

## Promoting Choice Among Open Standards Lowers Costs While Increasing Competition and Innovation

*In challenging economic times, such as these, governments must take all necessary steps to ensure that they receive the greatest possible return on investment of public resources. In the same way that software and IT procurement policies should not advantage or disadvantage one particular business or licensing model (e.g., open source) over another, governments should embrace public policy approaches that allow government agencies (and consumers) to **choose** the open standards that best serve their needs. Not only is choice good public policy, it is also the most cost-effective policy, because it encourages companies to vigorously compete for the government's purchase decision, which, in turn, ensures the efficient expenditure of scarce public funds. Plus, it fosters greater transparency and innovation, and allows governments and customers to avoid becoming beholden to one technology or one company.*

### **DEFINITION AND KEY ATTRIBUTES OF "OPEN STANDARDS"**

**Definition of Open Standard.** An open standard is a publicly available technical "specification" (i.e., a set of technical instructions and requirements) that is developed or approved/affirmed and maintained by a consensus-based process in a voluntary, market-driven standards-setting organization that is open to all interested and qualified participants, and for which any patent rights necessary to implement the specification are made available by those developing the specification to all implementers on reasonable and non-discriminatory ("RAND") terms (either with or without payment of a reasonable royalty or fee).

### **Open Standard is Defined Similarly by Leading Standards and Industry Organizations.**

- **ANSI** ("American National Standards Institute") (<http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/Critical%20Issues%20Papers/Open-Stds.pdf>) (May 2005).
- **BSA** ("Business Software Alliance") (<http://www.riso.ee/et/files/BSA%20Statement%20on%20Technology%20Standards%20-%20Feb05.pdf>) (Feb. 2005).
- **EICTA** ("European Industry Association for Information Systems, Communication Technologies and Consumer Electronics") (<http://www.riso.ee/et/files/IDA%20European%20Interoperability%20-%20EICTA%20comments%20on%20EIF%20-%20Jan%202005.pdf>) (Jan. 2005).
- **GSC-13** ("Global Standards Collaboration") (<http://www.itu.int/ITU-T/gsc/gsc13/index.html#finalres>) (July 2008) (Current GSC participants include ARIB (Japan), ATIS (USA), CA (Australia), CCSA (China), ETSI (Europe), ISACC (Canada), ITU (International), TIA (USA), TTA (Korea), and TTC (Japan).
- **IETF** ("Internet Engineering Task Force") (<http://tools.ietf.org/html/rfc2026#section-7.1.1>, section 7)
- **ITU** ("International Telecommunication Union") (<http://www.itu.int/ITU-T/othergroups/ipr-adhoc/openstandards.html>) (Nov. 2005).

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Notably, the above definitions -- some from major standards organizations that have adopted thousands of open standards which have been implemented in countless products throughout the world -- all recognize the inclusion of a RAND licensing option (either compensation-free or with a reasonable royalty) as a key component to a standard's classification as an "open standard."

➤ **Key Benefits of Open Standards.**

- Important drivers of effective interoperability and widespread product adoption (although there are other complementary means of achieving interoperability, including through product design; intellectual property licensing; and collaboration with partners, customers, and even competitors).
- Product, development model, and business model independent, thereby creating greater innovation and consumer choice through competing and complementary implementations.

➤ **Well-known and Widely Implemented Open Standards.** TCP/IP, HTML, HTTP, 802.11, Open XML, ODF, MPEG, XML, SNMP, and SMTP.

➤ **Open Source Software (OSS) and Open Standards are Not the Same Thing.**

- As noted above, while an open standard is a technical **specification**, OSS is **software** that is subject to a particular type of license and which may be used to **implement** an open standard in a particular product or service.
- Whether a standard qualifies as "open" has nothing to do with the type of software used to implement that standard. In fact, open standards are neutral with regard to the software's licensing or development model, welcoming all models and favoring none, and so it is as possible for an open standard to be implemented in proprietary software as it is in OSS.
- This distinction between open standards themselves and how they are implemented is not unique to the software industry. For example, the ISO open standard on metric screw threads dictates the dimension of a 2mm thread size (*i.e.*, the "specification"), not **how** the screw is constructed or with what materials (*i.e.*, the "implementation").
- Implementing open standards or OSS does not make a government any more open or transparent.

**CHOICE AMONG OPEN STANDARDS DELIVERS THE BEST VALUE  
FOR GOVERNMENTS AND CONSUMERS**

A policy of **choice** allows government agencies and citizens to decide which one or more open standards best serve their interests and needs in various situations, thereby enhancing competition and innovation and lowering costs.

- **Examples.** There are many examples in the IT marketplace where overlapping standards coexist and promote competition and innovation because they serve distinct user requirements -- notably, **document file formats** (Compound Document Format, DOC, DSSSL HTML, ODA, ODF, Open XML, PDF, RTF, TXT, WP, UOF); **digital image formats** (*e.g.*, CGM, JPEG, PNG); **digital media formats** (*e.g.*, H.264, MPEG-1, MPEG-2, MPEG-4); **digital interface standards** (*e.g.*, DVI, FireWire, HDMI, SDI, UDI,

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USB); **digital TV formats** (e.g., 720p, 1080i, 1080p); **e-mail formats** (e.g., ASCII, MIME), and **e-mail protocols** (e.g., x.400, IMAP, POP3, SMTP).

