Standards Today

A Journal of News, Ideas and Analysis

A publication of CONSORTIUM INFO.ORG
GesmerUpdegrove LLP

November - December 2010 Vol. IX, No. 4

RE-BALANCING THE ROLE OF GOVERNMENT IN STANDARDS DEVELOPMENT

Standards Today is a free bi-monthly electronic Journal sponsored by the Boston law firm of Gesmer Updegrove LLP. The current issue of ***Standards Today*** and a subscription form may be found at www.consortiuminfo.org/bulletins. Questions or comments about the articles in this issue or about ConsortiumInfo.org may be directed to Andrew Updegrove at updegrove@consortiuminfo.org, or by telephone at 617/350-7800. To learn more about Gesmer Updegrove's standards and open source practice, visit http://www.gesmer.com/practice_areas/consortium.php, or contact Andrew Updegrove.

EDITOR'S NOTE:

The Pendulum Swings Both Ways

For more than 100 years, the private sector has led the way on standards development in the United States. That role was institutionalized by Congress in 1995, when it instructed the Federal agencies to get out of the "government unique" standards business and participate in private sector standard setting organizations instead. And indeed, this "bottom up" standards model has served the public and private sectors well.

Recently, though, the limits of this bottom up methodology have become increasingly obvious. Ambitious policy imperatives, such as providing the myriad standards needed to make the SmartGrid feasible would be impossible to realize without the economic support and active promotion of the current administration. In short, it's time for the pendulum of the American public-private standards development partnership to begin swinging back a few degrees to ensure the best results.

In this month's ***Editorial*** I highlight a Request for Information (RFI) issued earlier this month by the National Institute of Standards and Technology (NIST) and call for the private sector to embrace, rather than resist, that swing. All too often in the past, businesses have greeted offers by the Federal government to participate other than at the working group level with trepidation. That's a response we can no longer afford.

In my ***Feature Article*** I review the ways in which standards-related policy needs have evolved in the United States since Congress opted out of the standards business, and offer my suggestions on how the Federal agencies can more productively participate in, support and catalyze the standards development process in furtherance of the national interest.

A brief note follows for those of you that have not yet thoroughly explored ConsortiumInfo.org, the host site for this publication. One of the resources you can find there is the Standards News Portal, updated daily and containing more than 6,000 archived entries.

For this month's ***Standards Blog*** selection, I turn to the European Union, which has taken a far different approach to standards since the inception of the Common Market. Unlike the U.S., the E.U. has actively incorporated standards into public policy, setting successive high water marks of sophistication along the way. Earlier this month, however, the pendulum took a step back there as well, in this case towards a more conservative approach.

I once again follow with a chapter from my cybersecurity-focused thriller titled ***The Alexandria Project***. If you enjoy it, feel free to read ahead – the rest of the book can be found here.

As usual, I close with a ***Consider This*** essay. If you're an American football fan, half time during your favorite bowl game would be a good time to sneak this one in.

As always, I hope you enjoy this issue. But either way, it's always great to hear what you think. Let me know, why don't you? My email address is andrew.updegrove@gesmer.com

Andrew Updegrove
Editor and Publisher
2005 ANSI President's
Award for Journalism

The complete series of Consortium Standards Bulletins can be accessed on-line at http://www.consortiuminfor.org/bulletins/ It can also be found in libraries around the world as part of the EBSCO Publishing bibliographic and research databases

Sign up for a free subscription to ***Standards Today*** at

http://www.consortiuminfo.org/subscribe/2.php?addentry=1

EDITORIAL:

It's Time to Forge a New Public-Private Partnership In U.S. Standards Development

Andrew Updegrove

On December 8, the U.S. National Institute of Science and Technology (NIST) issued a public Request for Information on behalf of the recently formed Sub-Committee on Standards of the National Council of Research and Technology. The titular goal of the RFI is to assist the Sub-Committee in assessing the "Effectiveness of Federal Agency Participation in Standardization in Select Technology Sectors." Although the publication of the RFI gave rise to not a single article in the press, this event was none the less very consequential.

Why consequential? To begin with, one could count on one hand the occasions upon which the federal government has undertaken an assessment of the efficacy of the ill-defined public-private partnership that constitutes the U.S. standards development infrastructure. And yet, since the passage of the National Technology Transfer and Advancement Act of 1995, the government has by law put almost all of its standards-related eggs in that single basket.

It is also consequential because the decision to issue the RFI reflects the recognition by policy makers that our existing standards development process, both on the public as well as the private side, was never designed to address challenges that involve multiple technologies and industry sectors. Indeed, the most recent version (2005) of the United States Standards Strategy, developed by representatives of government, industry, standards developing organizations, consortia, consumer groups, and academia, stresses that the development of standards can best be addressed through a "sectoral approach," and calls upon "Stakeholders in the U.S. standards system [to] seek … to reinforce the sectoral approach to standards development in regional and international forums and highlight the benefits of this approach."

Finally, it is consequential because the success of many of the current administration's signature policies, including the deployment of the SmartGrid and Electronic Health Records (EHRs), and urgent defense imperatives, such as ensuring cybersecurity, represent extremely complex cross-sectoral challenges. The achievement of these policy goals must therefore depend on whether our current public-private process can create new standards development methodologies on the fly.

The emergence of challenges such as these should not surprise, given our increasingly total reliance on nationally and globally networked information technology systems. Rather, these are but the first of what will be an ongoing stream of ambitious standards-dependent initiatives that will need to be rapidly and efficiently pursued if our nation is to remain prosperous, competitive and secure.

There are two ways in which the private sector can respond to this RFI. The first, and more predictable of the two, would be to once again parrot the oft-repeated virtues of the "bottom up" standards development process that has predominated in this country for more than 100 years, contending that this system is more than adequate to meet the needs of the future without government "interference." If this is the sole response, the result will be a regrettable lost opportunity that will work to the great detriment of industry and citizens alike.

The second would be to embrace the formation of the Sub-Committee and the issuance of the RFI as a rare and important chance to work with government to rebalance the involvement of the public and private sectors to further the national interest. The goal should be to develop the kind of new methodologies, structures and synergies that can enable government to execute policy in the most cost-effective and rapid fashion while ensuring that American industry can continue to innovate as nimbly and competitively as before.

Standards developers should embrace the RFI and view it as the golden opportunity that it is

Far too often in the past, the private sector has presented a united front in opposition to any and every standards-related collaborative overture that government has offered. Indeed, when Congressman Bart Gordon, Chair of the House Committee on Science and Technology, solicited input in October of 2009 on whether "a comprehensive review of our standards-setting process is timely and worthwhile," the overwhelming industry response was "no."

While it is true that the current infrastructure serves most needs very well, that does not mean that it is adequate to all of the demands of the future, or even of the cross-sectoral needs of the present. To pretend otherwise suggests a reflexive desire to defend the certainty of the status quo rather than to seek real solutions to important emerging challenges.

Concerns over an augmented government role in standards development in this instance would appear to be ill-founded in any event. In the case of the SmartGrid and EHRs, the current administration has acted to catalyze and enable private sector action rather than to compel specific technical approaches or to thrust government bureaucrats into the standards development process. Substantial resources and incentives have been provided to inspire private industry to work with NIST to make rapid progress in both areas – and rapid progress has been made. Absent these supportive efforts, it is difficult to conceive how either initiative could have proceeded past the discussion phase in the same period of time.

In fact, the scope and thrust of both the Charter of the Sub-Committee and the RFI are respectful of the private sector as well as the existing standards development infrastructure. Indeed, if there is a criticism to be leveled at the RFI, it would be that it is more deferential, retrospective, and tentative than forward looking and visionary. Its stated goal is simply to gather information on what to date has worked and what has not, so that these learnings can be reflected in best practices

documents intended to guide future government participation in the standards development process.

Private sector companies, as well as the ANSI accredited standards developers and consortia in which they participate, should embrace the RFI and view it as the golden opportunity that it is. If they do, they can recruit the talent, resources and procurement might of the federal government in support of a much-needed optimization of the United States standards development infrastructure.

There is nothing to lose and much to gain from such an effort, from reenergizing U.S. manufacturing and jobs creation to protecting national security from cybersecurity attacks.

Will you be part of the solution, or a champion of the status quo? I hope that you opt for the former, and offer your experiences, your creativity and your support by February 7, the deadline for submissions.

