Digital by Default, Open by Design

Introduction

The UK public sector today faces its greatest challenge for a generation. Cost, demand, innovation and the mainstream adoption of online self-service in most areas of economic and social activity, is speeding up the drive for a shift to digital platforms. A digital platform strategy brings scalability and the radically lower transaction costs to services.

> **The public sector will inevitably follow the retail and banking sectors in placing as many services as possible in the online space, not only for economic but for also for social and demand led reasons.**

Initiatives like the Government Digital Service (GDS), Digital by Default and Universal Credit embrace this trend. The government's work to establish and embed standards ('Open Standards Principles' – Cabinet Office, September 2013) is a vital part of helping the diverse and heterogeneous public sector take the necessary steps to realise the vision of Digital by Default and a digital self-service future. Adoption of these principles will allow the collective buying and building power of the public sector, to shape a future where common services are created commonly and digital government as a platform can be fully realised.

Internet Usage

Increasingly, technically sophisticated customers and the exponential growth of the mobile web, mean that public demand for seamless, well-designed online services is growing. The Office for National Statistics (ONS) report 'Internet Access: Households and Individuals' (August 2013)[1] looked at the patterns of public internet usage in the UK. Its conclusions are unambiguous:

> *The Internet has changed the way people go about their daily lives. Almost three quarters of adults in Great Britain used the Internet everyday (73%) in 2013, with 6 out of every 10 adults (61%) using a mobile phone or portable computer to access the Internet 'on the go'.*
>
> *In 2013, more people than ever before used the Internet for reading newspapers or magazines (55%), to access their bank accounts (50%), to seek health information (43%) or to buy groceries (21%). This release highlights that activities previously carried out on the high street, are now increasingly being carried out online.*

Specifically in relation to public authorities and services, the report cites Universal Credit as a significant driver for a step change in how public services are delivered:

> **[Universal Credit] is likely to have a significant impact on the numbers of adults who use the Internet to interact with public authorities and services online.**

The trend from purely seeking information to transactional service delivery is well established. Universal Credit is being rolled out across the country. This future has arrived. Car tax has been virtualized and numerous other services are in the pipeline from the Ministry of Justice to the Highways Agency. Meeting this need in the context of restricted resourcing and an increasing focus on ROI is a key challenge for public bodies.

1 ons.gov.uk/ons/rel/rdit2/internet-access---households-and-individuals/2013/stb-ia-2013.html

Under these conditions the need for co-designed and co-created services on a commonly supported platform are essential. In this space the fundamental principles of Open Source and its ally, Open Standards, become key elements in satisfying the justifiable demands of the customer to have both higher quality and lower costs in service delivery of this sort.

The answer lies in common solution development for common service elements held in common with a modularity that allows organisations to fit together the pieces which suit their needs and just develop the extra bits they need for their organisation. This is not a 'one size fits all' approach. It's not likely to be a GDS type approach either, but today organisations with common needs routinely share back office systems. Why not internal and external facing web services also?

The benefits are instantly recognisable. Not only would it be possible to re-use work already carried out by others, organisations could also pool resources to carry out pieces of work and offer them back to the rest of the public sector for re-use and recycling. Open Standards go part of the way. Only with an Open Source approach can this be fully realised. Every organisation has its specific needs. Most will need to extend or alter these generic elements in some way. For strictly common services Open Standards are the solution but for those elements that require integration with existing systems and services, some change will be necessary. Open Source is the only option here. With open code, organisations can stand on the shoulders of others who have shared their work and thereby achieve much more with much less, more rapidly.

Today Open Source is adopted worldwide by large enterprises from multi-national financial institutions and retail giants to highly secure Government services like the US army, navy and air-force to institutions of the European Union. This is due to the emergence of Enterprise grade support from Open Source companies. Linux now dominates the internet server space. Professionally supported, enterprise level open source software is suitable for mission critical applications.

