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"Better for Less"

How to make Government IT deliver savings.

Liam Maxwell

with contributions from
Jerry Fishenden
William Heath
Jonathan Sowler
Peter Rowlins
Mark Thompson
Simon Wardley.

7th September 2010

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The Network for the Post-Bureaucratic Age (nPBA) is a research group supported by activists and volunteers in the public and private sectors.

Every day technology is giving us better tools so people can interact easily with each other and with their institutions.

Every new decision by government must ensure that power shifts away from the centre.

Government should be constantly pushed to be as technologically smart as possible, in the service of productive efficiency and participatory democracy.

The Network for the Post-Bureaucratic Age aims to promote the adoption of new, smarter ways of delivering public services. It is about doing things more efficiently; it is the process and the idea around delivering "better for less".

It is about building social cohesion and its long-term gains are socially transformative. Its dynamic is fuelled by the huge savings available and our desire to do things better.

We are helping government make the most of these opportunities to move from closed to open systems; from hierarchical to networked; from command to participation; from complicated to simple; from costly to inexpensive.

If you would like to help, visit us at pbage.org and give us your thoughts.

Stephan Shakespeare
Chairman, nPBA

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I would like to thank the team of writers and collaborators on this project – some named and some for obvious reasons un-named – for their tolerance, their commitment to the project and the time that they gave up to answering dumb questions, explaining complex ideas and helping shape this paper.

Errors and omissions are my fault and I would be grateful for any feedback.

<div align="right">

Liam Maxwell
Windsor
7th September 2010

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SUMMARY

Across the country schools are going to have to look for savings while central government IT programmes continue to burn staggering amounts of money for little common gain.

It's unfair that small companies can't deliver their dynamic and innovative solutions to government because the preferred supplier lists are dominated by multinationals who got lucky and cut super-profitable deals with an administration that demonstrated very little procurement capability.

British Government IT is too expensive. At £21bn the annual cost dwarves some government departments. It is three times the amount we spend on the army, more than the Department for Transport.

Worse, it has been designed badly and built to last.

The problems come from ineffective procurement – much of which is waste.

Each year about the same amount of money is spent on the procurement process (the jumping through hoops to secure contracts) as is used to run the Foreign Office, it would finance the entire Sure Start programme, it would fund 50% more school building.

And even when the form-filling is done only 30% of projects work; indeed government productivity has actually declined since IT was introduced.

At a time when dynamic change is required- to reduce cost and deliver better services – one of the principle barriers to that change is government IT.

The new government has started to cut back on the excessive spending – we expect £800m of savings to come from the first set of polite requests to the major outsourcing and technology vendors.

But we all know that a more strategic change is required – the current situation is unsustainable. It's making the country uncompetitive.

This must change – from the operating structure to the procurement arrangements to the strategy to the execution.

IT must work together across government and deliver a meaningful return on investment.

Government must stop believing it is special and use commodity IT services much more widely. It must make the most of its tremendous institutional memory and experience to make IT work together across government and it must innovate at an entirely different scale and price point.

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This paper explains what has gone wrong and identifies how to enact that strategic change. It does not claim a monopoly of wisdom, but it shows a strategic way forward that will deliver better services at far less cost.

Savings of 40% - £8bn a year in the ongoing cost base – are not an unreasonable aim. But the political backing and commitment to change will need to be firm.

The corporate interest in the status quo within the civil service or the System Integrator community is strong and for fifteen years it has beaten away any meaningful reform.

As we saw with the Open Source policy, the wish is there. However, the one common thread of successive technology leadership in government is a failure to execute policy.

There is at last a ministerial team in place that "gets it".

The austerity measures that all have to face should act as a powerful dynamic for change.

Let's not waste this great opportunity to make British government IT the most effective and least expensive service per head in Western Europe.

As the first example in this paper shows, the route to that change is right in front of us.....

IT'S RIGHT IN FRONT OF YOU

The humble computer desktop that greets almost every civil servant and council officer each morning may not sound like the starting point for an argument for a fundamental reform of government. However its very ordinariness is the key to the solution.

For too long components of government have been able to claim that in the realm of computing they are special, that they are different. This culture has, over time, created a very complex configuration of IT systems that promote factionalism and empire-building over value for money and return on investment. British government IT is broken; for fifteen years it has careered out of control, profligate, rudderless, underperforming and ultimately unfair.

Failing to make basic IT services a commodity has cost the British taxpayer dear. It has also reduced the effectiveness of government. Changing to commodity services - such as a user's desktop software - can reduce the huge annual spending on IT by billions of pounds[1].

- The cost of running a desktop computer in a typical local government body is £345 per annum[2].
- The current cost of running a desktop in central government is £800 to £1600 per annum[3].
- There are approximately 4 million desktop computers in local and central government.
- The difference in cost cannot be explained by additional security requirements in central government.

The opportunity for savings is immense[4]. Just in "desktop" the figure of £2bn per year is a reasonable figure to aim at.

These billions of pounds should be available to the Department of Education to fund new schools; they should be available for healthcare – it represents after all about 15% of the UK's total drugs bill[5]. They should not be propping up the stock prices of multinationals who got lucky and cut super-profitable deals with a government that demonstrated very little procurement capability.

And those savings are right in front of almost every government employee every day.

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[1] A note about numbers: Precise numbers of the public sector's IT expenditure are notoriously difficult to determine. During the recent Operational Efficiency review by Dr Martin Read, it was estimated that the UK is spending anywhere between around £13.5bn and £21bn annually on public sector IT (source: Dr Martin Read quoted in http://www.computerweekly.com/Articles/2009/02/11/234748/government-has-little-idea-what-public-sector-spends-on.htm). Whilst we have endeavoured to find precise details of expenditure and budgets – and our colleagues at Kable have been especially helpful and more informed than much of government -   given that it has been impossible to acquire precise figures, we have based our report on the best financial information currently available in the public domain.
[2] Royal Borough of Windsor and Maidenhead internal documentation 2010. (Device £93 p.a., Support £112 p.a., Common Infrastructure £120 p.a.).
[3] This figure is not publicly available but was calculated after analysis of a number of let contracts and we have been re-assured by reputable, senior government sources as to its accuracy.
[4] The example of desktop is explored at length later in this paper.
[5] Written Answer to Anne Minton MP by Andy Burnham MP (then Minister of State (Delivery and Quality), Department of Health), 21 June 2006, assumes standard NHS inflation.

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Government Spending
(£bn p.a.)
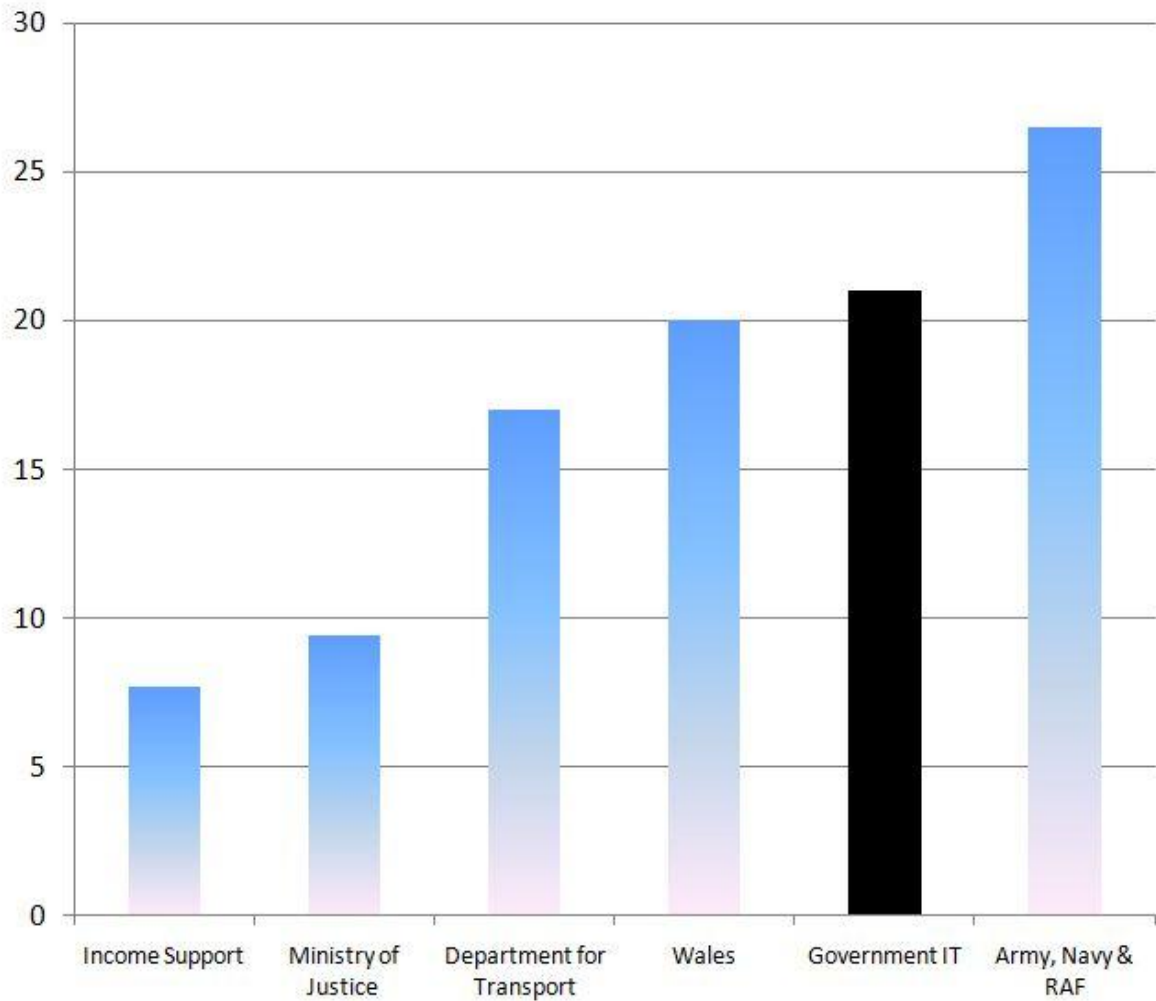
Source: Guardian 2009 quoting Governmental reports, Institute for Fiscal Studies, Public Expenditure Statistical Analyses.
"Wales" means all devolved spending - health and Social Services, Local Government, Enterprise, Environment, Rural Affairs and Culture plus the Welsh Office.
"Army, Navy and RAF" means all operational spending

The incoming government in 2010 has already started a programme of massive reductions in public spending. On July 9th 2010 the Secretary of State for the Cabinet Office started the process of asking IT suppliers for immediate savings in established contracts[6].

Even this seemingly simple task is huge. Thirteen years of profligate spending has not created a super tanker that can be gradually turned around – rather, the inheritance could be described as forty or fifty tankers, steaming off in different directions. If changes are not coming as fast as some in the IT community would like it is not because the new government is dragging its feet, it is because the mess that has been inherited is much larger than anyone imagined. Latest reports suggest that £800m has been squeezed out of the incumbent suppliers[7].

At the same time the citizens of the UK, many of whom are used to conducting more components of their lives online[8], are looking for better services from their government.

Government needs to provide better government services for less.

That does not mean cuts, it means doing things differently. It means changing the business processes of government in order to deliver better services for less, in particular for a lower administrative cost.

The efficiency savings that are being sought now should be the first stage in a strategy to reduce the ongoing cost of technology in government. The immediate changes made now will keep systems running - "keep the lights on" – but this paper explains how the long term goal should be for a much reduced cost that in itself brings better service delivery.

Already local authorities such as Hammersmith & Fulham and Windsor & Maidenhead have pushed through radical changes to deliver front line services while significantly reducing the delivery cost. These changes have reduced the overall cost of government, and therefore the tax to the resident, by 3-4% per year, year after year.

IT should be the key enabler for this process, the dynamic that can drive through these changes. However British government IT in the UK is a byword for waste; it is wildly costly and yet it doesn't deliver: a 'Betamax business model in a marketplace that has standardised on VHS'.

Only 30% of government IT projects work[9]. The majority of projects experience significant cost-overruns[10]

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[6] http://www.publictechnology.net/sector/central-gov/maude-calls-suppliers-contribute-towards-efficiency
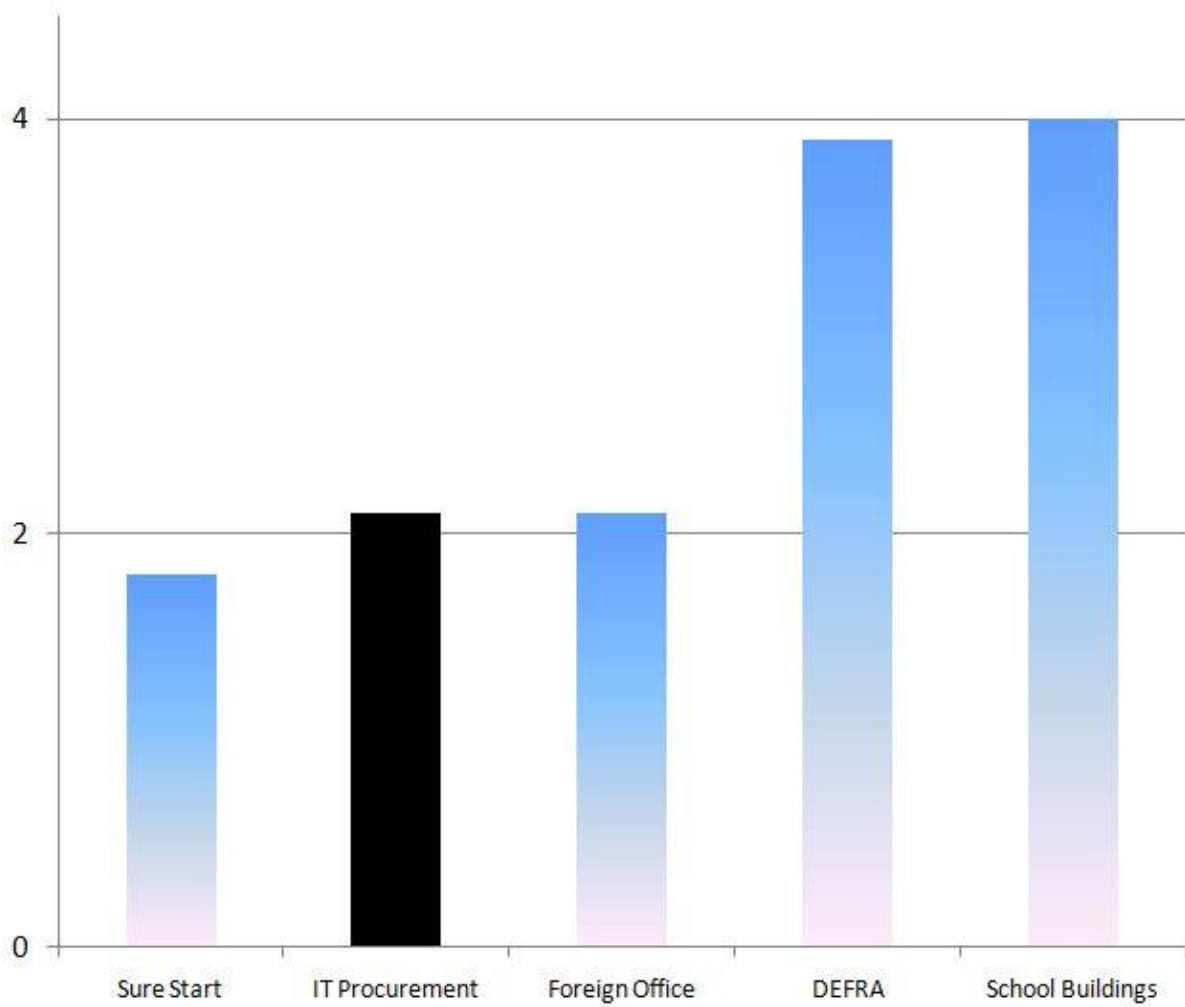
[7] Sunday Times, 5th September 2010

[8] 76% according to the International Telecommunication Union, - The UN Agency for ICT, 2009

[9] 11 companies provide 80% of public sector business, and only 30% of projects succeed. "Only a third of government IT projects succeed, says CIO". Computer Weekly, 21st May 2007. http://www.computerweekly.com/Articles/2007/05/21/223915/only-a-third-of-government-it-projects-succeed-says.htm (also in the Joseph Rowntree report on the database state)

[10] with 30% of contracts being terminated and 57% of projects experiencing cost overruns (source: http://www.computerweekly.com/Articles/2007/12/20/228693/Public-sector-IT-projects-overrun-by-1639bn-says.htm).

