

Open standards

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Most computer users today remain “digitally colonised” (Bhattacharya, 2008) due to our unquestioning use of proprietary standards. As users of proprietary standards we usually forget that we lose the right to access our own files the moment the licence for the associated software expires. For example, if I were to store data, information or knowledge in .doc, .xls or .ppt format, my ability to read my own files expires the moment the licence for my copy of Microsoft Office expires.

Definition

Unlike the terms “free software” or “open source software”, the term “open standard” does not have a universally accepted definition. The free and open source software (FOSS) community largely believes that an open standard is:

[S]ubject to full public assessment and use without constraints [royalty-free] in a manner equally available to all parties; without any components or extensions that have dependencies on formats or protocols that do not meet the definition of an open standard themselves; free from legal or technical clauses that limit its utilisation by any party or in any business model; managed and further developed independently of any single vendor in a process open to the equal participation of competitors and third parties; available in multiple complete implementations by competing vendors, or as a complete implementation equally available to all parties (Greve, 2007).

The controversy

Proprietary software manufacturers, vendors and their lobbyists often provide a definition of open standards that is not in line with the above definition on two counts (Nah, 2006).

One, they do not think it is necessary for an open standard to be available on a royalty-free basis as long as it is available under a “reasonable and non-discriminatory” (RAND) licence. This means that there are some patents associated with the standard and the owners of the patents have agreed to license them under reasonable and non-discriminatory terms (W3C, 2002). One example is the audio format MP3, an ISO/IEC [International Organisation for Standardisation/International Electrotechnical Commission] standard where the associated patents are owned by Thomson Consumer Electronics and the Fraunhofer

Society of Germany. A developer of a game with MP3 support would have to pay USD 2,500 as royalty for using the standard. While this may be reasonable in the United States (US), it is unthinkable for an entrepreneur from Bangladesh. Additionally, RAND licences are incompatible with most FOSS licensing requirements. Simon Phipps of Sun Microsystems says that FOSS “serves as the canary in the coalmine for the word ‘open’. Standards are truly open when they can be implemented without fear as free software in an open source community” (Phipps, 2007). RAND licences also retard the growth of FOSS, since they are patented in a few countries. Despite the fact that software is not patentable in most parts of the world, the makers of various distributions of GNU/Linux do not include reverse-engineered drivers, codecs, etc., in the official builds for fear of being sued. Only the large corporation-backed distributions of GNU/Linux can afford to pay the royalties needed to include patented software in the official builds (in this way enabling an enhanced out-of-the-box experience). This has the effect of slowing the adoption of GNU/Linux, as less experienced users using community-backed distributions do not have access to the wide variety of drivers and codecs that users of other operating systems do (Disposale, 2004). This vicious circle effectively ensures negligible market presence of smaller community-driven projects by artificial reduction of competition.

Two, proprietary software promoters do not believe that open standards should be “managed and further developed independently of any single vendor,” as the following examples will demonstrate. This is equally applicable to both new and existing standards.

Microsoft’s Office Open XML (OOXML) is a relatively new standard which the FOSS community sees as a redundant alternative to the existing Open Document Format (ODF). During the OOXML process, delegates were unhappy with the fact that many components were specific to Microsoft technology, amongst other issues. By the end of a fast-track process at the ISO, Microsoft stands accused of committee stuffing: that is, using its corporate social responsibility wing to coax non-governmental organisations to send form letters to national standards committees, and haranguing those who opposed OOXML. Of the twelve new national board members that joined ISO after the OOXML process started, ten voted “yes” in the first ballot (Weir, 2007). The European Commission, which has already fined Microsoft USD 2.57 billion for anti-competitive behaviour, is currently investigating the allegations of committee stuffing (Calore, 2007). Microsoft was able to use its financial muscle and monopoly to fast-track the standard and get it approved. In this way it has managed to subvert the participatory nature

of a standards-setting organisation. So even though Microsoft is ostensibly giving up control of its primary file format to the ISO, it still exerts enormous influence over the future of the standard.

HTML, on the other hand, is a relatively old standard which was initially promoted by the Internet Engineering Task Force (IETF), an international community of techies. However, in 2002, seven years after the birth of HTML 2.0, the US Department of Justice alleged that Microsoft used the strategy of “embrace, extend, and extinguish” (US DoJ, 1999) in an attempt to create a monopoly among web browsers. It said that Microsoft used its dominance in the desktop operating system market to achieve dominance in the web-authoring tool and browser market by introducing proprietary extensions to the HTML standard (Festa, 2002). In other words, financial and market muscle have been employed by proprietary software companies – in these instances, Microsoft – to hijack open standards.

The importance

There are many technical, social and ethical reasons for the adoption and use of open standards. Some of the reasons that should concern governments and other organisations utilising public money – such as multilaterals, bilaterals, civil society organisations, research organisations and educational institutions – are listed below.

