STANDARDS STAKEHOLDERS:
Who Should (and Who Does) Set Standards

Economists and others that study standards like to speak of "stakeholders" those that affect, or are affected by, the use of standards. For decades, accredited standards development organizations have struggled with the conundrum of how to involve some groups, such as consumers, in the process. Now there is a way.

There are many identifiable groups that are affected by the creation of standards, each with its own reasons for being interested in the outcome of the development process. The nature of these distinct motivations leads some types of stakeholders to make larger investments in that process than others in order to gain greater influence over these outcomes. The results are far reaching, and sometimes limiting.

Last summer, IBM set up Power.org to promote its PowerPC chip as "open hardware." This year, Sun launched OpenSPARC.net as an open source project based upon the source code for its Niagara microprocessor. But what does "open" mean in the context of hardware?

It is no surprise that Minnesota, a "blue state" like Massachusetts and heir to the political traditions of the Prairie Populists, should be the next state to see an open formats bill introduced. In this case, the devil is not in the details, but in the definition of an "open standard."

Last March, ANSI sponsored a landmark meeting between representatives of accredited standards developers and consortia. Its time now for an encore, and you're invited.

News Shorts: Wireless Standards Wars Continue as Freescale "Flounces" Out of UWB; ODF Alliance Grows (and Lobbies ISO); Bill Introduced to Require Open Formats in Minnesota; Washington Think Tank Calls for Public Policy to Support Open Standards and Open Source; New BioInformatics and Mobile Gaming Platform Consortia Formed; and, as always, much <more>
Available at site only – www.consortiuminfo.org/bulletins/april06.php#news

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STAKEHOLDERS AND STANDARDS

With more than a million standards in place in the world today, it is axiomatic that we are all profoundly affected by their existence. Yet only a very small number of people are involved in the creation of these standards, relative to the billions that benefit from their implementation. As a result, the ranks of the affected vastly outnumber those of the affecting.

In this issue I examine the concept of the "stakeholder" – an identifiable class of people and/or entities that is affected by the implementation of standards – and whether such classes are adequately represented in the standards development process.

In my *Editorial*, I focus on one of the most problematic of stakeholder issues: if one assumes that individual end-users should have a say in standards development, how can this be accomplished? Historically, involving such stakeholders has proven to be a difficult ideal to achieve. But with the Internet and the dramatic success of collaborative efforts such as the Wikipedia and open source software projects, both the technical means as well as the willingness of individuals to participate in on-line activities without compensation have been demonstrated. I believe that it's time to experiment with these new technical tools in order to bring this last, and largest, stakeholder group into the standards development process in at least an advisory capacity.

The *Feature Article* this month provides an in-depth explanation of how stakeholder groups are defined, how the concept is used in serious research, and how the various types of standards development organizations do (and do not) attempt to include all affected parties into their process.

This month's entry from the *Standards Blog* addresses the stakeholder topic from a very different perspective, comparing two current (and quite different) experiments directed at bringing third parties into the development of semiconductors. Traditionally, such designs have been among the most proprietary forms of intellectual property. Now, however, both IBM and Sun have launched initiatives that allow other vendors to influence (and in the case of the Sun initiative to freely use) chip designs developed at great cost by these influential vendors.

My *Consider This* piece for this month examines what can happen when one type of stakeholder – in this case, a state government – decides to use its legislative and procurement powers (perhaps inexpertly) to influence the type of standards that vendors decide to implement.

I'm also pleased to pass along an *Open Invitation* from ANSI, which is sponsoring a follow-on meeting to the very successful meeting of consortia and accredited developers that my firm hosted last March. The hope of this new meeting is to build upon the ideas exchanged at the first get together, and discuss ways in which these two systems – each of which serves the same stakeholders – may work together more productively in order to better serve those affecting, and affected, constituencies. Last year, I was elected to the Board of Directors of ANSI, and I am pleased to be able, in this and other ways, to assist in bridging the unnecessary and counterproductive communication gap that has historically existed between accredited and non-accredited standard setting organizations.

As usual, this issue closes with the *Rest of the News* – a collection of what I thought were some of the most significant and interesting stories of the past month, selected from those that I posted on a daily basis at the Consortiuminfo.org Standards News Portal.

As always, I hope you enjoy this issue.

Best regards,

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

EDITORIAL

THE AFFECTING, THE AFFECTED AND THE INTERNET: SOLVING THE STAKEHOLDER CONUNDRUM

Andrew Updegrove

*A **conundrum** is any problem where the answer is very complex,
possibly unsolvable without deep investigation.*
- the Wikipedia

Those that study standards development and utilization have adopted a variety of methods to make their investigations more disciplined and their observations more meaningful. One of these techniques is the identification of the various classes of persons and entities that affect, and are affected by, standards. Once such "stakeholders" are described, a variety of useful studies can be undertaken, such as exploring why a given stakeholder class does or does not participate in the process of standards development, and the impacts of this decision on the class in question.

As is often the case with social science, it is a challenge to be totally objective in such studies, since simply framing a study question can suggest that something is "wrong" to begin with. When one seeks to use similar techniques to then construct a standards development process, objectivity becomes virtually impossible. For example, if there is an affected class (consumers, for example), it is easy to take the next step, and say that consumers "should" have a say in standards development – whether they want it or not.

In truth, consumers and some other classes of stakeholders are profoundly affected by what standards are developed, and how they turn out. Involving such disorganized groups is challenging, however. Even when a mode of representation is identified (e.g., by recruiting consumer interest organizations as members), it may be difficult to make that method effective. Such recruitment also has its costs, since the process of pleasing yet more stakeholders with divergent interests can slow the standards development process and make achieving consensus around a (still) useful standard more difficult.

So how can this conundrum be solved?

In the traditional world of accredited standards developers, the principle of guaranteeing access to all stakeholders has been fully embraced for years. In consequence, organizations such as ISO and the ITU (among others) have embedded that precept in their very definitions of "openness." Appropriately, a detailed procedural and accrediting structure has also been developed to protect the right of all affected parties to have their say regarding outcomes that will affect them.

Of course, even a "voluntary consensus process" is a political process, and those that may be affected must not only dedicate time and other resources to participate, but must be aware in the first instance that something of interest to them is about to begin. Ensuring that all affected parties have their say, and moreover that their say is given equal weight with those that have more resources and more to gain or lose as a result of those outcomes, is therefore often difficult to the point of impossibility.

Hence, even in a system that seeks to guarantee equal access to all, practical difficulties can leave the conundrum largely unresolved.

As alluded to earlier, managing a process by consensus – and especially global consensus – can have its costs in time and dilution of effectiveness in the end product. The rise in the information technology (IT) sector of narrowly focused, non-accredited consortia, as well as less open forums and special interest groups, was in part an effort by vendors to escape both the time required by, as well as the technical dilution that could result from, affording other stakeholders the same rights of participation as vendors wished to enjoy themselves.

Over time, many consortia have become almost indistinguishable from their accredited cousins in openness of process and adoption of the standards they create. But few have classes of membership that provide meaningful participation to individuals or make an effort to appeal to representatives of stakeholders such as consumers or the community of the disabled. In fact, almost no non-accredited IT standard setting organizations have charters that direct them to take the concerns of such non-member stakeholders into account. The W3C provides a notable exception, providing cheaper membership to applicant organizations from third world countries and exhibiting a strong commitment to social issues such as accessibility.

In the world of non-accredited standards development, the conundrum is therefore not even recognized as such, much less resolved.

There is now a way, however, that the ability to offer meaningful input can be offered to virtually all classes of stakeholder. That means, of course, is through technology, which has the potential to level most, if not all, of the barriers to entry that have traditionally kept groups such as consumers largely beyond the pale.

With the advent of the Internet, new collaborative models have evolved that provide the promise of greater access to stakeholders than have any of the previous methodologies. And these models work. For example, open source software projects are open to all and operate as meritocracies, providing an engineer in Ukraine with the same ability to influence results as one in Silicon Valley.

The Wikipedia provides an even more striking example of the leveling potential for Internet-based collaborative activity. Since local language editions continue to be launched, only literacy, Internet access and the ability to type stand in the way of the ability to participate. Significant barriers for billions, it is true, but the numbers of the disconnected and the illiterate will continue to decrease each year, and even now there are able individuals everywhere that could log on and speak for their peers.

