Open Standards: Open Opportunities
Flexibility and efficiency in government IT

Response to Cabinet Office formal public consultation on the definition and mandate of open standards for software interoperability, data and document formats in government IT

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By:

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Table of Contents

1 Introduction

This is my personal contribution to the consultation on "Open Standards: Open Opportunities". It is a response to the February 2012 consultation document from the ICT Futures Team of the Cabinet Office on this matter.[1] I completed this submission following my participation in most of the roundtable events that were organised as part of this consultation.

Linda Humphries did an excellent job managing the public consultation process, including the roundtable sessions. However, I am disappointed the Cabinet Office has decided to exclude all contributions to one of these sessions. It has stated "any outcomes from the original roundtable discussion will be discounted in the consultation responses". Linda Humphries told me that means all contributions to that session will be totally disregarded. Consequently, many pertinent comments, including those from people who did not participate in the session rerun, will be lost.

According to the Cabinet Office, "[t]he cost of the Government's IT is currently too high and needs to be reduced. There is a lack of market diversity in existing government contracts. A more diverse market and level-playing field for access to government IT contracts is needed to improve competition, reduce cost and improve public service outcomes."

The proposed policy is not the best way of achieving the stated objectives. Some aspects of the proposed policy will be counterproductive. For example, the consultation document implicitly and incorrectly assumes the proposed policy will:

- **Reduce costs.** For example, licensing fees are only one among many input costs for ICT users including government departments. Only thorough empirical analysis can show how costs for different approaches compare over the entire ICT project lifecycle including implementation and maintenance. There is significant evidence that any savings made by reducing or eliminating licensing fees can be substantially eroded or exceeded by higher costs elsewhere.[2]

- **Increase competition and SME participation**. The proposed policy favours royalty-free standards. Against industry consensus it exclusively defines these as open standards. These are most prevalent in open source software with which major systems integrators can lock customers into large, complex and highly-bespoke ICT solutions with long-term contracts. These suppliers typically have the deep pockets to offer back-loaded pricing SMEs cannot match. Alternatively, thousands of SMEs are already thriving by implementing, customising and supporting ICT solutions based on other standards including those implemented in proprietary software. For example, my company, WiseHarbor, uses many standard software products sold under license. It spends far more on SME-supplied ICT support services than it does on software licences. WiseHarbor's use of off-the-shelf software products makes it relatively easy to switch ICT services suppliers, as it has done twice in five years. The proposed policy will reinforce the positions of the big systems integrators that dominate government ICT procurement. It will reduce competition among technologies by

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[1] http://www.cabinetoffice.gov.uk/resource-library/open-standards-open-opportunities-flexibility-and-efficiency-government-it

[2] http://ipfinance.blogspot.co.uk/2011/11/scaremongers-ip-rights-standardised-ict.html

mandating certain standards and making it difficult to replace them when better alternatives appear.[3]

- **Improve interoperability.** Preserving interoperability among users, including those who have already widely adopted various standards, should be paramount. Increasing interoperability among vendors, though highly desirable in providing customer choice and in facilitating competition, is of secondary importance. It is essential that substitute standards and vendor offerings provide adequate functionality and interoperability among users. It could be very harmful to sacrifice extensive end-user functionality and interoperability in pursuit of increasing vendor interoperability.[4]

- **Level the playing field for open source and proprietary software.** The mandation of particular royalty-free standards would result in the exclusion of popular software products, including proprietary programs in particular, that are based on FRAND-based standards subject to patent licensing fees.[5]

- **Isolate software interoperability, data and document formats from hardware and telecommunications.** Software is not an island. Hardware increasingly substitutes for software (e.g., with hardware accelerators for graphics and video software) and software increasingly substitutes for hardware. In telecommunications, for example, digital radio algorithms are increasingly software defined. The choice of hardware versus software is typically an engineering and economic consideration with respect to matters such as processing speed, power consumption, fixed and variable costs in product development and manufacture. Computing and communications are increasingly converged with cloud computing and latest developments in standards such as HTML5 being most significantly for communications capabilities.[6]

My detailed response is contained in the following two sections. In Section 2, I address some broad issues surrounding the consultation, including the five bulleted above and several others. It is a copy of an article I wrote as one of my regular contributions over the last year to the IP Finance blog. It cautions governments against intervention with mandation of particular standards and technologies. My preference is for more competition than less that will result from the proposed policy. In Section 3, I answer some of the formal questions set by the Cabinet Office for public response in this consultation. Some of my other published articles are cited in the footnotes to my submission.