You can learn more about the RFI, as well as submit comments, here: http://www.federalregister.gov/articles/2010/12/08/2010-30864/effectiveness-of-federal-agency-participation-in-standardization-in-select-technology-sectors-for

FEATURE ARTICLE:

Re-Examining Public and Private Roles under the NTTAA

Andrew Updegrove

Abstract: *In 1995 the U.S. Congress institutionalized the "bottom up" standards development process championed by the private sector in the U.S. with the passage of the National Technology Transfer and Advancement Act (NTTAA). That Act directed government agencies to abandon the practice of developing "government unique" standards, to utilize private sector standards wherever practicable, and to participate in private sector standards development. That approach has served the country well, but today new forces, including globalization and increasing reliance on the Internet, present challenges that the private sector is ill-equipped to address. If urgent standards-dependent policy goals are to be achieved, government and industry will need to work together to rebalance the roles of the public and private sectors to capitalize on the unique capabilities of each. In this article I review the system engendered by the NTTAA and the forces that are now placing stress on the status quo, and offer suggestions in response to a recent NIST Request for Information that solicits "perspectives on the effectiveness of Federal agencies' participation in the development and implementation of standards and conformity assessment activities and programs."*

Introduction: For more than 100 years, the United States has been the exemplar of the "bottom up" model of standards development. Under this methodology, society relies on the private sector to identify standards-related needs and opportunities in most sectors, and then develops responsive specifications. Government, for its part, retains ultimate control over domains such as health, safety, and environmental protection, but preferentially uses private sector standards in procurement, and also references private sector standards into law when appropriate (e.g., as building codes).[1]

Until recently, government agencies in the United States commonly developed their own standards for procurement purposes. This era of separate but equal standards creation officially came to an end with the passage of the National Technology Transfer and Advancement Act of 1995.[2] With this legislation, Congress directed

[1] As of 2008, the Federal agencies had referenced over 9,000 private sector standards into law. (Twelfth Annual Report on Federal Agency Use of Voluntary Consensus Standards and Conformity Assessment (2008)). Elsewhere in the world, a "top down" model is more common, with national, regional and other governments playing a greater leadership role. For a comparison of the U.S. model and the much more centrally controlled approach followed in China, see, Updegrove, Andrew, Top Down or Bottom Up? A Tale of Two Standards Systems, *Standards Today*, Vol. IV, No. 4 (April 2005), at http://www.consortiuminfo.org/bulletins/apr05.php#trends

[2] National Technology Transfer and Advancement Act of 1995, 15 U.S.C. § 3701 (1995), available at http://ftp.resource.org/gpo.gov/laws/104/publ113.104.txt

government agencies to use "voluntary consensus standards" (VCSs) and other private sector specifications wherever practical rather than "government unique standards," and to participate in the development of these standards as well. In 1998, Office of Management and Budget Circular A-119 was amended to provide additional guidance to the Federal agencies on complying with the NTTAA.[3]

Unlike some legislation, the impact of the NTTAA can be directly measured, at least at the level of raw statistics. This, because the NTTAA also directed the Federal agencies to report their compliance to the National Institute of Standards and Technology (NIST), which aggregates the data into annual compliance reports to Congress as mandated by Section 9 of OMB A-119.[4] These reports detail the decommissioning of thousands of government unique standards, and the adoption of even more specifications developed and maintained by private sector standards development organizations (SDOs) accredited by the American National Standards Institute (ANSI), the traditional global standards organizations (ISO, IEC and ITU), trade and industry associations, and by the hundreds of global industry consortia that have sprung up over the last thirty years in the information and communications technology (ICT) sectors.[5]

Indeed, OMB A-119 requires that an agency must report to Congress each time it determines it to be necessary to create a new government unique standard despite the fact that a VCS is available. For the first time in 2008, no government agency reported such a determination, although 634 new VCSs had been adopted into use – a startling 80% increase from 2007. Indeed, NIST reported that only 45 "government unique standards in lieu of VCSs" (as compared to government unique standards lacking private sector alternatives) remained in use among the 26 agencies.[6]

OMB A-119 also requires the Federal agencies to report on the participation of agency personnel in private sector standards organizations. For 2008, NIST reported that federal agency personnel participated in a record number (534) of SDOs and other standard setting organizations (collectively, "SSOs) – a 7.4% increase from the prior year, although the total number of personnel participating dropped from an all time high in 2007 of 3,374 to 2,935.

In this article, I will: review the ways in which standards-related infrastructure and policy needs have evolved in the United States since the passage of the NTTAA; the recent realization by government that the existing standards development infrastructure is in some ways lacking to meet those needs; and the opportunity that a recent request for comments by NIST provides to educate agency leaders on how the Federal agencies can more productively participate in, support and catalyze

---

[3] OMB Circular A-119 Revised, Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities (rev. Feb. 10, 1998), available at http://www.whitehouse.gov/omb/rewrite/circulars/a119/a119.html

[4] NIST's Annual Report on Federal Agency Use of Voluntary Consensus Standards and Conformity Assessment can be found *at:* https://standards.gov/NTTAA/agency/index.cfm?fuseaction=NTTAAReports.main

[5] A categorized list maintained by the author of over 700 SSOs in the ICT industries, with links to the organizations, can be found at: http://www.consortiuminfo.org/links/

[6] Some agencies, most notably the Department of Defense, still utilize large numbers of government unique standards that lack private sector alternatives. 2008 Annual Report, ibid., footnote 3 at p. 5.

the standards development process in furtherance of the national interest. Finally, I will provide my own recommendations in response to the RFI.

Be careful what you legislate for: Clearly, the Federal agencies have been faithful in carrying out the directives handed down by Congress in the NTTAA. But has this, on balance, been a good thing?

On the positive side, costs of procurement have presumably dropped significantly as a result of the agencies purchasing more off the shelf, as compared to custom, products from a wider and more competitive range of vendors. Often these products have been more state of the art, as private sector standard setting leads rather than follows markets in areas such as ICT. Part of the annual reporting process under the NTTAA is to include "success stories" describing goals achieved and savings made through participating in SSOs and using VCSs, and examples of these savings and efficiencies are offered in each report.

But the implementation of the NTTAA has also institutionalized the primary role of the agencies as customers rather than as developers of standards. Moreover, participation has been on an agency by agency basis, meaning that there is little coordination among them in deciding which SSOs to support.[7] Further, OMB A-119 errs on the side of minimizing the impact and influence of the agencies on the SSOs in which they participate. For example, the Q&As that make up the Circular include the following:

> 7. What Is The Policy For Federal Participation In Voluntary Consensus Standards Bodies? . . .
>
> b. What are the general principles that apply to agency support?
>
> Agency support provided to a voluntary consensus standards activity must be limited to that which clearly furthers agency and departmental missions, authorities, priorities, and is consistent with budget resources. Agency support must not be contingent upon the outcome of the standards activity. Normally, the total amount of federal support should be no greater than that of other participants in that activity, except when it is in the direct and predominant interest of the Government to develop or revise a standard, and its timely development or revision appears unlikely in the absence of such support.

While Section 7 goes on to describe various types of support, such as meeting hosting, underwriting of travel costs, and even direct financial support, the overall tenor is that government representatives should play a passive, as compared to an active, role in setting the strategy, objectives, budgets or other directions of SSOs.[8]

---

[7] The government has developed and maintains a common Federal Enterprise Architecture to guide the Federal agencies in procurement and IT management. More recent initiatives are seeking to streamline the on-line identification and procurement of recommended products and services. For relevant links, see the OMB Federal Enterprise Architecture Web page at: http://www.whitehouse.gov/omb/e-gov/fea/

[8] On result is that agency representatives rarely stand for election to the boards of directors of SSOs. When they do, they often abstain from voting.

Not surprisingly, with the exception of islands of expertise within select departments (e.g., NIST personnel, some international trade experts, and so on), knowledge regarding standards among policy makers is uncommon. Rare indeed is the policy maker that can converse knowledgeably about the role of standards in international trade or the furtherance of other national objectives. Within agencies, knowledge tends to be granular and domain specific, making it more difficult for an expert in (for example) information technology standards to efficiently relate to someone with deep expertise in an area where many dynamics of standards development are meaningfully different (e.g., agriculture).

Thus, while "top down" nations (like China) and regions (like the European Union) were developing increasing sophistication in the creation and use of standards to pursue policy objectives, the United States was further institutionalizing a sort of self-imposed standards isolationism at the policy level.

More recently, the importance of standards to the national interest has greatly increased. An incomplete sampling of the areas of rapid evolution would include the following:

- A drive towards globalization supported across successive administrations, and the reality that national standards and conformance testing requirements continue to be used to create trade barriers;

- The transition of the American economy from traditional manufacturing to the development and sale of high technology products and the provision of services through the use of ICT;

- The impact of the Internet and the Web, and the resulting reliance of almost every aspect of commerce, government and society upon networked systems;

- The proliferation of standards-dependent policy goals, such as the deployment of the SmartGrid and Electronic Health Records (EHRs) and a desire to transition to Web-based "open government;"

- The potential to drive down agency costs through agreement on common ICT frameworks and architectures;

- Increasingly credible cybersecurity threats from terrorists, foreign nations, and criminals.

One might well then conclude that the NTTAA set government on a course that was ill-timed in light of the future that waited just over the horizon. Instead of directing government to enter into the sort of public-private partnership that would ensure the ability of the private sector and government to work rapidly together to tackle complex challenges of national importance as they arose, it encouraged

government experts to join the private sector in individual, domain specific "silos" of activity and expertise.[9]

Tentative steps toward a new standards development infrastructure: One consequence of Congress's decision to leave standard setting to the private sector is the non-existence of the sort of development platform needed to rapidly deliver the cross-sectoral standards solutions required to deliver on important policy goals, such as the SmartGrid and EHRs. Another is a diminished knowledge base, at the enterprise level, to rely upon while driving the agencies towards more efficient and cost-effective common architectural objectives, and delivering on citizen-focused promises, like open, web-based government.