At the same time, sophisticated electronic platforms (such as those provided by Kavi) have been developed specifically to serve standards development. Through the use of such nimble tools, as well as more humble wikis, participation in standards development in some fashion by all types of stakeholders is now within realistic grasp.

Thus, with the ability of every connected stakeholder to participate only a mouse click away, a major element of the stakeholder conundrum has at last been resolved.

How could such participation take place? The good news is that there are many experiments that could be launched. For example, using the open source project as a model, consortia that do not today have a class of membership open to individuals could provide one at nominal or no cost, with a merit-based mechanism that would allow those that demonstrate the ability to contribute most meaningfully being allowed progressively more ability to do so.

And all types of standard setting organizations, from consortia to ISO, could launch moderated discussion forums where consumers could learn what initiatives are under way, how they might be affected by the outcomes, and offer their thoughts and suggestions. Where consumer impact is likely to be significant, advisory councils, also electronically enabled, could be formed on a working group by working group basis.

The greatest challenges would remain spreading the word effectively, attracting those individuals that would be able to provide the most meaningful contribution, and then determining how to incorporate these voices into existing structures. There would, of course, be many purely technical standards projects with little or no real relevance or interest to end-users, so the active involvement of such stakeholders should not be deemed to be essential to qualify all standards as such. But where relevance does exist, none of these hurdles should be assumed to be insurmountable.

After more than a hundred years of struggling to provide equal access to all, the means is finally within our grasp to once and for all solve the stakeholder conundrum. It's time we took advantage of this new opportunity.

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STANDARDS STAKEHOLDERS: WHO SHOULD, AND WHO DOES, SET STANDARDS?

Andrew Updegrove

Abstract: The identification of categories of "stakeholders" (i.e., those individuals and entities that affect and/or are affected by the creation and deployment of standards) is an important tool for understanding many aspects of standard setting, such as why specific standards are created, why they turn out as they do, why some stakeholders participate and others do not, who standards affect in positive and negative fashions, and why. This article explores the concept of the stakeholder; describes a number of the categories of stakeholder that are most often discussed in the literature; identifies the motivations that each category has for participating in standard setting; gives examples of how and why those stakeholders that have the most at stake in the outcome of the standard setting process invest the most in affecting – and do in fact have the greatest influence over - outcomes; and what the effects of such disparities in influence have over those stakeholders that make a smaller, or no, investment in the standard setting process. It concludes by suggesting that standard-setting is a quasi-public function that supplements governmental regulatory power, making it incumbent upon SSOs to put in place mechanisms that ensure to the greatest extent possible the representation of the interests of all stakeholders in the standard setting process.

Introduction: Standards are created by, and for, many constituencies. The great majority of the standards in use today have been created through voluntary consensus processes in which any stakeholder is entitled (at least theoretically) to participate[1]. But participation takes time and resources, and therefore the conviction on the part of the participant that the investment will eventually prove worthwhile. The not surprising results are that some constituencies are disproportionately represented in the standard setting process over others, and that those that are most active expect to reap the greatest and most immediate gains from their labors.

In consequence, the initiatives that are chartered in many standard setting organizations as well as the elements of the standards that result are often most heavily influenced by direct or indirect self-interest rather than by the judgment of disinterested standards professionals. That self-interest in the given case is likely to be enlightened only to the extent that widespread adoption is dependent on the willingness of other stakeholders (including competitors) to adopt the resulting standards.

In contrast, government regulations that include standards, at least nominally, are created with the best interests of all stakeholders in mind. Of course, lobbyists often exercise a potent influence, and the results of government rule making are therefore often substantially affected by the degree to which special interests may fear that they may be impacted by the results. But regulatory standards, while numerous, are not as pervasive as consensus standards, and are in any event concentrated in areas such as health and safety, where governmental prerogatives or the perceived need for the safeguards of a public process are deemed to control.

The result is that the majority of the standards that increasingly enable or limit what we can do (e.g., surf the Web), buy (e.g., mobile devices with increasingly varied features), enjoy (e.g., electronic media) and use (e.g., home networks) are the product of a process that affects all, but is controlled by a comparative

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[1] A notable exception to this statement relates to information and communications standards, an area in which consortia, as compared to accredited standards development organizations (SDOs), predominate. While a significant number (and perhaps even a majority) of existing consortia permit all types of entities to become members, only a small number provide for meaningful participation by individuals.

few, nearly all of whom opt-in through self-appointment rather than election through a democratic process.[2]

In this article, I will describe some of the principal categories of stakeholders that are affected by standards, the degree to which each participates in the standards development process, and some of the results that flow from this varying degree of participation. The standards in question are those that are created by accredited standards development organizations (SDOs) and those non-accredited, but still consensus-based, open-membership organizations that are most commonly referred to as consortia. Together, SDOs and consortia are referred to below as "standard setting organizations," or "SSOs."

Stakeholders: Students of standards commonly refer to discrete types of "stakeholders" in the context of the development and use of standards. One often cited definition of that term with respect to the work product of a given SSO is, "Any group or individual who can affect or is affected by the achievement of the organization's objectives."[3] Identifying a category of stakeholder, however, is an easier task than deciding how that stakeholder should be persuaded to become involved in a given standard setting process, what influence it should have, and what investment it should be required to make in order to support the process.

Rights of participation. There is disagreement in the trenches over what obligation an SSO has to include (or even identify and recruit) all categories of stakeholders into the standards development process. Among SDOs, the right of all stakeholders to participate is enshrined in the definition of "openness" (and therefore in the definition of what constitutes an "open standard"). In contrast, consortia are aware that consumers (for example) are impacted by standards, but rarely feel any obligation to include them in their development process, or to consider their needs in any way other than through market research, with the goal of maximizing the sale of products and services that implement the standards that they create. Differences also exist as among SDOs, with European SDOs generally placing greater emphasis than SDOs in many other parts of the world on taking (to continue the same example) consumer concerns into account in the development process.[4]

Actually persuading all nominal stakeholders to participate, however, is another matter. As a result, even those accrediting organizations that mandate participation by all relevant stakeholders must be realistic and recognize that full participation of necessity must often be an aspirational goal rather than a strict requirement. Still, absent ongoing diligence in recruitment, long-lived standards committees can increasingly become a club numbering only familiar faces among the members, leading at times to the development of standards that are insufficiently attractive to inspire meaningful adoption.[5]

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[2] At the organizational level, participation in both accredited and non-accredited standard setting organizations (SSOs) is determined by the rules of the organization, and may allow (or not) participation by individuals and/or representatives of companies, government agencies and/or universities, all of whom opt in by choice rather than being appointed as representatives of their category of stakeholder. Accredited organizations are required to be broadly representative, and have less flexibility regarding who may be excluded, in comparison to consortia, which have no such constraints. Above this first organizational level in the world of accredited standards, however, participation is by national representative. In ISO, for example, the generally recognized national representative SDO from each country is permitted to participate, while in the ITU, the agency or other entity designated by the federal government of a given nation is admitted as becomes the representative of that nation.

[3] Freemanm R.E. (1984) *Strategic Management – a Stakeholder Approach.* Pitman, Boston, p. 46.

[4] Fabisch, Gottlobe. *Consumers and Standards: Consumer Representation in Standards Setting.* [full cite] *at < >*

[5] de Vries, Henk, Verheul, Hugo and Willemse, *Stakeholder Identification in IT Standardization Processes,* Standard Making: A Critical Research Frontier for Information Systems MISQ Special Issue *at* <www.si.umich.edu/misq-stds/proceedings/132_92-107.pdf >, .