IT Procurement Spending
(£bn p.a.)

Source: Guardian 2009 quoting Governmental reports , Institute for Fiscal Studies, Public Expenditure Statistical Analyses.

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Since the introduction of IT public sector productivity has gone down, not up[11].

To give it some perspective, the cost of Government IT - that is to say the cost of all of this electronic paper pushing - is between 1% and 2% of Gross Domestic Product.

Unbelievably – as our first footnote points out - the public sector is uncertain what it currently spends on IT (the estimate of £21bn p.a. is used here) and unable to account for much of where the money goes[12].

Our investigations have shown that the cost of running the stupendously long procurement cycles in IT alone cost between 8%-10% of that – these ***exercises in salesmanship*** cost as much as the whole of the Foreign and Commonwealth Office, as much as the whole of DEFRA[13]..

A recent *Independent* investigation found that "the total cost of Labour's 10 most notorious IT **failures** is equivalent to more than half of the budget for Britain's schools last year. Parliament's spending watchdog has described the projects as "fundamentally flawed" and blamed the previous government's ministers for "stupendous incompetence" in managing them.[14] "

Tremendous opportunities exist for the public sector's information and IT strategy to play a key part in driving through radical, cost-saving change and a fundamental change of approach is required.

This paper sets out that approach and asks – why wouldn't these steps be taken to save money?

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[11] "Wasted billions of government IT spending exposed". The Register, 6th August 2009.
http://www.theregister.co.uk/2009/08/06/gov_it_waste/
[12] Operational Efficiency review by Dr Martin Read 2009, it was estimated that the UK is spending anywhere between around £13.5bn and £21bn annually on public sector IT (source: Dr Martin Read quoted in
http://www.computerweekly.com/Articles/2009/02/11/234748/government-has-little-idea-what-public-sector-spends-on.htm)..
[13] Personal communication with a number of Industry Sources, unsurprisingly there are no official figures offered by government yet
[14] "Labour's computer blunders cost £26bn". The Independent, 19th January 2010. http://www.independent.co.uk/news/uk/politics/labours-computer-blunders-cost-16326bn-1871967.html

1   WHY IS GOVERNMENT IT SO WRONG?

AN EVOLUTIONARY DEAD END

UK Government IT has failed to meet political and public aspirations and has followed a policy of demand aggregation, an approach that has concentrated the IT marketplace in the hands of a small group of overly influential "System Integrator" companies[15] who themselves find the profligate waste and lack of capability deeply troubling[16].

Supplier Estimated public sector ICT revenues (2008 £ million)[17]

Supplier "SI"	Estimated Public Sector revenues (£million)
HP/EDS	2,235
BT	2,100
Fujitsu Services	1,200
Capgemini	900
IBM	650
Capita	646
Dell	645
Serco	580
CSC	400

Effective checks and controls over IT contracts have been dismantled with a move instead to selectively placed, very large, high value and long-term contracts going to 'the big 9'. Transparency is routinely refused, often for 'Commercial Confidentiality' reasons.

More fundamentally, by turning away from the IT mainstream (based on open platforms, open competition and rapid innovation) and instead pursuing a closed, centralised IT model, government has effectively backed the wrong model - it has chosen Betamax over VHS.

Trapped in an evolutionary cul-de-sac and with little competitive leverage, it has paid ever larger amounts to persuade suppliers to prop up its suite of disconnected, unsustainable platforms. How has this happened?

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[15] This reliance on a handful of suppliers is peculiar to the UK. One study (See P Dunleavy and H Magretts, Government IT Performance and the Power of the IT Industry: A Cross-National Analysis, American Political Science Association, 2004.) found that in the Netherlands, the top five IT suppliers have 20% of the government market. In the US, this figure is 48%. In the UK, it is 80%.

[16] Personal communication with a number of Industry Sources.

[17] Kable Direct, Underlying Data 2009 cited in "It's ours, why we not government must own our data", Liam Maxwell, Centre for Policy Studies, 2009.

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BAD SYSTEMS, CONCRETED-IN

This state of affairs is a result of not taking responsibility, rather than a centralised decision. Rather than focus on co-ordinated outcomes, government has focused instead on the delivery of piecemeal technical solutions to legislation, often crafted with little thought for technology. These sub-optimal designs have then set like concrete into departments, ill thought through, inflexible and consequently more expensive than the administration of an entire country the size of Wales[18].

They have been designed badly (to fit legislation, not the other way round) and built to last.

They now form a major barrier to any effective change of process in government.

Their structure of deployment forms another barrier. There is no effective centralisation, nor is localisation accepted - we have, instead, the worst of both worlds. IT inhabits a bizarre Whitehall construct of *departmentalism* - the creation and maintenance of expensive, often duplicated IT resources which do not interact with each other in any effective way.

Examples of this are littered throughout virtually every major initiative of the past fifteen years; from the Criminal Records Bureau and Child Support Agency to the Rural Payments Agency, National Identity Card, Intercept and Modernisation programme to ContactPoint and the National Programme for IT . While a recommendation for most of these white elephants is that it would be cheaper to scrap them and if they are really needed to start again, the contractual terms negotiated on our behalf make this option more expensive than continuing to deploy bad systems.

There are some UK online services that are cited as successes. Changes to pension systems have run well at the DWP and an oft-cited example is the DVLA's online tax disc renewal. However, this is an example of a simple automated process applied to an out-dated system (the paper disc still gets sent in the post). It also penalises users of the online process by charging a premium for credit card payments, instead of a discount for taking administrative and bureaucratic costs out of the system. Police should be able to check the tax (and insurance) status of a car from the licence number on their mobile devices. One of the authors has been told by a senior civil servant very close to this project that this is all the fault of the police, who "like paper, it reduces confrontation".

Going online is therefore penalised and the old expensive manual ways of delivering several services remain the preferred option.

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[18] Kable, op cit, Guardian with contributions from DEPARTMENTAL REPORTS, INSTITUTE FOR FISCAL STUDIES, PUBLIC EXPENDITURE STATISTICAL ANALYSES (PESA) 2009.

OUT IN THE COLD

The emphasis is on tactical use of IT rather than strategic direction of the business and its information assets, compounded by a technology policy skills shortage. Few senior civil servants are familiar with or able to manage IT-related decisions. The establishment of the CIO Council has reportedly improved communication between the occupants of various IT-related functions across Whitehall. However, as the recent 'Government ICT strategy'[19], published towards the end of the previous Labour administration, demonstrates it has left them excluded from the senior business-making ranks and focused instead on lower level technical issues. It is a weak, 'best practice' forum.

Risk is rarely effectively managed. Public sector IT has become concentrated in the hands of a relative handful of companies that are now, like the banks before them, 'too big to fail'. This is a failure of effective governance which in turn has led to a dysfunctional IT marketplace, with many of the UK's most innovative and strong IT players in the small and medium enterprise sector effectively shut out.

Current technology architecture is designed as internally facing - the systems are designed for civil servants to use, citizen access is an add-on, and not a very well made add on either. This makes the transition to a web-based model cumbersome and difficult.

The topics of identity ownership and identity assurance have not been satisfactorily addressed - the ID cards scheme, with its reliance on a physical token based on a single identifier was impractical, insecure and offered little of the identity assurance upon which future systems will need to be founded. The new Government has yet to propose what authentication mechanism might replace ID cards.

Government assumes itself to be the sole source of trusted information about individuals; the needs of individuals and businesses, even the needs of local government are not accommodated. The approach disregards best practice in other countries.

Networks, application hosting, email, instant messaging, online meetings, collaboration are all provided online by vendors such as Microsoft and Google as commodity services that one can sign up to with a credit card. However government buys these very same services as bespoke services at a premium cost - often citing 'security' needs.

Yet security has become a smokescreen behind which Whitehall and the Communications-Electronics Security Group (CESG, the National Technical Authority for Information Assurance) hide a multitude of objectives, groundless policy decisions or poor system implementations. The unanswerable pretexts of 'counter terrorism' and 'child protection' are given to justify new systems while obscuring their true functionality

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[19] http://www.cabinetoffice.gov.uk/media/332778/ict_strategy_sum.pdf

The security rules set by Cheltenham's CESG restrict the ability of companies (especially SMEs) to bid competitively for government contracts and for departments seeking value for money to buy from the most cost-effective solution providers.

And yet the body – the Cabinet Office - that sets the framework for CESG is the same body that is finding security hurdles in the way of the change it needs to reduce cost and improve effectiveness.

For systems operating at 'CONFIDENTIAL' or below - which covers the vast majority of government IT[20] - commercial security techniques and tools can offer effective information assurance without the unacceptable overheads. There is a pressing need for most of the public sector to adopt the same cost-effective approaches used by banks, pharmaceutical companies and online retailers that are perfectly capable of protecting information without the unacceptable costs.

VERY SUCCESSFULLY RESISTING CHANGE

'Efficiency savings' enable today's processes to continue while programmes that never really existed have been 'cut' from an imagined future. Against this backdrop of stasis, with little competitive tension, few senior staff skilled in enterprise IT and minimal oversight, the civil service has created for itself multiple instances of similar data in information systems that duplicate functions and processes right across government. As I described in 2009 there has been something of a turf war over the choice of a unique identifier (the insecure NI number versus the National Identity Number)[21]. This is merely the comic outcome from what are real and strategic issues of governance. So long as departments create their own IT fiefdoms, government IT will not run effectively or efficiently – because in order to do that it must all run *together.*

Tony Blair tried to do this, in fact a lot of the groundwork for our proposals come from a similar theme. But the ambition was never matched by delivery - even a powerful premier found it difficult to continually push against the stasis of Whitehall[22]. Open Source, re-use, repurposing and Open Standards are not new concepts to government, they are even favoured: but as the Thompson report[23] showed, they were squashed by a lazy establishment.

Neither Blair's ambitious 'e-government' programme, nor his desire for clear accountability were ever achieved. In simple terms, Whitehall ignored the Prime Ministerial objectives and carried on regardless. In his 2004 speech on localism at Demos, former Health Secretary Alan Milburn MP stated that:

"*The days of Whitehall or any part of Whitehall knowing best are over … central bureaucracies make work …. If we want to place limits on the role of Whitehall we need limits on the size of Whitehall[24]*"

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[20] Approximately 95% of users - for a description of security levels and guideline populations please see appendix 1.
[21] "It's ours, why we not government must own our data" Liam Maxwell, Centre for Policy Studies, 2009.
[22] In the words of one former official then close to Blair the failure of the Herculean push to change the civil service could be summed up in one word – Iraq.
[23] *Open Source, Open Standards, reforming IT procurement in Government,* Conservative Party 2008.
[24] http://www.demos.co.uk/publications/localism

Whitehall continued to pursue its own agenda, since there was never any effective governance or delivery mechanism, or indeed any process for ensuring accountability, underpinning these high level policy aspirations. Earlier policy documents such as that on the use of third party intermediaries in the delivery of government services, together with federated authentication and trust, have been largely shelved, leaving it to President Obama's team to take former UK policy and use it to drive through 21st century reforms in the USA.[25]

At a time when politicians were increasingly talking about the need for devolved and localised services, when the private sector focused on a move to local services through the wave of consumer-driven Internet technology, the central Whitehall CIO team developed and pursued *Transformational Government* instead, with its technically driven vision of an increasingly centralised and controlled 'database state', as documented in the highly regarded report of the same name from the Joseph Rowntree Reform Trust, for whom government's quest for a

> *"deep truth about the citizen based on their behaviour, experience, beliefs, needs or desires*[26]*",*

....is fundamentally wrong and as we have previously argued[27], stands what little IT strategy there is in government firmly the wrong way up.

The departmentalist approach that we have described has made the accountability for IT extremely complex, as close to ineffective as one can get.

Success will come from a technically literate government where ministers and officials are comfortable with their ability to use technology to do government better. This requires a commitment to learn about - and embrace - technology and the considerable determination that will be required to push through such a cultural change in Whitehall.

In response to the failure of the approach to date, in this paper we have drawn on successful, proven decentralised models for innovative, more cost-effective IT, and made recommendations for how these should be applied to the UK public sector. Delivering innovative, effective IT within government *is* possible, but will require deep cultural change, and the top-level commitment required to make this happen should not be underestimated.

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[25] "The Obama Effect: the US IT Revolution and the UK". Centre for Technology Policy Research. http://ctpr.org/wp-content/uploads/2010/07/CTPR-Memo-No-2-The-Obama-Effect.pdf
[26] Review of Service Transformation 2007, Sir David Varney et al
[27] "It's ours", Liam Maxwell, Centre for Policy Studies 2009. "Who do they think we are?" Jill Kirby Centre for Policy Studies 2008.

2 SO WHAT DO WE NEED TO DO?

THERE IS HOPE - BE ONLINE BY DEFAULT

We need to change the default delivery mechanism for public services. We need to move to online services as the default, using "zero touch" automated processes for the vast majority of citizens that are online.

This needs to focus relentlessly on delivery to the citizen.

Many times delivery of services by a third sector organisation is better and cheaper, so the system should not lock out these parties.

Government, in IT terms so long a hapless victim of vendor lock-in, must not lock in its citizens.

Our proposal is to dramatically reduce waste and improve public services by restoring effective, open markets and open innovation. To put into place proper, business-led IT leadership and governance. To empower the local delivery of public services, and to slim down the unnecessary Whitehall bureaucracy. To release the excessive spending on technology and poorly designed outsourcing programmes so that it can be used to cut the burden of government.

Indeed the pursuit of a "Big Society" and the efficient interaction of government, third sector and other organisations requires open data standards and the elimination of lock-in situations.

WHAT WILL SUCCESS LOOK LIKE?