Ideally, Congress would be working to address these shortcomings in a holistic way in order to revamp the public-private standards development process, and set it on a new course that would be better calculated to meet the needs of today and tomorrow. Unfortunately, no such initiative is on the legislative agenda.[10]

For the time being, the best that can therefore be hoped for is incremental change from within, making use of the inherent powers of the agencies involved and those post-NTTAA mechanisms that have been put in place to shore up the ability of the agencies to operate most efficiently in the areas of ITC.[11]

The first of those mechanisms is the Interagency Committee on Standards Policy (ICOSP), chartered on October 26, 2000 in the final days of the Clinton Administration. This committee was created with the purpose of enabling, "effective participation by the Federal Government in domestic and international standards and conformity assessment activities and to promote the adherence to uniform policies by Federal agencies in the development and use of standards and in conformity assessment activities." It was authorized to undertake an array of functions, including gathering and analyzing standards related data and making recommendations to the Secretary of Commerce to:

> (a) strengthen coordination of standards-related and conformity assessment-related policies and activities among the Federal agencies;
>
> (b) improve the efficiency within the Federal Government of standardization efforts with the U.S. private sector, as well as with regional and international organizations, both private and governmental; . . .

---

[9] I dedicated a recent issue of Standards Today to identifying, and recommending solutions to close, what I referred to as "The Standards Sophistication Gap." See the March – April 2010 issue *at:* http://www.consortiuminfo.org/bulletins/mar10.php

[10] An existing bill that would have made incremental progress by redefining the agency coordinating role of NIST, is currently stalled. See the America COMPETES Reauthorization Act of 2010, *at:* http://thomas.loc.gov/cgi-bin/query/z?c111:H.R.5116:

[11] Numerous additional initiatives could be mentioned beyond those described below, such as the Federal CIO Council, which, "…is the principal forum for improving practices in the design, modernization, use, sharing, and performance of Federal Government agency information resources," and renders inter-agency IT-related recommendations. See, http://www.cio.gov/ However, a detailed review of the extensive and rapidly evolving IT management structure of the U.S. Federal government is beyond the scope of this article.

> (e) promote the use of internationally acceptable standards and related activities with a view to increasing trade and economic integration and development; . . .

Intriguingly, the formation of ICOSP might have signaled the beginning of a more adventurous approach to standards development in the U.S., given that its one paragraph Purpose section refers to:

> . . . recommendations presented in the National Research Council's report "Standards, Conformity Assessment, and Trade into the 21st Century" (National Academy Press, 1995) call for the Committee to intensify its efforts to identify the broad roles and appropriate interactions of agencies in exercising the Government's authority.

Those recommendations were in some respects quite radical, including the following text:

> Current efforts by the U.S. government to leverage the strengths of the private U.S. standards development system, as outlined in the Office of Management and Budget (OMB) Circular A-119, ''Federal Participation in the Development and Use of Voluntary Standards," are inadequate. Effective, long-term public–private cooperation in developing and using standards requires a clear division of responsibilities and effective information transfer between government and industry. Improved institutional mechanisms are needed to effect lasting change.

- **RECOMMENDATION 3:** Congress should enact legislation replacing OMB Circular A-119 with a statutory mandate for NIST as the lead U.S. agency for ensuring federal use of standards developed by private, consensus organizations to meet regulatory and procurement needs.

- **RECOMMENDATION 4:** The director of NIST should initiate formal negotiations toward a memorandum of understanding (MOU) between NIST and the American National Standards Institute (ANSI). The MOU should outline modes of cooperation and division of responsibility between (1) ANSI, as the organizer and accreditor of the U.S. voluntary consensus standards system and the U.S. representative to international, non-treaty standard-setting organizations and (2) NIST, as the coordinator of federal use of consensus standards and recognizing authority for federal use of private conformity assessment services. NIST should not be precluded from negotiating MOUs with other national standards organizations.

  In addition, all federal regulatory and procurement agencies should become dues-paying members of ANSI. Dues will support government's fair share of ANSI's infrastructure expenses.

However, this activist vision was not acted upon by the Bush administration that followed. Today, a review of the minimalist ICOSP Web site indicates that it has no

active working groups and meets just three to four times a year for only two hours. The last minutes posted are for a meeting held in November of 2009.[12]

The Obama administration, however, has opted (at least up to a point) to pick up where the Clinton administration left off. Rather than seek to reanimate ICOSP, on March 24, 2010 it announced the creation of a new interagency working group, this time as a Subcommittee on Standards (SoS) within the National Science and Technology Council Committee on Technology, operating under the joint oversight of NIST and OMB's Office of Information and Regulatory Affairs.

And in fact the new administration had good reason to reengage on the topic of public-private standards development, given its dependency on standards to accomplish a number of its signature policies. In its first year, the Obama administration found it necessary to tackle these dependencies on the fly, convening workshops, and even standards summits at which the President hosted industry leaders at the White House. Naturally enough, it enlisted NIST to play a leadership role. Among other significant "top down" actions, NIST formed a SmartGrid Interoperability Panel to develop a consensus around the architecture and profiles of standards needed to make the SmartGrid feasible.

Despite these ambitious initiatives, the charter of the SoS takes a measured rather than an ambitious approach, beginning by citing, "Government's commitment to the use of voluntary, consensus-based standards developed by private sector organizations to carry out its policy objectives" under NTTAA and OMB A-119, although it then acknowledges that the framework created by these enablers:

> . . .does not address how to best engage government agencies on standards policy issues, articulate the U.S. model of public-private cooperation in standard setting to domestic and international audiences, and develop increased awareness within the Federal government of best practice in addressing-standards policy issues.

The functions permitted to the SoS that follow are in some respects reminiscent of those offered to ICOSP, but also go further in emphasis as well as scope, acknowledging that standards can play a role in the pursuit of policy goals:

- The Subcommittee will address the importance of standard setting and implementation in connection to effective governance and agency operations and will empower officials within each relevant agency to play a leadership role in identifying and enhancing the quality and effectiveness of that agency's standards related engagement.

- The Subcommittee will facilitate a strong, coordinated effort across Federal agencies to clarify how standards can best be used to achieve procurement needs and regulatory policy and guidance goals**,** and enable technology development and innovation.

[12] ICSP minutes can be accessed here: http://standards.gov/icsp/query/index.cfm?fuseaction=home.ICSPMinutes Its Web site is here: http://standards.gov/icsp/query/index.cfm

- Working with appropriate Federal agencies and established interagency groups, the Subcommittee will support U.S. standards policy, as embodied in the NTTAA and OMB A-119, elaborating the benefits of this approach and informing audiences, including the international community as to how and why the U.S. approaches standard setting in a voluntary, consensus-based manner.

- The Subcommittee will identify those areas where standards policy issues may arise while addressing national priorities and determine how U.S. government leadership can elevate an awareness of best practices in addressing such standards policy issues. In so doing, however, it will not seek to disturb the commitment to diversity of standard setting approaches.

While more aggressive in its language, the charter of the SoS does not signal an intention to test the limits of the NTTAA, nor to encroach on the prerogatives of the private sector. To the contrary, the third bullet above provides positive reassurance to the private sector, adopting the missionary tone of the United States Standards Strategy in espousing the "bottom up" U.S. approach for foreign emulation.[13] The last sentence of the final bullet is of interest for a different reason, acknowledging that the range of organizations within the SSO community, and the approaches taken by them, has grown more diverse.

Should President Obama be urging NIST to be more forceful in its approach? The President clearly understands the importance and potential of technology to support policy. He has also not been shy about pushing policies that the private sector has sometimes found objectionable. In the case of the standards establishment, however, he has opted for whatever reason to work with the status quo rather than rock the boat. It would be interesting to know whether Aneesh Chopra, President Obama's choice as the first U.S. Chief Technology Officer and Associate Director for Technology in the White House Office of Science and Technology Policy, was aware of the recommendations referred to in the report cited in the ICOSP charter, many of which would appear to be well-suited to the new administration's international trade as well as technology goals. Be that as it may, NIST's appointed role for the indefinite future would appear to be to support rather than challenge the "bottom up" standards approach that the NTTAA has enshrined.

NIST's RFI: The SoS has now held a number of meetings, chaired by Dr. Patrick Gallagher, the Director of NIST. On December 8, NIST issued a public Request for Information (RFI) on behalf of the SoS, intended to assist the Sub-Committee in assessing the effectiveness of Federal Agency Participation in five specific technology sectors vital to the achievement of significant policy objectives: the SmartGrid, EHRs, Cyber Security, Emergency Communications Interoperability and Radioactivity Detectors and Radiation Monitors, as well as "other technologies involving significant Federal agency participation."