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[3] http://ipfinance.blogspot.co.uk/2012/02/ict-esperanto-and-competition-among.html
[4] http://ipfinance.blogspot.co.uk/2012/02/ict-esperanto-and-competition-among.html
[5] http://ipfinance.blogspot.co.uk/2011/09/software-patents-convenient-misnomer.html
[6] http://ipfinance.blogspot.com/2011/09/artificial-distinction-between-software.html

2 The Folly of Picking Winners for Government ICT[7]

Government attempts to favour and promote certain business models, companies and technologies are justifiably criticised. The UK Cabinet Office's proposed policy to mandate the use of only pre-selected, royalty-free standards in public ICT procurement is similarly flawed. This will limit choice by foreclosing many popular open standards, numerous products which adhere to them and companies who depend on upstream licensing revenues. The Open Standards Board responsible for implementing this policy will face significant governance challenges in ensuring impartially in standards selections. In contrast, free-market processes allowing competition among a much wider array of open standards and software licensing maximises customer choice across many different government departments, fosters innovation, reduces lifecycle costs and enables obsolete or poorly performing standards to be superseded.

CabinetOffice

Mandating particular standards and discriminating against or excluding royalty-based business models in government procurement constitutes hazardous industrial policy for the UK. The government is the largest UK ICT spender on with annual expenditures of approximately £18 billion in recent years. Direct and likely indirect consequences of this large purchaser on the ICT marketplace, such as explicitly or implicitly obliging citizens, as well as government suppliers of other goods and services, to adopt the same standards, would be significant with this policy.

Dirigisme versus facilitation

Governments have a history of making bad decisions in championing particular companies, technologies and business models. For example, the Inmos[8] semiconductor company received £211 million from the UK government in the 1970s and 1980s with its strategy to produce commodity D-RAMs and develop its "transputer", but the company foundered, did not become profitable after many years and was sold to SGS-Thomson in 1989. The UK is effectively nonexistent in semiconductor manufacturing today. The UK's "fabless" semiconductor companies such as ARM, Picochip (acquired by Mindspeed Technologies in 2012) and Icera (acquired by NVIDIA in 2011) rely on partners including foreign "foundries" to fabricate their designs.

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[7] http://ipfinance.blogspot.co.uk/2012/05/folly-of-picking-winners-in-ict.html

[8] http://en.wikipedia.org/wiki/INMOS

State monopoly France Telecom forced adoption of the Minitel videotext online service in the 1980s by withdrawing phone books and spending billions giving away the terminals to citizens. The associated technological standards and equipment manufacturers made minimal headway with Minitel technologies abroad and were eclipsed by the advance of the Internet in the 1990s. Minitel provided consumers with their first means of online access. However, views on long-term benefits to French consumers are mixed. Resistance to replace the entrenched home-grown standard caused France to be a laggard in Internet adoption.

In contrast, supporting entire industry sectors where a nation has strategic strength is more justifiable and attracts widespread support from various commentators. For example, clustering of complementary and competitive companies can be beneficial. In these circumstances, market forces spur competitive behaviour, including some Schumpeterian "creative destruction", which helps eliminate the sclerosis and risks that come with monoculture. For example, Silicon Valley in California provides a fertile technical and commercial environment in which various business models and many ICT companies, standards and products have flourished while others have failed.

Better for less

A key stated objective with the proposed Cabinet Office policy is to level the "playing field" for open source and proprietary software. It is, therefore, perverse that standards based on Fair Reasonable and Non-Discriminatory (FRAND) licensing and requiring patent fees should be the principle target for elimination with this policy. The policy will automatically also exclude many proprietary offerings that are based on those standards and which cannot practically be adapted to other, royalty-free, standards. In many cases, such standards are widely implemented by many suppliers and are used by the vast majority of business customers and consumers.

The cabinet office seeks to mandate specific royalty-free standards to achieve various objectives including cost reduction and avoiding vendor lock-in, as well as making ICT solutions fully interoperable. However, a report entitled **Better for Less**[9], published in 2010 by Liam Maxwell, now Deputy Government CIO and the proposed policy's champion, identifies that most UK government ICT spending is with systems integration companies including HP/EDS, Fujitsu Services, Capgemini and IBM. The Government's over-reliance on large contractors for its IT

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[9] http://www.scribd.com/doc/37020044/Better-for-Less

needs combined with a lack of in-house skills is also a "recipe for rip-offs" according to a report[10] by the Public Administration Select Committee (PASC) in July 2011.These suppliers are typically deeply embedded with long-term contracts that government finds difficult to unravel.

