Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399

Tel 425 882 8080
Fax 425 936 7329
http://www.microsoft.com/

March 7, 2011

Microsoft

Dr. Patrick Gallagher

Co-Chair, Sub-Committee on Standards

National Science and Technology Council
Director, National Institute of Standards and Technology
100 Bureau Drive Stop 1000
Gaithersburg MD 20899-1000

Re: Standardization Feedback for Sub-Committee on Standards (75 FR 76397)

Dear Dr. Gallagher and Members of the Sub-Committee:

Microsoft appreciates the opportunity to provide comments in response to the Request for Information ("RFI") regarding the "Effectiveness of Federal Agency Participation in Standardization in Select Technology Sectors for National Science and Technology Council's Sub-Committee on Standardization," dated December 8, 2010.

At their most fundamental, technical standards are tools that promote efficiency and innovation by making it easier to create products and services that work together – or "interoperate" – better. This is especially true in the information and communications technology ("ICT") environment. With an increasingly diverse and competitive ICT marketplace, and new ICT solutions, services, and vendors appearing in the market almost daily, interoperability has become a market imperative. The development and implementation of standards is one of the ways in which the technology industry is able to meet consumer demand for interoperability.[1] By helping to enhance interoperability among products or services within a market, and being responsive to real marketplace needs, standards can help promote innovation, fuel market growth, and protect investments in new technologies.

Microsoft plays a dual role in standardization activities. First, we actively contribute innovative technology to standardization related to computing hardware, software and associated devices, the Internet and its infrastructure, consumer electronics devices, and telecommunications systems. Second, we are an active implementer of standards. Microsoft supports a very large number of standards that are formulated by a broad diversity of standards bodies[2] in our products. Ultimately, both of these roles are deeply informed by the market, and

[1] Microsoft's commitment to standardization to help further interoperability is reflected in our Interoperability Principles, available at http://www.microsoft.com/interop/principles/default.mspx. Additional information about Microsoft's standards policies and activities can be found at: http://www.microsoft.com/standards/.

[2] For example, Microsoft's Windows 7 operating system supports more than sixty industry standards (by a conservative count). A typical personal computer running Windows 7 will support more than 200 additional standards, facilitating compatibility among hardware components from various vendors and promoting interoperability between PCs and other computers. These standards were developed by a

in particular by feedback on the way customers use ICT products and services in their day-to-day lives.

Because of this dual role as contributor and implementer, Microsoft takes a balanced approach to standards development and related policy issues. We understand the particular needs and concerns of those contributing time, resources, and technologies to the development of standards, but we are equally sensitive to the needs of those who are implementing the resulting standards in their products and services. Our involvement on both sides of the standards fence frames our perspective that a diverse standards ecosystem that supports multiple technologies is good for the U.S. and global economies.

Our comments in response to the RFI focus on three main topics and can be summarized as follows:

Standards-setting processes and the benefits of standardization: Standardization provides many benefits to the ICT industry, which is a driver of economic growth and job creation in the United States (and abroad). ICT standardization benefits from the freedom to evolve standards-setting approaches and develop competing standards in response to constantly evolving market forces. Microsoft supports this collaborative approach and believes that diversity and choice are the best way to develop and maintain a flexible, market-responsive, and effective standardization ecosystem.

Perspectives on Government's approach to standards activities: NIST can continue to play an important convener role in connection with standards frameworks when such frameworks are truly necessary. With its well-deserved reputation as a science-based organization that serves as an "honest broker", NIST can also be useful in formulating high-quality problem definitions. For Microsoft, this is a key element of a pragmatic scenario, or "use case", that needs to be defined for a given standard or specification. Whenever possible, government should avoid mandating adherence to specific standards in order to further competition and promote investment in related innovation (and avoid single solutions that may lock the industry into a soon-to-be outdated mode). U.S. Government technical experts should be adequately resourced so that they can participate in standards-setting activities.

Issues considered during the standards-setting process: Microsoft strongly supports President Obama's focus on technology and the promotion of innovation. In looking at issues relating to the inclusion of intellectual property rights (IPR) in standards, it is critical to preserve and cultivate incentives to innovate. Government should take an inclusive view of standards setting organizations' ("SSOs") diverse IPR policies and not promote one approach over the other. When evaluating whether there may be IPR issues associated with candidate standards for initiatives such as Smart Grid, government should consider whether there are valid, serious, and documented IPR concerns. If the candidate standard has been accepted in the marketplace and is being widely implemented, then it can often be presumed that there is no IPR-related barrier to

---

broad range of standards-setting organizations with diverse processes and IPR policy approaches (including those that seek commitments to offer patent licenses on reasonable and non-discriminatory terms and conditions, whether with compensation or on a royalty-free basis).

implementation. While almost all of the ICT industry stakeholders support policies that permit the voluntary and unilateral "ex ante" disclosure of specific licensing terms by a patent holder, proposals for the U.S. Government to promote a mandatory "ex ante" IPR policy approach are not widely supported because such an approach is viewed as (a) being of little value, (b) creating many practical inefficiencies and possible legal challenges, and (c) something that could be used internationally to possibly undermine the value of patented technology that is included in standards.