[13] The United States Standards Strategy was developed by ANSI with the input of all categories of stakeholders. The latest version was created in 2005 (the author was part of the revision committee) and is currently under review for updating. It is likely that the updated version will acknowledge the importance of addressing cross-sectoral, as well as sector-specific, standards goals.

True to the rather narrow scope of the SoS charter (the RFI seeks to inform the Federal agencies how to, "engage more effectively in the standardization system in a manner that is consistent" with the NTTAA and OMB A-119), the RFI is ostensibly more backward and inward looking than aimed at soliciting transformative suggestions. Specifically, the information is intended to be used to

> . . . develop case studies that Federal agencies can consider in their future engagement in standards development and conformity assessment, particularly for multi-disciplinary technologies, or for technologies involving engagement from multiple Federal agencies.

While the questions posed in the RFI in each technology category vary, they are grouped under four general headings: what methods of agency engagement have worked best in the past, how well the public sector has coordinated with the private sector, and whether Federal resources have been adequate and available. The fourth question is more open ended, requesting perspectives on "other issues that arise and are considered during the standards setting process which impact the process, and the timeliness, adoption and use of the resulting standards."

After introducing four topics of interest in one way, the RFI goes on to pose its questions under five somewhat different headings, each with a short introductory statement:

- Standards-Setting Processes, Reasons for Participation and the Benefits of Standardization
- Perspectives on Government's Approach to Standards Activities
- Issues Considered During the Standards Setting Process
- Adequacy of Resources
- Process Review and Improvement Metrics

While comments from all interested parties are welcome, what NIST will find to be particularly useful are actual case studies from the field.[14] Comments must be submitted by 11:59 PM on February 7, 2011, by e-mail only, to SOS_RFI@nist.gov with the subject line "Standardization feedback for Sub-Committee on Standards."

Suggestions for a more productive public-private partnership: It is hardly to be assumed that the SmartGrid, EHRs and cyber security will be the last dramatically cross-sectoral challenges that the United States will face. Rather, they can be assumed to be typical of additional challenges that lie ahead. Consequently, and by definition, the methods of public-private engagement that will be needed in the future will not be found in past practices involving collaboration between government and SSOs in sector specific standards development. From this perspective, the narrow scope of the RFI represents a lost opportunity to solicit advice on the types of far reaching reforms that might be of greatest benefit in the years ahead.

That said, there are a variety of directly responsive suggestions, consistent with the NTTAA, that can be offered that would provide dramatic and immediate, rather than incremental, assistance to SSOs, to the effectiveness of the public-private

[14] Personal discussion with Dr. Gallagher, December 1, 2010.

standards development process, to the fulfillment of policy goals, and to the agencies themselves.

Focus on what only government can do: One of the greatest weaknesses of the existing standards infrastructure is the lack mechanics for of cross-sectoral engagement. While the great majority of SSOs maintain a few to many liaison relationships with other SSOs, these ties tend to be limited to relations with peer organizations in the same domain. Typically, they are memorialized in short memoranda of understanding (MoUs) that contemplate no more than the attendance of permitting representatives to attend specific working groups where their interests overlap.

The major cross-sectoral meeting place is provided by ANSI, which maintains a variety of committees (including a National Policy Committee) and includes c. 200 SDOs in its membership. To date, however, ANSI has been unable to attract significant numbers of consortia into its activities and membership, in part because almost all such organizations are global rather than national, and do not wish to be too closely identified with the United States. But in the case of all but one (Radioactivity Detectors and Radiation Monitors) of the RFI technology focus areas, consortia play a major role.

The government therefore needed to be innovative in its efforts to catalyze the rapid development of standards for the SmartGrid and EHR. It did so in part by "baiting" the hook with multi-billion dollar funding commitments to support the resulting networks, providing strong motivation for vendors, integrators and service providers to participate in their rapid realization. The response has been dramatic, and the progress rapid, all things considered.

Prior to these initiatives, individual agencies have engaged with individual SSOs to facilitate the development of specific standards. Such efforts have been productive, and are likely to form the core of the examples that the RFI harvests from the field. But actions like these only influence which standards are created, rather than enable solutions that the private sector would not have been capable of providing through lack of coordination and motivation.

The Federal government can, and should, therefore incorporate the following activities into its future plans:

- ***Optimize and catalyze:*** The bottom up standards development methodology has served U.S. interests well for more than a century. The agencies, as well as Federal policy makers, should therefore seek to optimize the public-private partnership rather than restructure it. At the same time, those areas in which the government is uniquely equipped to motivate action should be recognized and consciously added to government planning.

- ***Identify***: The current standards development process is primarily vendor driven, and vendors focus on specific needs realistically achievable in the short term at reasonable expense. Private industry is therefore not likely to identify or seek to launch initiatives that require the coordination and collaboration of many SSOs across multiple sectors. Federal policy makers and agency personnel should therefore be charged with identifying areas of

policy and procurement need where solutions are unlikely to be independently developed by SSOs.

- ***Educate:*** The bottom up process has encouraged legislators and their staff to take the timely development of essential standards for granted. At the same time, many in the private sector have come to view with suspicion any effort by government to become more engaged in standards development. Any effort to energize and optimize the public-private partnership will therefore require efforts to be directed at educating policy makers on the potential for broader use of standards to achieve policy goals, and to reassure business leaders that such involvement will not slow or dilute the development of standards of strategic importance to individual vendors. NIST should partner with ANSI to design programs, conduct workshops, and publicize use cases of successful interaction, such as the Smart Grid Interoperability Panel.[15]

Funding: The largest IT vendors, like IBM, direct thousands of their engineers and other staff to participate in the activities of more than 300 SSOs. Hundreds of other companies participate in anywhere from a few to scores of SSOs. The combined cost is enormous. For a variety of reasons, however, corporate managers find it easier to budget staff time than to persuade their superiors to approve SSO dues expenditures at the magnitude that would underwrite significant budgets for SSOs.

The result is that while U.S. corporations spend many billions of in-kind dollars on participating in standards development, the combined budgets of the many hundreds of consortia active in the United States today would be significantly less than $1 billion, given that the great majority of these organizations have annual budgets of less than $1 million. Adding in the standards-related line items of all U.S. SDOs (many of which are also trade associations) would likely not double this amount. The result is that while the in-kind investment of the private sector is enormous, most SSOs are constantly constrained in what they can accomplish by meager budgets. Very modest expenditures by government could therefore enable activities that otherwise would never be undertaken.

Immediate actions which individual agencies could take to dramatic effect would include the following:

- ***Dues:*** Public economic support for standards development is astonishingly low, despite the enormous impact of standards on the national economy. Notwithstanding the decision of Congress to refer the development of standards to the private sector, government agencies (and state and local government bodies) do not typically even pay the same dues to participate in SSOs as do private sector entities. Under a typical dues structure for most consortia, for example, a government member might pay only $500 - $1,000 to enjoy the same privileges that a corporate member might be required to purchase for $20 - $30,000 per year. At minimum, Federal government

[15] The author is a member of the Board of Directors of ANSI. However, all characterizations, opinions and recommendations in this article relating to ANSI are the author's alone, and do not in any way seek to represent any position, plan or intention of that organization.

agencies should voluntarily pay the same dues as their private counterparts for the same privileges.

- ***Direct funding:*** Federal agencies continue to direct-fund certain activities within SSOs, and particularly consortia. Hopefully, responses to the RFI will highlight many examples where such economic intervention has proven to be fruitful. Given the small budgets of many SSOs, grants of as little as $50,000 can have great impact, and funding in the $1 million to $2 million can make possible test bed and other projects that would be entirely beyond the reach of SSOs otherwise. The provision of direct funding should therefore be highlighted as an appropriate and useful tool for agencies. Identifying as little as $10 million per year per agency as an appropriate reserve for funding relevant standards projects could have an enormous impact on the strategic output of SSOs. Ensuring that such funds can be accessed under streamlined procedures (such as "Other Transaction Agreements") would be essential, given the limited management and legal budget resources of many SSOs.

- ***Support of core SSOs:*** There are a limited number of SSOs that serve as domain centers of excellence in standards areas of core importance to the national interest. Examples include the World Wide Web Consortium (W3C), OpenGIS Consortium, OASIS and others. Providing one-time grants in the $10 million range to each of these organizations to establish reserve funds would enable such organizations to upgrade their infrastructures, stabilize their budgets, undertake projects that might not otherwise be fundable, and commit to multi-year initiatives that might not otherwise be prudent.

- ***Pay for SDO standards:*** Traditional standards developers often underwrite much, or even most, of their activities through the sale of standards. When governments reference standards into law, an expectation can naturally arise that access to such standards should be free. SDOs that are dependent on income from the sale of standards therefore live in fear that courts may someday rule that standards referenced into law would thereby enter into the public domain.[16] Governments should recognize the very substantial avoided public cost of private sector standards development and offer grants to SDOs willing to make their referenced standards available to the public for free.