Mobile Access

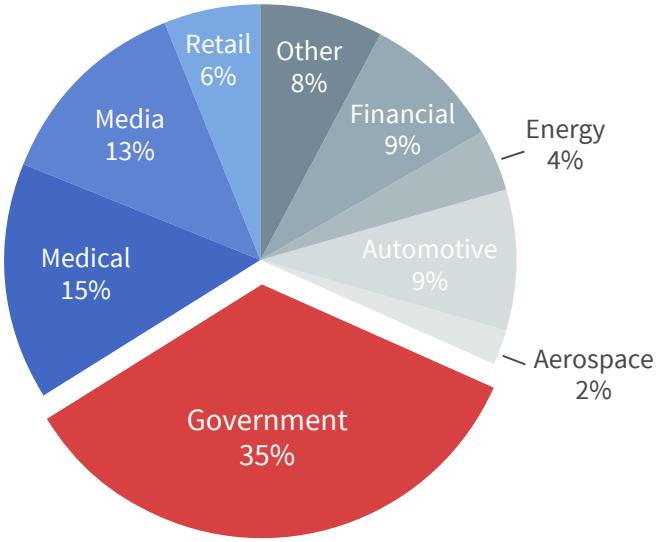
Gartner predicts that by 2017:

> *65 percent of enterprises will adopt a Mobile Device Management solution for their corporate liable users. With the increased functionality of smartphones, and the increasing popularity of tablets, much of the network traffic and corporate data that was once the primary domain of enterprise PCs is now being shifted to mobile devices.*[2]

The case for mobile access to systems and services for both public and employee use is clear. Organisations must take mobile into account when choosing solutions.

Global Trends in Open Source Adoption

According to the '2013 7th Annual Future of Open Source Survey',[3] government is the leading industry in terms of open source adoption. The report postulates that adoption will continue to grow year on year as government at all levels and their agencies recognise the strategic importance of open source.



2 gartner.com/newsroom/id/2213115
3 slideshare.net/blackducksoftware/the-2013-future-of-open-source-survey-results

The UK Government Approach

At the end of 2010, Martha Lane Fox reported to the government that:

> *Shifting 30% of government service delivery contacts to digital channels would deliver gross annual savings of more than £1.3 billion, rising to £2.2 billion if 50% of contacts shifted to digital.*[4]

The report called for the development of a single front end for all government services, the mandating of open API development, establishing open standards, and the creation of a single domain and single digital team to develop it – all resulting in a 'shared, agile, cost effective suite of web technologies'.

This led directly to the formation of the Government Digital Service (GDS), the development of GOV.UK, and the Digital by Default Service Standard introduced for central government services from April 2014.

Open Source and Open Standards

In the same year as the Lane Fox report, the Cabinet Office report 'Open Source, Open Standards and ReUse: Government Action Plan'[5] set out a plan for the use of Open Source in public services:

> *The Government will use open standards in its procurement specifications and require solutions to comply with open standards The Government will support the development of open standards and specifications.*

The plan noted significant growth in public sector use of Open Source[6] and that the Open Source market had matured significantly in the UK since 2004. They particularly noted that 'robust and sustainable enterprise class business models' were available for 'the implementation and support of open source solutions'. Further, 'large enterprises, including Government departments, have started routinely to use open source components within large, mission critical systems'.

In tandem with the licensing advantages offered, the report concludes that Open Source solutions can offer better value, a lower total cost of ownership (TCO) and avoid supplier lock-in.

4 'Directgov 2010 and Beyond: revolution not evolution.'
5 gov.uk/government/publications/open-source-open-standards-and-re-use-government-action-plan
6 Over 25% of secondary schools nationally and the NHS spine used the Linux operating system and Birmingham City council had widespread implementation of Open Source software across their library services at that time.

In November 2012 the Cabinet Office went on to publish 'Open Standards principles' for government ICT which laid out the following basic tenets:

1. The needs of users are at the heart of standards choices
2. Selected open standards will enable suppliers to compete on a level playing field
3. Standards choices will support flexibility and change
4. Adoption of open standards that support sustainable cost
5. Decisions on standards selection are well informed
6. Select open standards using fair and transparent processes
7. Being fair and transparent in the specification and implementation of open standards

The focus is on supporting flexibility and change alongside sustainable cost. These are key considerations when choosing which technology to adopt.

Government Digital Service (GDS)

The achievements of GDS show what transformation is possible. Estimates put their savings at over £500 million in the year 2012/2013.[7] The subsequent publication of the Government Service Design Manual and the Government Digital Strategy all give a clear indication of the direction of travel.