## I. Standards-Setting Processes, Reasons for Participation, and the Benefits of Standardization

**Standardization provides many benefits to the ICT industry**. As a general matter, standards are an important part of a dynamic ICT marketplace. By helping to enhance interoperability among products or services within a market, and being responsive to real marketplace needs, standards can help promote innovation, fuel market growth, and protect investments in new technologies. They can catalyze innovation by encouraging companies to contribute their innovative technology to collaborative standards-setting activities and to share their intellectual property with others via the standardization process. Successful standards also can help create opportunity for further product differentiation and more choices for users and consumers. This in turn can motivate further innovation and competition among vendors.

Standards are tools that can best support interoperability when they are part of a multi-faceted approach incorporating open standards-setting processes, proactive standards maintenance, and strong industry effort aimed at ensuring that different implementations of the same standard will indeed interoperate.[3] Even then, interoperability in ICT rarely means the uniform implementation of a single standard. Users benefit from having choice among different products, formats, and services that may seek to match unique customer requirements.

Standards are most effective when they are responsive to users' needs and marketplace drivers. As reflected in the National Technology Transfer and Advancement Act, Pub. L. 104-113 (1995) ("NTTAA"), and OMB Circular A-119, the U.S. Government is a very important stakeholder in the standards community.

---

[3] For example, HTML (the standard presentation format for the Web) and related standards such as Cascading Style Sheets have evolved in response to the need to support increasingly graphically complex Web pages. As with most complex technical standards, the technical experts developing them cannot anticipate every implementation differential and the standards often contain ambiguities as a result. For example, Web page standards may address the technical requirements to display a dotted border around text or an image, but the standards do not specify what the dots should look like (for instance, round or square) or precisely where the dots should appear. Developers of Web publishing tools and browsers will resolve these issues in different ways, which is one of the reasons why a Web page with rich formatting may look different in different browsers. To the extent that different developers start to individually adopt a similar approach, there may be sufficient support for modifying the standard to reflect that informal, marketplace consensus. But the standard also will be evolving to address new layers of functionality, and the cycle will continue.

**ICT standardization benefits from the freedom to evolve standards-setting approaches and develop competing standards in response to market drivers**. The ICT standards ecosystem has evolved over the past few decades in response to marketplace demands and the need for increased responsiveness, diversity, and value. Historically ICT standards primarily were national in scope, with formal national standards bodies paving the way to engagement at the formal international standards bodies. With the advent of the Internet, the rapid development and deployment of new technologies, shortened product life-cycles, a diversification of business models, and the increased perception of the world as a global marketplace, standardization itself became more diversified in response to these dynamic changes in the marketplace. New SSOs such as fora and consortia were created. Some found ways to work with the formal SSOs and others forged their own path toward international acceptance. Because this diversity is helping to address the ICT industry's needs and enabling it to be competitive in an increasingly complex and global environment, it has been largely effective. This ecosystem, and U.S. industry interests, also have benefitted from the U.S. Government's advocacy and support over the years.

The processes by which ICT standards are created can vary greatly and are constantly evolving. Formal ICT standards are developed in formal SSOs, industry consortia, professional associations, and other industry groups. Many of these different types of organizations have open and published processes that allow all relevant stakeholders to participate and help to balance conflicting interests. Other ICT SSOs are more focused and less formal collaborations, which can produce needed standards that are very targeted in nature or which can incubate standards for further standardization at a more formal SSO.

The diversity and breadth of SSOs can seem overwhelming to some, but this is a beneficial result of market forces. This diversity and breadth provides for flexibility, competition, and choice. No one process can guarantee that every standard it produces has some level of immediate intrinsic value. No one standards body or process necessarily produces "better" standards; the ultimate test of success and relevance of a standard is the extent to which it ultimately gets used in the marketplace. (As an example, the IETF TCP/IP standard became much more widely implemented than the alternative ISO OSI standard despite the fact that ISO has produced many other very successful ICT standards.) SSOs routinely review their activities, procedures and policies, and they make improvements (or even "sunset") as needed.

Standards-setting organizations also have collaborative actions and liaisons between them, and with other bodies that support related conformance or interoperability testing, business initiatives, etc. Many standards make references to other standards coming from other SSOs or have ratification processes that they apply to other SSOs' work. We support this collaborative approach and believe that diversity and choice are the best ways to a flexible, market-responsive and effective standardization ecosystem.