Software represents only a relatively small playing field[11] in comparison to others in ICT spending. According to Forrester Research figures, market segments where open source software competes or combines with proprietary software products represent just 12.4% of $2.5 trillion total global business and government ICT expenditures including operating system software (1.0%), non-custom-built applications (6.7%) and middleware (4.7%). In comparison, IT services (11.6%) and outsourcing (9.8%) combined represent 21.5% of spending. Computer equipment represents 13.9%. The $2.5 trillion total appears to exclude very significant costs for internal staffing.

Software licensing costs are included even in modestly-priced PCs. The PASC report also indicated it was "ridiculous that some departments spend an average of £3,500 on a desktop PC". A 2011 Cabinet Office press release[12] stated it would "end poor value contracts such as those where Government departments and agencies paid between £350 and £2,000 for the same laptop". The response[13] to a government procurement freedom of information request on this matter by fullfact.org shows that while these prices actually represent totally different PC specifications, the proprietary operating system and office document software is identical in each case, with differences relating to microprocessors, displays, wireless modems and functionality such as fingerprint recognition accounting for the very large pricing disparity.

Uncertain scope, invalid distinctions

The proposed policy states that standards selection will be limited to software interoperability, data and document formats. The scope of these terms is unclear[14]. And, in the next few years it will become even more difficult meaningfully to separate standardisation in these from other domains. The consultation's terms of reference make the invalid assumption[15] that software is distinct from hardware and that telecommunication is distinct from computing. Evidence weighs against these arguments with increasing technological convergence and other changes in ICT. Smartphones and tablets are becoming the dominant computing platforms in our personal lives and at work. Similarly, PCs have overtaken mainframe computers and revolutionised ICT usage since the 1980s. Communications is intrinsic to these new mobile devices and is increasingly integrated with most desktop PCs including web, and cloud-based usage where demarcations between software, hardware and service are submerged.

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[10] http://www.parliament.uk/business/committees/committees-a-z/commons-select/public-administration-select-committee/news/report-on-government-it-published/

[11] http://ipfinance.blogspot.co.uk/2011/11/scaremongers-ip-rights-standardised-ict.html

[12] http://www.freezepage.com/1311589240SKBGNZBKXQ

[13] http://fullfact.org/factchecks/public_sector_procurement_laptop_cost_cabinet_office-2854

[14] http://standards.data.gov.uk/challenges?status=1

[15] http://ipfinance.blogspot.co.uk/2011/09/artificial-distinction-between-software.html

Video is becoming most prevalent. According to long-standing Cisco CEO, John Chambers, in a recent Bloomberg Business Week article[16], "Every device, five years from now, will be video. That's how you'll communicate with your kids, with work." Switching video standard is nothing like the peripheral task of simply replacing or adapting the mains plug on a TV set. Interoperability standards for video compression and encoding are highly complex algorithms that are deeply and extensively embedded in the workings of core hardware and software. Around one third of Internet traffic is streaming video and mobile video traffic already exceeds 50%[17]. Virtually all of that conforms to FRAND-based standards requiring patent licensing, including AVC/H.264 (MPEG 4 Part 10[18]) with most widespread adoption[19].

The customer is always right

Standards requirements change with technological innovations and shifting user needs. It is very difficult for any centralized government administration to anticipate or react with the dynamics of ICT supply and demand. Competition among standards[20] is highly beneficial. Market forces precipitate occasional revolutionary changes with new standards displacing old standards (e.g. HTML substitutes for videotext standards such as that used by Minitel) and continuous, incremental improvements to existing standards (e.g., HTML5 replaces previous versions of HTML). Changes in user preference and demand can be difficult to predict. For example, within a few years of the introduction of Apple's iOS-based iPhone in 2007 and Google's Android in 2008, former smartphone market leaders Nokia and RIM, each with its own operating system software, were completely up-ended. The highly innovative capabilities with the new software platforms and devices have succeeded because they are very different to and much better than what they have replaced.