Our goal should be to deliver to the online population frontline public services with minimal, possibly zero, administrative cost, freeing up cash for more effective, intermediary-based, service delivery for those not online, and also as savings. This is already happening in some areas of local government and driving taxes down. It is happening in other countries, making service delivery better. It is time the biggest component of the British economy, its bloated state, started to learn these lessons.

How does it work? 5 principles underlining all IT in government

We base our approach on a small number of core principles

1) Openness
   a. Open Data – government data must be transparent[28]
   b. Open Source works – its concepts should be applied to processes as much as to IT
   c. Open Standards will drive interoperability, save money and prevent vendor lock-in
   d. Open Markets – competition creates efficient market-based solutions.

2) Localism – the centre may set the standards, but local deployment is best[29].

3) Ownership and Privacy
   a. It's our data, government can have access but not control over personal data.
   b. Government should be accountable for data protection and proper use.

4) Outcomes matter more than targets.

5) Government must be in control of its programmes, not led by them.

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[28] Here we use the example set by the Royal Borough of Windsor and Maidenhead, that data should be available unless it relates to adult social care, child protection or personal medical care, or for contracts in negotiation. All other information should be open.
[29] Local Authority IT is more often than not simpler, more effective and cheaper. Compare the cost of a unitary authority for IT (£25-35 per citizen) to central government IT (£300-400 pa per citizen). Source Kable, SOCITM.

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How do we get there? 4 workstreams

Our approach will combine these principles in four key work-streams that bring effective understanding of the issues, that secure the identity issue so online government is possible, that build the capability in government so that we are back in control and that create the open markets that will drive out cost, drive through innovation and deliver better for less.

These workstreams need to follow the initial engagement with public sector IT suppliers (aimed at reducing immediate cost) undertaken by the Cabinet Office in July 2010.

Workstream 1: Audit – Get and understand the numbers

We have not spent 15 years digging the particularly big hole that is Britain's Government IT shambles only to find a way of fixing it overnight. The Coalition is reluctantly committed to supporting its wasteful inheritance for some time because it has very little choice in the short term.

There must be an effective audit.

Devices
At an almost trivial level there is such widespread duplication of devices and services, from phones to laptops to servers that a systematic device audit would realise significant savings. Feedback from officials close to procurement indicates that Government need not buy another desktop device, phone or server for a reasonable period of time.

Spending
An audit of what has been commissioned and what is being spent is required. This is not a simple matter, but it is not as difficult as one might imagine. The audit, investigation and matching of spending type (down to project level) to invoices over £500 of a unitary local authority delivering across 20+ lines of service delivery took one month to establish and can now be generated within a fortnight of execution every month. That authority, Windsor and Maidenhead, was the first to publish transactions online and is the first to generate this level of analysis not just for councils, but for all government bodies. Their transparency engine (see below) is available on their website and achieves almost total transparency of spending data.

A similar engine should be deployed for IT spend across government. Contracts should be displayed online.

Applications

At the more operational level an audit of business applications and service processes must be undertaken to identify any common processes across government that can be re-used or leveraged by other departments. A catalogue of Service Oriented Architecture[30] (SOA) components that can be used (even with small modification) across government will reduce duplication (multiplication) of effort and help reduce costs.

Staffing

The audit of staff on IT projects is critical. Cases made clear to these authors by industry insiders demonstrate that when an outsourcing project has completed, the savings in civil service staff that were due to fund the changes have not been made. Cases of departments whose work has been outsourced being employed on an ongoing basis to check the work of the outsourcer are not uncommon and significant savings (in the high seven figures) are possible with little effect on operational performance.

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[30] For a fuller explanation of this term please see Appendix 3.

The most visible signs of progress will be the renegotiation of service terms for existing projects. But we must keep the lights on and the systems running while we design and implement a better way.

A team of IT Directors – the Local, Regional and Departmental IT groups – should be commissioned to keep current systems running. To get the best value for money from the current estate and to make the best tactical cost savings they can.

Audit will also bring to light system-wide savings that can be made on a tactical basis without massive architectural modification. Examples of these are:

- A fully functioning test environment for development companies (particularly SMEs) should be established with easy to access rackspace offerings. New small and modular applications can be tested and developed enabling effective tactical deployment of new applications across government with minimal project, finance and deployment risk. This is already being thought of in government, it - and its creators - should be championed.

- Open Source on the desktop should be addressed through the introduction of Open Document Format in all third party applications (which would produce savings of c £51m pa within 2 years in local government, £200m pa in central government).

- Software framework agreements that perpetuate vendor lock-in, particularly those offered by Microsoft or Oracle, should be rejected and new models sought. Government is such a large collective customer it is difficult to understand why the UK has found itself in such a position whereas its counterparts (e.g. Holland[31]) have not followed this path.

- Email office productivity and file storage services should be commoditised for all departments and a per-user maximum email charge should be enforced.

- The many duplicate agencies developing and issuing security rules should be consolidated. A common security framework across central and local government will enable effective, local when necessary, service delivery.

- All schools should migrate to a free email service (such as live@edu or Google-Apps) within 2 years.

- A prize should be established for the first group of schools to introduce an open source school management system to replace the costly and much criticised commercial versions that clog up our state education system[32].

In the meantime there should be no new strategic IT programmes commissioned by government. We have enough in our inheritance to be going on with.

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[31] See https://noiv.nl/ and http://www.whitehouse.gov/files/documents/ostp/opengov_inbox/nl-in-open-connection.pdf
[32] Even BECTA, a particularly useless and cost-ineffective education quango (since abolished) managed to explain that the current market for School Management Systems was hopelessly skewed and suboptimal for all schools involved (School Management Information Systems and Value for Money, BECTA June 2005)

Workstream 2: Identity – the pre-requisite for online delivery

In order to do government online, we need to have effective Identity Management. This brings with it significant questions about who owns data and what security controls government should implement.

Government has made progress with public data, with the "power of information" policy and the data.gov.uk portal.

Next we need a comparably radical rethink on how government deals with personal data. This starts with a return to the role of personal identifiers and intermediaries (originally conceived by UK officials a decade ago, and more recently adopted by the Obama administration).

Government should

- Recognise that the individual is not only the rightful owner, but also the only technically feasible point of integration of exponentially growing volumes of personal data. The individual is the only person who knows how they wish to be treated or addressed. Only the individual knows their real preferences and future intentions. Only the individual therefore can drive the effective "personalisation" of public services which the centralised databases of *Transformational Government* promised but failed to deliver

- Assume that citizens will access on-line public services using a market or ecosystem of accredited third-party identifiers (issued for example by a range of existing online services, credit bureaux, or banks)

- Drop the often false notion that it's a prerequisite to know who people are before you give them information or service

- Challenge the assumption that the vast amounts of (oft-repeated, and frequently inaccurate) personal data across government is "owned" by the service-providing department and can be shared at their convenience.

Structured, scalable personal data managed by individuals is set to become a source of immense new economic value. Personal data is already valuable; that's why everyone wants it. But the volunteered personal information of the future - structured, scalable, independently verified and driven by the citizen - will be far more valuable. First estimates suggest it will be worth more than ten Googles within a decade[33]. The citizen is the rightful beneficiary of such new value.

This requires a change in mindset in how the Government IT community works with secret parts of government entrusted with keeping Britain safe. Dysfunctional online public services designed partly to aid surveillance won't make society safer. Britain has a far better chance of being secure with public

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[33] *The new Personal Communication Model: the rise of Volunteered Personal Information*, Ctrl-Shift Ltd, July 2009.

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services designed to work for individuals and front-line public servants, which respect human rights and dignity. When the data are cleaner, the relatively small number of exceptions stand out more clearly. Securing and maintaining public co-operation are key to effective policing.

On-line identifiers need to work under the user's control, with minimal disclosure and revealing information only to justified parties. They need to be consistent and convenient (see Kim Cameron "Laws of Identity[34]").

In the short term the UK can copy the US administration: announce that future access to online services will be via third-party identifiers, and then provide for the emergence of a "trust framework" so a range of identifiers are accredited for suitable purposes. Many services are fine accessed anonymously; for many more all that is needed is a consistent user experience. It's not always necessary to identify people to check their entitlement. But sometimes individuals will need to invoke stronger identification credentials online: for "Know Your Customer" processes or to meet the most stringent visa requirements for example.

Government increasingly expects a large proportion of the country to have broadband Internet access from a computer or mobile. Government IT needs to anticipate a world where individuals are equipped with:

- rich personal data stores to help them manage the vast new amounts of data they generate in dealing with each other and with organisations

- the ability to invoke strong authentication or verification online (e.g. proof of qualifications, licences, credit, nationality or identity)

- selective disclosure, i.e. the ability to share the minimum data necessary in a particular circumstance.

This doesn't require major new procurement. It means:

- review each main service function to take into account the role of user-driven records for health, education, welfare, transport

- quickly participate in at least two live prototypes of user-driven services across multiple organisations supported by independent online verification services

- where there is benefit, re-engineer the public services (health, education etc) so that users can drive new services with volunteered personal information.

Just as the existing "Power of Information" has created new API[35]s to allow structured public data out of government systems (and create new value[36]) so this "empowered customers" agenda will see new APIs to allow structured personal data in.

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[34] http://www.identityblog.com/stories/2005/05/13/TheLawsOfIdentity.pdf

This means public services can be driven and personalised by users, and new service packages created for them by third parties.

This "empowered customers" agenda might even reveal a revised role for the National ID Register as a voluntary service offering online verification as part of a trust framework, for the most demanding cases. IPS should produce a business case for this within 90 days (but preferably without further excessive use of external consultants).

A chief privacy officer will be required to drive through and enforce these reforms.

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[35] An application programming interface (API) is an interface that a software program implements in order to allow other software to interact with it.
[36] £6bn according to Dr Rufus Pollock of Cambridge University

Workstream 3: Capability – build in the skills we will need for the long term

Many of the mistakes, many of the strategic problems that have happened with IT in government have happened because the people with responsibility did not have the required skills to take the decisions properly. Faced with a requirement to act they outsourced the problem to expensive consultants who were only too happy to sell them limited forms of innovation and service delivery at premium prices. Indeed if one looks at the business models of some of the leading systems integrators, the reliance on the lack of capability among the customer is clear – and the ability to charge premium prices, to confuse senior officials and ministers. In the recent past a good ruse has been to encourage politicians and civil servants to identify the government's size as a component of complexity rather than an opportunity for economies of scale. This is a clear indicator for concern.

When we say that government needs an "intelligent customer" approach we do not mean that pejoratively – we use that term to indicate that we need to have the same level of capability on the side of the government as one would find in a large multinational commissioning complex technology projects such as ERP systems.

If a multinational does not have the skill in-house (and it will need it for a long time) it does not buy in that capability on a consultancy basis – not for something so core to its ongoing business requirements. It either hires it in permanently or, more sustainably, it builds that capability in-house through career development.

Many of the IT systems that have failed to deliver value were put together after legislation was passed with the belief that the legislation was the technical business requirement. The Criminal Records Bureau was a classic example of this, but the lesson has not been learned and the Rural Payments Agency debacle is but the latest £350m example[37]. In many cases outside contractors were called in not because it would be cheaper to listen to an expert, but because it was manifestly obvious that the skills to turn business objectives into a technical solution were absent in the civil service; furthermore, in many instances business cases have only acquired 'legitimacy' in the first place through association with a 'big consultancy' brand name.

This has to change.

As the Thompson Report made clear in 2008, the civil service must continually develop the skills for e-government.

A clear understanding of how to employ technology is a core competency, a mandatory skill, for all leading business executives in the private sector. It should be the same in the civil service as well as in the political layer: their professional competency should require it.

However a one off course of shock therapy will not be effective or sustainable.

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[37] "NAO urges DEFRA agency to replace £350m system that's only 4 years old" Computer Weekly 15 October 2009.

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Officials and ministers must be aware of what IT can successfully achieve and how to learn from documented failures: a high-level strategic understanding of 'what the business needs to know about modern IT'. In turn, this will enable government both to understand 'the art of the possible' in terms of how services can be delivered – as well as how such decisions affect the design of government itself.

A suitable curriculum for confidence and understanding of the issues of IT must be created for mid ranking to senior officials and ministers. It should be provided in a series of short courses, akin to Cranfield University courses, and it should form a core component of the professional competence of this group. Like a business degree, all senior management should demonstrate their competence with the use of modern technology in government.

This mini university needs to be established with access to the best resources in the world, many of whom can deliver effective training and input from outside the UK. It would almost certainly form a core component of education at the Technical Academies proposed by the Conservatives in 2010[38].

This framework already exists in part through the PROCOM model at the eskills sector skills council – a body established by the IT industry. In order to impose the sustainable skills and competencies with technology that modern government requires, this educational framework should be established and implemented immediately across the civil service. The development of the Professional Programme by e-skills UK, based on the PROCOM framework, is an example of how such courses can be based on industry best practice.

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[38] Conservative Technology Manifesto – March 2010

Workstream 4 - Delivering change through open markets

While we maintain the inheritance and sweat the assets, the future will require a fundamentally different approach.

One that enables agile, open and effective local delivery.

One that costs an order of magnitude less to develop and deliver.

One that uses the size of government as a benefit, not a difficulty.

One where government has, in house, an effective intelligent customer function.

The current approach is disparate and thinks of open standards and architecture as *things* – products, technical platforms – rather than *as a technology-enabled commercial model.*

How technical platforms and commercial models are one and the same: Lessons from the VHS/Betamax war

In contrast, ours is a commercial, not a technical, argument, although it contains elements of both. Consider the VHS/Betamax standards war of the 1980s. Because VHS successfully became a common standard for video products, it was able to create a commoditised platform that drove down costs and allowed businesses to innovate around this: it created a vibrant market comprising commercial viability, low cost, and choice. In contrast to VHS, Betamax rapidly became seen as a proprietary standard relevant to only a limited, and dwindling, number of products and services, with the result that the market dried up; it had become an evolutionary dead-end. By analogy, government IT that fails to embrace modern open standards is creating its own evolutionary dead end: markets will only support proprietary systems if they are paid an increasing premium, and because these systems are not a mainstream platform, the market will innovate elsewhere. Like Betamax suppliers, government will be forced to turn back to the direction of mainstream platform evolution in the end.

The above example shows how technical platforms and commercial markets are inextricably linked – and why looking at these factors separately is doomed to failure. Modern IT needs to be light touch, open, agile and locally responsive *because this is the successful technical platform/commercial model that has evolved*. Like any other business, government must remodel itself around its customers, using this platform.

Turning away from the 'Betamax' model that has been failing for the past 15 years to finally make proper use of the 'winning platform' of open standards and markets represents a step change that will require a strong political will at the most senior levels and tolerance for a level of disruption whilst the changes are brought into effect: culture really matters.

The lessons from consumer technology

Platform and economic model are part of the same concept.

The current plight of government resembles not only Betamax, but also that of the recording industry, Windows Mobile, CompuServe. As companies have tried to impose their own proprietary standards and platforms they eventually limit their own long term development. And remember that government is a long-term business.