## II. Perspectives on Government's Approach to Standards Activities

We applaud the creation of the National Science and Technology Council's Sub-Committee on Standardization in an effort to review (a) when and under what circumstances is there a need for the U.S. Government to seek to create a standards framework to support a U.S. Government technology policy objective, (b) ways that different U.S. Agencies can better coordinate when engaging in standardization activities, both at technical and policy levels, and (c) the U.S. Government's continued advocacy of the ICT standards ecosystem in standards-related global debates, including those that are trade-related.

This is no easy set of challenges to address, and the situation may vary depending on the specific technology area, key stakeholders, relevant market drivers, and other complexities. In general, we support the positions articulated by the Information Technology Industry Council (ITI) in its comments in response to the RFI.[4] In particular, we believe that the U.S. Government technical experts should be adequately resourced so that they can participate in standards-setting activities and contribute their views and expertise.

---

[4] ITI makes the following points in its comments:

- "U.S. Government Role: ITI notes that there may be some cases where an additional government role is justified—when there is a compelling public interest (e.g., health, safety, and the environment) and markets have failed. Such situations are rare. In such limited circumstances, it may be appropriate for the US Government to facilitate an appropriate process and outcome that leads to the successful integration of standards. When these situations arise, the US Government should use a process that:
    - Includes all stakeholder interests,
    - Articulates agreed-upon use cases,
    - Seeks to leverage well-established and broadly implemented standards, and
    - Does not mandate conformance to such standards.

- US Government Participation in Standardization: As reflected in the NTTAA and OMB Circular A-119, the US Government is a very important stakeholder in the standards community. US Government technical experts should be adequately resourced so that they can participate in standards-setting activities and contribute their views and expertise.

- Public/Private Partnership: ITI values the public/private partnership that exists today with regard to ICT standardization. This balance, as reflected in the National Technology Transfer and Advancement Act, Pub. L. 104-113 (1995) ("NTTAA"), and OMB Circular A-119 have been effective in supporting a dynamic and diverse ICT standards ecosystem that has benefitted industry and supported US global competitiveness. We encourage the US Government to continue its support for the framework and principles currently articulated in the NTTAA and OMB Circular A-119.

- Global Standards: ITI members must be able to compete in global markets and address global supply chains. We encourage the US Government to advocate practices for governments worldwide that rely on consensus-based, market-led, voluntary global standards and avoid promulgating and mandating conflicting country-specific standards."

**NIST has and can continue to play an important convenor role in connection with standards frameworks**. One example is NIST's current role in connection with standards related to the "cloud". The computing experience itself is undergoing a powerful transformation that demonstrates the velocity of change in the ICT marketplace and related technical standards. Increasingly consumers and businesses alike are harnessing computing power in the cloud. People are running applications and storing documents on powerful servers located in massive data centers. They are using more powerful client devices. And they are creating, accessing, and sharing more of their personal information more frequently and with more people than ever before. This new frontier opens up a whole new horizon of possibilities, including new software investments that will create new business models and opportunities to form and grow new businesses. For instance, these technologies already enable any small group of creators to develop content or software and to have it available instantaneously in the marketplace around the globe. With cloud computing, organizations of any size and in virtually any location can tap into supercomputing power and software applications that previously were available only to the largest global companies. And with this new opportunity comes corresponding new responsibility. This includes the need to protect the privacy of users and security of their data and to enable interoperability between systems—all areas where standards may play an important role.

Cloud computing is a technology area with broad applicability for the U.S. Government, not only to increase efficiency and reduce cost, but also for communication between agencies and as a continuation of efforts to increase citizen participation. As such, cloud technology represents an ideal opportunity for beneficial participation by NIST. Indeed NIST has already made an important contribution to the advancement of cloud standards, essentially providing the engineering taxonomies that help industry discuss the various aspects of cloud technology and deployment. NIST also is the ongoing convener of an inclusive and open discussion with industry and government stakeholders as to how those taxonomies can be extended and the role of standards in accelerating the progress of cloud adoption. NIST is a key player in the standards ecosystem, and its expertise and involvement is highly valued by the private sector.[5]

To focus more specifically on a valuable role that NIST could play, it may be useful to look at a practical need that we often see in standards development. In our experience focusing on interoperability for the last several years, effective multi-party engagement requires high-quality problem definition. For us, the key element of this is the pragmatic scenario, or use case, that needs to be defined for a given standard or specification. Fundamentally, these scenarios are the foundation for efficient, effective specification development and engineering work across multiple parties. They tend to create a solid set of objectives that different players—even players with somewhat differing agendas—can use effectively to create solid, practical results. As with Smart Grid and cloud computing, we believe that NIST has the capabilities to play the role of