- ***Create an "evergreen" fund:*** A variety of programs that can serve SSO goals require up front investment. Examples include the creation of reference software implementing standards, and developing test suites. Unless individual members are willing to underwrite such projects they usually go undone, even though subsequent licensing fees may be more than

---

[16] This fear is not unwarranted. In 2003, in a case called *Southern Building Code Congress International v. Veeck*, the U.S. Court of Appeals for the Fifth Circuit considered whether a Texas building code that referenced a standard rendered that standard subject to free distribution, and concluded that it did. The holding captured the immediate attention of the SDO community nationwide, despite the fact that it was binding only in the Fifth Circuit.

enough to recover the initial investment. The creation of a loan fund of modest proportions (e.g., $25 million) could provide loans in the $100,000 to $500,000 range that would be repaid, with interest, out of subsequently derived revenues.

- ***Increase personnel involvement***: As already indicated, SSO members provide tremendous in-kind leverage on SSO budgets. Many standards efforts, and especially those with urgent time frames, can require hundreds, and even thousands, of person-hours. Only a small percentage of private sector companies, however, can dedicate full time personnel to such projects. Increasing the level of direct participation by agency personnel in standards activities can therefore have a significant impact on meeting government standards needs. Increasing the level of coordination among agencies could, at least theoretically, also facilitate a more even distribution of agency personnel across SSOs engaged in projects of interest to multiple agencies.

Reengineer the role of government: The Federal agencies have played an isolated and subsidiary role to the private sector for too long. A truly productive public-private partnership requires government to operate at peak performance. Clearly stated, the government needs to improve its game if it wants to win, particularly in international trade.

The easy part is to improve the traditional, "one on one" approach of one agency working with one SSO to achieve one objective. While the continuation of such collaboration is essential, great rewards will also be found by providing the initiative, motivation and leadership that the private sector is not equipped to supply in the case of more complex, cross-sectoral standards development initiatives. Rising to this opportunity logically requires the following steps:

- ***Authorize:*** NIST's mandate needs to be strengthened to authorize it to identify areas where action is needed and bring them to the attention of policy makers, to play a more aggressive coordinating function among the agencies, and to engage more proactively with the private sector. H.R. 5116, in the version first introduced, would have provided for much of this. Unfortunately, the operative language was stripped out of the compromise Senate version that was finally approved by the House on December 22, 2010. The administration should urge legislators to take appropriate action to appropriately empower and direct NIST in next year's session.[17]

---

[17] For an expansion of this recommendation, see my Testimony Before the U.S. House of Representatives Committee on Science and Technology Subcommittee on Technology and Innovation, delivered March 23, 2010, *at:* http://science.house.gov/Publications/Testimony.aspx?TID=15391, and available as text *at:* http://www.consortiuminfo.org/bulletins/mar10.php#policy The relevant powers deleted from H.R. 5116 read as follows:

> (14) to promote collaboration among Federal departments and agencies and private sector stakeholders in the development and implementation of standards and conformity assessment frameworks to address specific Federal Government policy goals; and
>
> (15) to convene Federal departments and agencies, as appropriate, to—

- ***Systematize:*** The current SmartGrid and EHR efforts provide examples that should be carefully examined (e.g., through the current RFI) to determine what has worked well and what has not. The results should be analyzed and used to develop roadmaps, best practice guides and success metrics for use in launching similar efforts in the future.

- ***Institutionalize:*** Looking outward, the catalytic role of government in facilitating cross-sectoral and other complex standards-dependent goals should be built into NIST's budget and role, and recognized by policy makers as a key competence to be called upon as needed. Looking inward, the existence of the SoS should be made permanent, and its activities should be supported in a manner adequate to meaningfully increase coordination among the agencies.

- ***Partner with ANSI:*** A strong public-private partnership requires efficiency at both ends. Historically, government has never taken full advantage of the existence of ANSI, despite its role as the accreditor of SDOs in the U.S., the recognized representative of American in international standard setting, and the singular venue within which the full spectrum of U.S. SDOs engage. One result is that almost none of the hundreds of consortia that dominate in IT,

---

> (A) coordinate and determine Federal Government positions on specific policy issues related to the development of international technical standards and conformity assessment-related activities; and
>
> (B) coordinate Federal department and agency engagement in the development of international technical standards and conformity assessment-related activities.

The first of these two new functions accurately describes the role that NIST is currently playing under separate Congressional authority with respect to the SmartGrid. By institutionalizing this role within the NIST Act itself, Congress would not only permit the administration to call upon NIST more quickly as future needs arise, but would also encourage NIST to invest in the creation of the type of human and other resources, and accumulate the type of experience, needed to support those requests as they arise.

H.R. 5116 would also have required NIST to compile and deliver a new annual report to Congress, identifying:

> (1) current and anticipated international standards and conformity assessment-related issues that have the potential to impact the competitiveness and innovation capabilities of the United States;
>
> (2) any action being taken by the Federal Government to address these issues and the Federal agency taking that action; and
>
> (3) any action that the Director is taking or will take to ensure effective Federal Government engagement on technical standards and conformity assessment-related issues, as appropriate, where the Federal Government is not effectively engaged.

Of greatest interest for current purposes is subsection (1), which would have allowed NIST to not only coordinate activities as requested by the administration, but to independently bring issues to the attention of Congress that NIST believes may impact national competitiveness.

and to a lesser extent CT, have seen no reason to engage broadly with ANSI.[18]

The relationship between NIST and ANSI should therefore be strengthened and formalized in order to provide a more effective bridge between the public and private standards development communities. ANSI should also be designated as the presumptive partner to take at least the first steps in launching future initiatives similar to the SmartGrid. One immediate result would be to bolster ANSI's efforts to draw consortia into mutually beneficial discussions with the U.S. SDO community. An added benefit from strengthening and empowering this already existing relationship would be to enable policy makers and agency personnel to more rapidly and reliably investigate, formulate, and execute on standards related priorities.

Procurement: The enormous purchasing power of government can be used as a "softer" exercise of power than the imposition of regulations. Simply by announcing its intention to require that certain types of goods and services conform to specified standards can create a market large enough to attract vendors to invest in developing such products for sale. Such activities can be range from the non-controversial (e.g., purchasing energy efficient products) or controversial (e.g., to reintroduce competition into a product niche dominated by an incumbent). One already recognized example involves eGovernment accessibility: all citizens should be able to interact with government on an equal basis, regardless of physical disabilities. Moreover, the means of access should also not lock citizens into the proprietary products of individual vendors. Standards provide the means to achieve these goals.[19]

Augmenting infrastructure: The ever increasing importance of ICT in general and the Internet in particular has exposed several weaknesses in the existing standards development infrastructure. One is the burgeoning number of "necessary claims" under patents that are infringed by the implementation of standards in these areas. The ability to learn of the existence of such claims in timely fashion, to determine whether the owners of such claims are willing to license them on "reasonable and non-discriminatory" (RAND) terms, and the ability to rely on those commitments over time is therefore of prime importance.

At the same time, the proliferation of SSOs, many of which initially or over time overlap in their activities, results in sometimes needless duplication of efforts. Additional complications arise when patents are acquired by companies that license, rather than implement, those patents. Each of these issues can best be addressed through modest facilitative action by government.

- ***Create a Standards Clearinghouse:*** Despite the importance of standards development to the national interest there is a surprising dearth of easily accessible primary and metadata. ANSI provides a variety of information at its Web site, and NIST has recently launched an excellent site called

[18] A notable exception can be found in several of the domain-specific panels organized by ANSI.

[19] For more on the importance of protecting what I call "Civil ICT Rights,, *see:* IT Policy and Open Government, *Standards Today*, Vol. VIII, No. 2 (February – March 2009), *at:* http://www.consortiuminfo.org/bulletins/feb09.php

Standards.gov, but other logical resources simply do not exist. Indeed, the only comprehensive list of ICT standards organizations in the world is maintained not by any public or not-profit entity, but by the author.[20] Similarly, perhaps the largest index of free, online scholarly work on standards has been compiled by the author and is publicly available at the same site.[21] Most surprisingly, despite the fact that there are now hundreds of XML-based standards that make it easy to exchange information of every nature, from sports scores to advertising copy to mathematical equations, there is no XML standard to describe standards – and therefore no easy way to discover and analyze standards in existence, and more importantly, in the process of development.[22] Developing such an XML language would present no special challenges, and creating a database of global standards would only require training and directing staff to input standards already in existence from easily accessed sources. Once created, individual SSOs could update the database online with minimum effort, and anyone could access the database to determine the availability of existing standards and the status of work under development. Policy and academic researchers would gain an invaluable resource as well.[23]

The benefits that would flow from such a resource would include the opportunity for SSOs to learn whether duplicative efforts were already in process before launching new working groups and the ability to form collaborative relationships more easily. The same database could become a single point of exposure and access for standards posted for public comment before adoption, allowing any stakeholder to periodically visit the site and search by category for work in process that might be of interest. SSOs would likely find that their ability to recruit new members would be augmented as well, due to the increased visibility of their efforts and the opportunity to announce the launch of new working groups to a far broader audience.