> *Transactional services are the primary focus of this strategy. This is because developing transactional services offers the greatest scope to improve efficiency and the customer experience.*
>
> *Government Digital Strategy, 2013*

The GDS's work and documentation highlight Open Data, Open Standards, Open Source, Open Procurement and cloud based services as key elements in achieving this. Open data means not only open access but also open formats and open data standards. While we are still some way from fully realising the vision of transparency it offers, the possibilities are demonstrated by projects like the Transactions Explorer designed by Richard Sargeant, Director of Performance and Delivery at GDS. The Transactions Explorer aggregates all data related to government transactions and presents it in a clear, digestible format for public consumption.

7 gds.blog.gov.uk/2013/06/10/better-for-less/

Open data also offers great potential for the interoperability of data sets and the reuse and exchange of data between organisations and systems. Technical systems should be capable and adaptable for open data standards to take full advantage of them as they emerge.

Achieving Cost Savings

The Lane Fox review focused on shifting demand to channels with lower transaction costs as a way to improve services and generate savings. The recommendations outline the necessary prerequisites to achieve this change by developing fit-for-purpose, unified online services.

> **Camden Council have driven out £1 million of efficiency savings by adopting an Open Source, Open Standards model.**[8]
>
> John Jackson, Assistant Director of ICT, London Borough of Camden, 2013

There are three key elements to realising cost savings in service delivery:

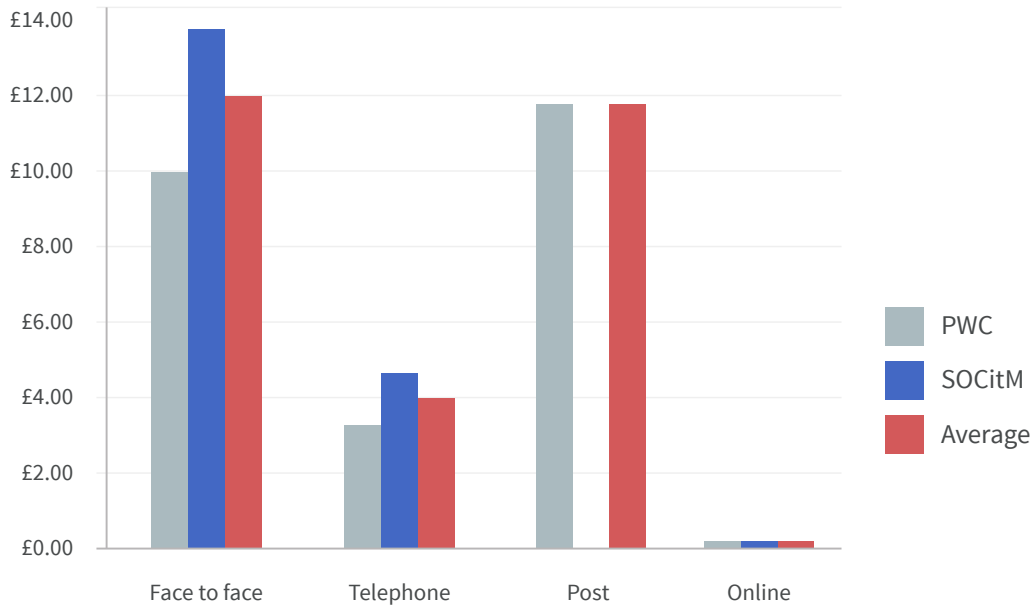
- Lowering transaction costs
- Channel shift and contact avoidance
- Adopting the right development platform

8 youtube.com/watch?v=C1CWu3cF5Jw&list=UU3Ya5ZhK1SZocVdA_5QwGXg&index=5

Transaction Costs

One of the main reasons for the drive towards digital self-service is significantly lower transaction costs. Not only are online transactions cheaper but they are highly scalable and often better quality, meaning increasing demand is less of a problem. Below is a graph showing the comparative costs of offline channels with online, digital ones. It is clear that there are significant savings for organisations that can move appropriate services online both in terms of transaction and demand management.

Comparative Transaction Costs (Fig. 1)



Source	Face to face	Telephone	Post	IVR	Online
PWC[9]	£10.53p	£3.39p	£3.39p	N/A	£0.08p
SOCITM[10]	£14.00p	£5.00p	N/A	£0.20p	£0.17p

9 The Economic Case for Digital Inclusion, Price Waterhouse Coopers, Oct 2009.
10 Local Government Information Unit, going where the eyeballs are, connecting councils with their communities.