➤ **Government-mandated Standards Risk Freezing Innovation.**

- A notable example of the innovation-stifling dangers of government-mandated standards occurred in the high definition television area. Japan spent 20 years of effort and billions of dollars on a government-mandated, *analog*-based HDTV standard -- called "Hi-Vision" -- only to wind up being quickly surpassed in the race toward HDTV by America, whose market-based approach to innovation allowed a tiny American company -- General Instrument -- to develop a *digital*-based HDTV standard that became the cornerstone of the global digital technology revolution. In short, the Digital Revolution was born and first flourished in the U.S. precisely because there was **no** government-directed program seeking a preferred technological outcome for HDTV.
- Who is to say that a single government-prescribed standard mandated as the sole technical option today will not be rendered moot tomorrow when the marketplace forcefully embraces a new standard *not* endorsed by such government? Do policy-makers really want to risk *billions of dollars* -- as Japan did in the HDTV context -- that this won't happen to them?

- **Case Study: The Benefits of Choice in Document Format Standards.** Many document formats exist today to satisfy the diversity of needs in software applications. Some document formats are optimized to present a fixed representation of information so that it cannot be changed. Editable document formats are designed to maximize editability. Other formats, like spreadsheets or page layout formats, are designed to suit the specific needs of software applications and systems. Because each of these features can be necessary given the goals of a specific project, locking in a single document format standard simply makes no sense. Rather, choice among document format standards best enables governments to deploy meaningful and broadly accessibly e-Government solutions for their citizens. Notably, despite the many document format standards that already exist and the vociferous efforts by certain industry participants (and ODF proponents) to block ISO adoption of Open XML as a new document format standard, ISO wisely approved this standard in 2008, recognizing the benefits to users that would result from the enhanced choice and functionality represented by this new open standard.

**LEADING EXPERTS, ACADEMICS, AND REGULATORS AGREE THAT CHOICE AND FLEXIBILITY IN STANDARDS IS THE BEST POLICY**

- **Harvard Berkman Center.** A 2007 report on interoperability and innovation by the prestigious Harvard Berkman Center advocates choice, neutrality, and the avoidance of government mandates in the standards and technology areas, and highlights the pitfalls associated with such mandates:
- "Not only are governments generally ill-equipped to choose the most suitable standard, but also tend to operate under conditions that make it difficult to respond in due time to market developments or changes in technology."
  - "This is true largely because technological development is likely to outpace the speed with which government actors can react. ... Regarding the criteria 'efficiency' and 'flexibility,' by contrast, the government-mandated approach is likely to perform poorly: Administrating, monitoring, and eventually enforcing a standard tends to

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cause considerable costs. Further, a traditional government-mandated approach usually leaves very little flexibility."

- **U.S. Federal Communications Commission (FCC).** In 1996, when the FCC adopted a digital broadcast standard, it declined to mandate a single video format based on the conclusion that it would "result in greater choice and diversity of equipment, allow computer equipment and software firms more opportunity to compete by promoting interoperability, and result in greater consumer benefits by allowing an increase in the availability of new products and services." Further, the FCC concluded that "allow[ing] video formats to be tested and decided by the market [would] avoid[] the risk of a mistaken government intervention in the market ... ." (See *Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service*, 11 FCC Rcd 17771, ¶¶ 39, 42 (1996).)
- **United Nations Report on e-Government.** In this 2007 [report](#) focused on Asian countries like India pursuing e-Government interoperability frameworks, the core principles of standards choice and technology neutrality -- as well as the dangers of narrow government mandates -- were clearly articulated: "[T]he rigid insistence of using any particular standard may constrain a government from using old standards that respond to all previous needs as well as to new ones. Mandating a particular technology will not only prevent government from using the latest and the best but also consign it to using older and perhaps outmoded standards." (emphases added)
- **Massachusetts.** Because Massachusetts was the first jurisdiction to initially mandate ODF to the exclusion of Open XML, it is particularly important to note that it eventually reversed course and embraced Open XML as well. In a [joint statement](#), Massachusetts Undersecretary of Administration and Finance, Henry Dormitzer, and the state's acting Chief Information Officer, Bethann Pepoli, explained that concerns about competing document standards were "outweighed substantially by the benefits of moving toward open, XML-based" standards.

### **POLICY IMPLICATIONS**

- A policy of **choice** among open standards allows government agencies and citizens to decide which standards best serve their interests and needs in various situations, thereby enhancing competition and innovation. By contrast, arbitrarily mandating that only one standard be used in all cases is unjustifiable, especially when there are different standards available that serve different user needs and are interoperable, such as with document format standards like Open XML and ODF as described in the case study above. Government mandates for particular standards to the exclusion of others lock in certain technologies and certain vendors, which increases costs and deprives agencies and users of the benefits of choice, competition, functionality, and the innovative solutions they desire and deserve.
- A policy approach focused on open competition and choice is particularly essential in this difficult economic climate in which President Obama and other world leaders have called for greater transparency in government decision-making. The openness and transparency of such a process, as well as the competition among alternative open standards, will ensure that scarce funds are properly and efficiently invested and that the best standards and technologies are selected to meet the needs of governments and their citizens.