The closed market of government IT procurement has been reluctant to recognise that ownership of data and control of the distribution medium are increasingly difficult to sustain in the face of open standards and cheap networks.

Central ownership of data promises control and predictability – whether economic, as in the case of the recording industry, or political, as in the case of public services. Furthermore, strong relationships at the top of the civil service between government and its suppliers allow those with vested commercial interests in building and maintaining large, centralised and complex systems to encourage and support this way of thinking.

Like AOL and CompuServe in the recent past, government's proprietary business model has become unsustainably rigid in the face of growing public demand for different services, delivered flexibly.

The game has changed; new technology has forever changed people's patterns of demand.

Democratisation, open markets and innovation are the inevitable commercial implications of open standards, and lie at the heart of delivering light touch, open, agile and local government IT.

Government IT must recognise that it needs a completely new understanding of the purpose of technology and the way in which it must be delivered.

Proprietary standards and closed markets are, respectively, an evolutionary dead end and a failed business model.

Look for example at the case of the Android operating system. The *economic power* of a strong enabling platform has generated over 70,000 applications and millions of downloads, as individuals combine data over a common platform to generate real innovation.

No 'government apps store' built on a proprietary platform will emulate Android's success because it will never attract sufficient innovation, it will not be able to interact with the myriad organisations that work with government. In the long term it will become a failed business model, because it lacks an open platform.

Features of Failed Government IT Model	Features of New Government IT Model
Open standards as fixed technical platform	Open standards as engine for commercial innovation
IT as infrastructure	IT as evolving process
Centralised, 'command and control' organisation	Central standards, decentralised innovation
Government as owner of public data/content	Government as facilitator for innovative use of data/content
Government as "owner" of personal data	Public services driven by user-held data, independently verified if needed
Closed marketplace, 'top tier' suppliers, little incentive to innovate	Open marketplace, level playing field, increased incentive to innovate

Table 1: How networked technology renders 'Command and Control' obsolete

On the basis of the above, we believe:

- Government needs in-house capability as an 'intelligent customer' capable of bringing this understanding to both platform development (technical dimension) and procurement (commercial dimension)

- It needs senior level engagement and improved mechanisms for governance, architecture and procurement

- It now needs to move rapidly to a position of effective leadership and management across both internal and external sources, focused on the delivery of working, open markets and not centrally imposed monoliths and monopolies. It needs to bridge the current gap between public policy planning and operations and the use of IT

- Our approach requires the effective implementation of open markets for IT, enabled by a common shared infrastructure that enables the identity assurance we have discussed, effective security and access to every citizen that wants it

- The fundamental change into an open market will drive this, combined with modern Internet technologies that enable constant feedback from the frontline, be that employees or citizens.

Common Infrastructure

The use of a common infrastructure is critical to this approach, applications must be developed to work together using open standards for data and interoperability. It is critical that the common infrastructure is available for all the identified stakeholders: officials, citizens, third sector organisations, potential and actual solution providers.

Application delivery based on Service Oriented Architecture allows this flexible approach – so long as we are all working together.

Government applications and services should therefore be available 'in the cloud'. Not in **a** cloud, in **the** cloud, for the reasons discussed above. This requires a fundamental change in the way government procures its infrastructure, which is currently based on providing an inward-facing "G Cloud". It also promotes and encourages the development of smaller, iterative applications that can be used by different departments across government,

A new CxO Function – the Technology Council

The changes we propose require a new leadership function.

As we have stated, the CIO council has been helpful, but not in command. A more effective, centralised command structure will be required for the "Lights on" phase we described above. This is stated policy for the Conservative Party in their well-received technology manifesto.

The current CIO role is a thankless task, the vicar amidst a well meaning congregation all wanting best practice, re-use and shared services but with little financial interest in pursuing them and consequently little progress to declare[39].

We need to have a more effective, executive and responsible technology leadership function at the heart of government.

It is clear that while one person can direct IT in an organisation as large as this, this operational role will need very clear and effective subject matter expertise backing in their executive team. They will also need effective links to departments to both identify requirements and secure buy-in to the change programme.

We propose a revivified council with effective authority across Whitehall for all IT projects and implementations. That council should be chaired by a Government Chief Operating Officer.

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[39] Policies for Open Source, Open Standards and re-use have been around for years, yet as the Thompson report so clearly showed, nothing had been done to make the changes that even the current CIO explained would realise £400m pa + of savings (http://www.guardian.co.uk/technology/2010/jan/27/cloud-computing-government-uk)

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Departmental CIOs – effectively IT directors - will sit on it as will a small, lean technology policy function. Together this council will direct public sector technology policy. It will work closely with Ministers, Permanent Secretaries and other senior staff to ensure public services, and the way they use technology, is properly co-designed. But it will be an operational body responsible for delivery of effective technology which, within 3 years (the assumed effective end of the spending moratorium) will be able to deliver new IT projects at an order of magnitude less cost than currently.

The balance of work for maintaining the operation of government IT should rest with the COO and the department IT Directors. The balance of development and readiness for deployment of the new approach should rest with the technology policy team. Together the council will be accountable for the delivery of better technology and have a clear management structure that will enable this execution to occur.

The key insight here is that getting the incentives right is the critical step that underlies both the strategic aims of the business model, and the delivery architecture to make this a reality.

Government will not abandon decades-old entrenched behaviours that promise control and political ownership (for government) and large, guaranteed profits (for suppliers) simply because they are told that these are outdated; like the recording industry, it is likely to be the threat of disenfranchisement and irrelevance that provides the incentive.

A shift of this magnitude is only possible via an operational framework that provides the right incentive at point of decision: an incentivisation model where the price to government and its suppliers of continued ignorance or denial is political and commercial wilderness. We have developed such a framework, the Innovate / Leverage / Commoditise (ILC) model, as an important first step in creating an incentive-based environment that rewards openness, transparency, flexibility, and innovation, rather than closed-ness, secrecy, rigidity, and risk aversion.

3   A NEW FRAMEWORK: INNOVATE-LEVERAGE-COMMODITISE (ILC) MODEL

CONTINUOUS, ACCELERATED SHARING OVER A COMMON PLATFORM

We have argued that current government IT represents an unsustainable technical and commercial cul-de-sac, whose strategy of 'big government' systems has placed it increasingly visibly at odds from an IT mainstream based on open platforms, open competition and rapid innovation. The outcome has been a closed, centralised IT model, influenced and controlled increasingly by a small coterie of so-called "tier 1" suppliers - and the result, unsurprisingly, has been unprecedented cost, notorious waste, and disarray. A strong guiding philosophy is urgently required, one that is easily communicable across government, and coherent to those who must do the difficult work of turning government IT away from its evolutionary cul-de-sac and reconnecting it to the mainstream IT market. The philosophy must:

- Explain, at a *conceptual* level, the critical relationship between innovation and commodity
- Demonstrate how this relationship means that technical platforms and commercial models are one and the same and must be understood and used, *practically*, as such by government to gain commercial advantage
- Provide a simple, robust *methodology* for applying this philosophy consistently across all architectural and commercial decisions within government IT.

The Innovate-Leverage-Commoditise (ILC) model aims to fulfil this urgent requirement. It is not intended as an IS strategy as such (although its strategic implications are clear); rather, it is a guiding philosophy and practical model against which both strategic and operational decisions can be measured and evaluated; a compass to ensure, at every level, and in every activity, that government IT is heading in the right direction.

Most importantly, it is both a technical platform *and a commercial model* (as opposed to a set of disconnected technical platforms), that promotes *continuous, accelerated sharing of new applications and services across government*.

ILC is based on three main components in that process. Thinking up and developing solutions, deciding where and how they will work across government, and then getting best value from them when they are implemented – and not paying over the odds or risking whole business programmes at any stage. Our virtuous circle encourages innovating, leveraging (spreading around and standardising) and commoditising technology services based on public service needs.

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This Innovate--Leverage--Commoditise approach will operate continuously to:

1) **_Innovate:_** by the sponsorship of innovation at local level[40]

2) **_Leverage:_** by identifying and enabling opportunities for re-use of code, applications and business functions across government

3) **_Commoditise:_** by building the commercial framework to deliver it as a commodity central service on an ongoing basis.

The ILC approach is:

- Open
- Relentlessly value-driven
- Iterative and adaptive, using constant feedback from the frontline and citizens alike
- Commercial
- Market building
- Risk aware.

The ILC model relies on a common infrastructure, open standards and a ruthless desire to commoditise as much as possible so to reduce costs. This is a model that could be used to describe the development processes of numerous successful companies that use technology to deliver excellent services – from Google and Facebook, who use similar processes in their development and engineering to the manufacturing and marketing processes employed in Fast Moving Consumer Goods companies such as Unilever. Even at a basic level, local authorities are using similar re-use, redeploy techniques to reduce the cost of government service delivery – not just in IT but across the organisation.

ILC is based upon the presumption of a common infrastructure, accessible through the internet with applications deployed increasingly within an SOA (Service Oriented Architecture) framework. For instance, the examples of Apple and Google demonstrate that a common platform for service delivery enables developers to focus on the areas where they can add most value. Both companies have constructed an open platform structure and standards, supporting this with the commercial incentives to let a thousand flowers bloom. Government IT is well placed to adopt a similar approach if it adopts this construct: service oriented architecture, open standards, re-use of components and a carefully thought-through incentivisation environment encouraging and supporting innovation and re-use. It can take advantage of a cheap, commodity platform, competitive suppliers, constant innovation, and automatic sustainability.

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[40] and through an approach which does NOT try to bring innovation in-house or to institutionalise it.
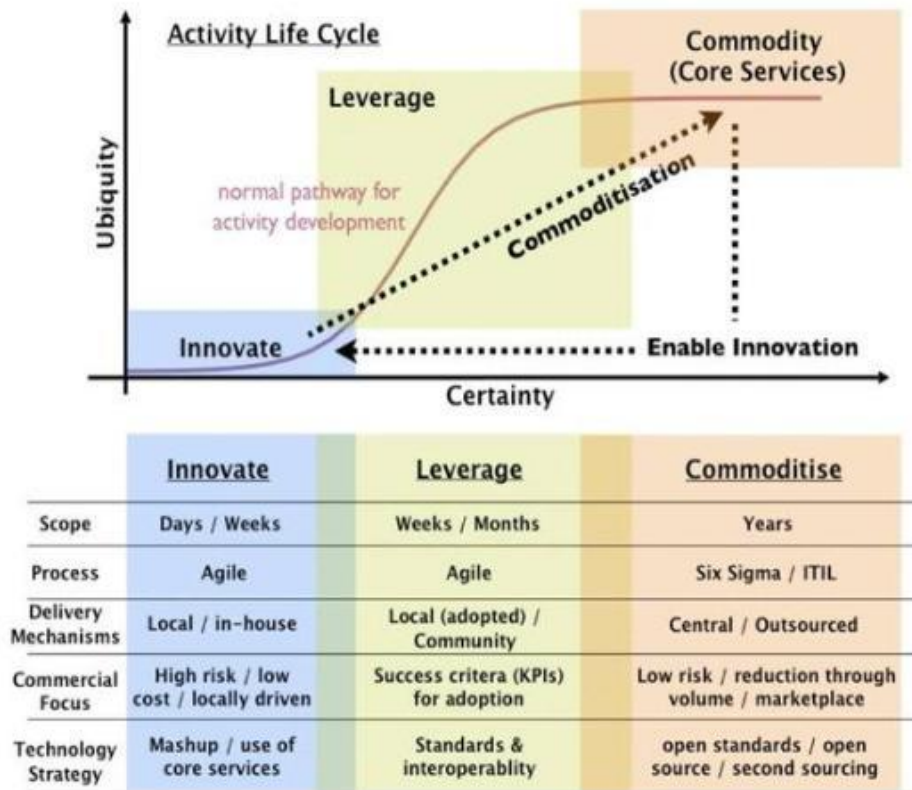
Figure 1: ILC Architecture

ILC: THREE, CONTINUOUS ACTIVITIES

Innovate

New functions and service delivery methods are required as legislation and customer requirements change. In addition one of the most underused, yet valuable knowledge bases in government are our frontline workers. The most important thing to remember is that with common, open platforms, suppliers are incentivised to innovate – because they have the assurance that the platforms upon which they are investing are a) cheap, b) sustainable, and c) widespread (i.e. in demand by many customers). This level, and sustainability, of incentive can never be replicated via large closed, 'economy-of scale' contracts with single suppliers.

In order to deploy new functions and services, we need to have a framework for innovation right at the frontline that is accountable throughout government, enabling the best point solutions to be re-used and re-engineered for other functions at little cost.

So Innovation should be sponsored at local level, through:

- Automatic provision of core services and public data through open API's[41] – to kick-start the common, cheap platform required for innovation to happen

- Use of ring-fenced innovation funding. A maximum capital investment of £50,000 per new activity, with defined measures of success, will encourage outside-in innovation rather than government trying to define and institutionalise its own concept of innovation (which is all too often remote from the real service needs of either public service employees, intermediaries or citizens alike).

Increasingly, innovative services that address the digital divide are delivered via "mash-ups". Various examples of mash-up systems can be found[42] from the global commercial surveys provided by the world bank[43] to the Guardian MPs' Expense data mash-up with Google Maps & theyworkforyou.com[44].

By embracing, rather than stifling, mashups, the cost of failure, application backlog, development time and costs can be reduced dramatically whilst the rate of innovation can be accelerated (from months to days[45]), the cost of development drastically reduced) and a much wider range of staff and the public involved. An example of such an approach is the recent Kent County Council provision of mashup services to the public[46].

Leverage
There is little point in encouraging innovation unless promising applications can be 'scraped up' and shared, rapidly and cheaply. The most successful IT companies recognise and support this activity by developing innovative ecosystems around core services. By carefully monitoring newly introduced activities and how they are being adopted by end users, these companies amalgamate those successful activities into their core offerings, in practice 'crowdsourcing' service development[47].

The most enlightened form of this is in the provision of standardised development platforms (Google App Engine, Facebook Development Platform and SalesForce.com for example) where new applications

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[41] Application interfaces – the method of linking applications. Wikipedia: "An application programming interface (API) is an interface implemented by a software program which enables it to interact with other software."
[42] ProgrammableWeb maintains a list of 4,400+ http://www.programmableweb.com/
[43] http://rru.worldbank.org/businessplanet/
[44] See http://blog.ouseful.info/2009/04/02/visualising-mps-expenses-using-scatter-plots-charts-and-maps/
[45] IBM presentation 2009, Mashup ROI, page 3 : http://www.slideshare.net/mcerar1020/smart-smb-huge-time-and-cost-savings-with-mashups-v1
[46] http://www.itpro.co.uk/616927/ibm-helps-kent-residents-create-their-own-mashups
[47] Reverse Engineering Google's Innovation Machine, Harvard Business Review, April 2008..

(**innovation**) developed into the platform are made available to other users (**leveraged**) - which in turn can often lead to wholescale integration and development of the underlying platform (**commoditised**).

Whilst the platform is provided as a core (and cheap) service, the adoption, transition and incorporation of new successful innovations into the platform can lead to orders of magnitude faster development, spread and reduction in costs whilst maximising the returns from any successful innovation.