Different government departments have diverse needs. Whereas interoperability among UK government departments is important, so is optimising interoperability and access by end users, commercial partners and international organisations. Defence requirements can preclude the most widespread propagation of interoperability and encryption standards. Maximising functionality, security and interoperability for patient records among health authorities will be compromised by imposing standards that are chosen to accommodate requirements in education.

From a user's perspective, functionality and interoperability with other users trumps[21] supply-side considerations including the number of prospective ICT suppliers and lowest price.

Upstream savings, downstream costs

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[16] http://www.businessweek.com/articles/2012-04-19/charlie-rose-talks-to-ciscos-john-chambers

[17] http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf

[18] http://www.mpegla.org/main/programs/AVC/Pages/Intro.aspx

[19] http://arstechnica.com/gadgets/2012/03/idealism-vs-pragmatism-mozilla-debates-supporting-h264-video-playback/

[20] http://ipfinance.blogspot.co.uk/2012/02/ict-esperanto-and-competition-among.html

[21] http://ipfinance.blogspot.co.uk/2012/02/ict-esperanto-and-competition-among.html

While seeking to eliminate licensing fees, open source software and royalty-free standards do not ensure lower overall costs. On the contrary, there is significant evidence that open source is no cheaper[22] than proprietary solutions, including total ICT lifecycle costs with project implementation and support. In many cases, total costs may also be lower with technical efficiencies and large economies of scale that arise from the implementation of popular royalty-charging standards. It is practically impossible to create some high-performance ICT standards without infringing any patents for which royalties might be demanded.

Patent fees on popular FRAND-based standards are typically modest. Patent pool administrator MPEG LA licenses 2,339 patents it deems essential to H.264 from 29 licensors to 1,112 licensees for a maximum per unit rate of $0.20. This covers the vast majority of patents declared as essential to the standard. With around 6 billion mobile phones in service worldwide, aggregate royalties are low enough for GSM phones to be sold at price points down to less than $20. However, these fees significantly enable[23] technology companies with upstream business models. They also allow vertically-integrated players to recoup some of their development costs from companies with downstream business models who make products but do not invest in developing the standards-based technologies. Eliminating the possibility of royalties merely forecloses upstream business models in favour of the downstream businesses, such as those that dominate government ICT spending, including hardware manufacturing, systems integration, technical support and outsourcing.

Open and competitive ICT markets allow the widest range of business models and licensing practices, including royalty free standards and open source software. There are many examples of open source software running on FRAND-based standards requiring royalty fees. For example, there are various proprietary and open source software codec implementations[24] available for the H.264 video standard. It would be nonsense to bar this standard in favour of another standard that has only tiny adoption (the most fundamental barrier to interoperability among users), inferior or unproven performance including technical compliance and interoperability among implementations. And, in the case of video, for example, it would most likely infringe some of the very same patents[25] used by the successful standard it would be replacing. So there is a significant possibility that patent fees would be required despite wanting to wish them away. Developing a high-quality video codec standard is a formidable task drawing upon lots of intellectual property. Designing around the best technologies to avoid royalty bearing technologies will result in inferior standards and implementations.

There is generally no conflict between open source licensing and paying patent royalties to third parties. In certain cases where there is conflict, this is the problem of the licensors' making. The most stringent open source licenses; such as GNU GPLv3[26]—in which "patents cannot be used to render the program non-free"—is seldom used because of such conflicts. In cases where

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[22] http://ipfinance.blogspot.co.uk/2011/11/scaremongers-ip-rights-standardised-ict.html

[23] http://ipfinance.blogspot.co.uk/2011/05/fruits-of-labour-not-windfall-gains-in.html

[24] http://ipfinance.blogspot.co.uk/2011/09/software-patents-convenient-misnomer.html

[25] http://allthingsd.com/20110729/cmon-in-the-vp8-patent-pools-warm/

[26] http://www.gnu.org/copyleft/gpl.html

licensing prohibits patent fees, the only legal solution is for such software to be written to ensure it does not infringe any IP that has not also been specifically declared royalty free by its owner.

Governance with selector selection

The Open Standards Board responsible for implementing the policy will face significant governance challenges in ensuring impartiality in its members and the standards selection processes they oversee. It will be difficult to recruit board members who have the required competence in ICT standards, and who as individuals, employees, or academics, are completely free of any interests in the outcome of any standards selections. Members will be affected by their other interests in specific companies, standards groups and business models.