STAKEHOLDERS: INVESTMENT AND INFLUENCE
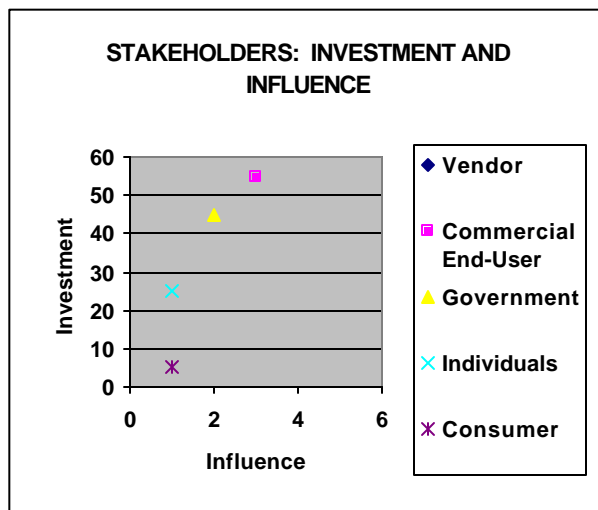
Typologies: Just as there is a range of opinions over whether, and how hard, an SSO must try to attract all stakeholders to the standard setting table, there are also many different typologies that have been developed to categorize stakeholders themselves, depending upon the research goals of the author advancing each scheme. For example, a team of Dutch authors has proposed a nine category typology focusing on those affected by standards for use in identifying the groups that should be invited to participate in a specific standard setting activity.[6] Another team that is interested in quantifying the value (and threat) of participation by potential participants with particular relationships to any given SSO has created an intriguing and elegant three-field schematic that separates stakeholders into three main categories that, through overlapping, net out eight distinct types of stakeholders.[7]

The high-level categories of stakeholder that I will identify for current purposes are intended to be useful in comparing the motivations of each group for participating in standard setting with the impacts that such activities can have on the same group. Each of these groups has a discrete, and to at least some degree different, set of interests in the outcome of the standards development process. And, as we shall see, the value proposition and immediacy of interest – and therefore the desired level of participation and influence over results - of those in each of these categories varies widely. These groups are as follows: *vendors, commercial end users, government entities*, *individual practitioners* of the technology in question, *universities and academics* and *individual consumers.*[8]

Each of these categories, of course, can be extensively subdivided into subgroups, but below the levels just identified the distinctions among such subgroups will largely be matters of detail rather than current interest.[9]

Because of these differences, each stakeholder group warrants examination. The following descriptions are presented in what is roughly the descending order of participation and influence among the categories of stakeholders selected for discussion.

Vendors: Broadly speaking, individual vendors have the most to gain, as well as the most to lose, by the development and broad uptake of a given standard. As a result, vendors generally have the greatest incentive among all categories of stakeholders to dedicate the resources needed to exercise influence on standards development, and that influence can involve blocking and undermining the

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[6] Ibid., , pp. 97-100.

[7] *See*, Mitchell, R.K., Agle, B.R. and Wood, D.J. (1997) *Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts.* Academy of Management Review 22, pp. 853-886.

[8] The degree to which each of these groups has been examined in the literature varies, in part with the degree of interest they represent to the types of authors that are drawn to the study of standard setting, and in part due to the disparate level of participation of each group. For example, economists are quite interested in the interplay between vendors and consumers, but are much less intrigued by the individuals that participate in standard setting of their own volition rather than as proxies for their employers. Nonetheless, such individuals do have a substantial impact in some types of standard setting, as well as on emerging kindred efforts, such as the development of open source software.

[9] For example, under the general category of "vendors," one could identify the subcategory "telecommunications," which in turn would divide into land-line, wireless, satellite, etc., and then into individual categories of services and products. With respect to each product category, there would be hardware vendors, software vendors, and others with a particular interest in a specific standard. But at each of these increasingly granular levels, the degree of participation by other stakeholder groups would commonly remain essentially the same.

standard setting process as well as supporting and promoting it. Some of the factors that lead to this state of affairs are as follows:

- **Interchangeability:** The advent of the production line in the early 20th century dramatically reduced manufacturing costs, making feasible the purchase of less expensive products that could be purchased by an expanded pool of potential customers. But production lines such as those utilized in the automotive industry required interchangeable parts, and manufacturers soon found that many of those parts could often be purchased more cheaply from others than produced by themselves. The ability to buy parts from third parties at competitive prices required a pool of such parties, the development of which could be facilitated by the creation of standards – which in turn provided incentives for more automotive manufacturers to buy parts instead of build them, creating a larger pool of potential purchasers and lower prices as a result of economies of production scale.[10] Not surprisingly, this new dynamic entered the system at the most elemental level, with the standardization of the threads and gauges of nuts and bolts, and worked its way gradually up the manufacturing chain in levels of complexity of standardized components.

- **Creating and expanding markets:** Many types of products and services, such as those that are dependent on the development of broad networks, would not be salable in large numbers (or, in some cases, at all) without broad agreement on standards. The decision makers that must be persuaded to set such a standard are sometimes limited in number, as with the setting of railway gauges, which involves only the owners of the railways themselves (manufacturers of rolling stock would benefit from standardizing gauges at any width), and in some cases the government, as the motivating agency. On the other hand, the members and classes of decision makers can be quite numerous and diverse, as is the case with video data formats, which require the buy-in of multiple types of vendors to ensure success, from those that own the original content, to those that manufacture the playback devices, to the retailers that stock thosedevices, to the supply chain participants (retail and rental) that provide compatible content to the end user. In each example, the ability to dramatically increase usage and volume, whether it be of freight, passengers, next generation DVD players, or replacement copies of last generation format movies, depends on achieving broad agreement on the elements of the necessary enabling standards, at the outset, and then broad adoption of those standards and the products that instantiate them at the end of the process.

  The opposing strategy is to attempt to create a proprietary standard that enables a sufficiently large share of (perhaps) a smaller market, or license fees reaped from a larger market that is based upon the proprietary standard. While historically some types of networks (and therefore monopolies) could be created locally, such as the first railways more than 100 years ago, or within single customers, as with proprietary computer systems more recently, the situations in which this type of market strategy could be expected to succeed have become less numerous, while the size of many potential markets that can be shared to mutual advantage has increased dramatically.

  Still, the creation of a monopoly or a significant proprietary market share remains an attractive goal to those that are able to achieve that result.[11] As a result, while many vendors may work diligently in their self interest to enable a non-proprietary network, either to create a new market or to attack the monopoly position of a competitor, other vendors that wish to create, or preserve, a proprietary market share can be expected to work just as aggressively, or more so, to defeat the effort.

- **Influencing outcomes:** There are many ways for an individual vendor to disproportionately gain as a result of the specific elements that are included in a final standard. At the most obvious level, there are royalties or other fees to be reaped from licensees of the patents that may be

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[10] Shapiro, Carl and Varian, Hal R., *Intro for Managing in a Modular Age.* School of Information Management and Systems (SIMS), University of California, Berkeley (2000), p.1, at <http://www.sims.berkeley.edu/~hal/Papers/modular.pdf>

[11] The Apple iPod music format and associated data rights management (DRM) are a current and successful example of this strategy.

"necessarily infringed" by an implementation of the standard. This result can be overtly achieved by submitting text for inclusion in the standard, or more subtly accomplished through comments made during the course of the standards development process. Vendors may also form alliances inside or outside the developing body to increase the likelihood that their material will be included in the finally adopted standard.[12]

There are many more secondary benefits that a vendor may gain, often leading it to make even patented technology available at no cost, and not infrequently waiving its rights to require non-monetary license terms as well. These potential advantages include gaining a head start in the market place, making the licensing of non-essential patents attractive to implementers, or influencing the market's likely future development to be more consistent with the vendor's product strategy.

   Mode and degree of participation: For all these reasons (and others), many vendors in many market niches have come to associate a high level of priority to influencing the development of standards. Not surprisingly, they therefore commonly comprise the largest single constituency in SSOs, and their investments in standard setting, regardless of the type of SSO involved, tend to be greatest.[13]

The resources dedicated to standard setting are most visible in consortia, where the top level of membership dues is typically in the $10,000 to $50,000 range, and can even reach $1 million in the most ambitious and strategic efforts. Membership in the top category of such multi-tier organizations includes all committee participation and other privileges of lower classes, plus an added and significant perquisite: the right to either place a representative on the Board of Directors (or other ruling body), or at least to be part of a small pool of members entitled to parcel most, or all, of the seats on the governing council among them.[14] It is this membership category, therefore, that has the right to plot the strategic direction of the consortium and decide which standards efforts will be commissioned (and which not).

For an SDO, the investment can be as significant, but effected in different ways. For example, in the IEEE, membership is by individuals. But there has been a history in highly strategic areas, such as wireless standards, for vendors to dedicate significant resources to the creation of auxiliary organizations to promote the standards developed within IEEE working groups, as well as to create test suites to certify implementations of those standards. The budgets for such efforts can be large.