Combined with mash-up techniques, we believe that development savings of 60% and total cost savings in excess of 80%+[48] are achievable to traditional development mechanisms and this provides an ongoing technique for supporting new activities at continual low cost

Commoditise

The commoditisation stage involves converting new, innovative and cheap services developed locally that have gained some measure of widespread adoption (see **leverage**) into standard, commoditised (even cheaper) 'core' services that can be shared widely and quickly across government.

Shared platforms are essential in driving innovation because they are:

- cheap,
- sustainable, and
- widespread (i.e. in demand by many customers).

Maintaining a resolute focus on commoditisation is equally important as innovation.

Core services should be centralised and common to all new systems (such as infrastructure provision or common application services).

These core services will provide self-service IT, reducing costs through volume operations and maximising efficiencies by use of standardised outsourced providers. It is key that the use of outsourcing is limited to properly functioning, open marketplaces using open source technology wherever appropriate.

The use by government of commodity cloud-based services is a potential example of this (NOT the bespoke procurement and build of a proprietary, closed government cloud - the so-called 'G-Cloud').

Whilst the previous government's ICT strategy[49] claims a potential £4 billion in operational savings through G-Cloud/Government and an Apps Store some **ten years** away (by 2020 it claims), the approach that it sets out is one of outsourcing to a restricted range of providers: in fact the very **opposite** of 'cloud business logic'.

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[48] PaaS-onomics, LongJump Whitepaper, 2009
[49] The copy is preserved here: http://www.makeitbetter.org.uk/?page_id=27

Our approach differs radically: we propose using cloud initiatives to take advantage of the open market and to drive innovation in line with best commercial practice, where cloud has been used to extensively reduce infrastructure and data centres, switch off the mass of unused applications and consolidate the level of application sprawl (in the case of UK Government IT this is estimated to stand at 10,000 applications).

In many cases the savings created have not required additional capital expenditure to implement such an approach. Systems should be implemented through cost savings and not additional investment. The savings should also be realised much more rapidly: ten years is a meaningless timescale when it comes to technology, and does not take seriously the urgency with which the economic situation and the improvement of the UK's public services needs to be addressed.

4- MAKING IT HAPPEN

GOVERNANCE AND RESPONSIBILITY

ILC differs fundamentally from the traditional IT approach of single systems, single policies and deliberately concentrating the market in the hands of a small number of suppliers. To implement it will take strong leadership and improved governance of IT in the public sector.

To tackle this challenge, we propose a 'Commoditise Group' operating centrally, with the high levels of skill and expertise to perform this distillation of high from low risk. The Commoditise Group will engage suppliers in the complex and difficult commercial discussions to carve out standardised, modular, low risk, and low margin services from current non-standard, long-exit, mixed/high risk, high margin/change control contracts. This includes disaggregating existing monolithic contracts into smaller components delivered by the open market. This group will require very extensive skills in procurement and contract law.

Once let, such contracts will be managed – as *commodities* - by a new Common Services IT Group.

It is clear that policymakers and those requiring robust skills across the above 'delivery dimensions' will require an effective competency framework and training programme. Design of this programme, and supporting templates, working guides and other supporting materials will form an important activity during the first 12 months transition.

The ILC structure will complement and (for reasons of change management and cost) be primarily resourced from existing IT structures. The process of implementation will be gradual (over 12 months) with the goal of, where possible, repositioning and retraining existing staff to a more effective structure, reducing dependency on external suppliers and finally reducing head count through efficiency.

The ILC governance structure is outlined in figure 2, and subdivided into four main sections – implementation, monitoring, funding and governance. At the core of these components is the Technology Council.

	Innovate	Leverage	Commoditise
Scope	Days / Weeks	Weeks / Months	Years
Process	Agile	Agile	Six Sigma / ITIL
Delivery Mechanisms	Local / in-house	Local (adopted) / Community	Central / Outsourced
Commercial Focus	High risk / low cost / locally driven	Success critera (KPIs) for adoption	Low risk / reduction through volume / marketplace
Technology Strategy	Mashup / use of core services	Standards & interoperablity	open standards / open source / second sourcing

Structure

Implements	Local, Regional & Departmental IT Groups		Common Services IT Group
Monitors / Reinforces ILC	Innovation Group	Leverage Group	Commoditise Group
Funding Body	Innovation Fund	Scrutiny Board	
Reports / Governance	Council		

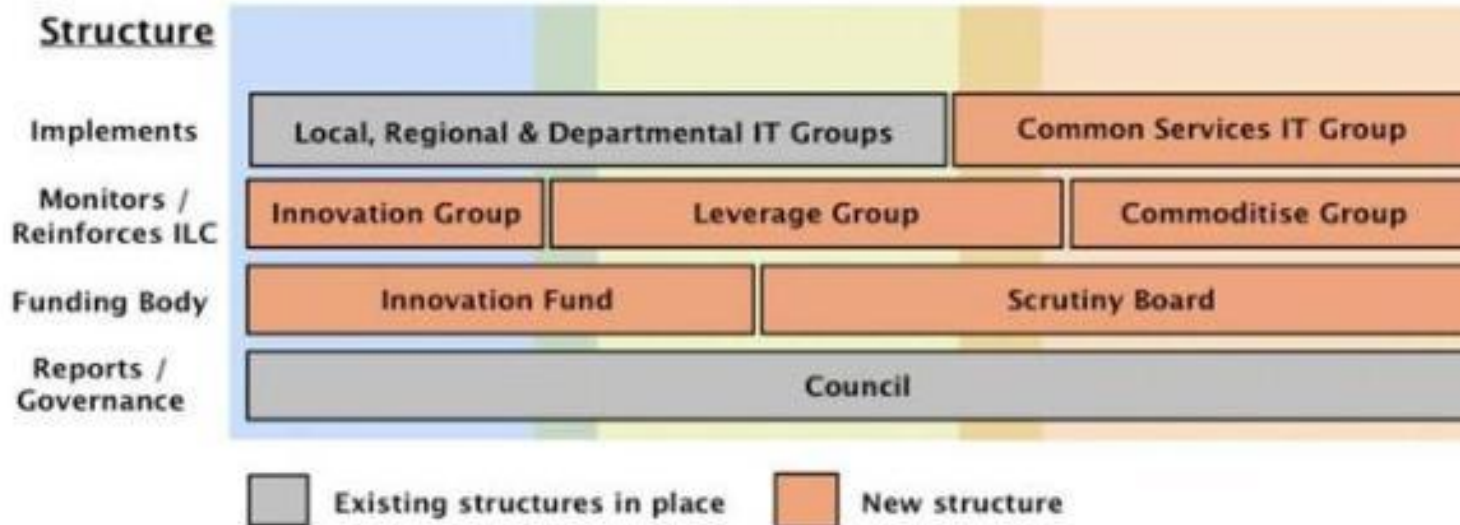Existing structures in place   New structure

Figure 2: ILC Governance

The four key activities are:

- **Implementation**: responsible for delivery of systems. The new common service group will enforce the drive to commoditise as much as possible and actively manage the cost delivery of service

- **Monitoring**: responsible for ensuring and supporting the principles of ILC are applied with innovation at the edge, adoption of successful activities and provision of commoditised core services. These groups will also provide specialised skills for which specialised training will be required (for example, contracts and community management).

- **Funding**: the financial management of projects should be on an investment model. New projects should seek resources for their innovation projects from an investment fund run less like NESTA, more like a commercial body. This would be able to generate microfinance for innovation projects while also being able to fund the larger projects for change that will come forward. Crucially this fund, combined with a scrutiny board, will be able to identify areas where leverage should be employed, where integration with other components can be achieved and to advise those creating new components where their efforts may already have been delivered. The scrutiny panel will also ensure that projects are effectively performance managed and deliver the benefits and savings outlined at the innovation stage – i.e. that they deliver. These two boards should be accessible, open and staffed by stakeholders across the civil service, academic and industry community. Project limits will be strictly mandated (no new innovative activity to exceed £50K, no single common service to exceed £10M), the two bodies provide a mechanism for exception approval at these respective levels.

- **Reports/Governance:** the new Technology Council that consists of members of each group. It will be responsible for ensuring the application of the overall principles (see next section) and is one of the business owners of the projects that go through the ILC process.

Who is Who?

Component	Purpose	Constituents
Local Government and Departmental IT Groups **(Exists)**	Maintain and support deployed implementations and manage future deployments to the relevant users	Local and central government IT functions
Common Services IT Group **(NEW)**	New group that implements common IT commoditised services across local government and "Whitehall" departments	New unit, IT implementation and support specialists
Innovation Group **NEW**	A very close-knit and wired group that works in the field. They spot and then nurture opportunities for innovation at the frontline, work closely with service delivery providers. Identify possible solutions at an early (pre-business-angel) stage. Get information and ideas from the frontline to a group of SMEs or similar to work up working models and primary solutions	New Unit, developers, the skunkworks idea introduced by the current government when in opposition in 2009.
Leverage group **NEW**	Effectively the institutional memory of government IT, this group looks – right across government - for what is being requested by the innovation team. This team identifies what is in the current government application catalogue and also can clarify what can be re-used or cost effectively re-modelled to provide the required services and functions	A newly formed group of experienced government IT employees with collective institutional memory.
Commoditise Group **NEW**	Identify common processes and require their commoditisation by the responsible delivery body – be that outsourced or in-house delivery. This group is primarily responsible for the reduction in ongoing cost of delivery through effective negotiation and enforcement of commodity rates for commodity services	A new group with a significant commercial legal experience able to enforce what the delivery agents may not want to provide.
Innovation Fund **NEW**	Identifies projects that need funding and provides it in effective and managed -risk manner. Because the size of projects is so small this is an organisation that can take some project risk at the innovation stage.	New entity, probably a mix between 4ip and a commercial Venture Capital House.
Scrutiny Board **NEW**	Effective review of legislation before it is passed so that the technology that is required is agreed as deliverable in advance. New "Strategic" procurement over £10m must be placed before this scrutiny board to ensure effective leverage of assets in being employed and effective performance management of projects is enforced.	New body, contains effective industry experts, majority with an academic or previous vendor background
Technology Council **CHANGED**	Overall control of government technology programs. Enforces standards and practices across government (local and central)	A successor to the CIO Council - with teeth. COO chairman, IT Directors from across government on board with a suitably qualified policy team.

PROCUREMENT

ILC is founded on optimising value across Government IT by establishing and exploiting a transparent, open marketplace. In IT, this means:

- Encouraging innovation and take-up locally

- Driving services to commodity status centrally

- Building a plural, vibrant marketplace

Principle 1: Encouraging innovation and take-up locally

Aims: The current widespread provision of IT services by a small number of suppliers within a 'closed' marketplace[50] runs counter to long-established procurement best practice. The NHS national programme for IT (NPfIT) is a case book example of this remote 'command-style' approach: rather than corral the efforts of the diverse small suppliers (who deliver according to local priorities), NPfIT stopped all progress for 3 years, destroyed local SME capacity/innovation, and imposed uniformly derided systems that few if any wanted, delivered late, and ran up costs never seen for an IT project planet-wide.

Moreover, successive, well-publicised lessons from the past 12 years of 'big government' IT demonstrate the need to move to procuring capability not products. They have also made starkly evident the near impossibility of attempts to specify large, complex IT requirements upfront – or to transfer risk wholly to private sector suppliers. In addition to the practical difficulty of mapping such complexity, the underlying business case usually changes within 2 years, resulting in complex and expensive rework.

Implementation: ILC will therefore require the 'burden of proof' to be that:

- All projects are broken into and delivered in smaller, iterative chunks, enabling switching of suppliers, flexible incorporation of change

- No new innovative activity to exceed £50k

- 'Seed funding' will be made available at local level, overseen by the Innovation Group, to encourage local innovation

- Public data will be made available to SMEs via open protocols wherever possible

- 'Successful' innovative activities (with measurable results) will be promoted by the Leverage Group for wider adoption.

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[50] The House of Commons Public Accounts Committee reported that just 11 companies were providing 80% of public sector business in the ICT sector. House of Commons Public Accounts Committee, Twenty-Seventh Report, Session 2004-05, 6 April 2005. The top companies reported as sharing the majority of the public sector's IT contracts includes HP (which incorporates EDS since its acquisition by HP), BT, Fujitsu, Capgemini, IBM, Dell, Capita, Serco, Computacenter, O2, LogicaCMG, Accenture, NTL:Telewest Business, Microsoft, Research Machines, Cable and Wireless, Cisco, CSC and Atos Origin ("*Capgemini and HP gain ground in public sector marketplace*", *The Register*, 3rd May 2007, as detailed in the CTPR report "UK Public Sector IT" (http://ctpr.org/wp-content/uploads/2010/07/CTPR-Memo-No-1-UK-Public-Sector-IT.pdf).

Principle 2: Driving services to commodity status centrally

Aims: Underpinning ILC is a commercial logic that identifies innovation, and commoditises it where appropriate by:

- Supporting rules, not exceptions (application of 80/20 rule), and thus de-risking

- Standardising services, formats, technologies

- Ensuring that services are specified as inter-replaceable cassettes of work, to enable easy/regular market testing / swapping of suppliers as routine

- Splitting off any remaining high-risk areas

- Driving down cost

- Establishing clear SLAs against replicable, standardised processes.

Implementation: The *leverage* group will play an essential role in identifying measurably successful activities and promoting their wider adoption. As part of this transition, the *leverage* group will focus on helping develop new standards and greater community, commercial and international involvement in preparation for provision as common services and future outsourcing. The total cost of adoption will be governed by the same rules as any large outsourcing arrangements and subject to the Scrutiny Board.

Large outsourcing contracts will continue to play a vital role in the delivery of government IT: however, these should be *for commodities only*: standardised, modular, low-risk and low-margin, and negotiated by the Commoditise Group, supported by the Common Services IT Group – ensuring the very best commercial IT outsourcing skills available within government are brought to bear upon every large contract, delivering high levels of leverage of intelligence and best practice.

We suggest a 'burden of proof' procedure for all proposed projects over £10m, which will automatically trigger a review by the Scrutiny Board. Such contracts will fall into one of two categories:

- Commoditisable service: the Scrutiny Board will seek to establish wherever possible that the proposed contract can be delivered as a commodity service. Where this is not possible, the Board will seek to identify those areas of the service that can be delivered as a commodity, and to re-specify the contract appropriately

- Large bespoke system: we recognise that the size of government periodically requires large bespoke applications/services (e.g. HMRC/DWP core systems). Assuming that all commoditisable elements have been split away, the Scrutiny Board will then examine the extent to which, using a modular architecture and open standards, the proposed bespoke contract can be delivered by more than one supplier. At each stage, the 'burden of proof' will rest on local/regional/departmental IT groups to demonstrate that all such options have been exhausted. A detailed, transparent and auditable process will be followed in each case.

Furthermore, with the possible exception of national security, all IT expenditure and contracts over £25k will be published on the web.

Principle 3: Building a plural, vibrant marketplace

Aims: To develop and maintain a functioning, competitive and open marketplace. This is vital to obtaining better value for money, innovation and interest in public sector business, particularly in central government which has been a closed market for most SMEs for many years.