International harmonisation and liberalisation

The European Commission's approved **guidelines**[27] on the applicability of Article 101 of the Treaty on the Functioning of the European Union (TFEU) for horizontal co-operation agreements recognise the importance and value of standardization agreements.

"Standards which establish technical interoperability and compatibility often encourage competition on the merits between technologies from different companies and help prevent lock-in to one particular supplier."

These guidelines lay out a comprehensive approach for conformity of standardisation agreements with Article 101 TFEU, creating a "safe harbour" while affording standard-setting organisations significant autonomy in setting policies for disclosure of IP and its licensing terms. FRAND licensing, with and without payment of royalties, is explicitly recognised. Licensing policies of many international ICT standards-setting organisations including **IEEE**[28], **ETSI**[29], **ITU-T**[30], CEN/CENELEC[31] are consistent with these guidelines and the charging of patent fees on their standards. It would be a travesty to exclude their standards from government usage in the UK, even if this was only on the basis of attempting to do so for what the Cabinet Office delineates as software interoperability, data and document formats.

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[27] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:011:0001:0072:EN:PDF

[28] http://www.ieee.org/publications_standards/index.html

[29] http://www.etsi.org/WebSite/homepage.aspx

[30] http://www.itu.int/ITU-T/

[31] http://www.cencenelec.eu/Pages/default.aspx

3 Formal Question Responses

This section provides some answers in response to the questions specifically set by the Cabinet Office in Annex A (Open Standards Consultation – Your Views) in Chapters 1, 2 and 3 of its February 2012 consultation document.

Chapter 1: Proposed open standards specification policy (criteria for open standards)		
Qu	**My views**	**Official use**
1	*How does this definition of open standard compare to your view of what makes a standard 'open'?* Whether or not royalties are payable should not be the be-all and end-all in determining openness. Openness should be on the basis of several criteria. I agree with the European Commission's EIF version 2.0 description of 'openness' as quoted in the consultation document: "All stakeholders have the same possibility of contributing to the development of the specification and public review is part of the decision-making process; the specification is available for everybody to study; intellectual property rights related to the specification are licensed on FRAND [(Fair) Reasonable and Non-Discriminatory] terms or on a royalty-free basis in a way that allows implementation in both proprietary an[d] open source software." Other conditions in standardisation and software licensing agreements (e.g., extensive royalty-free grant-backs) can be more onerous than royalty payments for some parties. A royalty-free licensing policy does not guarantee that a standards organisation has good governance. Similarly, open source software developments are not very open when they are dominated particular organisations.	
2	*What will the Government be inhibited from doing if this definition of open standards is adopted for software interoperability, data and document formats across central government?* This narrow definition of open standards will limit choice for the Government and prevent use of widely-adopted standards. Most ICT standards organisations including ETSI, IEEE, ITU-T and CEN/CENELEC regard their standards as being open while allowing intellectual property licensing on FRAND terms with or without payment of royalties. Many Internet standards include patented intellectual property. IETF participants often have patents that affect standards developed at IETF, and so long as they disclose these patents in compliance with the IETF IPR [intellectual property rights] rules, they are fine.[32] Other very successful open standards with numerous intellectual property licensors and licensees (e.g., GSM/WCDMA/LTE cellular, 802.11 WiFi and H.264 video) are licensed extensively	

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[32] http://isoc.org/wp/ietfjournal/?p=245

	with royalty payments. For example, even though there are both proprietary and open source implementations of the widely-adopted H.264 standard for digital TV broadcasts, web video streaming and digital video recorders, use of the standard is subject to payment of royalties.	
3	*For businesses attempting to break into the government IT market, would this policy make things easier or more difficult – does it help to level the playing field?* This policy favours certain standards, business models and licensing terms to the detriment or exclusion of others. The policy explicitly discriminates against standards on which royalties are payable in preference to royalty-free standards. This in turn will favour open source over proprietary software supply. According to the consultation document, "[s]ome suggest that the most commonly used of these licences do not allow the development of software that requires royalty payments (Valimaki and Oksanen, 2005)." To the extent that this is the case, these programs must, therefore, only employ standards that are royalty free. In contrast, many widely adopted proprietary software programs are based on standards that are subject to patent fees. These programs would be precluded. Businesses with upstream business models that rely on patent licensing fees to pay for their development costs will be foreclosed. In contrast, businesses with downstream business models can benefit by the reduction or elimination of patent fees and software licensing costs that would result with this policy. Downstream businesses generate income from manufacturing, systems integration, customisation, maintenance and outsourcing.	
4	*How would mandating open standards for use in government IT for software interoperability, data and document formats affect your organisation?*	
5	*What effect would this policy have on improving value for money in the provision of government services?* This policy will discourage or prevent use of some technologies, standards and software programs that deliver substantial value-for-money. Licensing fees on widely-adopted standards and software products can cover very substantial, costly and valuable developments. Although these fees are a cost for end users and downstream businesses that implement and support ICT solutions, in many cases these technologies, standards and software programs deliver better value-for-money and in some cases lower overall costs than alternatives. Whereas proprietary software costs money through licensing charges and open source software may be adopted free of copyright licensing fees, the latter typically requires more work and resulting costs in implementation and support. Only thorough and objective empirical studies can determine which standards, proprietary and open source solutions have delivered best value-for-money. Results	