As earlier noted, however, the influence of vendors can be both positive and negative, as some vendors may benefit from the successful creation and adoption of a standard, while others (such as a market incumbent) may be threatened by the same result. Similarly, while on one level all vendors will benefit from the "best" standard being adopted, since it may lead to a larger market developing more quickly, what is "best" for one vendor in other respects may be less so for another, based upon a number of factors unique to that vendor.

Of course, effective participation in standards development takes up the time of valuable personnel as well as underwriting related expenses, such as travel expenses and membership fees. In consortia, such fees can be quite substantial at the highest levels of membership, which frequently include superior, or exclusive, rights to board membership. Those that can afford to make this investment therefore have a

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[12] A current example can be found in the multiple 802 family of wireless standards being set by the IEEE. *See*, Andrew Updegrove, *Standards Wars: Situations, Strategies and Outcomes*. ConsortiumInfo.org, Consortium Standards Bulletin, Vol. V, No. 3 (March 2006), *at* <http://www.consortiuminfo.org/bulletins/sep05.php#feature > and sources cited therein.

[13] For example, in one study of ISO, ITU and IETF (Internet Engineering Task Force) working groups, 60% of all participants represented product vendors or service providers. See Jakobs, Kai, Proctor, Rob and Williams, R. *The Making of Standards: Looking Inside the Working Groups. IEEE Communications Magazine*, Vol. 39, No. 4 (April 2001), p. 207.

[14] More enlightened consortia, such as those that the author helps form, offer (at least when his advice is heeded) some number of Board seats to other classes of stakeholders with smaller participation budgets, in order to ensure balance and input from a variety of perspectives, with the nature of those viewpoints depending upon the organization and its goals. The interests that may warrant such special attention may be by geography, or industry sector, or category (such as end-users), or industry role (e.g., independent software vendor), or even by size of company. An added benefit is the credibility that such openness can provide to the standards created by the SSO.

market advantage over those that cannot, as well as over those that can, but do not choose to participate. The result is to magnify the ability of larger companies to act as leaders across a range of products and services, with more strategic options, and to relegate smaller companies and larger companies that are not as sophisticated in their standards strategies to the role of followers, with less freedom of action. [15]

Commercial end-users: Corporate purchasers make enormous investments in standards-based products. As a result, some end-users take an active interest in some types of standards at the time of creation. Because end-users usually have no economic stake in the particular technology chosen to embed in a standard (legacy issues aside), however, they have more of an interest in developing the "best" standard than do many vendors, whose motives on that question may be mixed, or circumstantially biased.

The motivations that influence commercial end-users to become involved in standards development include the following:

- **Securing the cheapest products:** While end-users do not usually hope that their patent claims will be infringed by a final specification, they do have concerns over the potential for inclusion of any one else's patent , if that would lead to higher prices or onerous non-economic licensing terms for the products that end-users hope to purchase. Consequently, when the intellectual property rights (IPR) policies that a given SSO operates under are drafted, vendors will usually want the policy to permit royalties, while end-users will desire, at minimum, the disclosure of necessary claims at an early enough point in the process to "design around them," if possible. Similarly, in the information and communications technology (ITC) sector, end-users may in the future become increasingly interested in pushing for IPR policies that would permit the creation of open source software products that can then implement the standards developed by the SSO. [16]

- **Influencing the technical outcome:** Just as vendors may have a desire to include specific features in a given standard, commercial end-users will as well. In some cases, the interests of vendors and end-users will converge, as with ensuring backwards compatibility with existing products and standards, while in others they will diverge. . For example, end-users as a class will wish that the "best" technical result be achieved, but, like vendors, will usually disagree to at least some extent among themselves and among other categories of stakeholders over what "best" means in a given situation. [17] Individual end-users may also have unique requirements that they wish to see included in a standard that other end-users or categories may have no interest in including, or may actively oppose due to the tradeoffs in other areas that such inclusions may require.

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[15] The economic consequences of being a follower or a leader, of course are more complex. Leaders have significantly higher standards-related overhead, since the largest IT vendors (for example) actively participate in more than 100 (and indeed as many as 300) SSOs. Similarly, a market leader may be tempted to adopt a more high risk strategy based upon pushing its proposal in a standards process, or launching a competitive standards effort through a new forum, in order to sell compliant products sooner than its smaller competitors. As a result, it may be an early adopter of what proves to be the losing standard, while its smaller and less sophisticated rivals may delay implementation until the winning standard becomes apparent – a less risky strategy, as it involves less up-front cost, and a higher assurance that its costs will be rewarded, albeit perhaps at the expense of acquiring a smaller market share of sales in compliant products.

[16] After a very lengthy process, OASIS adopted a new IPR policy in the spring of 2005 that included three rule sets that a given technical committee could adopt to control the standard that resulted from its efforts. One of those sets of rules was intended to facilitate the use of the standard in open source software. It is significant to note that this result was secured with the concurrence and support of large vendors, many of which now place a greater value on open source software support revenues than on patent licensing income.

[17] The "best" result is an extremely subjective and situationally variable concept that will frequently involve balancing attributes that are to some extent mutually exclusive. Such variables can include not covering too much or too little, weighting backwards compatibility against making a dramatic leap forward in capabilities, speed of execution of products (as in the IT industry) against richness of features, maximizing interoperability versus limiting innovation, likelihood of easy adoption as compared to highest utility, and many more.

- **Gaining a first look:** End-users need to integrate standards into their purchasing decisions, which often have long lead times. It is not in their best interests to leave a standard out of their planning that may become ubiquitous during the lifetime of a purchase, since this may render the purchase obsolete or require expensive patching. Through participation, end-users can gauge the value to them of a given standard, as well as its likelihood of adoption (and by whom).

- **Training:** Participation in the standards process, as well as in the affiliated training programs that many SSOs provide, offers a way for staff to become knowledgeable about standards in order to better inform their exploitation of those standards, both as they are supported in the products they purchase as well as in their own internal design and development activities.

Mode and degree of participation: Since commercial end-users have less interest in the specific result of a given standards development process than in the quality of the result, however, they have a lower incentive to participate in the process than do many vendors. Nevertheless, many SSOs are very interested in acquiring them as members. This arises from three principal motivations: first, end-user members provide economic support through membership fees. More significantly, however, they provide real-time market input regarding the requirements that customers will wish to see satisfied in order to find value in the products that support the standards that the SSO develops. And finally, they represent the "first adopters" that credential the results and provide momentum in the marketplace for wide implementation of the standards in question.

The challenge for an SSO is to provide a value proposition that gives incentives for commercial end-users to join, particularly when the SSO has been recently formed and its influence is still to be demonstrated. In a consortium, this typically entails providing multiple classes of membership at multiple prices, so that all types of stakeholders can find one that matches their budget and desires.

In the case of commercial end-users, there is less of a felt need to influence the development roadmap that a given SSO may adopt for its efforts. In consequence, when end-users do participate in SSOs that scale membership rights with the dues that they are required to pay, they frequently do so at less influential and less expensive levels of membership. Typically, some end-users will look for a membership category that offers voting rights on standards (this would include those that wish to influence the technical result), or a cheaper, non-voting level that still permits hands-on participation in the standards process (which appeals to those that are more interested in a "first look" and in training).

SSOs that are creative may go a step further. For example, the Object Management Group (OMG) restructured itself some years after its initial formation to enable "domain" memberships, providing greater influence at lower cost for commercial end-users within their specific industries (e.g., insurance, transportation, and so on). Other SSOs have formed Advisory Councils or other non-membership structures that can bring commercial end-users into the standards development process to mutual advantage.

On rare occasions, commercial end-users have countered the prevailing vendor-controlled "push" environment by forming "pull" consortia of their own. One early example of this strategy was the CAD Framework Initiative, formed in the 1980s (and now dissolved), which was formed by major CAD users to create specifications for the tools that they wanted CAD software developers to design and sell. By agreeing on common purchasing requirements, they provided incentives to vendors to create what the individual consortium members would otherwise have needed to internally develop or to pay the vendors to create on a custom basis. More recently, the Jericho Forum was formed in the United Kingdom with the goal of setting the security standards that its members wanted vendors to meet when they offered products for sale.

Another type of end-user effort is the standard setting buying collaborative, which not only lowers direct costs through volume purchasing, but may, through developing or referencing standards, also lower administrative costs of fulfillment. The Coalition for Healthcare eStandards (CHeS) is an example of this type of end-user driven initiative, which sets standards that facilitate the acquisition of acquiring hospital supplies.