Channel Shift

Making the online channel more desirable and of higher quality than offline is the holy grail of Digital by Default. The shift in demand to digital services will happen naturally if a well-designed digital channel is available. The report also advocates using agile methodologies to increase responsiveness and drive down delivery time.

In the last few years this proposal has been demonstrated by GDS and become express policy through the Government Digital Strategy. So how can other public sector organisations put similar programmes in place? The Digital by Default Service Standard emphasises that the right technology is critical.[11] Most organisations do not have the resourcing or overarching drivers that GDS have, so the strength and openness of a platform are fundamental to success.

Adopting the Right Tools and Systems

Investing in the right technology is essential. Avoiding lock-in is a clear goal for organisations seeking to future proof their ICT estate. A platform that can grow and adapt with your requirements, knowledge, context and understanding is vital. It must operate to open standards and be able to evolve with them. Finally, and perhaps most importantly, the right platform must be able to integrate with systems already in place without significant development cost (CRM, ERP, mail servers, etc.). An open architecture model is best suited to this. By default it is designed to make adding, upgrading and swapping components straight forward.

In summary, the public sector needs robust, well designed processes and services built on technology that is flexible and open to innovation and re-use. This will allow organisations to adapt quickly and effectively through co-design and co-delivery in a way that has been difficult in the past. Sharing of knowledge and experience will lead to open, agile, and robust services that are of higher quality, lower cost and evolve with need. With these three principles in place organisations' digital capability will be able to iterate quickly,[12] integrate existing systems, and adapt to new technologies as they arise.

11 gov.uk/service-manual/making-software/choosing-technology.html

12 Agile methodology's greatest attribute is its ability to adapt development of services as need and demand shape system requirements.

Why Open Source Software (OSS)?

Open Source and Open Standards are a natural choice for public sector organisations. Generally, Open Source offers a lower total cost of ownership (TCO). Costs are the same or lower across all phases of the lifecycle,[13] most notably in acquisition and maintenance.[14] In the past Open Source has been perceived as deploying less easily than proprietary solutions. The emergence of enterprise level support and the growing requirement for compliance with publically approved, open standards gives open source systems the edge. Their open architecture nature offers more compliant, flexible, malleable and easily extensible solutions than proprietary systems.

> *Open source is a development method for software that harnesses the power of distributed peer review and transparency of process. The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in.*[15]
>
> *Open Source Foundation*

By default Open Source offers a transparent, heterogeneous approach to software development as opposed to a homogenous, closed, proprietary one. By design it encourages re-use. Taking an open approach offers a cumulative, collaborative, model for effort across organisations that share common processes. For the public sector this offers extraordinary scope for creating and sharing customisable solutions to common problems and the ability to build on the achievements and investment of others.[16] Because of this Open Source lends itself naturally to rapid iteration and agile development methods. Their open nature affords the opportunity to rapidly prototype systems and quickly determine the direction of travel prior to development work.

13 Information gathering, acquisition, deployment, training, maintenance, transition/close-down.
14 Impact of open source in the total cost of ownership, eu.conecta.it/paper/Impact_open_source_in.html
15 opensource.org/osd
16 For an extensive comparison, see our whitepaper 'Open Source vs. Closed Source'.

> **We put in Solr instead of our previous search tool. It saved us around £100,000 a year. It's a great tool and it took us four weeks.**[17]
>
> Lee Mullin, Head of IT, Technology Strategy Board, BIS

Transitioning to Open Source

How can public sector organisations achieve cost savings with an Open Source strategy? What are the necessary elements and prerequisites? It is important to recognise that Open Source products require the same level of due diligence as proprietary solutions. This relates not only to the product itself but also to support services, resourcing and internal processes.

Organisations wishing to adopt OSS need to address the following points thoroughly:

- Where and how open source technologies should be used
- The process for evaluating, approving and governing open source elements
- How to support and maintain the code base
- When and how an organisation should work with open source communities

This is no more and no less effort than working with proprietary solutions. However OSS is open by default and definition, allowing the sharing and re-use of effort thereby creating a reservoir of resource over time both within and between organisations with common solution requirements. It is important to identify other organisations and communities using similar tools. Their support and prior work is invaluable. Shared effort brings economy and efficiency not only with technology but with changes in organisational culture associated with significant channel shift.