[5] Among other contributions, NIST's measurement standards underpin many key technology standards, including those relating to optical fibers and to a range of electronic devices. NIST also provides key standards-related services, including the "Notify US" program, and participates in various standards-setting organizations. Equally important is NIST's role under the National Transfer and Technology Advancement Act ("NTTAA") and OMB Circular A-119 to help coordinate U.S. Government's interests in coordinating U.S. Government interests in standards and conformity assessment systems.

convener to drive that scenario development for standards that are important to—and that may even be able to accelerate—broader U.S. technology policy objectives.[6]

NIST's expertise on standards and technology issues, and its well-deserved reputation as a science-based organization that serves as an "honest broker", can and should be leveraged by the U.S. Government. There are actually two main areas that are important to address here: (a) when appropriate, coordination on development of specific standards frameworks to support U.S. Government technology policy issues, and (b) coordination across agencies on national and international policy issues that relate to the standards system and standards themselves. NIST may be well situated to undertake an expanded role in both areas assuming it has the resources it needs to do this effectively.

While there are many instances of successful inter-agency coordination on specific standards-related policy topics, this tends to be driven on an issue or situation basis and there are potential benefits from a more structured, proactive approach. Similar to the convening role on creating a standards framework to support other technology policy roles, a key to successful coordination of standards policy efforts across agencies would be identifying what the coordinating role needs to be, who the appropriate stakeholders are, how information will be gathered and disseminated, and which issues are the right topics for coordination.

What tends to contribute to the possible success of these standards planning efforts (and the current efforts led by NIST regarding Smart Grid) is the open and collaborative approach taken by the convening party. These efforts are open to all stakeholders, and they bring the affected community together, which typically crosses industry sectors and affects multiple layers of scientific and commercial interests. The result is that related needs can be identified and the framework that is developed is consensus-based. Otherwise there is the risk that some interests, whether large multi-nationals or smaller companies who have invested heavily in their own innovative products and systems, will be shut out of the relevant market or otherwise disadvantaged. One of the important challenges to address in going forward on a more structured basis would be to establish the factors that should initiate one of these planning panel activities, as they consume large amounts of public and private sector resources, and they may not always be the best solution to a given technology policy challenge.

**Whenever possible, government should avoid mandating adherence to specific standards. Mandating standards can inhibit further competition and investment in related innovation.** ICT SSOs compete in addressing stakeholder needs and provide the opportunity for new innovation solutions to surface. The ICT marketplace—and the related needs—change rapidly. As a result, ICT standards must be able to change in response. New standards must be

[6] This is not necessarily a new need; ANSI has been convening standards planning panels for almost two decades (starting with the National Information Infrastructure initiative back in the early 1990's). ANSI, often working with NIST and other U.S. Agencies, currently supports standards planning panels relating to biofuels, identity management, healthcare information technology, homeland security, nanotechnology, and nuclear energy.

permitted to compete in order to respond to these needs, further new competition, and encourage the development of new, innovative solutions.[7]

This view was endorsed unanimously by the participating national bodies of ISO/IEC JTC-1 (Information Technology) in Resolution 49 in ISO/IEC JTC 1 N9417 (2008-11-18):

> ***"Resolution 49 - Clarification on Consistency of Standards vs Competing Specifications***
>
> *JTC 1 notes the nature of standardization is to attract innovative ideas from multiple sources, choose the best ones, and codify them in specifications that facilitate widespread use.*
>
> *Further, consistent with ISO's and IEC's 'one standard' principle (for example TMB's policy and principle statement on Global Relevance), there are times when one standard is all that is required to meet the needs of the marketplace, especially in a particular application area, and there are other instances where multiple standards make the most sense to respond to market requirements and to the needs of our society. In reducing the number of alternatives to a reasonable minimum, JTC 1 and other SDOs have demonstrated that it is not necessary and may not be desirable to choose only one alternative or option for standardization.*
>
> ***Further, JTC 1 notes that the cycle of innovation in the ICT sector has resulted in the continuous introduction of new technologies that improve upon existing standards. Any attempt to choose only one standard would ignore and threaten to inhibit the cycle of innovation that continues to fuel this industry.***
>
> *Therefore, JTC 1 recognizes its commitment to ISO's and IEC's 'one standard' principle; however, it recognizes that neither it nor its SCs are in a position to mandate either the creation or the use of a single standard, and that there are times when multiple standards make the most sense in order to respond to the needs of the marketplace and of society at*

---

[7] Consider, for example, competition among different digital audio formats. MP3 is the mostly widely used consumer digital audio format. In order to speed delivery of audio files over the internet and to save storage-related costs, such format specifications describe a particular way to compress those files. The MP3 specification requires use of the MP3 compression/decompression (codec) technology. Competition among implementations of the MP3 codec is largely limited to ways to implement the codec most efficiently and at the least cost.