Government entities: The interests of government members are in many respects the same as those of other end-users. However, the purchasing power, sometimes-unique requirements, and public obligations of this group, among other differentiators, entitle them to consideration as a separate category.

At the same time, the government entity category is not monolithic, and the attributes that the various types of extant public bodies share are offset in part by the substantial differences that exist among, as examples, federal agencies, state municipal governments, public libraries, and the armed forces, even within a single country. Given that standards in many categories aspire to global adoption, these divergences are compounded at the international level: In addition to local variations in laws and custom, there are differences in modes of participation and integration as among nations, with some countries setting standards through federal or quasi-public agencies, and others (such as the United States) allowing the market to choose the standards to create and the pace, mode and host organizations for development. Finally, some countries closely integrate standard setting into their national trade strategies while others do so to a lesser degree, or only episodically.[18]

All that being said, there remain valid generalizations to be made about this diverse constituency:

- **Purchasing:** Governmental entities have not only the same concerns noted above with respect to commercial end-users, but enormous purchasing power as well. Unlike all but a few commercial end-users,[19] some single government entities, such federal agencies and large individual states, can wield this power. As a result, whether or not a given governmental agency or other entity decides to participate in a given SSO, its procurement requirements may influence what the vendors in that SSO decide to do. When the decision is to buy in the market, for example, by purchasing standards-compliant COTS ("commercial off the shelf software"), this endorsement of an existing SSO standard can strengthen that standard. Similarly, if the same agency includes a "government unique" specification in its procurement notice, then the existing standard may be weakened, if the government is the dominant customer.[20]

- **Regulatory requirements:** Government entities are subject to a variety of regulations that vary from country to country and which relate to such topics as competitive bidding, supporting domestic commerce,[21] and using standards developed or approved by various bodies. In some cases, as in the United States since the enactment of the NTTAA in 1996, the type of standard (e.g., *de jure* or *de facto*) to be utilized is not specified, and that decision is left to the individual agency. In other cases, as in many governmental venues in Europe, reference is to standards that have achieved global recognition through adoption by bodies such as ISO, IEC and ITU. There are also less familiar but equally influential standards bodies, such as the Codex

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[18] For an example of differences in national standard techniques and strategies, *see*: Updegrove, Andrew, *Top Down or Bottom Up? A Tale of Two Standards Systems*. ConsortiumInfo.org, Consortium Standards Bulletin, Vol. IV, No. 9 (September 2005) *at* < http://www.consortiuminfo.org/bulletins/apr05.php#trends>, and sources cited therein.

[19] Wal-Mart is a notable exception to this statement on an across the board basis, and other purchasers can have a significant impact in specific product spaces. A recent example of Wal-Mart's significant impact on standards is the degree to which its decision to require its top 100 suppliers to utilize RFID tags dramatically accelerated the credibility of that standardized technology. Wal-Mart'sdecision, and a similar announcement made not long after by the United States Department of Defense, immediately increased the interest of vendors in committing to the development of products based upon RFID standards.

[20] The use of government unique specifications in procurement was dramatically curtailed at the federal government level in the United States ten years ago by the passage of the National Technology Transfer and Advancement Act of 1995 (NTTAA), which required the federal agencies to (a) use available market standards when they were appropriate and available, (b) support and participate in SSO standard setting, and (c) report annually to NIST on their progress in implementing the TTAA. *See:* Updegrove, Andrew. *A Work in Progress: Government Support for Standard Setting in the United States: 1980 – 2004*. ConsortiumInfo.org, Consortium Standards Bulletin, Vol. IV, No. 9 (September 2005) *at* < http://www.consortiuminfo.org/bulletins/jan05.php#feature>, and sources cited therein.

[21] Using standards solely for the purpose of favoring domestic commerce at the expense of international competition is forbidden under the World Trade Organization's Technical Barriers to Trade Act

Alimentarious (which sets food standards). More recently, some governments have begun focusing on types of standards (e.g., those that do not require the payment of royalties), and standards related tools, such as open source software in addition to traditional criteria. For example, some governmental agencies in Europe have begun requiring purchasing of open source software, and Massachusetts became the first state in the U.S. to require procurement by its Executive Agencies of only those products that support a very high degree of openness.[22]

Where such requirements exist, they can create a powerful incentive for other stakeholders (and particularly vendors) to create standards that meet the requisite demands of government purchasers, and to choose SSOs as hosts for development activities that are best suited to create standards that will receive speedy and sure adoption at the requisite ultimate level of approval.[23]

- **Specific Requirements:** Governments sometimes have specific needs or agendas that may lead them to provide funding of a type that is not otherwise commonly available to support standards related work. In the United States, such support may (for example) come from agencies such as the Department of Agriculture or the National Aeronautical and Space Administration (NASA), each of which has provided funding for initiatives in geospatial information systems standard setting.

Mode and degree of participation: In addition to having somewhat different interests and goals than commercial end-users, government end-users also operate under additional constraints beyond those already mentioned. Those constraints (which vary by type of entity and country) can include budgets available to permit participation and regulations involving conflicts of interest and involvement with private industry. The net result of these and other constraints is that when government end-users join multi-tier consortia, they rarely wish to become members at a top level, since the active exercise of the control elements that frequently provide the greatest differentiation from lower classes of participation are neither desired nor, in some cases, permitted to such members by the regulations to which they are subject. Instead, government end-user members typically participate in such organizations at a level that is entitled to participate in the technical process in a voting or non-voting capacity.

Where participation by government is considered to be highly desirable by an SSO, lower dues for equivalent privileges are often charged to such members than for commercial members, due to the fact that many government end-users are unwilling or unable to pay commercial-level dues.

Individual practitioners: In some influential SSOs (such as the IEEE), membership is at the individual level, and the cost of membership is modest. Where individuals participate at the direction of their employers in developing standards that are highly strategic for their companies, their goals are largely synchronous with those that pay for their participation (at least when they are willing to act as expected). But where participation is voluntary, whether or not supported by their employers, individual motivations include the following:

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[22] See the articles in the September 2005 issue of the Consortium Standards Bulletin, Vol. IV, No. 9 (September 2005) *at* <
http://www.consortiuminfo.org/bulletins/sep05.php>, and particularly *Massachusetts and OpenDocument: A Brave New World? at* < http://www.consortiuminfo.org/bulletins/sep05.php#feature>.

[23] A current example of this dynamic is provided by Microsoft's race to gain ISO adoption for its Open XML reference schema, which is tailored to Microsoft Office. After Massachusetts announced that its Executive Agencies would only purchase office productivity software that met a high test of openness, and that OpenDocument Format (ODF), a standard developed by OASIS, met that test while Microsoft Office did not, Microsoft decided to seek adoption of its XML Reference Schema as a standard. OASIS had already submitted ODF to ISO for adoption, after waiting the required six months to become eligible as a Publicly Available Standard (PAS) submitter. Presumably, in part as a result of ODF's head start, Microsoft chose Ecma, a European SSO that was already qualified as a PAS submitter, as the SSO to host the first process step leading to the achievement of the hoped-for final goal of adoption by ISO. By choosing a pre-approved SSO, Microsoft avoided being behind ODF by a further six months in its effort to achieve parity in legitimacy for its schema. To follow the entire saga, *see* the many entries in Updegrove, Andrew. *The Standards Blog/OpenDocument*. ConsortiumInfo.org, *at*
<http://www.consortiuminfo.org/standardsblog/index.php?topic=20051116124417686>

- **Professional satisfaction:** Many individuals in some SSOs participate purely out of professional interest in the subject matter of the projects in which they enroll. But while such participants may be more neutral from a commercial perspective, they are also free to be as opinionated or eccentric in their beliefs as they may wish to be.

- **Training:** Participation in many organizations that set standards provides an opportunity to learn new skills and polish old ones.

- **Networking:** Participation in standards development can further many goals, not all of them technical. In today's more dynamic and mobile marketplace, career advancement and pragmatic insurance against protracted unemployment are logical motivations for getting to know potential employers in a sanctioned setting. Similarly, chairing a technical working group can add a worthwhile credential to a technical resume.

Mode and level of participation: While vendors can (and certainly do) instruct their employees to become active participants in work groups of interest to their employers, any other individual that wishes to participate on their own initiative is free to do so as well. Of course, an employee whose travel is paid for, whose schedule is lightened to accommodate serious participation, and whose bonus and advancement at work may be dependent upon her effectiveness in that participation, may be both able and motivated to have greater impact than someone participating on his own nickel and free time.