Greater competition is enabled by:

- Smaller simpler IT projects

- Iterative and incremental steps, enabling competition all stages, especially at proof of concept / prototyping (this includes allowing or funding for more than one supplier to propose possible solutions)

- Open standards and open technologies – clearly specified

- Shorter lock-ins to contracts

- Enabling access to a wider range of suppliers, including SMEs

- Simpler procurements and using multi-supplier frameworks for larger complex programmes where OJEU procurements are not practical

- Stimulating the SME market by supporting them in acquiring the relevant accreditations to trade with the public sector (quality systems, environmental accreditations, insurances, etc)

- Gearing up the various customers' "Intelligent Customer" functions to deal with a wider range of suppliers. The increased cost of having a more capable Intelligent Customer function will be dwarfed by savings from lower costs in competed business, switching away from poor performers (and having a direct ability to impact (penalise) poor performance through greater choice of suppliers), less cost overruns, increased competition and limited lock-in from large outsource suppliers

- Wider and more open communication with the supplier community, and encouraging the customer to communicate more with suppliers, yet fairly

- Requiring larger IT spend departments to create opportunities for SMEs to bring innovation forward through specialist frameworks (focused on pure research and innovation) and with tiers to allow SMEs direct access to departments

Implementation: implementation will involve changes both centrally and locally.

Central requirements: OGC will be instructed to open up a wider supplier base for those suppliers who want to take public sector business seriously, particularly to SMEs. Supply frameworks should be opened up to new entrants and kept permanently ajar, so new suppliers can easily be added at any time. The base-level of expectation for accreditation is that government must reasonably support SMEs by providing a level playing field for all vendors. Buying Solutions will be required to publish guidance for departments covering how to work with SMEs. In particular to:

- Reduce procurement bureaucracy

- Enforce transparency in procurement and commissioning (publication of contracts on award)

- Have a central supplier registration system

- Provide suitable open framework arrangements (e.g. FATS3 used by the Ministry of Defence).

Local / Regional / Departmental Requirements: Policy development and its implementation need to be joined to ensure that new legislation or policy is practical and implementable. There will be the need to create, through effective training and career management, a suitable Intelligent Customer capability in all departments. The 'Intelligent Customer' function will need to own the implementation, supported where appropriate by the Common Services IT Group, and the Commoditise Group. A visual representation of these procurement policies is shown below.
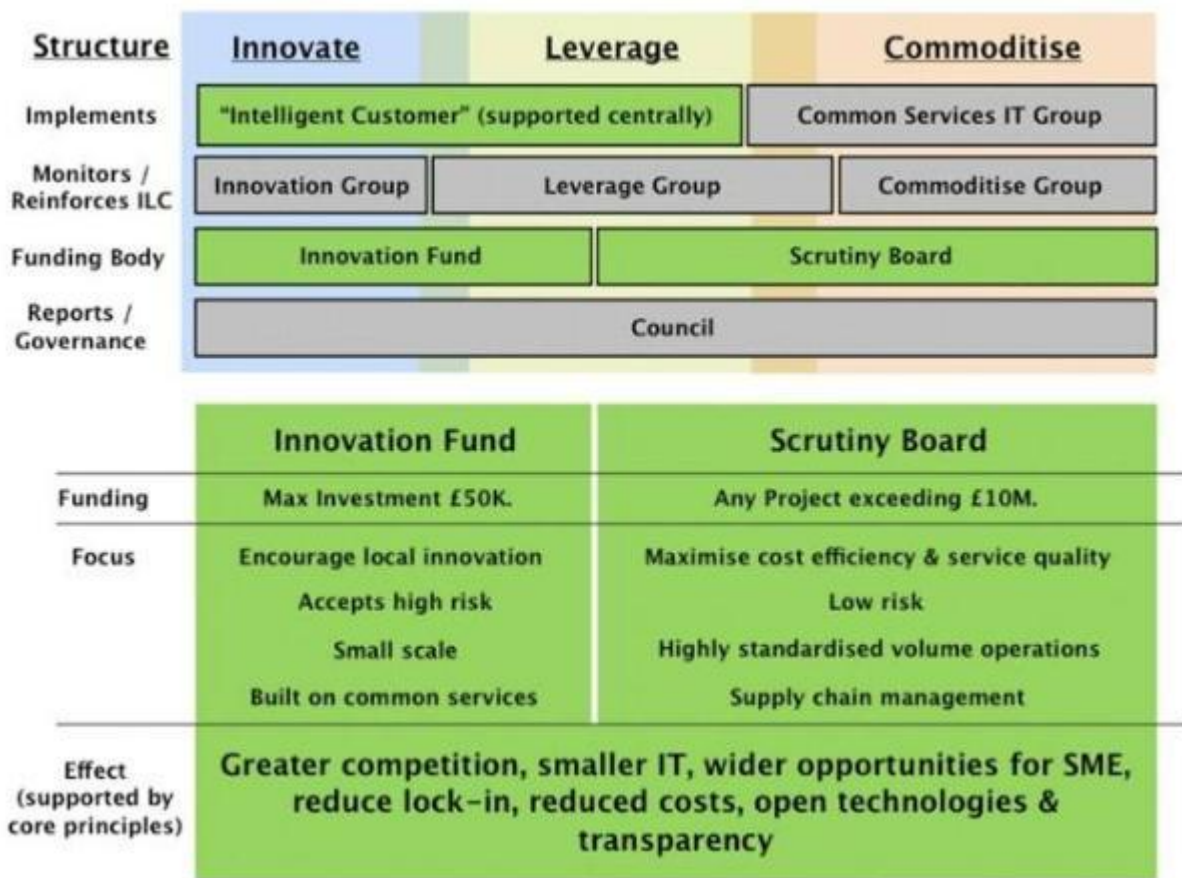
Figure 3: ILC Procurement

SAVINGS

The total combined level of savings are difficult to estimate without full transparency on current arrangements, contracts, type, scope, cost and number of activities. However, some general targets can be provided.

Scope	Techniques	Estimated savings
Innovating at the Edge	Delivery of IT as smaller components using mash-ups, core services and standardised platforms.	60% in development time. 80%+ in TCO.
Leveraging	Widespread adoption of only measurably successful activities.	Significant reduction in risk profile of failed projects to between £50K - £10M.
Commoditise	Provision of core services, efficiencies of volume operations, open source and functioning markets.	For infrastructure services, savings of 90% through provision of dynamic clouds can be achieved over traditional systems. For provision of common services (an SOA approach), TCO savings of 90% over traditional approaches can be achieved With the use of open standards / open source for mature system, the TCO typically varies from 15% to 75% over proprietary software. This excludes the UK Government IT's payment of over market rates for traditional systems and approaches (and hence efficiencies in procurement).

Given the opening caveats, the reduction in annual IT expenditure of 30-40% within three years combined with improving quality of service and rates of innovation, is achievable.

This would indicate savings of between £6 and £10 billion year on year.

CASE STUDY 1

USING ILC TO IDENTIFY SAVINGS IN DESKTOP SPENDING

ILC enables the deconstruction of complex services into component parts and the consequent isolation of commodity and non-commodity components.

In the case of the provision of "desktop as a service" (DaaS) across government we can use the ILC model to understand the cost drivers and identify where overspending can be tackled.

However it is not just overspending. The following issues in the existing delivery of DaaS also require addressing in our analysis and search for commodity.

Government bears cost of upgrades	The current monopoly situation allows the incumbent supplier to place the cost of providing an up-to-date, competitive application on the government in the form of software upgrades – which in turn incur an additional layer of charge from the System Integrators. Under an As A Service ("AAS") model, the cost of providing an 'evergreen' service is transferred to the supplier.
Most UK desktops are not patched	Contrast consumer desktops where patching etc. is done directly by the manufacturer. Government is paying for a service which is increasingly included as part of the cost for consumer devices. What value is that additional cost bringing?
'Locked down' desktops are non-standard, expensive, and a security risk	Government desktops are typically procured as "locked down" desktops – the locking down of which is the subject of much consultancy spend with systems integrators – and appears not to be done in any standard way. The Government Assurance Pack (GAP) is available for departments and is intended to provide a predefined configuration for Windows desktops for UK Government departments. Rather than just deploy GAP, integrators appear to change the settings (suggesting that GAP is incorrectly specified or that the systems integrator is just making money at the department's expense). Centrally defined programmes for locking down Government desktops should be implemented as standard – what is the point of replicating the spend with systems integrators? The Future Firecrest Programme at the FCO is an example of where a project has adopted GAP but changed parameters resulting in increased confusion and expense during the delivery.
Government risks appearing increasingly out of step with market direction of travel	The number of governments that have either migrated to an open format or have migration policies/plans in place is growing[51]. The UK is definitely behind this curve.

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[51] http://www.odfalliance.org/resources/Adoptions-ODF-2010-Feb.pdf

Innovative features routinely underused	Government fails to make use of the considerable benefits of the existing supplier's R&D investment (e.g. standardised commodity voicemail storage). There is therefore an opportunity to embed the government's desktop/office strategy within a broader strategy for public sector collaboration and communication.
Innovation opportunities missed because of outsourcer pricing strategies	The expense and fact that Government bears the cost of upgrade means Government is currently not exploiting the capabilities of modern office software to underpin savings in more significant areas: Ability to migrate to VOIP and cheaper IP based communication services Ability to use online meeting services and collaboration tools to dramatically cut travel/expenses costs. More effective remote team work and collaboration

So what makes up a desktop service? There are a number of components of which the most important are listed below, together with their current status as a commodity or not and the status we propose should be achieved in order to strip out the unnecessary costs.

Capability	Current ILC Commodity Rating	Proposed ILC Commodity rating	Notes
The device	C	C	Mobile, desktop or thin client. The device is often given an "enterprise build" of the operating system. What would be appropriate service contract/warranty? Given the increasing use of devices at home are there other approaches to provision of the device that would provide a better commercial outcome for Government?
Identity credential	L	L/C	Smart card, or username/password predominate with other tokens for remote access. This is tied to a directory entry for enforcement of policy, provisioning and service enablement. Standards evolving for commoditisation but not there today. See workstream 2.
Patching/Update Service	C	C	In the consumer world, provided by the vendor. In Government world, systems integrator mediates process although commercial. Using a commercial service comes with the service levels that Government negotiates with the systems integrator.
Anti-virus services/Security checking	C	C	There is a proliferation of free services and most of the core service technology vendors bundle capability here. How much could be saved through moving to free services? At what risk? If not there is a need to start moving away from the existing "everyone runs a service" to greater consolidation.
Office Applications: Document, Spreadsheet and Presentation Creation	C	C	Government does have a small percentage of users who absolutely require MS Office, mostly for Excel. Other areas have built, in strategically un-sound ways that enhance vendor lock-in, bespoke templates using MS Office components. For the vast majority office productivity software is a commodity (there is an open source version of this type of software) and should be treated as such

Capability	Current ILC Commodity Rating	Proposed ILC Commodity rating	Notes
E Mail service and Message Filtering Services	C	C	Completely commoditised and available free or on subscription billing models in commercial marketplace. Other than "IT is sunk cost", there is no business model for maintaining the status quo in email service provision.
File storage/personal space	C	C	Investment in commodity storage only. Again, available as a free service in the commercial marketplace.
Presence and IP Communication Services	C	C	Services like Skype, Cisco, Microsoft's LIVE and BPOS are available and provide low cost communication etc. from the desktop offering a massive opportunity to reduce telecommunications cost and improve communication/collaboration across Government.
Remote access service	L	C	Mobility has often seen to suffer at the hands of security. Secure remote access to services should be a given of the way that they are deployed for users with the correct permissions. This should not be a bolt-on afterwards. What is wrong with available "Commodity Off the Shelf" (COTS) approaches that are widely used in the financial services (and other) industries?
Online Meeting Service	C	C	Not widely used across Government because of access issue from GSi and yet have significant potential to reduce the amount of travel and carbon consumed. Available as services from vendors such as Microsoft and Google.
Collaboration	L/C	C	Again, collaboration services not widely used across Government and yet have significant potential to remove cost from activities: facilitating more flexible working.
Application deployment	L	C	Government still pays large bills for regression testing even though technology available allows applications to be deployed at scale logically isolated from each other (using application virtualisation technology).
User Provisioning	L	C	Government has developed a number of user provisioning products that work at scale (HMRC and DWP both have their own bespoke versions). Is Government really in the software development business? Replace quickly with COTS technology or better a central service where the business case allows.
Systems Management/Power Management	L	C	Again fundamental to reducing bills. Centralisation of systems management of the desktop estate is possible on a significant scale reducing support, helpdesk, costs etc.. and supporting implementation of effective power management services across Government.
Policy Enforcement	L	C	Standard policies for operating Government infrastructures should be disseminated – too much systems integration time is spent repeating creation of policy.
Printing	C	C	There are still far too many printers around Government and significant possibilities of rationalising the estate and reducing the amount of paper consumed.

HOW CAN WE ACHIEVE THESE CHANGES WITHOUT AFFECTING SERVICE DELIVERY?

Role-Based Desktop provision and changing models of service delivery.

There is significant change in the provision of enterprise desktop services. To some extent this is driven by the consumerisation processes at large in the industry and the evolution of cloud services to replace the traditional "desktop applications". The emerging models would allow users to have appropriate technology provisions to their way of working. For example, office applications can be:

- Installed to the device
- Delivered in a browser (Google Office, MS/OpenOffice online, Live@edu etc)
- Delivered by a virtualised desktop

Is it possible to change between delivery methods and versions of office productivity software?

Yes. Numerous government bodies for example have trialled Google Office (Browser-based) with success as well as Open Office installed to the desktop (a trial which, to quote responsible official when Windsor and Maidenhead ran their trial "didn't trouble the scorers in the helpdesk"). Many councils have run these trials, it is rare to find a central government body that has done so.

In the case of Windsor and Maidenhead the Open Office pilot has run for some time. The corporate strategy (found at www.rbwm.gov.uk) is to reduce the reliance on one specific vendor (avoid lock-in) and to use the move to virtual desktop to enable staff who do not need the more expensive Microsoft Office to migrate seamlessly to Open Office (because of the virtualised environment - with no installation to the desktop - either version of office can be reprovisioned very quickly if required).

This strategy reduces the risk of lock-in, while delivering the same service to the user. It will also save RBWM money in licence fees in the medium term.

- Support costs for desktop are reduced by a significant factor as patching, provisioning is done centrally with zero touch at the user level
- Competitive tension is introduced to what is now an open market
- Users can be differentiated between those that require "subscription" access and those that need to consume on a Pay as you Go basis. Office productivity software has achieved commodity status.

Traditional desktop services offer the same capability to all users. The organisation can better target capabilities based on a user's role and needs and to manage different desktop offerings within the same management infrastructure. This again will drive more effective provision of desktop technology.

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WHAT ARE WE PROPOSING?
Use ILC to more effectively restructure, commoditise and make better use of the purchasing power of Government to save money and increase the agility of Government departments. This approach also identifies a method for reducing the cost of delivery of this service to approximately £400-500 per desktop.

