# BSA STATEMENT ON TECHNOLOGY STANDARDS

## Preface

Technology standards are a cornerstone of software and hardware development that play a key role in fostering a healthy and competitive IT ecosystem. With growing demand for interconnectivity, interoperability and sharing among hardware, software and IT services, the role of standards has only increased in importance. This is particularly true in the public sector, due to the need for better communication with citizens as well as among government agencies (intra and inter-governmental). BSA[1], whose member companies both use and develop a wide range of technology standards, has created this statement to help improve the understanding of, and policy decisions about, standards.

## Standards Promote Interoperability and Benefit Consumers

The purpose of technology standards is to promote interoperability, efficiency, increased functionality, productivity and economic growth. Interoperable software, hardware and services spur innovation and competition, which lead to increased consumer choice, the creation of new markets, enhanced communication and technological progress. In order to reap these benefits, however, it is important to properly understand the nature and use of standards.

Technology standards are typically documented in written specifications that enable developers of software, hardware and services to make and distribute products or components that work with one another within a given context. This interoperability can take the form of information exchange (e.g., protocols or file formats), task performance (e.g., APIs) and other functions that allow systems and people to collaborate effectively. In addition to facilitating broader communication across platforms and devices, this interoperability also enables suppliers to develop their own implementations of a standard, which consumers can then choose among. All entities are not required to implement the standard in exactly the same way; technology standards make possible flexible implementations that best fit the task at hand while retaining interoperability[2]. Standards thus create predictability, interoperability and competition between implementations without imposing homogeneity.

## Voluntary Standards Fuel Innovation

Voluntary processes have proven to be the most effective means of fueling innovation through standards. Indeed, most of the widely adopted technology standards in existence today have been developed through voluntary, supplier-led efforts[3]. The marketplace – responding to consumer demands – is best situated to determine the appropriate timing for the development

[1] The Business Software Alliance (www.bsa.org) is the voice of the world's commercial software industry and its hardware partners before governments and in the international marketplace. Its members represent one of the fastest growing industries in the world. BSA programs foster technology innovation through education and policy initiatives that promote copyright protection, cyber security, trade and e-commerce.

[2] This flexibility 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").

[3] UPnP, FireWire, PDF, QFX, Flash, Java and ZeroConf are just a few examples of widely-adopted technology standards originally developed by a single company or group of companies.

and promotion of a standard. Over the years, suppliers have been able to respond quickly to industry and consumer needs by developing standards that most effectively address interoperability issues and embrace the direction of the marketplace.

On the other hand, government-mandated standards in the technology industry can often result in a number of unintended consequences. These consequences may include: (i) unnecessarily freezing the development of new technologies and failing to reap fully the benefits of such quickly evolving technologies; (ii) inadvertently disadvantaging certain market competitors; (iii) hindering market acceptance and penetration; and (iv) precluding a multi-faceted competitive environment.

The method of development of a standard is not ultimately the critical factor that determines its acceptance. A successful standard is one that solves the problem for which it is intended. Typically, the development of such standards is achieved through a natural and dynamic process that is voluntary and responsive to market demands.

**Characteristics of "Open" Standards**

Among technology standards, there is particular interest in "open standards" as a potential means of achieving widespread interoperability. While there is no universally accepted definition of that term, all open standards have the following common characteristics:

(1) Open standards are published without restriction (e.g., potential implementers are not restricted from accessing the standard) in electronic or tangible form, and in sufficient detail to enable a complete understanding of the standard's scope and purpose;

(2) Open standards are publicly available without cost or for a reasonable fee for adoption and implementation by any interested party;

(3) Any patent rights necessary to implement open standards 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); and

(4) Open standards are regularly developed, maintained, approved or ratified by consensus, in a market-driven standards-setting organization that is open to all interested and qualified participants. Standards can also develop by consensus in the marketplace.

Within this context, governments can play an important role in advancing open standards. Government policies that support the implementation or adoption of open standards, where open standards exist and are broadly supported by industry, will improve interoperability and benefit governments and consumers on the whole. On the other hand, governments should avoid policies that inadvertently discourage the development and adoption of broad-based standards, either by mandating standards themselves (e.g., freezes innovation) or mandating those that have not achieved broad industry support[4], or by reducing the economic incentives to participate[5].

[4] This, for example, may be appropriate for technology standards as they relate to public health and safety issues (e.g., aviation, medical equipment and cellular emission).

[5] Such undesirable policies may involve mandating the absence of royalties or other reasonable fees; government-mandated standards-setting processes; compulsory ratification by a formal standards body; and other policies that interfere with choice, flexibility and responsiveness.

## Distinguishing Open Standards and Open Source Software

While an open standard is a technical *specification*, open source software (OSS)[6] is software that 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 development and licensing model of the software used to implement that standard. In fact, open standards are neutral with regard to software development and licensing models – welcoming all models and favoring none – so it is equally feasible for an open standard to be implemented in proprietary software as in OSS.

Some open source projects are closely associated with particular open standards (e.g., Apache with HTTP, or MySQL with SQL), and some standards even choose to release their reference implementations under open source licenses. However, the mere availability of source code is neither necessary nor sufficient to make something a standard, much less an open standard. The real question is whether the standard has the characteristics of an open standard as described above.

## Conclusion

While standards in general play a key role in enabling interoperability, which type of standard is appropriate and successful ultimately depends on many unique factors (e.g., the specific technology, market and timing involved). Voluntary, supplier-led standards efforts are typically the most effective at addressing interoperability issues and securing widespread adoption. It is important to clearly distinguish open source software, which may be used to *implement* an open standard, from the open standard itself. Government agencies also have a role to play, but are most effective when facilitating voluntary processes rather than imposing rigid mandates.

In closing, BSA believes that a mature, balanced understanding of the purpose and practice of standards – including the important role of open standards – is essential for a healthy marketplace and technology industry. In turn, a healthy IT ecosystem based on voluntary standards has proven best able to help customers achieve their desired goals of interoperability, flexibility and accessibility. The BSA looks forward to working with all interested parties to help bring that about.

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[6] "Open Source" is a software-licensing model where the source code of the software is typically made available royalty-free to the users of the software, under terms allowing redistribution, modification and addition, though often with certain restrictions. The support, training, updates and other services for the software may be provided by a range of entities. Open source programs are often, though not exclusively, developed through a collaborative effort in which a number of persons, usually with no formal association with each other, contribute elements of the final software. Increasingly, software companies are also contributing programs developed in-house to the open source community.