At the same time, the percentage of company-sponsored active participants will vary from working group to working group. Similarly, not all employer-supported participation is controlled from the top, and individual employees may often therefore be voting their technical conscience.

Historically, individual engineers and others may have played a larger role in some standard setting areas when the standards being created were more utilitarian and less strategic. As the specific outcomes of standard setting in such industries have become more determinative of the success or failure for individual vendors, however, such entities have become less willing to leave outcomes to chance, and are likely to concentrate more resources on staffing standards development activities and in lobbying for the success of their favored candidate specifications.

An interesting parallel to this dynamic is currently occurring in the area of open source software. Initially, individual engineers working in their spare time via the Internet performed all work. As more vendors began to adopt strategies based upon providing support, integration, or other services based upon open source products, however, they directed more employees to become volunteers in such projects on company time, and also created or supported open source projects of their own. Today, the greater part of the code contributed to some open source projects comes from such employees, while in others, the original model still prevails.

Universities and academics: The interests of the two groups are in some ways different, and in other ways aligned. Universities, after all, are substantial consumers of standards in all aspects of their operations, from the scientific instruments in their labs, to the building and operations of their physical plants, to their extensive IT systems, and more. Academics, in contrast, are more likely to be interested in the research and development of technology and the standards that will be needed to deploy those standards – which, of course, is also a part of the interest of the universities that employ them, bringing the two interests back together once again. Hence, non-academic and academic employees of the same institution may participate in SSOs in ways that are basically the same as commercial end-users, as well as in ways that are more similar to representatives of (for instance) NASA or the National Institute of Technology and Standards (NIST).

Mode and degree of participation: Like some other categories of stakeholders, universities and their professors are not likely to be interested in paying for high-priced memberships when the development activities of interest are being conducted in consortia. At the same time, however, the participation of university members may be highly desirable to SSOs, due to the level of expertise, credibility and other resources that such members can bring to the process in some disciplines. As a result, high-priced consortia often charge university members lower fees for rights equivalent to those provided to for-profit members.

As with most other non-vendor stakeholders, university members rarely have an interest in paying a premium to enroll as a member of a class that includes strategic control of future direction.

Consumers: In many ways, consumers are the most broadly impacted type of stakeholder (since they are the least able to adapt, work around, or supplement the failings or inadequacies of the standards upon which their world is based). The following is only a sampling of those standards-related aspects of product design that may receive insufficient attention on behalf of the consumer as a result of the absence of that class of stakeholder as a participant in the standards development process:

- **Solutions, as compared to products:** While vendors are in the business of creating specific goods, their motivation is not so much to create those goods in particular, but to sell whatever goods in their field of competence they believe will deliver the highest returns at the lowest risk. As a result, the motivation of vendors only roughly aligns with the interests of the customer.[24] For example, with digital convergence, consumers are now able to buy certain kinds of products (such as digital phones) that package multiple services in a single device. At the same time, however, they lack the type of tools that would make it easy to enjoy the benefits of these new devices, such as a unitary means to securely, easily and permanently archive all of their audio, video, still photo, and document data,. Arguably, consumers need and might want standards that enable ease of use far more than ones intended to enable complex devices, but vendors have simply not (yet) decided that it would be in their best interests to develop and implement such standards.[25] Instead, vendors (such as Apple, with its iTunes music service and iPod series of devices) often continue to promote proprietary formats whenever possible, rather than adopt the type of standardized formats that would make the life of consumers easier, but would also help customers avoid becoming locked into the product line of a single vendor.

- **Features and design:** While competition to provide rich feature sets is in one way positive, this dynamic can go wild where there are no constraining forces and the costs of feature creep are inconsequential. From mobile phones to digital cameras to office productivity software, technology-based products have become ever more complex at the expense of understandability, ease of use and system requirements, commonly arriving with user manuals that can run into the hundreds of pages. Few customers use more than a small fraction of the functionality provided, but many are frustrated and confused by the complexity of operation that including the unwanted functions introduces to the device.

- **Accessibility:** Despite the fact that substantial numbers of consumers have disabilities of various types, vendors have been curiously slow to compete on (or even provide) accessibility features. As a result, while someone in the U.S. who is blind may safely assume that federally compliant buildings will include brail messaging in elevators, they cannot assume that they may purchase increasingly essential IT based products that are suitable to their needs (the same applies to the hard of hearing or those with limited motor control).

- **Health, Safety, Economy:** Many consumers place a high priority on health, safety and "green" product features. Using cars as an example, the average consumer today might well prefer a car that was 20% lighter, if it offered a commensurate savings in fuel economy and reduced carbon dioxide emissions.   The automotive industry, however, has consistently lobbied against increasing fleet requirements for fuel economy, even though such requirements would fall upon all vendors (domestic and foreign) alike, placing them at no competitive disadvantage.

Mode and degree of participation: Notwithstanding the fact that consumers are by far the largest class of stakeholders, they have traditionally been the least represented constituency in SSOs.

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[24] This lack of alignment exists not only at the level of the specific product and purchaser, but also at the level of society in general. As a result, and for similar reasons, auto manufacturers have traditionally lobbied against, rather than for, advanced safety features, fuel economy and environmental restrictions on their activities, at the expense of the health and welfare of the consumer, as noted in the last bulleted item in the main text.

[25] For a detailed analysis of this topic, *see* Updegrove, Andrew. *Introducing the Personal Datasphere,* Consortium Standards Bulletin, Vol III, No. 2 (February 2004), at <http://www.consortiuminfo.org/bulletins/feb04.php#trends>.

The result is that they are largely dependent on those standards that active participants (and particularly vendors) wish to develop. In general, therefore, the degree to which the world of standards is optimized to the benefit of the consumer is extremely varied, with standards established by government mandate usually representing those most consciously crafted with their welfare in mind.

Traditionally, such standards have been established through direct regulations, but more recently the EU has moved to establish modalities for representing the consumer in standard setting by proxy where consumers themselves are not likely toparticipate. The most targeted example is the creation of the European Association for the co-ordination of consumer representation in standardization, or ANEC, which was chartered in 1995. Although staffed by volunteers who receive only reimbursement for expenses, ANEC representatives provide a voice for the consumer in scores of European standards committees and other venues.[26]

Consumers are represented in many countries, however, on an indirect basis by other types of organizations, since multiple NGOs (unions, professional organizations, and so on) are eligible to, and do, join some types of SSOs. However, the degree to which this participation is actively and effectively exercised varies widely, with some appointed representatives failing to participate, or participating only passively. Even where such participation is active, the interests of an association (or the management of that association) may not be identical to that of the typical consumer.

As a result, while government regulations protect the interests of the consumer in some essential areas, there are other standards-related consumer interests that are largely neglected.

Summary: The voluntary consensus process of standards development offers a good, but not perfect method for serving the needs of all stakeholders. Theoretically, openness to all affected parties should yield balanced results, but that outcome will be favored only if all stakeholders actually participate, and if each is equally motivated to advance its respective cause. Given that this utopian state will virtually never exist in actual practice, it is necessary to add structural and process safeguards in order to achieve a truly balanced result, if that is the goal of a given standards development process.

Currently, the world of accredited standards development has an institutional commitment to achieve balance, but achieves this result with varying success. Consortia, almost without exception, have not included a commitment to this outcome in their charters at all. This leaves the legislative process (itself an imperfect tool) as the only avenue for the protection of the standards-related interests of all stakeholders. However, legislatures are heavily burdened with a multitude of other concerns for which they are the only mechanism available. Not surprisingly, they are therefore typically slow to take on new areas of regulatory responsibility.

As a result, SSOs of all types should be mindful of the fact that government has ceded to them what is in effect a quasi-legislative right to create tools that have profound impacts on society. With this right comes a responsibility to be aware of, and act responsibly towards, the interests of all stakeholders, both non-members as well as members.

Comments? updegrove@consortiuminfo.org

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[26] Fabisch, op cit., at 11.

FROM THE STANDARDS BLOG

OPENSPARC OR POWER.ORG:
WHICH ONE HAS IT RIGHT?