On a conservative estimate of current delivery cost of £800 per desktop our approach offers savings of at least £300 per year. The scope for material savings in UK government expenditure are large and within reach.

The approach will be to adopt standard sets of business requirements (pushing back on gold-plating or "we are special" requirements) and to develop through more effective engagement with the existing supplier communities more commoditised delivery of capability into Government.

WHAT ARE THE OBJECTIONS?

Compatibility of files
Documents worked on in Google format differently to Office and especially in Open Office. Template control can help with this, as can the correct assignment of tasks to applications. In many cases Office productivity software is over-programmed and these home-made add-ons form part of the business critical software set. This leaves the organisation vulnerable to another company's upgrade schedule and locked in to them as vendors.

"This is SECURITY MADNESS"
Government needs to understand the costs of the existing bullet proofing of its infrastructure. Although security is a significant issue, the security needs to be appropriate to the type of organisations and the costs of the measures selected. The larger transactional agencies should look at practise in financial institutions. Organisations should be freed from the "one size fits all" of IL3/IL4[52] needs and allowed to develop security approaches that fit with their budgets and risk models.

We have special business requirements.
Government departments working at a common security level should have a common set of requirements. Where requirements go beyond this baseline core set, the cost should be explicitly understood and factored into the decision as to the appropriateness of that requirement. For example, it is understood that the Ministry of Defence has a requirement that any document - archived or not - should be accessible on a global basis within 30 seconds - a requirement that adds significant cost to their infrastructure without obvious business justification[53].

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[52] See Appendix 1
[53] Industry sources

The Applications won't let us
Applications should be seen as logically independent from the platforms that they run on and suppliers of bespoke applications need to be more effectively policed to ensure that they deliver to standards that avoid lock in to versions of particular platforms. Transactional websites tend to work with almost all browsers, this should be a default approach for third party applications. Application virtualisation is an increasingly mature capability and should be used to ensure applications are not tied to their delivery environment. The use of application virtualisation also removes the need for significant amounts of regression testing - a popular and unnecessary "cash cow" activity for systems integrators.

A further obstacle is the hard coding of Microsoft Office components into third party applications. The adoption of Open Document Format as the required standard for all government documents will go a long way to resolving this issue, levelling the playing field for Open Source (and other) variants of Office productivity software and enabling commoditisation of service. Most suppliers of third party applications could enable this change within six months of a policy statement.

We have a big contract with a systems integrator and it will be too difficult to unbundle.
Work is needed to understand the constraints and costs of existing contracts, and negotiations with vendors would be more profitably had with suppliers on a pan-Government basis rather than a piecemeal basis.

HOW COULD THIS BE DONE ACROSS GOVERNMENT?
Establish a small team with teeth to drive the programme
A cross-government intelligent customer function is required. This may be best provided by a small independent team innovating this approach.

Embed Transparency and Audit
Audit creates the framework around which desktop service provision can be designed and enables the savings opportunity for each department to be clarified.   An effective audit of existing service provision is needed to identify which components of the office productivity software (OPS) will be required where. Examples of the OPS requirements of the staff in various functions of Windsor and Maidenhead are given at appendix 4.

Drive Commodity Service Provision in Supplier Community
Government has significant influence over the supplier community that it does not use. There is an increasing willingness from software vendors to provide their capabilities directly to Government without the need for systems integrators and it should be encouraged. Government needs to standardise on a model where the onus to keep capabilities secure and up-to-date is placed on the supplier of that technology/service.

A consistent approach on standards (ODF)
Government needs to use standards more effectively as a tool in its armoury for building the IT and business service supplier offerings that it needs to be both efficient and effective. Through adopting the right standards, Government can send clear messages to suppliers about the levels of interoperability and flexibility it is requiring from software vendors and service providers.

No public sector body should pass electronic documents to another public sector body, economic actor or citizen such that they impose the use of a specific application or platform. The Open Document Format should be adopted as the standard for government documents.

Win the 'Security Argument'
There is a strongly entrenched culture within government that the 'security argument' trumps all others, including cost. Although we shouldn't dismiss the security issues that Government has – the HMRC lost CD demonstrates the impact on the confidence in politicians of poor data handling – security now needs to be a risk/cost discussion– i.e. measures need to be proportionate to both risk and cost. We can no longer afford to have civil Government working at scale to meet the same security needs as military and security services.

Many other commercial organisations looking to use commodity technology services/ capabilities have similar security concerns and an increasing number of market players are developing robust capabilities in this area to meet this need.

Build in the future
This paper is about the delivery of "Desktop as a Service". Do not forget that the "desktop" may well be a smartphone or a tablet in a short period of time. But it will still be a commodity service.

Be Pragmatic
Not everything will fit into the categories or the changes described, but the overriding majority will and it is the cost reduction in these cases that will generate the most savings. A one-size fits all approach will not work and will be vulnerable to inertia.

Make the commitment
A clear and effective message from authority should enable the change process to commence. In practice this has been notoriously difficult – only one minister in the Cabinet Office (Tom Watson MP) prior to 2010 had any real commitment to understanding technology. However there is a golden opportunity with the current ministerial team who clearly understand technology and its opportunities.

The use of transparency, benchmarking and requiring explanations for variance can help the argument. Ultimately it is a question of culture and leadership, especially by the senior officials, not technology.

CASE STUDY 2

APPLYING THE COMPASS: FURTHER DEVELOPMENT OF ILC AS A PRACTICAL TOOL

Understanding departmental 'shape'

We understand that to function as a compass for guiding strategic and operational decisions, ILC needs to offer a practical, easy-to-use methodology for use on the ground. Accordingly, the ILC framework offers a new perspective, 'organizational shape', as a way of enabling senior managers in government to map and understand whether their departments are optimally structured, service-by service - and to support their different activities much more accurately. A key principle underpinning ILC is that government needs to be both innovator *and* commodity service provider, at the same time. This has immediate implications for government's use 'one size fits all' methodologies, such as lean, to entire organizational functions or even entire departments, when it should in fact be managing innovative and commodity activities very differently

For example, the activities within the human resources function within the Cabinet Office are likely to be less standardised, and more expensive, than those of a large agency for semi-skilled workers:
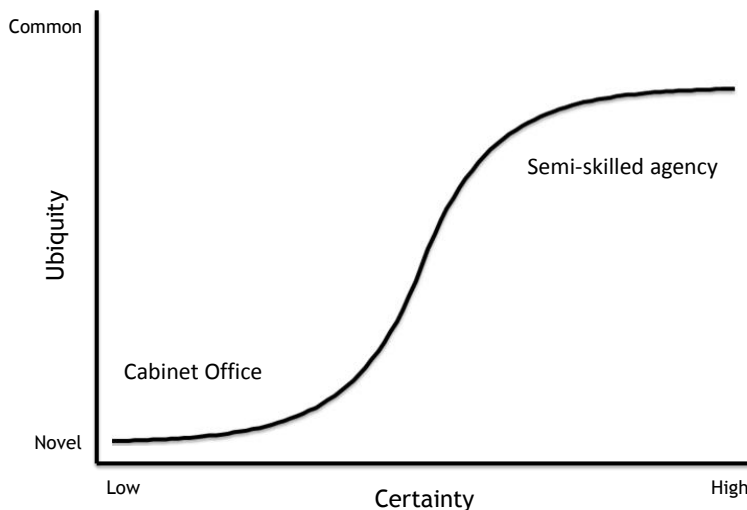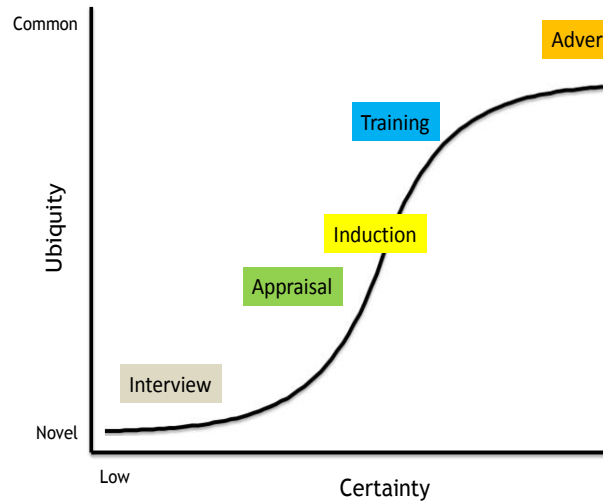

However, ILC enables departments to go further, to map the shape of their individual processes against an optimum delivery shape in the part of the marketplace in which they operate at any particular moment. Continuing with our example of the agency for semi-skilled workers and the Cabinet Office, in order to remain competitive in a market where job advertising and training are increasingly available on a commodity basis, it is possible to model an optimum shape for 5 simple HR processes that best enables each business to take advantage of its ecosystem. A large agency is likely to make use of commodity advertising and training services, and use cheaper, more junior internal staff for interviewing, induction and appraisal activities. In contrast, the Cabinet Office may make use of

commodity advertising, and may even outsource its training (although not as cheaply as an agency). Whilst staff induction may be carried out by relatively junior employees, however, interviewing and appraisal are likely to be performed on a bespoke basis by more senior, expensive staff:
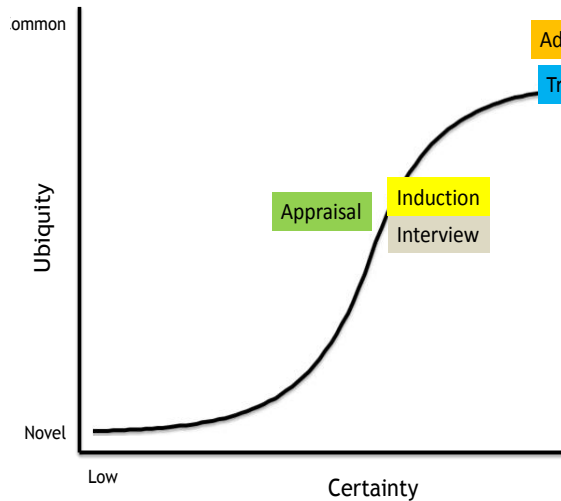
Shape of HR function in large agency   **Shape of HR function in Cabinet Office[i]**

Any large semi-skilled agency whose HR function has a shape like that of the Cabinet Office on the right should therefore have cause for concern; it has failed to understand and align itself with the appropriate shape for this function for its own particular ecosystem, and is unlikely to be competitive. This need to continually optimise the balance between more bespoke, high risk, innovative and expensive activities and more standardised, commoditised, low risk and cheaper activities, is an unceasing process.

Managing different activities optimally

ILC in practice is about more than mapping and continually adjusting each departmental function to an optimum profile along the innovation-commodity lifecycle, however. Contrary to current practice across government, different *component activities* within departments need to be managed in a way that supports their position in the lifecycle. For example, it would be a mistake for the Cabinet Office to apply lean principles to the interview, appraisal, and induction functions of its HR process – but such principles might well be appropriate for driving out further efficiency in its advertising and training activities.

ILC can therefore be used to map out the frequency of activities within departments against their stage of lifecycle (from innovation to commodity) generating a 'shape' for that process. This shape is always temporary, since activities are constantly being commoditised.

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As an example, a methodology such as six sigma is ideally suited to more linear, commodity- like activities, since it is designed to reduce deviation and maximise efficiency of a repeated activity. By the same token, six sigma is unsuitable for managing more innovative activities where deviation is a desirable property. Conversely, Agile methodologies are effective for dealing with innovative activities by enabling constant change and deviation - but in return are ineffective for dealing with more linear, commodity-like activities.

Why this is important

Without a clear understanding of the lifecycle of activities, the optimum shape of an organization and the changing profile of its competitive ecosystem, an organization risks making the following critical mistakes:

- Attempting to apply single methods across all activities, leading invariably to lower rates of innovation or inefficiency

- Applying concepts that are predominantly valid for one industrial profile (i.e. petrochemical) to another industrial profile (i.e. banking) – for example, use of networked vs. hierarchical structures or use of collaborative vs. directive working methods

- Outsourcing by organizational function (for example Finance, IT or Marketing), ignoring that each function contains a broad range of activities (from innovation to commodity) and that only commodity-like activities are suitable for such outsourcing

- Treating an activity which from a 'shape perspective' is no more than a cost of doing business as though it was an innovation: examples include unnecessarily high levels of customisation and expenditure on ubiquitous activities such as CRM & ERP.

- Continually adding new functions to cope with new activities which will ultimately need to be dismantled as those activities become more of a commodity (e.g. the decline of roles such as VP of Electricity)

- Internal structuring around organizational function, for example, finance, marketing, IT and manufacturing departments. Each department covers a broad range of activities at different stages of their lifecycle and hence each department has its own profile. By organising vertically around function, the probability of each department applying single methods across its silo and treating an activity incorrectly is increased, generating conflict over the level of innovation, agility, efficiency or reliability between departments

- Oscillating between a focus on innovation to a focus on efficiency, whilst never quite achieving both.

NEXT STEPS

Accompanying this paper is a playbook – a summary of recommended next steps.

We propose three stages to undertake the changes required to introduce this new, much less costly, much less risky model for the delivery of IT in government.

Having spoken at length of the requirements for localism the first proposal is not without irony – but it is necessary

Stage 1: Centralise for 6-12 months

Government IT has been poorly procured, poorly governed, poorly led and resulted in wasteful architecture that burns cash while delivering negative efficiency changes. The control and strategic direction of IT service delivery in government is dissipated and chaotic.

Whilst we believe in localism and the use of local service delivery as core characteristics of good practice, the situation we inherit is too far gone to fix at the edges. Therefore all existing IT leadership roles should (for a period of 6-12 months only) be centralised under a credible, effective office of a credible director. This is not a traditional CIO role and it does not map to the COO role we discuss here for the long term strategy. It is a lead IT Director who will staunch the flow of cash and ensure the lights stay on throughout the period of change to the "new dawn" implementation. This is common practice in any corporate take-over: the "line in the sand" approach enables future effective change.

The transition will include an immediate audit of equipment, infrastructure and applications/functions and staff across all departments, local and central government. It will identify how to reduce costs through sharing of resources (common data centres etc) and a reduction in devices and subsequent device management (each civil servant should have a computer, a phone or a smart phone and that is it) and identify those areas of staffing that have not been reduced when an effective outsource has been implemented (a problem whose cost is extremely difficult to estimate but which well connected industry sources judge to be of the order of x million in one department alone).

Government IT will be split into two separate reporting lines which comprise the two subsequent stages.

Stage 2: "Lights On"

The ILC process we have identified above will shape the way public sector IT is developed and delivered in the future. The inheritance for the new government in 2010 contains much that we disagree with and many contracts which have been recklessly let - the NIC system for instance which civil servants and vendors have designed to make more expensive to cancel than to deploy.

However, much of this is like the Lisbon treaty, wrong, badly designed yet slavishly implemented. It is the inheritance and we need to keep the lights on and the government running, even if that means

continuing to support systems which we know are mistakes.

We should commission no new projects in this period, rely on the technology that we have in place, and seek to make the best of what we have.