17 LPSF UK 2013 - Digital by Default - Lee Mullin, youtube.com/watch?v=gCm9Cim4yfQ#t=51

Digital by Default, Open by Design

The Digital by Default approach seeks to realise efficiencies and cost savings through shifting demand to digital self-service. To achieve that, digital services need to be of high quality and offer people better routes to access services.

In the next phase of transformation in public services there is significant additional potential for savings over and above those already identified by digital self-service. An open by design approach offers an economy of scale to developing high quality solutions through common effort on common problems allowing for an improvement in public services while achieving the necessary cost savings to retain them.

About Liferay

Liferay, Inc., founded in 2004 and headquartered in Los Angeles, is an open source provider of software. A Leader in the Gartner Magic Quadrant, Liferay has 21 offices around the world and is present in 40 countries through its large partner network.

Liferay is an enterprise ready, complete platform which is both light weight and agile. Built with open source it is compatible with your existing IT and offers a powerful integration framework for other enterprise systems and web-based resources.

> **Our passion is to build great portal technology that makes our customers happy and makes your customers happy.**

Liferay offers organisations a secure, open framework from which to rapidly build out flexible, modular solutions. The platform includes many out-of-the-box applications, including sophisticated web content and document management tools with numerous social collaboration elements and seamless mobile integration. All are instantly deployable within the framework as are many other open standard compliant elements. Liferay is the Swiss army knife of online application development, allowing you to quickly build and test different prototype solutions with your audience.

Liferay offers Enterprise support to organisations that "bridges the gap" between open source based software and the risk management, compliance requirements, and business continuity concerns of enterprise grade deployments.

The Public Sector

Liferay has extensive experience delivering complex, robust solutions with high availability with public sector organisations in the UK and abroad.

In the UK

- Office for National Statistics (ONS)
- Innovate UK
- London Borough of Camden
- Bristol City Council
- South Worcestershire County Council
- Devon District Council
- Department for Regional Development, Northern Ireland
- Northumbria Police
- Local Government Association
- Public Sector Knowledge Hub

In Europe

- European Commission
- European Chemicals Agency
- Ministry of Higher Education and Research, France
- Ministry of Justice, Finland
- Barcelona Metropolitan Transport
- Stockholm County Council (SLL)
- Oslo Municipality
- The Office of the Revenue Commissioners, Ireland
- French Ministry of Defence
- French Development Agency
- Spanish Economic and
- Social Council
- National Institute of Public Administration of Spain
- German Civil Law Notaries
- Lithuania Department of Statistics
- Canton de Vaud, Switzerland
- European Cluster Collaboration Platform (ECCP)
- The Social Insurance Institution of Finland (KELA)
- City of Oulu, Finland
- Agency for Innovation and Development of Andalusia (IDEA)
- Social Security of Andorra (CASS)
- Office of the Commissioner for Fundamental Rights, Hungary

In the Rest of the World

- City of Chicago, USA
- State of North Carolina, USA
- City of Perth, Australia
- Australian Institute of Marine Science (AIMS)
- The Brazilian Parliament
- Brazil Ministry of Education
- Brazilian Army
- Superior Labor Court of Brazil (TST)
- Ministry of Science and Technology of the Brazilian Federal Government

Liferay supports the work of the Government Digital Service and is working with bodies across the UK public sector to help implement the Digital by Default Service Standards. Open Source and Open Standards are the DNA of the company, which works together with customers and community to develop the highest possible quality software.

As an organisation we believe Open Source underpins a right to choose tools that offer the best quality and value. Open Standards ensure that over-reliance on any single solution is avoided. Liferay's business model enables the implementation of Open Source and Open Standards for enterprise class solutions.

Get Involved

We are interested in hearing your thoughts on this paper and the issues it raises. If you would like to talk further about our Open Source and Open Standards offering for the public sector please contact Mike MacAuley, Senior Manager for the UK at michael.macauley@liferay.com or call 07786-542 037.

Liferay makes software that helps companies create digital experiences on web, mobile and connected devices. Our platform is open source, which makes it more reliable, innovative and secure. We try to leave a positive mark on the world through business and technology. Hundreds of organizations in financial services, healthcare, government, insurance, retail, manufacturing and multiple other industries use Liferay. Visit us at liferay.com.

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