MP3 is viewed to be a very successful standard. Because it is widely supported, users are able to listen to songs or other audio content on a range of devices. Yet this did not prevent companies from seeking to develop newer, competing codecs that would enable even greater compression while maintaining audio quality. While MP3 remains the main Internet audio standard for sharing music, these more advanced codecs are also widely used today in other audio formats, such as the Apple iTunes and Microsoft's Windows Media audio formats. If MP3 had been deemed to be "the" single standard for digital audio formats, then companies would likely not have invested resources to develop new and improved solutions that further competition and choice in the marketplace.

*large. It is not practical to define, a priori, criteria for making these decisions. Therefore each standard must be judged by the National Bodies, based on their markets, on its own merits.*

*Unanimous"* (Emphasis added.)

Given the dynamic nature of innovation and ICT standards development, government should be cautious about mandating adherence to any particular standard without demonstrating sufficient need and without support from the impacted industry and relevant stakeholders. Mandated standards can divert normal marketplace outcomes, lock the industry into a less-than-optimal solution, and reduce incentives to innovate in that technology area.[8]

In NIST Special Publication 1108: *"NIST Framework and Roadmap for Smart Grid Interoperability Standards (Release 1.0)"*, the U.S. Government recognized the need to create a standards framework that will achieve U.S. Government objectives for the Smart Grid while maintaining sufficient flexibility to accommodate new innovative solutions and the healthy diversity of standards development approaches that is reflected in the broader standardization system:

> "The objective of the NIST plan, moving forward, is to create a robust, ongoing, 'built-in' standards process that supports cycle after cycle of Smart Grid innovation and helps to transform our economy. The resulting process could lead to new collaborative methods and vehicles for developing and deploying standards in technology-based markets, especially during the early phases when standards—or the lack of standards—can strongly influence the course of further technology development and diffusion and the growth and competitiveness of industries."

In addition, NIST has also cautioned against mandating adherence to Smart Grid standards, especially if they are already being widely deployed in the marketplace.[9] If they are

---

[8] This position is broadly supported in the ICT industry, as reflected in the comments submitted by the Information Technology Industry Council in response to the RFI:

> **"Use of Standards in Technology Regulations**: Given the dynamic nature of innovation and ICT standards development, governments should be cautious about mandating adherence to any particular standard without demonstrating sufficient need and without support from the impacted industry and relevant stakeholders, because mandated standards can divert normal marketplace outcomes and stifle innovation. If it is necessary to mandate adherence to an ICT standard, the government should look to standards that have been widely implemented in the marketplace as they have some level of demonstrated effectiveness and acceptance."

[9] As noted in the NIST Publication, "[u]nder EISA, the Federal Energy Regulatory Commission (FERC) is charged with instituting rulemaking proceedings, and once sufficient consensus is achieved, adopting the standards and protocols necessary to ensure Smart Grid functionality and interoperability in interstate transmission of electric power and in regional and wholesale electricity markets. Not all of the standards listed in this initial framework are ready or necessary for adoption by regulators at this time. Some of the individual standards listed require specified revisions or developments within formal standards-setting

not being widely used, they may either be new and untested, or not be sufficiently responsive to real marketplace needs. In either case, this suggests that they may not be appropriate for inclusion in a government standards framework.

The U.S. Government has been a much appreciated global advocate of U.S. interests in standardization, including:

- Advocating for the "multiple path" approach to developing international standards (whether in formal international SSOs such as ISO, IEC and the ITU, or through other globally-recognized SSOs including many consortia),

- Articulating U.S. concerns over standards or conformity assessment requirements that arguably could present trade barrier issues for U.S. industrial interests, and

- Supporting the need to respect intellectual property rights when patented technology is included in standards.

As noted by ITI in its response to the NIST RFI:

> "Global Standards: ITI members must be able to compete in global markets and address global supply chains. We encourage the US Government to advocate practices for governments worldwide that rely on consensus-based, market-led, voluntary global standards and avoid promulgating and mandating conflicting country-specific standards."

In today's highly competitive global marketplace, some governments have developed national standards that they sought to leverage in order to exclude or discriminate against non-domestic products. It is important that the U.S. Government continue its technology and standards-setting policies work wherever possible to keep markets open to technology and products from around the world.

In particular, in the area of cybersecurity, many countries are exploring or developing policies relating to product "supply chain" assurance that have the potential effect of creating preferences for domestic suppliers. Should the U.S. adopt such a policy, it could set a precedent for reciprocal measures by other governments. In addition, any such U.S. action would be ineffective at improving the security of U.S. ICT systems because product security depends much more on the care and diligence exercised during the development process than the location where the development takes place. The U.S. Government, and NIST in particular, can play a

---

organizations. **Additionally, some foundational standards and specifications listed are already in wide use by industry on a voluntary basis and, thus, regulatory adoption may not be necessary.** NIST intends to coordinate the development of additional technical information on individual standards and specifications to support their evaluation and potential use for regulatory purposes." (Emphasis added.)

constructive role by ensuring that U.S. supply chain security policies are consistent with global standards.