- **Innovation/competitiveness:** Open standards are the bases of most technological innovations, the best example of which would be the internet itself (Raymond, 2000). The building blocks of the internet and associated services like the world wide web are based on open standards such as TCP/IP, HTTP, HTML, CSS, XML, POP3 and SMTP. Open standards create a level playing field that ensures greater competition between large and small, local and foreign, and new and old companies, resulting in innovative products and services. Instant messaging, voice over internet protocol (VoIP), wikis, blogging, file-sharing and many other applications with large-scale global adoption were invented by individuals and small and medium enterprises, and not by multinational corporations.
- **Greater interoperability:** Open standards ensure the ubiquity of the internet experience by allowing different devices to interoperate seamlessly. It is only due to open standards that consumers are able to use products and services from competing vendors interchangeably and simultaneously in a seamless fashion, without having to learn additional skills or acquire converters. For instance, the mail standard IMAP can be used from a variety of operating systems (Mac, Linux and Windows), mail clients (Evolution, Thunderbird, Outlook Express) and web-based mail clients. Email would be a completely different experience if we were not able to use our friends’ computers, our mobile phones, or a cybercafé to check our mail.
- **Customer autonomy:** Open standards also empower consumers and transform them into co-creators or “prosumers” (Toffler, 1980). Open standards prevent vendor lock-in by ensuring that the customer is able to shift easily from one product or service provider to another without significant efforts or costs resulting from migration.
- **Reduced cost:** Open standards eliminate patent rents, resulting in a reduction of total cost of ownership. This helps civil society develop products and services for the poor.
- **Reduced obsolescence:** Software companies can leverage their clients’ dependence on proprietary standards to engineer obsolescence into their products and force their clients to keep upgrading to newer versions of software. Open standards ensure that civil society, governments and others can continue to use old hardware and software, which can be quite handy for sectors that are strapped for financial resources.
- **Accessibility:** Operating system-level accessibility infrastructure such as magnifiers, screen readers and text-to-voice engines require compliance to open standards. Open standards therefore ensure greater access by people with disabilities, the elderly, and neo-literate and illiterate users. Examples include the US government’s Section 508 standards, and the World Wide Web Consortium’s (W3C) WAI-AA standards.
- **Free access to the state:** Open standards enable access without forcing citizens to purchase or pirate software in order to interact with the state. This is critical given the right to information and the freedom of information legislations being enacted and implemented in many countries these days.
- **Privacy/security:** Open standards enable the citizen to examine communications between personal and state-controlled devices and networks. For example, open standards allow users to see whether data from their media player and browser history are being transmitted along to government servers when they file their tax returns. Open standards also help prevent corporate surveillance.
- **Data longevity and archiving:** Open standards ensure that the expiry of software licences does not prevent the state from accessing its own information and data. They also ensure that knowledge that has been passed on to our generation, and the knowledge generated by our generation, is safely transmitted to all generations to come.
- **Media monitoring:** Open standards ensure that the voluntary sector, media monitoring services and public archives can keep track of the ever-increasing supply of text, audio, video and multimedia generated by the global news, entertainment and gaming industries.

In democracies, watchdogs should be permitted to reverse-engineer proprietary standards and archive critical ephemeral media in open standards.

Policy implications

Corporations have a right to sell products based on proprietary standards just as consumers have a right to choose between products that use open standards, proprietary standards, or even a combination of such standards. Governments, however, have a responsibility to use open standards, especially for interactions with the public and where the data handled has a direct impact on democratic values and quality of citizenship. In developing countries, governments have greater responsibility because most often they account for over 50% of the revenues of proprietary software vendors. Therefore, by opting for open standards, governments can correct an imbalanced market situation without needing any additional resources. Unfortunately, many governments lack the expertise to counter the campaigns of fear, uncertainty and doubt unleashed by proprietary standards lobbyists with unlimited expense accounts.

Most governments from the developing world do not participate in international standard-setting bodies. On the other hand, proprietary software lobbyists like the Business Software Alliance (BSA) and Comptia attend all national meetings on standards. This has forced many governments to shun these forums and exacerbate the situation by creating more (totally new) standards. Therefore, governments need the support of academic and civil society organisations in order to protect the interests of the citizen. For example, the Indian Institute of Technology in Kanpur (IIT-K) helped the government of India develop the open standard Smart Card Operating System for Transport Applications (SCOSTA) for smart card-based driving licences and vehicle registration documents. Proprietary vendors tried to jettison the move by saying that the standard was technically not feasible. IIT-K developed a reference implementation on FOSS to belie the vendor's claims. As a consequence, the government of India was able to increase the number of empanelled smart-card vendors from four to fifteen and reduce the price of a smart card by around USD 7 each (UNDP, 2007a). This will hopefully result in enormous savings during the implementation of a national multi-purpose identification card in India.

In some instances, proprietary standards are technically superior or more universally supported in comparison to open standards. In such cases the government may be forced to adopt proprietary and de facto standards in the short and medium term. But for long-term technical, financial and societal benefits, many governments across the world today are moving towards open standards. The most common policy instruments for implementation of open standards policy are government interoperability frameworks (GIFs). Governments that have published GIFs include the United Kingdom, Denmark, Brazil, Canada, the European Union, Hong Kong, Malaysia, New Zealand and Australia (UNDP, 2007b).

While challenges to the complete adoption of open standards in the public sector and civil society remain, one thing is certain: the global march towards openness, though slow, is irreversible and inevitable. ■

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