Government agencies could also post areas of interest at such a clearinghouse, enabling SSOs to become immediately aware of opportunities to work more closely with interested agencies, either individually or by combining resources with other relevant SSOs. Where an agency intended to provide grant funding in an area within the competence of multiple SSOs, those organizations could compete for the ability to perform the work , making it easier for an agency to find the most appropriate and efficient venue to host the project. Similarly, SSOs could post funding needs for possible underwriting by agencies or by corporations not already recruited as members.

---

[20] See the ConsortiumInfo.org Standard Setting Organizations and Standards List *at:* http://www.consortiuminfo.org/links/

[21] See the Standards MetaLibrary *at:* http://www.consortiuminfo.org/metalibrary/

[22] There are various large lists of standards available (e.g., of ISO standards), but even these are not easily searchable.

[23] Links to the standards indices of listed SSOs are provided at the Standards Organizations and Standards List. A great deal of additional information for each organization (e.g., date of formation, number of members, range of dues charged, and much more) is available on CD to researchers on request.

- ***Necessary claims registry:*** A current concern relates to the sale of patents that include necessary claims that are already subject to standards-related licensing commitments. A third party that buys such a patent without knowledge of the licensing commitment made by the seller may understandably take the position that it should not be bound by the same obligation. Instructing the Patent and Trademark Office to accept evidence of standards-related licensing commitments that would be recorded with the affected patent would ensure that assignees of patents could not claim ignorance of obligations that run with a patent, just as an easement filed at a registry of deeds is incorporated into the deed that a buyer receives.

Legislation: While most of the suggestions above can be carried out with no additional statutory authority, a limited number of legislative efforts could provide meaningful assistance to the efficiency and potential for standard setting in the United States:

- ***Amend OMB A-119:*** The direction of this core directive should be adjusted to harmonize with the more interactive public-private relationship described above.

- ***Empower NIST:*** As noted above, the expanded role for NIST contemplated by H.R. Bill 5116 should have been confirmed. The administration should ask Congress to introduce new legislation to similar effect, and in the meantime should instruct NIST to act to the greatest extent possible in a manner consistent with the legislative intent expressed in H.R. 5116 and the recommendations above.

- ***Amend the NCRPA:*** First enacted as the National Cooperative Research Act in 1984, and subsequently amended to cover production as well (the "P" in the acronym), this Act provides a limited safe harbor under the antitrust laws for collaborative activities. The Act provides that the members of any cooperative venture that files under the Act within 90 days of its date of formation would be exempt from liability for treble damages and liability for plaintiff attorney fees, to the extent that the claims against it relate to activities within the scope of the Act. Arguably, various activities conducted by SSOs might be so exempt. Standards development activities were specifically included within the NCRPA under an amendment enacted in 2004, but rather incredibly the amendment provided that only the SSO, and not any of its members, would receive such protection.[24] Given that the risk profile of SSOs is incredibly low (most do not have enough assets to provide an attractive target for a plaintiff, and any anticompetitive acts would be far more likely to be carried out by members rather than staff), this legislative action provided little return on the time invested in its promulgation. Congress would do well to extend the protection of the amendment to SSO members as well, thereby reducing the risks associated with innocent missteps in the course of collaboration in standards initiatives of importance to the Federal agencies and policy makers.

[2424] For a detailed analysis of this amendment, *see:* Updegrove, Andrew, What Does 1086 Mean to Consortia? ConsortiumInfo.org, Consortium Standards Bulletin, Vol. III, No. 6 (June 2004), 8-12, *at:* http://www.consortiuminfo.org/bulletins/jun04.php#update

Final thoughts: It is likely that the suggestions offered above extend beyond what the SoS hopes to receive in response to its RFI. It is not, however, likely that even all of these recommendations taken together would be sufficient to address the standards-related needs that policy makers will face in the future. In this light, the limited scope of the RFI and its very evident awareness of the constraints implied by the NTTAA are unfortunate.

Perhaps the greatest challenge ahead is for the private sector to acknowledge that relegating the Federal government to the subordinate role that it has historically played will be neither in the national interest, nor ultimately in the best interests of the private sector itself. As the suggestions above should make clear, there are many ways in which the public and private sectors can work together more productively and synergistically without threatening the independence of vendors or imperiling the continued functioning of the bottom up process.

The moral of this story, then, is for private industry leaders to embrace the opportunities that a more activist and supportive government sector can offer. If they enter with an open mind into a dialogue directed at that goal, they should have nothing to lose, and a great deal to gain.

Have you Read the News?

On June 12, 2002 I launched a new feature at ConsortiumInfo.org which I called the Standards News Portal. The concept was to post, on a daily basis, short outtakes of standards related stories that visitors to the site should find to be of interest. Since then, I've posted from two to six stories each weekday, culled from many times the same number of daily press releases and GoogleAlerts. As of December 27, 2010, the number of stories in the archive totaled exactly 6,034. Many of the links to the original stories are now dead, meaning that in some cases the archived summaries are all that remain available to aid a researcher investigating a topic of interest.

If you visit the Standards News Portal, you will find that you can display all of the latest news, or you can click on any of the 35 different categories into which I have sorted the same stories. Some categories are cross-sectoral, such as New Consortia, New Standards, and Intellectual Property Issues, while others are more specific, such as Security, SmartGrid and Semantic and Next/Gen Web. Others are geographic, and one –Who's Doing What to Whom - recalls the fact that standards development can sometimes be a contact sport. If you're more interested in taking a break than acquiring serious knowledge, you may enjoy browsing through the hundreds of Quotes of the Day that you can also find at the Standards News Portal.

So if you've never done so before, why don't you visit, bookmark, or better yet take advantage of the RSS and other feeds you can find at the Standards News Portal. And if your organization has standards news to share, please add submit.news@consortiuminfo.org to your press release distribution list. It's a great way to reach tens of thousands of readers a month with a demonstrated interest in standards.

Sign up for a free subscription to ***Standards Today*** at

http://www.consortiuminfo.org/subscribe/2.php?addentry=1

STANDARDS BLOG:

The EC Takes One Step Forward, Two Steps Back in Openness

Andrew Updegrove

Last Thursday the European Commission took a major step forward on the "openness" scale. The occasion was the release of a new version of the European Interoperability Framework (EIF) which definitively endorsed the use of open source friendly standards when providing "public services" within the EU. This result was rightly hailed by open source advocates like Open Forum Europe.

But the EC took two steps backward in every other way as it revised its definition of "open standards," presumably reflecting IT industry efforts (e.g., by the Business Software Alliance) to preserve the value of software patents.

In this blog entry, I'll review the seven-year long process under which the "European Interoperability Framework" (EIF) first set a global high water mark for liberalizing the definition of open standards, and then retreated from that position.

If one were to choose the single most disputed question in standard setting over the past decade, it would have to be the deceivingly simple question, "What does it mean to be an 'open standard?'"

That's not entirely surprising, given the emotions that are aroused in the commercial community when it comes to standards. Indeed, the simple question of what makes a standard "open" subsumes almost every difficult, standards-related issue that information and communications technology (ICT) vendors and users are likely to disagree over, whether economic (should a vendor be able to be implement a standard free of charge, or in open source software licensed under a version of the General Public License (GPL)?), systemic (are standards adopted by traditional standards bodies "better" than those developed by consortia?), or procedural (must the economic and other terms upon which a necessary patent claim can be licensed be disclosed early in the development process?).

Perhaps nowhere has the proper definition of "open" been subjected to a more thorough and broad based public debate than in the course of creating the EIF, a process that began in 2003 (version 1 of the EIF was released in 2004). The latest version was announced last Thursday after a multi-year process of drafting, exposure for public comments, and finalization (a related FAQ is here).

The original draft of the EIF is a fascinating document borne of the decade's long process of bringing the varied nations of the EU into an increasingly integrated federation. Part of that process involves facilitating the ever more vital exchange of electronic data between many countries, while respecting the sovereignty of each, including in the areas of language and technology choices. The difficult goal of the EIF is to raise the degree of interoperability between these many national ICT systems, and the EU-wide adoption of a common framework of standards necessarily plays a central role in achieving this goal.

The most spirited debate in the revision of the EIF focused on whether adopters should be able to implement an open standard without paying patent royalties, including in open source software. This discussion was of a piece with the ongoing battle within the EU between those vendors that would like to expand the patentability of software in Europe and those that wish to avoid that result.

But other issues of importance were at stake as well, including whether governments should give equal consideration to consortium standards. Given the predominance of consortium-developed standards in the IT, and to a lesser extent CT world, any answer other than a (in some cases grudging) "yes" was inevitable.

What are we to make of such a significant step backwards on the open standards front?