	of such studies are varied. It is not proven that procurement based on the proposed policy would lower total lifecycle costs or increase value-for-money. In the absence of such proof, it would be inappropriate to implement a policy that can exclude popular standards, restrict choice and favour particular business models.	
6	*Would this policy support innovation, competition and choice in delivery of government services?* Competition is as much about the interplay of different business models and commercial forces up and down the supply chain vertically as it is about opponents with similar profiles and offerings contending in a horizontal market. This policy impedes or forecloses technology developers with upstream business models by discriminating against standards for which essential patents are not contributed royalty-free. This reduces competition that can only be maximized by allowing competition among different business models including those based on patent licensing fees. Choice is reduced by limiting the number of permissible standards from among many, regardless of licensing terms. By definition, mandating particular standards reduces choice. Competition among standards as well as competition among vendors and among business models is most desirable. Discriminating against standards that are subject to royalties will affect choice most significantly when it prevents use of some standards that are very widely adopted by users and different vendors, have high functionality and deliver good value-for-money.	
7	*In what way do software copyright licences and standards patent licences interact to support or prevent interoperability?* There is no conflict between licensing and interoperability. On the contrary, licensing fees for use of patented technology in standards and copyrighted software promote investment, innovation and developments in standards and software programs that implement the standards along with other functionality. This facilitates interoperability among users, different applications and ICT suppliers.	
8	*How could adopting (Fair) Reasonable and Non Discriminatory ((F)RAND) standards deliver a level playing field for open source and proprietary software solution providers?* Standards based on FRAND licensing can provide a level playing field as is proven with numerous widely adopted standards. Most open source implementations have no conflict with payment of royalties for use of standards. For example, the open source X.264 video codec can compete on equal terms with various proprietary codecs conforming to the H.264 video standard. All implementations are subject to the same licensing terms through the MPEG LA patent pool including 29 licensors, 2,339 patents deemed standard essential by the pool's administrators and more	

	than 1,100 licensees. Where there is a conflict between open source licensing terms and licensing fees for patents and other software it is a problem of the open source licensors' own making. Most open source software is actually mixed source or comingled with proprietary software.[33] Various widely-used open source licensing agreements, including Apache, tolerate the payment of royalties for other software in mixed sourcing and for patented intellectual property.	
9	*Does selecting open standards which are compatible with a free or open source software licence exclude certain suppliers or products?* This depends upon one's definition of open standards and which open source licensing is employed. The open source licences with the most restrictive terms (e.g., GNU GPLv3) are specifically conceived to preclude use of open standards and other software developed under alternative and competing business models that allow upstream developers of technologies and software to generate revenues through licensing fees.	
10	*Does a promise of non-assertion of a patent when used in open source software alleviate concerns relating to patents and royalty charging?* Managing and administering licensing programmes can be a costly process for licensors, particularly when it includes numerous licensees. These costs may be unjustifiable financially if there are no offsetting royalty revenues. Promises of non-assertion instead of licensing can avoid such costs in those circumstances.	
11	*Should a different rationale be applied when purchasing off-the-shelf software solutions than is applied when purchasing bespoke solutions?* Policy should not dictate or promote off-the-shelf versus bespoke software, or vice versa. Off-the-shelf software solutions can substitute for bespoke solutions in many cases. The extent of customisation can vary significantly. Off-the-shelf software can also typically be tailored to meet a customer's specific needs. There is a spectrum of possibilities with various software building blocks and custom programming between the two extremes. Selection should be a matter for customers on the basis of various criteria across the project lifecycle including required functionality, interoperability, time-to-implement, various risks and total costs.	
12	*In terms of standards for software interoperability, data and document formats, is there a need for the Government to engage with or provide funding for specific committees/bodies?* I am concerned about how to interpret these terms and how that interpretation might need to change rapidly. For example, what is meant by "document" in an age when traditional office documents are increasingly embellished with video clips,	