For example, efforts to improve the Common Criteria for IT Security Evaluation International Standard (ISO 15408) likely will enhance the security of ICT systems and provide a global framework to address supply chain security. While the Common Criteria can be improved, they are endorsed by over 20 countries including the United States. We would encourage NIST to collaborate with the National Security Agency and U.S. stakeholders to improve the effectiveness of ISO 15408 ("the Common Criteria"), using the Common Criteria as the basis for globally-recognized international assurance of supply chain security.

## III. Issues Considered During the Standards Setting Process

**In looking at issues relating to the inclusion of intellectual property in standards, it is critical to ensure that incentives to innovate are preserved**. We strongly support President Obama and his Administration's focus on technology and the promotion of innovation.[10] Innovation historically has been a catalyst for economic growth and the creation of jobs. The United States, in recognizing the need to preserve incentives for innovation through a healthy patent system and marketplace competition, has been and remains a global technology leader. It is therefore important to ensure that the treatment of patented technology in standards does not undermine incentives to continue to invest in innovation in standardized technology areas.

This need to seek to minimize any loss of competition and innovation that can result from standardization when competitors essentially "agree" to do things all one way can be explained in terms of economic efficiencies. As the Antitrust Division of the U.S. Department of Justice has observed:

> "The goal of policies involving IP, licensing, and standards should be to promote efficiency, just as it is with antitrust policy. . . . Static efficiency occurs when firms compete within an existing technology to streamline their methods, cut costs, and drive the price of a product embodying that technology down to something close to the cost of unit production. **Static efficiency is a powerful force for increasing consumer welfare, but an even greater driver of consumer welfare is dynamic efficiency, which results from entirely new ways of doing business. Economists now recognize that the gains from dynamic efficiency, also called "leapfrog"**

---

[10] See http://www.whitehouse.gov/winning-the-future/innovation: "President Obama's Strategy for American Innovation seeks to harness the ingenuity of the American people to ensure economic growth that is rapid, broad-based, and sustained. This economic growth will bring greater income, higher quality jobs, and improved quality of life to all Americans."

> **competition, can far outstrip the gains from incremental static improvements.** It follows that policymakers should pay particular attention to the impact of laws and enforcement decisions on dynamic efficiency."[11] (Emphasis added.)

In developing policy positions relating to standards, governments should pay special attention to the importance of promoting the dynamic efficiencies that arise from innovation competition—incremental advances to the standardized approach and, even more importantly, competition to develop entirely new approaches, whether standardized or not.

**Government should take an inclusive view towards SSOs' diverse IPR policies and not promote one approach over another. When evaluating whether there may be IPR issues associated with candidate standards for initiatives such as Smart Grid, government should consider whether there are valid, serious, and documented IPR concerns, or whether the standard has been accepted in the marketplace and is being widely implemented.** Most SSOs have an IPR or patent policy that seeks to balance the rights and interests of their stakeholders by seeking commitments from participating patent holders that they will offer patent licenses for their necessary patent claims on reasonable and non-discriminatory ("RAND") terms and conditions. Currently there is significant diversity with regard to how these policies are articulated in detail at different SSOs. This diversity is healthy and should be encouraged, and any articulation by the government of one or more preferred approaches should be avoided. This view is widely supported by the ICT industry.

In connection with the Smart Grid initiative, NIST has recognized the RAND principle as an appropriate and inclusive underpinning for standards-related IPR approaches. In Special Publication 1108, NIST specifies that Smart Grid interoperability standards should be "open" and adhere to the IPR requirements set forth in OMB Circular A-119:

> "Also, in this document, NIST uses the definition of voluntary consensus standards given in OMB Circular A-119, on *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities,* where such standards are defined as developed and adopted by voluntary consensus standards bodies. In these standards, there are provisions that require that the relevant intellectual property owners have agreed to make that intellectual property available on a nondiscriminatory, royalty-free, or reasonable royalty basis to all interested parties."
>
> "As a general rule, however, NIST believes that Smart Grid interoperability standards should be *open*; that is, *developed and maintained through a collaborative, consensus-driven process that is open to participation by all relevant and materially affected parties and not dominated or under the control of a single organization or group of organizations, and readily and reasonably available to all for Smart Grid applications.*

---

[11] See Gerald F. Masoudi, Deputy Assistant Attorney Gen., Antitrust Div., U.S. Dep't of Justice, Address at the High-Level Workshop on Standardization, IP Licensing, and Antitrust, Tilburg Law & Economic Center, Tilburg University: Efficiency in Analysis of Antitrust, Standard Setting, and Intellectual Property 2–3 (Jan. 18, 2007), *available at* http://www.justice.gov/atr/public/speeches/220972.pdf.

In addition, Smart Grid interoperability standards should be developed and implemented internationally, wherever practical."