The "Lights On" programme will generate itself from the initial centralisation stage. The new Technology Council will direct the existing IT functions in the local, departmental and regional IT teams in the running of the "Lights On" programme and will:

- impose transparency: any IT procurement in any government department will be wholly transparent and available online. Vendors will be encouraged to be transparent about existing contracts
- impose the clear standards and principles detailed above on the procurement and governance of IT (based on existing industry best practice and standards)
- provide direction for the management of the installed IT – all departmental IT leadership report in to this office
- oversee the procurement of any tactical changes required to make IT more cost-effective
- impose benchmarks of best value for money on service delivery units (e.g.; if a council cannot provide IT services for less than, say, £25 per resident they should be "offered" a route to do this)
- be responsible for IT service delivery until the services are re-presented in the "new dawn" programme
- ensure each government department has in place a succession plan that will ensure the next civil servant leadership of each department is able to understand how to use IT in government and will be intelligent customers for government IT.

"Lights on" will reduce government IT spending by 40% over the this Parliament and establish a more resilient, shared infrastructure for the wind down of many of the systems in a managed process, as they are replaced in the new dawn structure.

Stage 3: Establish "new dawn"

While "Lights on" deals with the inheritance, "new dawn" starts to transition public sector IT to the identity, leverage and implementation (ILC) principles we have explained above.

All new IT spend will use this approach to deliver across government. This has three main requirements

1) Common Infrastructure - so that everyone has an inexpensive, shared platform where applications can be delivered dynamically, as and when needed.

2) Effective Security, together with Identity Assurance, Privacy and Ownership - so that all users (citizens, officials, third sector organisations) can work with the system, certain of their online identity. The over-kill of security proposed by CESG must be removed as an inhibitor and a new online security model, based on effective Identity assurance, implemented

3) The adoption of the ILC process and institutions for the delivery of new applications. Smaller, modular SOA-based applications can be developed quickly and cost effectively providing the agile, low-cost IT that government needs to deliver better public services for lower, hopefully minimal, administrative cost.

The new Technology Council will establish the structures required to deliver the "new dawn" project across government.

This team will require clear direction, principles and a playbook. It will also require considerable political backing. While it introduces changes in delivery of public services that will cut costs dramatically in comparison to today (and we can speak of changes in some components of 90%), the whole point of the "Lights on" programme (under the management of the IT Directors) is to ensure that spending on new projects is cut until "new dawn" is able to start.

The approach above will enable the deployment of effective IT in government without the crippling implementation and on-costs we have had to endure.

It will decrease the risk of IT programmes and enable more effective change control – making systems and processes more accessible, more effective and essentially work better.

It will deliver better for less.

Appendix 1

Security levels in government.

Government has defined security levels into five settings (and therefore one extra, unclassified level) according to the impact level that might be caused by a breach:

Impact level	Description[54]	Area of Government	Population[55]
6	TOP SECRET	Security Services, Cabinet Office, Diplomatic and Ministerial	5%
5	SECRET		
4	CONFIDENTIAL	Central Government, Local and Regional Government. National Health Service	60%
3	RESTRICTED		
2	PROTECT	Small government bodies	8%
1	UNCLASSIFIED	Non departmental Public Bodies, Non Governmental Organisations, Education	27%

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[54] http://www.cabinetoffice.gov.uk/media/207318/hmg_security_policy.pdf

[55] Population refers to the approximate proportion of government staff cleared to work at this level. These approximate population numbers have been drawn from conversations with suppliers to government, security specialists and are also based on our own estimations given the spread of staff and costs in government. They should therefore be taken as an illustration only.

Appendix 2
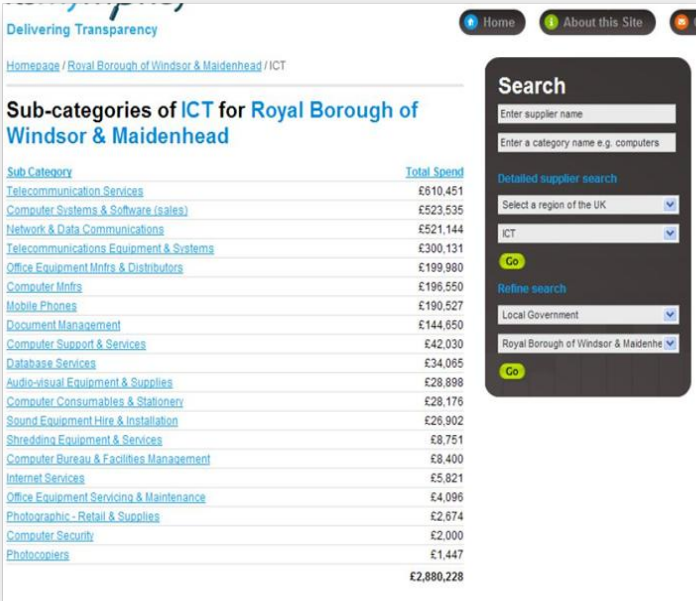
SPECIFIC RECOMMENDATIONS – A "PLAYBOOK" FOR GOVERNMENT IT

This section reflects, in part, a playbook provided to the incoming administration during its time in opposition

1) GET THE NUMBERS … AND USE THEM

Carry out an effective audit of:

- devices and equipment
- expenditure on bought in goods and services and internal staff
- IT project and re-usable components

Make the numbers transparent – the complete audit to be published, warts and all on the "open government" portal that gives full spending information on government IT.

The process for this is already in place in local government (see above) - a similar exercise should be completed for technology spend by central government .

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2) QUICK WINS

- An immediate 12 month moratorium on all new strategic IT related projects.
- The following programmes have already either been cancelled or should be.

  - Identity Cards and the National Identity Register
  - Interception and Modernisation Programme
  - ContactPoint
  - Firecrest.

- Rigorously audit (and cancel, improve or learn the lessons from) the following programmes and systems:

  - GCloud
  - the Tax Credits System
  - the NHS National Programme for IT
  - Defence Information Infrastructure
  - Libra system for magistrates courts
  - Single Payment System for farmers
  - National Offender Management Information System (C-Nomis)
  - DWP's Benefit Processing Replacement Programme
  - FCO's Prism project
  - Common Assessment Framework
  - ONSET
  - DWP's Customer Information System
  - Direct.gov portal
  - the Government Gateway
  - Public Sector Flex
  - Public Sector Network
  - DfT's Shared Services Centre
  - the national DNA database
  - HMRC ASPIRE
  - DVLA IT services contract
  - Environment Agency's infrastructure contract
  - Various aggregated purchasing arrangements that relate to IT that deliver poor value for money, poor service and a longer-term restricted non-competitive market (which exist in particular with MoJ, HMRC, Home Office and DWP)

- Introduce Open Document Format for all third party applications so more than one office productivity system can be employed
- Renegotiate software framework agreements that perpetuate vendor lock-in
- Make clear the policy decision to avoid vendor lock-in in future

- An immediate suspension of all rolling software and hardware upgrades.[56]
- Establish clear benchmarks for commodity service delivery[57]
- Implement PAYE modernisation and dynamic benefits, providing major cost savings and reductions in paper-based bureaucracy and fraud
- Execute and enforce the open source policy
- Create a fully functioning test environment for development companies (particularly SMEs), which should be established with easy to access rackspace offerings
- All schools should migrate to a free email service such as live@edu or google-apps within 2 years
- Establish a prize for the first group of schools to introduce an open source school management system
- Require existing System Integrators to submit proposals for how they can help innovate and drive 40%+ costs out of existing public sector IT contracts (c£8bn per annum) within 18 months.
- Permanent Secretaries to report on progress against implementation of the Intermediary Policy by their department[58]
- Review departmental CIO and CTO positions to remove rolling contracts and employ directly. Contract rates to be set at market level
- Assign accountable Ministers and senior civil servants in each Department to take accountability for security and data protection (an enhancement to the current Senior Information Risk Owner SIRO structure)
- Appoint a government Chief Information Security Officer and Chief Privacy Officer within the Cabinet Office.

3) POLICY DIRECTIVES

Get real
- Government will, by default, not build and own IT assets
- Government will make use of the cloud. Not a cloud, even of its own making
- Open markets and a level playing field for innovation and competition are required
- Future commodity hardware and software purchases to be made using reverse auctions rather than catalogues
- All government data to be freely available in machine-readable formats (subject to reasonable security and privacy considerations)
- No technology official to be paid a salary more than the PM, but significant bonuses to be available on demonstration of commensurate public service savings and performance enhancement. This will be coupled with greater accountability for failure, again in accordance with industry levels.

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[56] Strong business cases will need to be made for any future upgrades – otherwise the assumption is one of "sweating the assets"
[57] e.g.: all public sector email and personal office file storage should be provided as commodity services within 2 years at a cost of less than £25 per official
[58] see http://www.cabinetoffice.gov.uk/govtalk/policydocuments.aspx for a set of official policy documents – most of which have, until May 2010, been ignored

Bridge the skills gap
- Require competence in IT to be a core capability for all senior civil servants.
- Establish the training process to achieve this using the most effective models and processes available.

Reform the procurement review bodies
- OCG to lose its review/audit functions (which should pass to a body such as the NAO, or independent auditors)
- OGC Buying Solutions to be required to openly publish full details of all new contracts.
- OGC Buying Solutions to publish all existing contracts and to identify suppliers who refuse to let this happen (and any legal impediments to such publication).
- OGC should use agile procurement methods and leave frameworks permanently open, to enable new entrants, rather than shutting the door for years at a time.
- Assess the extent to which agile procurement methods are permitted under EU legislation and promote their rapid adoption in the UK in place of the current model.

Resolve the Identity Issues
- Review the legality and appropriateness of existing data-sharing databases and systems
- Re-establish an identity assurance and trust framework using both government and accredited third party identifiers[59]. Require the IPS to produce a business case for a voluntary online verification service to work with this.
- Establish a suitably empowered chief privacy officer
- Direct departments to agree a common open framework for federated identity so as to end the current duplication of architectures.

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[59] Along the lines of what has been done by President Obama's team in the USA

Introduce the new structure for service delivery – drive through commodity
- Establish the ILC programme for government service delivery.
- Establish a new development framework: for all new technology-based programmes – innovation, leverage, commoditise.
- Establish a new HMG COO function as the chair in a powerful and effective Technology Council alongside
    - Representatives of DWP, HMRC, Treasury, MOD, Health plus a single representative for all other central government departments
    - One national representative for each of Unitary, District & County Councils.
    - The Chief Information Security Officer[60]
    - The Chief Privacy Officer
    - A Representative from the Technology Policy Advisory Council.

- Establish the ILC structure:
    - Common services IT group
    - Innovation Group
    - Leverage and Commoditisation Groups
    - Innovation Fund
    - Overview and Scrutiny Board[61]
    - Technology Council
    - The new HMG COO
    - The new, independent Technology Policy Advisory Council

- Establish the Innovation and Scrutiny framework:
    - Maximum project investment: £ 50k.
    - All projects over £10m in total spending called in to the scrutiny board.

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[60] Making this a new appointee will prevent CESG, MoD etc all fighting for who should be in charge
[61] Properly empowered to be able to enhance, revise or cancel programmes

Appendix 3

Service Oriented Architecture (SOA)

The concept of creating an architecture of individual technology components with defined interfaces is referred to as a Service Oriented Architecture (SOA) and is the basis of most IT delivery in large enterprises. This definition is from Wikipedia:

> "… service-oriented architecture (SOA) provides methods for systems development and integration where systems group functionality around business processes and package these as interoperable services. An SOA infrastructure allows different applications to exchange data with one another as they participate in business processes. Service orientation aims at a loose coupling of services with operating systems, programming languages and other technologies which underlie applications.
>
> SOA separates functions into distinct units, or services, which developers make accessible over a network in order that users can combine and reuse them in the production of business applications. These services communicate with each other by passing data from one service to another, or by coordinating an activity between two or more services."

The benefits deriving from implementing SOA are as follows:

- Vendor neutrality. An SOA is based on a set of open standards that have been widely embraced by the vendor community. They facilitate interoperability between applications and systems and enable procurement officials to select the particular vendor that best meets their needs.

- Speed. Applications built on SOA principles have well-defined and interoperable interfaces. Adding new functionality requires less system integration and can be delivered more quickly than with previous architectural approaches.

- Cost. The complexity of building distributed applications is reduced by using well-defined interfaces based on open standards. This improves developer productivity and reduces systems integration costs as each component can be developed independently of others.

- Flexibility. An SOA hides or abstracts the underlying physical complexity of the IT infrastructure. Once an SOA has been implemented, IT organizations can add or remove capacity to meet changing demands without having to re-write the applications.

- Extensibility. An SOA is generally based on the same open standards used in the Internet. This makes it much easier to connect customers and partners to services running on the government infrastructure.

Appendix 4

Roles and Software Requirements in a local authority. How many of these roles need Microsoft's version of Office productivity software?

Application	Team	Number of users with MS Office link to application	MS Word report	MS Word letter	MS Word invoices	MS Word other	MS Excel-report	MS Excel letter	MS Excel invoices	MS Excel other
One	Children's	90	y				y			
First Class	Children's	approx 450 RBWM users	y	y			y	yes		
SIMS	Children's	13 RBWM Support Staff	yes	yes	yes	yes	yes	yes	yes	yes
Attix5	Children's	0								
Crystal Reports	Children's	0								
Desktop and infrastructure support in schools	Children's	Not relevant for RBWM Virtual Desktop								
Identity Management for Children's	Children's	approx 7 support staff	y	y			y	y		
Uniform	Core	150	150	150						
E-intranet	Other	approx 40 Benefit users.		Link from e-Intranet for letter generation in Benefits module						

Application	Team	Number of users with MS Office link to application	MS Word report	MS Word letter	MS Word invoices	MS Word other	MS Excel-report	MS Excel letter	MS Excel invoices	MS Excel other
Hyperwave	Other	0								
Kofax	Other	0								
Work.Together	Other	approx 200+ staff								
Programme Management	Other	approx 50+ staff				Templates produced in Word format				A few Templates produced in Excel format
Tiger reporting	Core									
Confirm	Core									
Flare	Core	12	12	12			12			
Technology Forge	Core	35		35	35		35			
Battle Baton	Core									
Intelligent Transport System	Core									
Gladstone	Core									
Identity Management	Core	0								
Openscape	Core									
Paris	Care	200+	YES	YES	NO	YES Stored external files	N	N	N	N
CM2000	Care									
StaffPlan	Care	0								
Lagan	Core	0								
Lagan BI	Core	20					Y			
Siemens ProCenter	Core	10					Y			
Verint	Core	0								
Ecopy	Core	0								

Application	Team	Number of users with MS Office link to application	MS Word report	MS Word letter	MS Word invoices	MS Word other	MS Excel-report	MS Excel letter	MS Excel invoices	MS Excel other
Telephonetics	Core	0								
Openwave	Core	10					Y			
Gov Metric	Core	7	Y	Y						
Trent - Current	Core	Approx 40 users					Y			
Trent - Future	Core	Approx 2500 users via self service		Y			Y			
Serengeti - HR module	Core	Approx 35 users								
Council Tax	Core	105	Y							
Benefits	Core	105	Y							
Agresso	Core	6	6	6			6	6		

Source: Royal Borough of Windsor and Maidenhead.