In the original version of the EIF, a strong preference for open standards was expressed, and those standards were deemed to have the following minimum attributes:

> 1) The open standard is adopted and will be maintained by a not-for-profit organisation, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties (consensus or majority decision etc.).
>
> 2) The open standard has been published and the standard specification document is available either freely or at a nominal charge. It must be permissible to all to copy, distribute and use it for no fee or at a nominal fee.
>
> 3) The intellectual property - i.e. patents possibly present - of (parts of) the open standard is made irrevocably available on a royalty free basis.
>
> 4) There are no constraints on the re-use of the standard.

This definition met with wide, but not universal, approval. Some vendors of proprietary products were especially unhappy that a requirement to charge a royalty could potentially invalidate a standard from consideration for inclusion in a tender for government procurement. The body responsible for drafting the EIF countered by noting that such royalties could make interaction with government too expensive for some citizens, and that royalty-bearing standards could help entrench dominant vendors, decrease competition, and result in less innovation.

Those charged with revising the original version of the EIF did not step back from their earlier position, however, and presented a powerful case for the use of open standards in the Draft document as basis for EIF 2.0 released for comments in July of 2008, which included the following comment in the EIF Version 2.0 public draft released last year:

> **8.3 Openness and interoperability**
>
> Openness of standards or technical specifications is important for public administrations because of its relationship with interoperability, freedom and choice:
>
> - openness lowers barriers to market entry, thereby widening the field to competition – leading to more choice, better quality and lower prices;
> - openness spurs innovation by allowing more talent to contribute ideas and advance the state of-the-art;
> - openness strengthens the position of consumers vis-à-vis their suppliers;
> - openness enables consumers to combine off-the-shelf products with custom-built products and turn-key systems;
> - openness facilitates interoperability through transparency;
> - openness enhances security through transparency;
> - openness ensure access to information and services, now and in the future, as it avoids lock-in situations, making such access dependent from specific products;
>
> Any Public Administration must be independent of any particular supplier in terms of having permanent access to and control over its own data....
>
> For all of these reasons, the overwhelming desire of Public Administrations in Europe is for a clear migration towards *openness*.

Many vendors were not at all happy with that direction, and the final version of EIF 2.0 released last week reflects significant concessions on the definition of open standards.

The correlative portion of the substantially revised document now reads as follows:

> If the openness principle is applied in full:
>
> - 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 [i.e., fair, reasonable and non-discriminatory] terms or on a royalty-free basis in a way that

> allows implementation in both proprietary and open source software.

Gone from the definition are the specific requirements relating to what type of organization maintains the standard and how it is developed, other than to require open contributions and public comment. Moreover, the language is more ambiguous. For example, does "contribute," in the first bullet, imply equal influence over the final form of the standard, or only equal opportunity to offer technology at the inception of the development process?

Also missing is the requirement that an open standard must not only be available to all, but available for free, or at nominal charge. The deletion of the right to copy and distribute on that basis is less surprising, given that most traditional standards developers rely heavily on revenue from selling their standards, and therefore carefully control distribution.

The preference for royalty-free implementation has also been dropped. No distinction now appears between FRAND and FRAND-free standards, even within the more aspirational (openness is most fully realized) language of EIF 2.0 as compared to 1.0 (the minimum requirements of open standards are). Finally, the right to "reuse" the standard has also been dropped, but this has traditionally not been an issue in any event.

Indeed, the only major liberalizing, as compared to dilutive, change is the clear statement that an open standard is one that can be implemented in open source, as well as proprietary software products.

What are we to make of such a significant step backwards on the open standards front?

In part, the dilution of the process related requirements may be intended to more clearly open the door to consortium-developed standards, which often do not embrace all of the specific process steps mentioned in the 2004 language (e.g., consensus decisions as compared to majority voting). But if this was the intent, then only very minor changes to the original language would have been required.

The policy thrust of the EIF appears to be diluted as well. Instead of setting a high "standard for standards" that might provide incentives for vendors to create specifications within processes that are most open, EIF 2.0 takes a more world-weary approach, noting:

> However, public administrations may decide to use less open specifications, if open specifications do not exist or do not meet functional interoperability needs.
>
> In all cases, specifications should be mature and sufficiently supported by the market, except if used in the context of creating innovative solutions.

However one views the changes, the retreat on the definition of open standards is stark. Perhaps the most intriguing question, though, is why we see such a disparate treatment of open source and open standards?

On the open source side, the explanation almost certainly derives from the passage of time. In 2004, open source software was less commercially important to vendors, less widely deployed by governments, and less familiar to policy makers. Today, virtually every software vendor of note incorporates open source software into its core strategy, and virtually every government runs open software as key components in its data centers.

Moreover, many software vendors also regard every dollar of sales that Microsoft loses as a dollar that is freed up to be spent on its own products. No surprise, then, that the majority of IT vendors would support the open source friendly change to the EIF.

The extensive dilution of the open standards language, however, reveals a different dynamic. In my view, this is best explained by the desire of most IT vendors to preserve the freedom to push for royalty free standards when it serves its individual needs, and to resist that requirement when the imposition of royalties provides greater rewards. And also to choose, on a case by case basis, the standards development venue (more open or more closed and easily controlled) that best meets their need.

For whatever reason, it appears that the EC has decided to abandon the leadership position that it took in 2004 for setting the bar on standards suitable for government adoption. Those that believe that open standards, liberally defined, are vital to open government will now have to look for innovation elsewhere.

Bookmark the Standards Blog at http://www.consortiuminfo.org/newsblog/ or set up an RSS feed at: http://www.consortiuminfo.org/rss/

Chapter 4: Beware of Geeks Bearing Trapdoors

Andy Updegrove

The complete Alexandria Project can be found on line here

Back in his cube, Frank powered up his computer and reflected on what he'd just learned, which was both not much and a lot. Not much, in that he still had no idea who was behind the attack, or what he was trying to accomplish. But a lot because the only people targeted besides himself were George and Rick, and because one directory had been affected. That meant that what had hit the Library of Congress was no virus unleashed against Web sites generally, bent on spreading random mayhem. Instead, it was obviously an attack targeted just at their department. And once it had made its way through the LoC firewall, the attack must have been manually controlled rather than automated.

Whoever was behind the exploit also must have been exactly what he was looking for, and had figured out where to find it. That suggested the cracker had managed to acquire some degree of inside knowledge, or at least that he had been willing and able to spend a lot of time roaming around inside the firewall figuring out what might be of interest. Frank hoped it was the latter, since the former meant that an employee was either directly behind the attack, or had leaked information to whoever was.

But it was bad enough if the mysterious visitor had acted without inside help, since Frank didn't yet know how he had gotten in. That almost didn't matter, though, since by now the attacker would have created a trapdoor he could use to come and go as he pleased. Maybe as early as tonight he'd open the hatch and start creeping through the servers again. So there must be two vulnerabilities to track down and close, rather than only one – the vulnerability the intruder had exploited to get in to begin with, and the custom one he would then have created.

All that was pretty standard stuff. The really weird bit revolved around the animated screen that he and George, and now obviously Rick, had seen when they looked for their security project files. What the hell was the name "Alexandria Project" all about? Did it refer to Alexandria Virginia? No reason to think so; there must be tens, if not hundreds, of cities and towns with that name. And anyway, why was the message in Greek – *ancient* Greek, no less?

Frank typed "Alexandria Project" into Google to see what would pop up. 50,100 hits. Hmm. It looked like he'd need to somehow narrow his search a bit, didn't it?

Still, Frank noticed that most of the hits on the screen page referred to projects that involved data. Well, Duh! he thought. Frank was no history buff, but even he had heard of the library of Alexandria, and knew that it was supposed to have been the greatest repository of knowledge in the ancient world. Apparently, all of the founders of these projects had decided to use the same historical metaphor to identify their activity. That seemed promising. After all, the LoC was the largest collection of printed matter in the modern world. Maybe this was a start.

The only other fact he knew (or thought he knew, anyway) about the Library of Alexandria was that it had been destroyed by fire. Well, that seemed to lock it down – the name on the screen he'd seen, the flames…but what about the Greek letters? Why not hieroglyphics, if he was right in remembering that Alexandria was in Egypt?

Frank moved to the Wikipedia, and typed in "Library of Alexandria." The summary didn't help:

> The Royal Library of Alexandria, or Ancient Library of Alexandria, in Alexandria, Egypt, was probably the largest, and certainly the most famous, of the libraries of the ancient world. It flourished under the patronage of the Ptolemaic dynasty, and functioned as a major center of scholarship, at least until the time of Rome's conquest of Egypt, and probably for many centuries thereafter….
>
> Plutarch (AD 46–120) wrote that during his visit to Alexandria in 48 BC, Julius Caesar might have accidentally burned the library when he set fire to his own ships to frustrate Achilles' attempt to limit his ability to communicate by sea…..

OK, so he could understand if the intruder had used Latin instead of hieroglyphics, but he still didn't get Greek. Frank tried "Alexandria" next, and there he found what he was looking for:

> …In ancient times, Alexandria was one of the most famous cities in the world. It was founded around a small pharaonic town c. 331 BC by Alexander the Great….Alexandria was known because of its lighthouse (Pharos), one of the Seven Wonders of the Ancient World; its library (the largest library in the ancient world); and the Catacombs of Kom el Shoqafa, one of the Seven Wonders of the Middle Ages...