"In making the selections of SSO documents listed in this section, NIST attempted to ensure that documents were consistent with the guiding principles, including that they be open and accessible. This does not mean that all of the standards and specifications are available for free, or that access can be gained to them without joining an organization (including those organizations requiring a fee). It does mean that they will be made available on fair, reasonable, and nondiscriminatory terms and conditions, which may include monetary compensation."

Accordingly, before including a standard in a standards framework, the U.S. Government (or its designee) may want to complete a "health checklist" to verify that the relevant SSO has an IPR policy consistent with the umbrella requirements of OMB Circular A-119. The purpose of such a review would be to reduce the likelihood that a standard would be included in a regulation where patented technology that is necessary to implement the standard is not available to implementers on reasonable and non-discriminatory terms and conditions. (For many reasons, SSOs' IPR policies cannot guarantee this result for *all* necessary patented technology. For example, such policies generally do not apply to non-participants in the standardization process.)

Accordingly, when a standard is being considered for inclusion in a standards framework, the U.S. Government should request that the relevant SSO answer all of the following questions in writing:

- Does the SSO have an IPR policy? If so, is it publicly available?

- For disclosure-based SSOs[12] that receive individual patent declarations or patent licensing statements from patent holders, would the SSO be willing to provide copies of any such IPR-related statements that it has received (or a pointer to the relevant place in its IPR-related database, if it has one) with regard to the standard in question? Has the SSO received any statements to the effect that a patent holder is <u>not</u> willing to provide such a licensing commitment? If so, is the SSO willing to provide such information to the U.S. Government?

[12] There are hundreds of different SSO IPR policies and they vary significantly. As a general matter, the IPR policies of most formal SSOs and many consortia are "disclosure-based". Under these types of IPR policies, participating companies generally are either required or encouraged to disclose either (a) patents they hold that are likely to contain patent claims that will be essential to implementing the final standard ("Essential Claims"), or (b) the fact that they likely hold such patents (but without identifying specific patents). The disclosing participant is then typically requested to declare its intention with regard to licensing such Essential Claims (such as RAND, RAND without a royalty, or "will not agree to offer RAND licenses").

- For participation-based SSOs,[13] are participants required to agree to a patent licensing commitment such that licenses will be made available on RAND terms (with or without a royalty) to all interested parties? Has the SSO received any notices of objection, exclusion, or exceptions to the licensing commitment under its IPR Policy? If so, is the SSO willing to provide such information to the U.S. Government?

The purpose of this review would be to ascertain if there is a significant, documented IPR issue that would block or strongly inhibit implementation of the standard before recommending or requiring conformance with the standard. If the standard is being widely implemented on a voluntary basis, then that is a good indicator that the standard can be included in a standards framework with minimal risks from an IPR perspective.

**Proposals for the U.S. Government to promote a mandatory "ex ante" IPR policy approach are not supported by the broader ICT industry because such an approach is viewed as (a) being of little value, (b) creating many practical inefficiencies and possible legal challenges, and (c) something that could be used internationally to possibly undermine the value of patented technology that is included in standards.**

We noted these two sets of questions in the RFI:

- *Are there particular obstacles that either prevent intellectual property owners from obtaining reasonable returns or cause intellectual property owners to make IP available on terms resulting in unreasonable returns when their IP is included in the standard?*

- *What strategies have been effective in mitigating risks, if any, associated with hold-up or buyers' cartels?*

Almost all standards bodies have a patent policy that addresses (a) the degree to which patent holders have to disclose whether they have any patent claims necessary to implement the standard under development and/or (b) the choices such patent holders have with regard to the licensing commitment they can make vis-à-vis those claims (such as a commitment to license under RAND terms and conditions).

If a patent holder makes a disclosure about its necessary patent claims, potential implementers can decide when (or even whether) to contact the patent holder to obtain information about actual license terms. Depending on when the patent holder makes such a patent disclosure, this may occur *ex ante* (before the standard is finalized). Any negotiations typically are conducted bilaterally and outside the SSO.

---

[13] Some SSOs have adopted "participation-based" IPR policies. Under this type of IPR policy, a participating company undertakes a RAND (with or without a royalty) licensing commitment for any Essential Claims it may have vis-à-vis the final standard just by joining the SSO or by joining a technical committee of the SSO. Participation-based policies, however, often include safeguards for participants to opt out or exclude certain Essential Claims by disclosing the patents containing those Essential Claims and stating that the automatic commitment will not apply to them.

