative government should revise and strengthen the existing OGC Gateway Review structure to include risks related to vendor lock-in. This will ensure that the ‘burden of proof’ is placed upon any decision to purchase ‘closed’, proprietary solutions that may have adverse implications for government’s broader transition to an open architecture, by demanding the satisfaction of carefully chosen criteria at each stage of an IT investment.

Our proposals for improving the demand-side operation of the IT marketplace within government, the XML Gateway and the publication and maintenance of check-lists and support, each seek to provide ongoing, ‘business as usual’ support to IT departments in encouraging a more open IT marketplace. However, our next proposal recognises that government IT is characterised by periodic peaks in capital investment, as large new infrastructural programmes (and associated contracts) are commissioned. We have therefore sought to include a mechanism for ensuring that open standards and OSS possibilities are considered in reality – rather than just name-checked – both as new systems and services are commissioned, as well as in how these are subsequently managed.

Existing OGC Gateway process: effective but under-used

The Office of Government Commerce Gateway framework\[^{13}\] was developed as a methodology to manage project risk in a broad sense, addressing a variety of areas including business case, strategy, architecture, management, legacy infrastructure, and executive support. By requiring that projects proceed through a series of ‘gateways’, each of which sets conditions that must be satisfied for progress to continue and further budget to be released, the Gateway process succeeds in ensuring that the ‘right’ questions are asked of large capital investments, at the right times. Although the Gateway review framework has been judged as broadly successful, there are reports of attempts to suppress access to the results of reviews of high-profile projects\[^{14}\] that would suggest a currently ‘closed’ approach to the dissemination and use of these within government. Moreover, OGC has recently announced its intention not to fund any further medium risk Gateway reviews, devolving responsibility for these to individual departments.

Our view is therefore that the OGC Gateway process is a proven, useful tool for managing project risk and enforcing openness and accountability, but that it is currently not being used to its full potential within government, either as a vehicle to promote openness and accountability, or in such a way as to realise its potential capacity as a proactive risk management tool. We have included a diagram taken from the OCG website summarising the Gateway review process.

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\[^{13}\] [http://www.ogc.gov.uk/what_is_ogc_gateway_review.asp](http://www.ogc.gov.uk/what_is_ogc_gateway_review.asp)

Overview of OGC Gateway Process

As can be seen from the diagram, a key advantage of the Gateway Review process is that it offers a structured way of applying various risk management checks at appropriate stages throughout the IT investment process, enabling appropriate actions can be taken to ensure that investment decisions are always taken in the context of their ability to deliver business benefits (or to avoid the ‘risk’ of non-delivery).

Progression through each Gate requires the presentation of evidence of the satisfaction of certain defined criteria appropriate to that stage of the programme. For example, high level criteria for progression through Gate 0: Strategic Assessment include:

http://www.ogc.gov.uk/documents/FINAL_BOOK_0.pdf

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Outcomes and objectives contribute to the overall organisational strategy
Programme is supported by key stakeholders
Programme has been considered in wider context of government policy & procurement objectives, and other internal and external interdependencies
Plan for adapting to changing business priorities once the programme is under way
Appropriate engagement with the market regarding programme feasibility
Realistic financial and human resource expectations.

Enhancement of Gateway to support transition to open standards
The OGC Gateway structure therefore offers an ideal vehicle within which to incorporate additional criteria into the appropriate Gates aimed at promoting a progressive transition to open standards and, where appropriate, open source.

It may also be possible to ensure that Gateway Review findings are published under the provisions of the Freedom of Information Act. This would establish transparency and strike a balance between accountability and the current tendency for information that might expose poor commercial and architectural management to be kept secret under the guise of commercial interest.

Addressing these issues via a strengthened ‘Government CIO’

Proposal: The next Conservative Government should establish a strategically and commercially empowered Government CIO, supported by a well-funded, high-profile centre of excellence with proactive reach across government.

We believe that the achievement of real success through the initiatives proposed in this White Paper will be dependent upon the creation of a clearly accountable office with unprecedented powers to co-ordinate departments’ individual efforts in creating a more open market for government IT. This section proposes that this office should reside with an appropriately empowered Government CIO.

In addition, the Government CIO should be supported by a high-profile centre of excellence with the funding and mandate to develop and proactively promote the tools and best practice to support the development of a truly open architecture. We expect that this will comprise, as a minimum, the provision and maintenance of:

- Information regarding, and overall responsibility for, open XML gateways (currently the remit of OGC)
- Check-lists, reviewers, and support for IT Infrastructure reviews
- Models, case studies, success stories
- Standards for documenting processes and software and the positioning of these materials and major departmental systems themselves on some form of global
“systems map”, owned by the CIO, helping to reduce ‘stovepipe’\textsuperscript{16} thinking and encouraging the re-use of public assets 

Protocols for evaluation of open source components 

Legal and contractual support covering indemnification, OSS licensing regimes, service level agreements, etc 

Possible development of a common repository of component-based re-useable software, accessible to both government and the OSS community 

Open, standardised IT qualifications to include Competency Model and Technology in Business (see Section 3). 

We expect that there will be many similar opportunities to provide practical tools and support to both government organisations and the OSS community in eliminating duplication of cost, developing better software, and ‘selling’ and supporting the concept of OSS within the public sector. 

**OSS skills development initiatives**

**The need for a national IT qualification framework**

IT is the largest profession in the UK public sector.\textsuperscript{17} A fundamental area of concern for the UK’s dynamic IT economy is the effective provision of high quality staff throughout the teams that deploy and maintain IT systems. 