Andrew Updegrove

Wednesday, April 12 2006 @ 07:18 AM EDT

Last summer, IBM set up Power.org, to promote its PowerPC chip as what it called "open hardware." This year, Sun Microsystems launched the OpenSPARC.net open source project around the source code for its Niagara microprocessor. But what did each vendor mean when it used the word "open" ? In the case of Power.org, IBM venture group partner Juan-Antonio Carballo said, "It includes but is not limited to open source, where specifications or source code are freely available and can be modified by a community of users. It could also mean that the hardware details can be viewed, but not modified. And it does not necessarily mean that open hardware, or designs that contain it, are free of charge."

True to that statement, you have to pay to participate meaningfully in Power.org, as well as pay royalties to implement - it's built on a traditional RAND consortium model. To use the Sun code, though, just download the code under an open source license, and you're good to go to use anything except the SPARC name. All of which leads to the questions: "What does "open" mean in the context of hardware, and which approach will work?"

A few weeks ago I wrote an entry that touched on this topic, called "That was then and This is Now: SPARC International and OpenSPARC.net," occasioned by by Sun's announcement of its "open source hardware" . In that entry, I reminisced about several organizations created almost 20 years ago by IBM, Motorola and Sun, including SPARC International.

A few days later, David Weaver, a long-time (21 years, no less) hardware and software veteran of Sun who has been involved with SPARC International from its inception sent me an email. That message included all manner of interesting information updating (and in some cases) correcting my memory regarding the past history of SPARC International. It also contrasted (as I had in my initial entry) the Sun initiative with IBM's Power.org, which also harks back to an earlier IBM initiative involving the same processor design that has now been opened up by IBM. The old organization was called the PowerOpen Consortium, and was a client of mine until it was dissolved.

This entry will pass along David's interesting data, as well as revisit the question of what "open" means when applied to hardware, and whether open standards (the IBM approach) or open source (the Sun route) are likely to best achieve the same basic goal: rallying support for what was once a totally proprietary microprocessor design.

Let's start with the relationship of the old organization (SPARC International), which lives on, to the new initiative (OpenSPARC.net). The following is taken from the updated master OpenSPARC FAQ:

> **Q: What role does SPARC International play in this?**
> **A:** SPARC International was created in 1989 as an independent, non-profit organization. The Corporation's purpose is to promote the design, development, and application of SPARC (Scalable Processor ARChitecture) to computer and related products, and to control, maintain, and enforce SPARC trademarks. Sun has open-sourced an implementation of the SPARC architecture; the open-source implementation is independent of the oversight provided by SPARC International. SPARC International continues to provide SPARC compliance test suites to developers who wish to certify and brand their own implementation based on SPARC architectures. To become a SPARC International member, obtain information for compliance test suites, or to get answers to trademark questions contact: karen@sparc.org

According to David, SPARC International also "owns and controls the standard SPARC architecture" as well.

David tells me that my memory was off base when I recalled that Sun had offered to license any SPARC processor designs through SPARC International. As I reported, the new initiative is making a current processor design available on open source terms. David describes this as follows:

> Sun contributed the source code (in the Verilog language) to the UltraSPARC T1 ("Niagara") processor, the full new UltraSPARC Architecture 2005 specification, and lots of support tools to the OpenSPARC community. All are laid wide-open for everyone to view, modify, and use as they wish.   The source to a previous 32-bit SPARC design, OpenSPARC IIep, is also openly available. This is all done through OpenSPARC.net.

The processor code and tools are available through the OpenSPARC open source project, of which the OpenSPARC Website is the public face. It will be interesting to see who is attracted to this project, and what they decide to make of the opportunity. David pointed me to this abstract of A Community Vision for a Shared Experimental Parallel HW/SW Platform from a team at UC Berkeley that would utilize elements of either SPARC or the IBM PowerPC. He says that there is also interest among EDA vendors in using the OpenSPARC code to test their own tools, and/or make their tools available to those using the OpenSPARC Verilog code. Finally, he states that there are "even some commercial companies who are investigating customizing the OpenSPARC design for use in their own products."

Will all of this happen? Given the recent code contribution, it's too early to tell, although David says that the number of downloads of the source code in the first week of availability was "enormous". However, there is a news page at the OpenSPARC.net site, and presumably when things happen, they'll be promptly posted there, so this would be a good page to monitor if you're curious.

There is another link between the old and the new initiatives, and the OpenSPARC.net project may reflect new interest back on the old in consequence. That link is the SPARC trademark, which remains the property of SPARC International. As a result, while the code and tools that may be accessed through the open source project are free, a license to the trademark would still be needed by anyone wanting to associate the SPARC name with (for example) a commercial implementation of the code.

David also went to some pains to distinguish Sun's open source project approach to the SPARC code from that taken by IBM with respect to its PowerPC architecture, and Power.org. David points out that access to all OpenSPARC intellectual property (other than the trademark) is free and open to all, while most of the meaningful benefits of being associated with Power.org are available only to categories of members that pay from $10,000 to $100,000 annually, depending on the level of participation and control they elect to buy in for.

Those rights would include the right to influence the future development of the PowerPC architecture, but actually implementing a PowerPC design would incur a royalty obligation. Given that Sun has pledged at the OpenSPARC.net Website that the SPARC code will be available under an open source license that meets the standards of OSI (the Open Source Institute, which is recognized as the arbiter of what does, and does not, made the grade as an "open source" license), presumably anyone wishing to fab a chip based on the SPARC code could do so without owing Sun anything, so long as they private-labeled the result.

It will be interesting to see how both the SPARC and the PowerPC initiatives fare in the marketplace (the News page for Power.org, by the way, is here). Each is an experiment in dealing with intellectual property rights (IPR) in new ways, as well as in sharing historically proprietary value in new areas besides software in hopes of reaping rewards from doing so. If the IPR is perceived as valuable and the proposition is right, both sides will win.

On the other hand, if the IPR is seen as valuable but the model is flawed, then the effort will languish. Having two different models and designs that are in the same nominal category (microprocessor designs) and that have been launched in the same relative time frame provides quite an intriguing opportunity to let the marketplace decide which approach it likes best.

Of course, all things are never equal, and this situation is no exception. But I'll check in from time to time to both sites to see what wins are announced in the future and report on what lessons may be worth drawing as the future unfolds.

CONSIDER THIS

‡ ‡ ‡April 27 2006

 # 38 The Minnesota Open Formats Bill: Bandwagon or Babel?

Standards, as compared to laws, are created through something called a "voluntary consensus process." This process operates on an opt-in model, so if you wish to participate and have the time and wherewithal to do so, you are free to join in so long as you meet whatever eligibility requirements the organization in question may impose. Once in, you are free to act in your own self-interest, without any strict obligation to other members or constituencies, although the common goal is expected to be the creation of effective standards.

That goal is important, because standards directly and indirectly affect many constituencies. These constituencies include vendors, consumers, and government users, among others, and such categories are often referred to "stakeholders." If the active membership of an organization includes representatives of all such groups, then there is the potential for the final standard to be representative of the desires, and responsive to the needs, of all stakeholders. On the other hand, without the participation of a given affected class, the likelihood of achieving such an ideal result decreases.

In a democratic government, the goals are similar, but the means of achieving them are rather different. First, legislators are directly responsive to their electorates, rather than being merely individuals that live in the same districts, and therefore may (but also may not) have a common self-interest with their neighbors. Second, there is an active and free press in many countries that is more than interested in exposing shenanigans whenever they occur. Again, most stakeholders in a country like the United States are well organized and represented by national organizations with lobbyists, in order to make sure that those that make the laws know what each segment of voters (and potential campaign contributors) is looking for. And finally, there is a web of laws and regulations that provide an overarching rule set, prohibiting (for example) various types of discrimination, guaranteeing free access to the polls, and many other systemic safeguards to protect the rights and interests of the various classes of stakeholders.

These two systems, one consensus based and the other founded on the election process, usually operate independently. But at times they do intersect. For example, governments as well as private sector organizations set standards in areas such as health and safety, although only government can enforce such standards through laws and regulations. But governments also recognize the value of the voluntary consensus process, and defer to the many accredited and unaccredited standard setting organizations (SSOs) that have been founded over the years.

This results in greater efficiency in government, because legislators can focus on those tasks for which formal government is best suited, while the public benefits from the many thousands of standards that are created without tax dollars by privately funded SSOs standards. Today, these standards are increasingly essential to the operation of modern life, and to the operation of government itself.