"*Ex ante*" IPR policies typically refers to those disclosure-based policies that either permit or require patent holders to disclose their specific licensing terms to the standards body before the standard is finalized. While almost all ICT industry stakeholders (including Microsoft) support policies that permit the voluntary and unilateral "ex ante" disclosure of specific licensing terms by a patent holder, there are differing views with regard to proposed IPR policies that would mandate the "ex ante" disclosure of specific licensing terms and/or permit group discussions of those terms. Advocates of mandatory "ex ante" IPR policies argue that this is necessary to prevent patent holders from "holding up" implementers and extracting onerous terms after the standard is completed and everyone is attempting to implement the standard as written. Opponents highlight that "hold up" occurs rarely when viewed across thousands of ICT standards, and such policies would unduly burden the standardization process and create many unnecessary practical inefficiencies and potential legal problems.

There are literally thousands of ICT standards in existence today. Hundreds of these standards have been referenced in eGovernment Interoperability Frameworks,[14] with no apparent documented problems relating to IPR issues.[15] There have been a relatively small number of noteworthy litigations that have been filed when two parties have been unable to agree on whether proffered licensing terms were RAND and/or otherwise met the requirements of the applicable SSO's IPR policy. These are very much the exception, not the rule. Most SSOs review and regularly update their IPR policy to address broad issues, but they often are reluctant to add substantial burdens to the process to address relatively rare, potential "one-off" disputes that are fact-specific and can be litigated if the two parties cannot come to an agreement.

The debate over mandatory "ex ante" IPR policies is not new; it has been underway for more than a decade. During this timeframe, many ICT SSOs and their members with disclosure-based IPR policy approaches have thoughtfully considered whether to adopt such a policy, and with the exception of the VITA standards body, they largely have rejected adopting such an approach. The principle reasons often include the following considerations:

- A mandatory "ex ante" IPR policy would require patent holders to disclose proposed licensing terms for their essential or necessary patent claims. Most stakeholders have observed that, for various reasons, such a disclosure is of little practical value. When a patent holder discloses to a SSO that it likely holds essential patent claims, a prospective implementer makes a decision whether to approach this patent holder to discuss possible licensing terms (and that decision is dependent on a number of factors). Any implementer actually deciding to negotiate a license will almost always not want a license for just the patent holder's essential patent claims in connection with that standard. An implementer seeking a license likely will want to negotiate a bi-lateral, customized agreement that will include other IPR (including related patent claims that it may be infringing) that impact its entire product. The license also likely will reflect a range of possible trade-offs between the two parties based on their

[14] See "e-Government Interoperability: A comparative analysis of 30 countries" by CSTransform at http://www.cstransform.com/white_papers/InteropAnalysisV2.0.pdf.

[15] The existence of competing standards also can help reduce the threat of possible patent "hold up".

respective IPR portfolios and other business opportunities. So adding a requirement to a SSO IPR policy to the effect that disclosing patent holders must prepare and submit licensing terms for just its essential patent claims creates an obligation and burden on patent holders that arguably adds no value to the standardization process.

- Standards technical committees make hundreds of technical decisions and, as has been much noted, the process is often lengthy. Experienced stakeholders have noted that injecting licensing terms into the standardization process will inevitable delay the process further still without improving the technical value of the standard.

- Some patent holders make RAND licensing commitments largely for defensive purposes to further their own freedom of action, such as seeking to protect their products that implement standards from patent infringement claims asserted by others. As a result, quite often they will not proactively seek to obtain licenses from implementers. It has been observed during stakeholder debates on the "ex ante" issue that requiring these patent holders to prepare patent licensing terms unnecessarily creates burdens and complications for them without adding any value to the standardization effort.

- There is little evidence that "patent hold-up" in the standards context is a real problem. Most patent holders also are implementers, whether with regard to the same standard or in terms of the broader ICT standards landscape, and this ecosystem generates very few IPR-related disputes as a result.

- Under a mandatory "ex ante" IPR policy, there is a risk of possible buyer cartel and/or group boycott behaviors taking place. The technical committee members may explicitly or implicitly pressure a disclosing patent holder to modify its proposed licensing terms or risk not having its technology included in the standard. For this reason, mandatory "ex ante" IPR policy approaches also may discourage key patent holders from participating in the process and contributing their valuable patented technology. They also could create disincentives to invest further in innovation in that technology area.

Most of the SSOs and their stakeholders that have considered these proposals over the years have determined that there are only a limited number of situations where "patent hold-up" takes place in the context of standards-setting. The industry has determined that those situations generally are best addressed through bi-lateral negotiation (and, in rare cases, litigation) as opposed to modifying the SSO's IPR policy and arguably unnecessarily burdening the standardization process for the many ICT standards that are being widely implemented in the marketplace with no apparent IPR-related challenges.

Accordingly, we support the majority of ICT companies who believe that SSOs should develop their IPR policies based on a consensus of their stakeholders, and that governments

should not promote one approach over another, including a mandatory "ex ante" IPR policy regime.

In conclusion, we thank you for the opportunity to provide comments in response to the RFI.

Respectfully submitted,

David Heiner
Vice President and Deputy General Counsel