Currently it is estimated that there are 1.2m IT professionals in the UK economy working in public and private sectors (on an approximate 40:60 split). On average 156,000 to 179,00 entrants are required in the IT workforce every year for the next decade – this reflects 5-8 times the national growth rate\textsuperscript{18}. The skills requirements for those entrants are constantly rising as more and more “commodity-skilled” work is geo-sourced. Optimising the marketplace for the provision of IT services requires a commitment to accelerate the cultivation of an effective and high-quality workforce with the appropriate technical skills. 

However, the market is currently unable to support a push towards the development of non-proprietary skills in any significant way. Industry’s understanding of the qualification framework for IT skills does not generally stretch far beyond the proprietary qualifications of the major manufacturers\textsuperscript{19}. By default this leads to an ‘inbuilt’ tendency in the marketplace to favour the proprietary qualifications. 

When picking teams to support bids for government software programmes, the question as to whether the staff identified in a vendor’s bid are "properly qualified" effectively translates as "have a vendor qualification".\textsuperscript{20} 

\textsuperscript{16} Stovepipe - A stovepipe system cannot easily integrate with any other system.  
\textsuperscript{17} \url{http://www.cabinetoffice.gov.uk/facts/record/technology.asp}  
\textsuperscript{18} Trends and UK Skills Implications, Gartner Consulting, November 2004.  
\textsuperscript{19} MCP – Microsoft Certified Professional, Oracle Certified Professional, Certified Novell Engineer etc. Interviews with leading Public Sector Recruitment Professionals  
\textsuperscript{20} Personal communication with numerous bid team managers.
The result of this is an entrenched, closed IT skills market, with the possibility of little significant evolution except to the next proprietary versions of software. There is a lack of incentive to become qualified in Linux, for example (or other components of the LAMP Stack\textsuperscript{21}), because there is no recognised qualification.

There needs to be a sufficient pipeline of skilled IT professionals to drive this forward. Failure to do so risks a progressive market dependence on specific vendors and a weakening of the ability for projects to become platform or vendor independent.

The most effective way to achieve this would be the creation of an effective open standard for IT skills qualification in the market. It would include vendor certifications as credits to the overall certification. Such qualifications should be job-related, offering the incentive of career mobility to IT professionals already well into their careers. This is especially important since 70% of the IT professional workforce in 2020 have already left formal education. There is an urgent need to ensure that IT professionals can develop their skills throughout their career to meet the changing business needs and trends to make the most of emerging technologies.

A potential model: the PROCOM standard

The work of the employer-led e-skills UK and Sector Skills Council for IT and Telecoms in this area is heartening and shows a clear strategy to the provision of such an open standard for skills. Their work on developing a professional Competency Model (PROCOM)\textsuperscript{22} provides for a common language and framework for professional qualifications. PROCOM is effective in that:

- It will enable companies to clearly identify what an IT professional can do
- It will enable IT professionals to better clarify their development needs and manage their careers more effectively.

The PROCOM standard achieves this by allocating competencies IT professionals have – in other words, what they can actually do – into a simple suite of subject-based ‘disciplines’ and levels. Reflecting the increasingly broad scope of IT professionals’ roles within business that has been widely recognised, the model covers not only technical qualifications, but also includes transferable skills, such as business and personal skills, based on extensive consultation with employers of IT professionals in all areas of the economy.

The detailed components of the PROCOM standard are vendor independent, and the standards will be regularly reviewed by all employers who wish to contribute to this – a truly open standard for IT qualifications.

The Competency Model standard addresses this by enabling employees’ qualifications to plug into an open national standard that is easy for employers to understand and identify relevant skills, and easy for the employee to identify a career management path. Proprietary and non-proprietary qualifications would count as credits towards an individual’s Competency Model profile.

\textsuperscript{21} http://en.wikipedia.org/wiki/LAMP_(software_bundle)
\textsuperscript{22} http://www.e-skills.com/Education-and-skills-development/ProfIT/1906
In every bid to provide IT services to government, the bidder should be required to define the skill requirements of the resources that will execute the project using the Competency Model Standard. Institutionalising this form of best practice in career management, assessment and training will effectively create a quality mark for the IT service provision procured by the government.

**Competency Model**

**Proposal:** Conservative Government should introduce a Competency Model along PROCOM lines, in order to ensure quality of resource to employers and clients, and provide a clear and credible standard for employees to manage their career objectives.

Such a standard should be incorporated as the primary definition of skill requirements in government IT contracts.

**The need for a step change in IT literacy at senior levels across government**

At the same time, there is a requirement for a major improvement in literacy at the top of government in the entrenched links between service delivery architectures and IT architectures – and therefore the business implications of IT architectural decisions. At this level, the focus should relate to concepts such as service-oriented architectures (SOA), implementing shared service models, open, component-based architectures, capability maturity, supplier and benefits management, and managing business transformation programmes. As well as ‘business’ learning more about ‘technology’, there is also a recognised need for more technology-focused IT staff to improve their understanding of the business implications of their profession.23

Whilst the Cabinet Office has recently launched a ‘Technology in Business’ component to the Civil Service Fast Stream, and created a Government IT Academy24 to address the shortfall in such capabilities within government, this would not appear yet to have been executed to the scale required to make a deep impact in the way in which government service delivery organisations are modelled, planned, and built. We would therefore recommend a comprehensive review and strengthening of activities to date in this area, with a view to including mandatory certification in Technology in Business as a prerequisite for promotion to any Civil Service rank of UG6 and above.

**Technology in Business**

We propose the next Conservative government should conduct a full review of the ‘Technology in Business’ and similar educational programmes in existence for senior employees within government. This should be strengthened considerably and qualification made a mandatory requirement for promotion to senior levels within public sector organisations.

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24 http://www.cio.gov.uk/itprofession/about/index.asp
Responsibility for co-ordination of both the Competency Model and Technology in Business should lie with the strengthened Government CIO function.