Okay, so there was the answer to the language question. Frank recalled that Alexander the Great was Greek, well Macedonian, but close enough – he spoke Greek. The Alexandria entry also suggested that the tall building on the screen probably was a lighthouse, as he had suspected. Now Frank was getting somewhere – assuming that he wasn't being led down the garden path just the way the intruder intended.

Frank kept reading, learning that the king that founded the library wasn't just another Egyptian pharaoh, but the founder of the Greek lineage of monarchs that took control of Egypt after it was conquered by Alexander. When Alexander died, Frank read, it hadn't taken long for the generals to start fighting over the late conqueror's empire. Ptolemy, one of Alexander's most trusted generals, had been content to vie for less than the entire known world, and lucky enough to secure Egypt as his own. Unlike some of the other generals, he also lived long enough - another forty years - to consolidate his position, and pass his new kingdom on to his descendants, who ruled until Rome eventually took over the neighborhood.

Frank mused. Well, he could now be pretty sure that it was the Library of Alexandria that was being alluded to on the contribution screen. But how to make use of that knowledge? Were the clues meant to lead him on, or astray? If the latter, he hoped the intruder might have been too clever by half. After all, he had learned something about how the cracker's mind worked, what kinds of things he knew that interested him. Maybe more, if Frank set his mind to it.

He drummed his fingers for awhile. Well. Clearly he wasn't going to solve a mystery like this all in one morning. Time to think about getting some work done.

To his surprise, Frank realized that half the morning had already passed while he was noodling around the Web. When he opened his email, he found that George had sent another message to all staff. Once again, the subject line was, "What is the Alexandria Project?" (this time, with only initial capital letters) It read as follows:

> Everybody,
>
> I've received some interesting guesses in response to my weekend email question, but none of you got it right. So here it is: the Alexandria Project is what I've decided to call the security project we're undertaking between now and the end of February.
>
> As you may know, the Library of Alexandria was the greatest library of the ancient world – until it was destroyed by fire. Today, the LoC is the greatest library of the modern world, and we're increasingly moving towards a digital, rather than a paper world. We can't any more allow the LoC's digital holdings to be compromised by hackers than we can allow the books in our stacks to be destroyed by fire.
>
> Our new code name captures the importance of this project, and I'm expecting all of you to cooperate fully with Rick and his team as we push forward.
>
> George

Nice cover, thought Frank. With one message, George had explained away his weekend trick email. And if any more files disappeared and others saw the same "contribution" screen, George could pass it off as some kind of test without people becoming concerned. George had probably sold that line to Rick already.

Not for nothing, you're the boss, Frank thought appreciatively. Tom West would be proud.

Read the ***next chapter***: http://bit.ly/9WBKdc

Start at the ***beginning***: http://bit.ly/5GSY0S

CONSIDER THIS:

#65 Measuring In the New Year

Andrew Updegrove

The pace of technology is wondrous indeed. No corner of our lives seems safe from digital invasion, from picture frames to pasta makers. For years now, we have been threatened with Internet-enabled refrigerators, and perhaps 2011 will see it so.

Nor is the process likely to stop there. Soon, we are told, our homes will become infested by "mesh networks" of sensors, each one whispering information surreptitiously to its neighbor, in order to render our lives more energy efficient. But in so doing, they will observe our every move and report it to heavens knows whom.

Indeed, our appetite, or at least tolerance, for this omnipresence of microprocessors seems almost limitless. It should be no surprise then that we have also witnessed the fall of analog, physical measuring devices to a variety of digital replacements. No longer is running a tape measure a two-person job. Simply point the beam of your electronic measure at the wall in question, and *zap!* – the distance is yours. Doubtless some lonely, rural doctor's office still contains a mechanical balance scale, but at home our weights are determined by digital pads we can no longer pretend are "a few pounds out of adjustment."

And why not? Digital measuring devices are more precise and as often as not cheaper than their increasingly quaint predecessors. Nor is the defenestration of physical measures of recent vintage. Once upon a time the meter was romantically conceived as one 10 millionth of the distance between the equator and the North Pole. More conveniently, it was demarcated by reference to two marks inscribed on a very limited edition of platinum-iridium bars maintained precisely at the melting point of ice. But since 1960 these charming measuring devices have been relegated to the status of museum curiosities. Now this most central of all measures of distance is determined by reference to (are you ready for this?) 1,650,763.73 wavelengths of the orange-red emission line in the electromagnetic spectrum of a krypton-86 atom existing in an (otherwise) vacuum - a reference with the intrinsic charm of a ball bearing.

There is one instrument, though, that has escaped the inexorable march of progress. That device stands aloof above the fray, seemingly invulnerable to even the suggestion that a better, more *digital* solution might exist: - the venerable ten-yard chain used to determine "first downs" in every professional, collegiate and high school football stadium in the United States.

And venerable it is, with antecedents harking back at least to the ingenious surveying chain introduced in 1620 by Edmund Gunter, which employed 100 links, each exactly 7.92 inches in length, and comprising 66 feet in all. This simple device remained in use until the latter half of the 20th century until it, too, was relegated to the ash bin of history by a high tech device (the theodolite). Today, Gunter's Chain is but a memory, save for one important remaining datum: 66 feet continues to define the distance between the wickets in the sacred game of Cricket.

But this is an essay about an American sport, and not an English institution. Still, a few words of introduction would be appropriate for the benefit of those readers for whom a football means an object spherical rather than ovoid. Happily, the rules of American football are extremely simple.

In matters of love and war (and certainly sports), the pragmatist can easily see that finality trumps accuracy every time

To begin. In order to retain possession of the ball, the offensive team must advance more than ten yards towards the opponent's goal. Moreover, it must do so in four plays (unless it has elected to kick, rather than "make," on the fourth down, provided of course that the kick is a hearty effort rather than some devious "on sides" effort intended to permit making the ten-yard minimum anyway, but never mind). The ten yards is measured from the point at which the team took possession.

The ten yards is determined in one dimension (along the upfield/downfield axis) from the exact point at which possession of the ball was obtained by reason of the opposing team having failed to advance the ball by ten yards (as compared to taking possession through a kick return or interception, which of course is quite a different matter entirely, in which case the starting point is the point at which the ball carrier was tackled or was forced out of bounds. Savvy?) The nether terminus of the measure is the exact point on the field at which the foot ball is determined by one of the game referees to have been "downed," marking the end of the play, also called a "down." That is, assuming that the defensive team has not intercepted the ball in the course of the play. All quite straightforward.

The field is divided from side to side by chalk lines at five yard intervals, and lengthwise by two lines of one-yard hash marks, thereby providing spectators with ready and simple reference points throughout the game. But with such incredible stakes riding on the results of every game (what stakes exactly? If you need to ask….), a more exact means of measurement is of course required. And that's where the linesmen and their ten-yard chain come in.

The chain, properly so called, is more than a simple length of links. Rather, the device also includes two upright poles (the "sticks), commonly jacketed in bright orange padding, between which the ten-yard chain can be stretched. By placing the tip of one pole at the point at which the ball lies when a team first takes possession (the "line of scrimmage), the ten yards to be attained can clearly be indicated in advance, and measured in the breach.

In near cases, the chain crew (inevitably referred to as the "chain gang) runs out onto the field with sticks in hand and chain in tow to place one end at the starting point for a play series, and the other adjacent to the ball, which is inevitably surrounded by milling players, anxious to learn the result. As the chain gang plants their poles and the referee stands by the ball, arms akimbo, the crowd awaits the verdict, hushed and breathless. A moment later, the referee signals the result, and simultaneous roars of triumph and tragedy are hurled from the stands, to intermingle above the field as the players disperse, providing a clear, first hand view to all in attendance. For the implacable, unwavering chain cannot lie, and even in a stadium packed with thousands of ardent fans, the mid-line of a football can be seen. From the comfort of a living room sofa, the evidence is irrefutable.

Therein doubtless lies the secret of the survival of the quaint but unimpeachable first down chain. As accurate as a digital device that any 12 year old geek could throw together after a visit to the local Radio Shack? Hardly. But in a world filled with chicanery and inhabited by fans more rabid than rational, the utility of a measuring device that can be seen in action, and therefore believed, has doubtless prevented many a fistfight – or worse. In matters of love and war (and certainly sports), the pragmatist can easily see that the value of finality trumps accuracy every time.

So it is that this January 1, as on every New Years Day that has come before, American males will once again assume the couch position and watch frozen players heave footballs through snow squalls in locations that no sane spectator would choose to site a sporting event, much less willingly inhabit for four hours in a 20 mile per hour icy wind. What they will watch will be more than just a game. Yea, they witness the perennial triumph of the American Way through the visible, democratic exercise of a simple ceremony that respects the hopes and fears of both teams, and ultimately leaves all concerned satisfied with the justice, if not the outcome, of the call.

And you know what? There's just no app for that.