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[33] The Comingled Code, by Josh Lerner and Mark Schankerman, 2010

	spreadsheet macros and real-time updates over the web including cellular connections? The policy would certainly require significant committee work in selecting standards and ensuring that there are associated offerings which are sufficiently compliant and interoperable. It would be difficult to recruit Standards Board and committee participants with required technical and standards expertise who are also without conflicts of interest with their employers, clients or sponsors in other work (e.g., including academia).	
13	*Are there any are other policy options which would meet the described outcomes more effectively?* I favour a longer, non-exclusive list of government-approved standards. This should include competing standards. The list could form a "safe harbour" for selection of standards by government departments while allowing them the autonomy to adopt alternatives when preferred, including from among those standards developed and offered under various different business models and licensing arrangements (including non-asserts, if available). The above should be complimented by lists of products and services with independently verified ratings on standards compliance, interoperability (with respect to vendor offerings and with respect to how many and which users are actually using the standard), reliability, support, lifecycle costs etc.	

Chapter 2: Proposed open standards mandation policy		
Qu	**My views**	**Official use**
1	*What criteria should the Government consider when deciding whether it is appropriate to mandate particular standards?* I disagree with the proposed policy to mandate standards centrally. Different government departments have significantly different needs. For example, their interoperability requirements can vary considerably dependent upon standards adopted and most extensively used by their specific suppliers, commercial end users, citizens or foreign organisations with whom they correspond. However, if the Government is hell-bent on mandating or expressing a preference for certain standards, it should determine openness against several criteria, such as how wide the participation is in standards-setting and how restrictive licensing conditions are overall – not simply upon the basis of whether or not patent royalties are payable. Standards' ability to deliver widespread end-user interoperability is even more important than increasing interoperability among vendors. I favour creation of a longer, non-exclusive list of government-approved standards. The above should be complimented by lists of products and services with independently verified ratings on standards compliance, interoperability (with respect to vendor offerings and with respect to how many and which users are actually using each standard), reliability, support, lifecycle costs etc (Ch1.13).	
2	*What effect would mandating particular open standards have on improving value for money in the provision of government services?* Mandation could reduce value-for-money by preventing or limiting a department's ability to choose cheaper or better-performing standards (Ch1.5).	
3	*Are there any legal or procurement barriers to mandating specific open standards in the UK Government's IT?* I am not a lawyer or government procurement specialist and so I will not provide opinions on legality or compliance to established procurement rules. However, foreclosing or disfavouring technologies, sources of supply and products that can exceed performance requirements while providing higher quality, better value-for-money and lower cost than "favoured" alternatives seems to violate various principles, including common sense. This narrow definition of openness would eliminate or at least discriminate against many widely-adopted standards.	

4	*Could mandation of competing open standards for the same function deliver interoperable software and information at reduced cost?* User interoperability is invariably enhanced by the availability and use of multiple standards. These standards both compete with each other and provide vital complementary capabilities for end users. It is quite common for various products including software programs to support multiple standards. I have the ability to "Save As" this document as I write it in 18 different file formats including .docx, .pdf, .rtf, .txt and .xml. Dial-up modems and fax machines since the 1980s have supported various different standardised modulation schemes and speeds. A common standard is selected and in some changed during each session on the basis of which standards each modem supports, and maximising throughput on the basis of the quality of the connection. Cellular phones typically incorporate multiple standards and select which one to use on the basis of what network technology is installed, where network capacity is available and quality of the radio connection.	
5	*Could mandation of open standards promote anti-competitive behaviour in public procurement?* There are always some risks of anti-competitive behaviour with standards organisations because they coordinate certain actions among supposed competitors. Standards organisations must in many cases receive approvals from competition authorities on various matters such as intellectual property policies. Mandating particular standards could foster market dominance and monopoly (or monopsony) power in the selected standards organisations and committees. This could be abused by those who have most sway there to favour particular technologies, business models and other commercial interests.	
6	*How would mandation of specific open standards for government IT software interoperability, data and document formats affect your organisation/business?*	
7	*How should the Government best deal with the issue of change relating to legacy systems or incompatible updates to existing open standards?* Preserving and improving interoperability and functionality for end-users is paramount. Users will switch away from old and obsolete standards when replacement is warranted by improved capabilities, lower costs, better value-for-money and when up-front costs can be funded. Otherwise, it will be necessary to preserve legacy capabilities even if they are not fully compatible with everything introduced subsequently. This means it is necessary for the Government to accept the concurrent use of multiple standards for similar functions.	