In recognition of this value, the United States federal government decided ten years ago this month to get out of the standard setting process to the greatest extent possible. Through passage of the Technology Transfer and Advancement Act, the federal agencies were directed to use voluntary consensus standards (and even de facto standards set by single vendors, if they are widely adopted) wherever possible, rather than create "government unique" procurement specifications that could lead to higher contracting costs.

All of which sounds very neat and orderly in principle. In practice, of course, the public and the private sectors do not always interoperate so coherently or with such productive results. After all, standards are not what could be called a high profile topic for legislators to focus on, and therefore well-intentioned efforts can sometimes be launched that may require refinement before they are capable of achieving the greatest good.

Which, at last, brings us to my usual invitation, which, as always, is to consider this…

It is perhaps no surprise that Minnesota, a blue state like Massachusetts and heir to the political traditions of the Prairie Populists, should be the situs of a bill to require "open data formats." In spirit, this is a good thing, as it indicates a broadening appeal for open document format standards that, if missing, would be worrisome. But is the bill as submitted an encouraging signal that a bandwagon effect is taking hold, or a step towards standards Babel, and a step backwards? The question is a serious one for a variety of reasons, and cuts to the heart of why standards exist.

Clearly, the definition of an "open standard" contained in the Minnesota bill includes many of the attributes that make a standard useful, such as requirements intended to prevent "lock-in" by a single proprietary vendor. But inherent in the concept of a standard is wide acceptance - and if everyone comes up with her own definition of what an "open standard" means, then there is no "standard" for what a "standard" is. If that happens, then the whole economic basis for standardization collapses, because the incentive for a vendor to support a standard is to reach and sell to a large potential customer base with a single, uniform product. Unless each customer specifies the same standards requirements, then the vendor can expect no return on its investment in compliance. Moreover, the citizenry suffers as well, because the software that someone needs to exchange a document with her state congressman in St. Paul may not be what's required to communicate with her senator in Washington.

Does this make the Massachusetts policy bad as well?

The answer is no, because there is one crucial distinction between the Massachusetts policy, and the bill filed in Minnesota. That difference is that the Massachusetts bill refers to whether or not a specification has been approved by a recognized standards body, while the Minnesota bill (thus far) does not. In doing so, Massachusetts is doing several productive things:

- First, it is piggybacking on the good work that has already been done elsewhere, through recognized and respected standards organizations, in creating "open" standards for specific purposes.
- Second, it spares the State the burden of evaluating every product on its own, rather than being able to rely on evaluations (and sometimes certifications) that are already available in the marketplace for standards-compliant products.
- Third, it is taking advantage of the appeal to vendors that a recognized standard provides - that there will likely be many customers that will include compliance to the standard in their purchasing requirements. This means that there will be likely to be many more products offered, with more attractive and varied features, and with greater price competition.
- Finally, the products purchased will be likely to be interoperable with far more products outside the state, enhancing the utility and efficiency of the software purchased.

By omitting reference to recognized standards, the sponsors of the Minnesota bill are actually taking a step backwards in the area of government purchasing. When the federal government abandoned the costly procedure of commonly using "government unique" standards, it sought to abolish the kind of procurement policies that led to the infamous $200 toilet seat, and other exorbitantly expensive purchases by federal agencies. In the IT world, that meant entering the more competitive, varied world of "COTS" (commercial off the shelf software).

The lesson, then, is clear. When legislatures and IT divisions of governmental entities wish to move towards open standards - a commendable goal - they should not create their own definition of what open standards are, but make use of the definitions of standards - and the products that meet those standards - that already exist.

This does not mean abandoning the ability to choose among standards. For example, a government could state preferences as among various standards. For example, a law could state that a standard that prohibits proprietary extensions would be used over one that doesn't. This would permit current purchasing from the field of standards and products that exist, while signaling the way to get more business in the future from the adoption of tighter standards.

There is also a second moral to the story: it is (in my view) very appropriate and desirable for governmental agencies (such as IT departments) to restrict purchasing to products that support open standards, wherever possible. It may even be useful for legislatures to require this - but only if those that craft the bills get the language right, and if that language survives floor debate and the reconciliation of drafts, which is not so easy to manage in the rough and tumble of the legislative process. A flawed bill, once passed, may needlessly restrict purchasing in a way that may cause long term harm.

Hopefully, the Minnesota legislature will add in references to established standards if the bill moves forward. Hopefully, too, this will become the norm in any other states that decide to walk down the same road.

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OPEN INVITATION: AN ANSI-SPONSORED FORUM FOR ACCREDITED AND NON-ACCREDITED STANDARDS DEVELOPERS

Early last year, an <u>unusual meeting</u> took place in Boston, called by the American National Standards institute (ANSI) and hosted by Gesmer Updegrove LLP. That meeting was a private briefing for the consortium community on the redrafting of the United States Standards Strategy (USSS). What made the meeting unusual was the fact that the worlds of formal, accredited standards development organizations (SDOs) and unaccredited consortia have coexisted now for more than 25 years, but almost never engage in dialogue with each other – even though they share the same companies, government agencies and other constituencies as members.

At last year's meeting, representatives of 21 consortia, including some of the largest and most influential organizations in the information technology industry, met with members of the USSS revision committee (of which I was a member) and ANSI. Those that attended engaged in a wide-ranging and mutually beneficial exchange of views. The consensus that evolved was that accredited and non-accredited organizations had a great deal in common, and that much could be gained from continuing the dialogue.

ANSI is now organizing a follow-on meeting to continue this discussion, and all interested parties are invited to attend. The following describes what the meeting is about, and how you can become involved.

OPEN FORUM FOR STANDARDS DEVELOPERS
June 21-22, New York City

The American National Standards Institute (ANSI) is hosting an *Open Forum for Standards Developers* in New York City on June 20-21, 2006. The event will bring together standards developers of all kinds — including consortia and other forums and ANSI-accredited and non-accredited standards developers — for the purpose of identifying opportunities for cooperation, collaboration and harmonization.

While the primary purpose of the event is information sharing and dialogue, meeting organizers predict that the discussions may lead to the development of specific action plans for advancing certain topics. The event will span two days so as to facilitate networking opportunities.

A <u>call for input</u> has been issued for agenda items. Topics already submitted for consideration include: mechanisms for minimizing redundancy; reducing time to market; intellectual property rights (IPR) issues; legislative and regulatory activities; information sharing and access; best practices for standards development; and third-party recognition or credentialing programs.

The *Open Forum* will continue a dialogue initiated on March 29, 2005, when consortia representatives met with members of the voluntary consensus standards community to discuss development of the United States Standards Strategy (USSS). Considered by many as the largest known meeting of the two constituencies, participants determined that more similarities than differences exist between the various organizations and that an ongoing dialogue would be helpful.

Based upon input received during the March 2005 meeting, discussion topics for an Open Forum may include:

- ways to ensure that "industry's base assumptions" can/will work together (i.e., do the technical work once, minimize redundancy, reduce time to market, etc.)
- options for sharing information (need to find out what others are doing) and articles on standardization
- development of a "federated registry" (i.e., a comprehensive database of standards metadata so that those developing standards can determine if the need has already been met)
- establishment of service to monitor legislative and/or regulatory initiatives that will impact the standardization community
- enhancing legislative connectivity, development and use of use common key messages in political "scripts" including presentations by standards developers to the House Science Committee or similar committees whose jurisdiction impacts standardization
- identifying mechanisms to reduce cycle time while ensuring a fair and open playing field
- identifying best practices for 'how to put a standard together'
- discussing the desirability of a credentialing system(s) for standards bodies
- soliciting enhanced U.S. federal and state government support of standards-setting activities
- ways to increase funding to support standards-setting – recognizing that not all organizations rely upon publication sales
- pursuing inter-sectoral (horizontal) coordination following an initial sectoral (vertical or sector-based) approach
- developing a Return on Investment (ROI) model to demonstrate adherence to the globally accepted principles for standards development
- promoting the concept of "using the best standard for the job at hand"
- allowing for and supporting innovation during standardization
- increasing awareness, outreach and education
- discussing intellectual property rights (various issues)

Registration information will appear soon on this page at the ANSI Website: http://www.ansi.org/meetings_events/upcoming_overview.aspx?menuid=8 For further information, contact: Stacy Leistner, ANSI director of communications and education (sleistne@ansi.org).