8	*What should trigger the review of an open standard that has already been mandated?* Standards should be in continuous or frequent review. Existing standards are enhanced (e.g., older HTML versions are enhanced with HTML5) and entirely new standards must be in a position potentially to displace what precedes them when this is warranted. For example, web standards overtook Minitel standards many years ago in terms of functionality, product availability, and interoperability among users and vendors. However, Minitel was not tabled for service closure until 2012.	
9	*How should the Government strike a balance between nurturing innovation and conforming to standards?* Development of competing standards is a result of innovation and competition. Government should not seek to create technological monopolies it should promote competition among different standards, business models and companies. Government should let market forces and competition decide what is best today, what should be employed tomorrow and when changes should be made.	
10	*How should the Government confirm that a solution claiming conformity to a standard is interoperable in practice?* It would be useful for the Government to help ensure the level of standards compliance and interoperability of various offerings is determined and clearly communicated to government departments. Independent third parties could assess products and services for levels of functionality, compliance with standards and interoperability among the embedded user base and with other vendors offerings.	
11	*Are there any are other policy options which would meet the objective more effectively?* See Ch1.13	

Chapter 3: Proposed international alignment policy		
Qu	**My views**	**Official use**
1	*Is the proposed UK policy compatible with European policies, directives and regulations (existing or planned) such as the European Interoperability Framework version 2.0 and the reform proposal for European Standardisation?* EIF v2.0 allows standards organisations to let their standards be licensed on a FRAND basis with or without royalty payments. It does this because it is considered to be in the best interests of competition and customers. The proposed UK government policy is not compatible with this liberal European policy because it favours a particular licensing model and could therefore disadvantage or foreclose from UK government use many existing and upcoming standards with licensing polices that are approved at the EU level.	
2	*Will the open standards policy be beneficial or detrimental for innovation and competition in the UK and Europe?* It will be detrimental because it favours certain business models to the disadvantage of others and because it discriminates against some extremely functional, interoperable (among users in particular, as well as among vendors) and widely adopted standards and products. This will stifle innovation and create a competitive barrier to the UK marketplace for many European and foreign standards.	
3	*Are there any are other policy options which would meet the objectives described in this consultation paper more effectively?* See Ch1.13	

4   About the Author

Keith Mallinson is founder of **WiseHarbor**[34], providing expert commercial advisory to technology and services businesses in IT, telecommunications, media and entertainment serving consumer and professional markets. He is a regular columnist with **Wireless Week**[35], **FierceWireless Europe**[36] and **IP Finance – "where money issues meet intellectual property rights"**[37].

Mallinson's recent clients at WiseHarbor include several in ICT. He provides commercial consultancy services including competition and market analysis. He has significant testifying expert witness experience in the cellular communications sector.

Mallinson led Yankee Group's global Wireless/Mobile research and consulting team as Executive Vice President, based in Boston, from 2000 to 2006. His responsibilities also included consumer media and enterprise computing. Until then, he had overall responsibility for the firm's European division, based in London, as Managing Director from 1995 until 2000. He was the European Research Director prior to 1995.

Mallinson has 25 years experience in ICT, as research analyst, commercial consultant and as a testifying expert witness. Complementing his industry focus, he has a broad skill set including technologies, market analysis, regulation, economics and finance.

Mallinson started his career in military communications design and project management with the UK Ministry of Defence. Prior to studying for his MBA he worked as a minicomputer systems engineer for electronic security company Cardkey Systems. For several years he served as a Director at a seed capital investment firm specialising in information and communications technologies as well as biotechnology.

Mallinson has an undergraduate electronic engineering degree from London University's Imperial College and an MBA from the London Business School, including an academic exchange with Northwestern University's Kellogg Graduate School of Management in Illinois.

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[34] Company web site: www.wiseharbor.com

[35] Publication web site: www.wirelessweek.com

[36] Publication web site: www.fiercewireless.com

[37] Publication web site: http://ipfinance.blogspot.com