CONFERENCE SUMMARY AND ANALYSIS

BUILDING ECONOMIC STRENGTH AND SOCIAL BENEFIT:

OPENNESS AS COLLABORATIVE ADVANTAGE

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EXECUTIVE SUMMARY

Collaboration is one of those positive yet nebulous and almost illusory terms. Like the words "open," "peace" or "harmonization," "collaboration" seems like it should be a common goal and thus should be easily achieved. Yet nothing is further from the truth. Collaboration is a difficult, ever-shifting dance between partners that requires constant attention. Its value can be uncertain, and this uncertainty often leads to failure and a retreat to individual action. Collaborative advantage is achieved when greater results are achieved by working together than could be attained by individual efforts. It requires strategic planning, along with strong capabilities in facilitation, cooperation, and communication. This is difficult to achieve even on a small scale. Those who have tried to manage projects in a neighborhood or perhaps a company department can appreciate the challenges that come from different viewpoints, priorities, and cultures. Today, these challenges are magnified as technology enables us to work together across geographical and industrial lines and as traditional power dynamics shift, often as a result of technology usage.

Standardization has traditionally served as a key collaborative mechanism. Approached correctly, it can facilitate cooperation in a way that benefits the majority of stakeholders. This has been especially evident in the information and communications technology (ICT) industry, where interoperability is often critical. Without standardization, it would not be likely that we would have such "luxuries" as the Internet, wireless access, and the ability to share information across different platforms and formats. However, standardization has come under criticism in recent years. Some stakeholders, especially new entrants in the global market and those who don't own large amounts of intellectual property (IP), have opined that standardization is structured to meet the needs of past markets. Those markets were dominated by a few

multinational corporations—and a few countries—and innovations occurred more slowly. To address this situation with a goal towards strengthening standardization and making it more relevant to stakeholder needs, a *Standards Edge* conference was held in Beijing. China is rapidly becoming an influential leader in standardization and it is actively working to ensure that international collaborative infrastructures such as standardization meet the requirements of a broader spectrum of stakeholders.

The question this conference sought to answer was this: *How can standardization change to accommodate the needs of the growing diversity of participants and serve as the mechanism for maximizing collaborative advantage?*

Though it is difficult, collaboration is critical to social welfare and economic growth. This is especially true for information and communications technology innovation, dissemination, and interoperability. The level of collaboration can directly impact the level of a country's ICT capabilities as consumers and producers. It can determine whether and how a country (and its citizens, industries, and individual companies) will be able to participate in global systems such as trade, education, and health, or whether they will be left further behind. Isolation from modernized healthcare, education, and job opportunities caused by the lack of ICT access can have detrimental and lasting effects on society. From an economic standpoint, businesses stand to suffer when large populations lack ICT access as well. The more people who can access technology, the broader the market will be. Though profit margins may be lower in some regions where incomes are minimal, businesses have the opportunity to actually increase their overall profits through expanded volume.

Achieving broader access requires more than just making ICT available. It means involving all stakeholders in the process of designing, deploying, and governing information and communications technology. The systems that we have relied on in the past were designed to meet the needs of G8 countries and multinational corporations. This infrastructure made sense when business and social exchanges were more limited. Today, however, there is a broader base of stakeholders. Countries such as Brazil, Russia, India, and China (sometimes known as the BRIC countries) are contributing significantly to the world’s economy and to technological

advancements. They are working to bring large populations online through innovative ICT infrastructures that align with their goals. In many cases, these countries are actually advancing the way technology is deployed as they are not constrained by more traditional infrastructures such as land line based telecommunications.

However, many countries are finding the current collaborative systems—such as intragovernmental organizations like the World Intellectual Property System or the World Bank—to be unresponsive to their needs. This is particularly true for ICT standardization and the rules that govern it. As a traditional mechanism for cooperation, standardization has rules and policies in place that are intended to bring stakeholders together to advance technology. Yet, many of these stakeholders report that the rules do not reflect the current diversity of participants. Instead, they have expresses that the rules tend to favor wealthy countries with significant IP ownership. Thus, they cannot obtain collaborative advantage through the current system.

Collaborative systems fail in two situations:

1. There is so much compromise that, while the stakeholders grudgingly agree, they are not motivated to act on that agreement. Thus, little or no implementation occurs.
2. The majority of stakeholder needs are not met within the system's rules and processes. Again, minimal implementation occurs because of dissatisfaction.

In both of these cases, system failure can either result in inactivity or in fragmentation. These are the dangers that standardization faces today. In order to foster international discussion on this problem, a *Standards Edge* conference was held in Beijing, China in April 2007, sponsored by:

- Ministry of Commerce of the People's Republic of China (MOFCOM)
- State Intellectual Property Office (SIPO)
- Sun Microsystems, Inc.

The conference was supported by:

- National Development and Reform Commission (NDRC)
- Ministry of Science and Technology (MOST)
- Ministry of Information Industry (MII)
- The State Administration of Radio Film and Television (SARFT)

- State Council Legislative Affairs Office (SCLAO)
- State Council Information Office (SCITO)

These cosponsors and supporters, along with a diverse group of speakers and participants, gathered to discuss how the global standardization system and relevant governmental policies should be changed. Of particular interest was the role of the World Trade Organization (WTO) in this arena. Speakers examined four areas during the conference:

- The Current Infrastructure: Myths vs. Reality
- Standardization for Collaborative Advantage
- The Way Forward
- Standardization Leadership

Within each topic, the speakers presented potential solutions and reviewed case studies. Most agreed that the current system needs to be redefined to accommodate the broader base of stakeholders. Many provided illustrations of changes that have been made to achieve this goal or recommendations for doing so. The problem of "convergence" was discussed in great detail. Though traditionally this term is used to describe the combination of technologies into a single product or solution, in this conference several speakers from China used it to describe the integration or use of intellectual property (IP) in standards. This was the topic that participants were most passionate about, since the way intellectual property rights (IPR) are managed in standardization will greatly impact profits, control, access and innovation. Many looked to Standards Setting Organizations (SSOs) to provide the right balance through their policies and procedures, although the differences—and tensions—between formal de jure SSOs and industry consortia was noted, and many felt both SSOs and industry consortia were largely failing to achieve the right balance. Finally, participants examined how governments could help to foster collaborative advantage in the ICT industry. Some explained that government should enact policies that facilitate standardization, without interfering in its processes or results. Others called for heavy government involvement to create a fair playing field.

All were in agreement that there should be more dialog. Collaboration has been a complex endeavor, one that requires strategic thinking and innovative solutions that can garner commitment from stakeholders. This commitment cannot be gained from enforcement of current rules as dissatisfied participants may opt to create their own standardization system that

better meets their needs. Nor can the system change so quickly or drastically that it alienates the current players. Standardization is about working together to achieve better results than could be realized independently. To ensure that it becomes a global mechanism for truly creating collaborative advantage, stakeholders must find a way to work together and to revise the system in a way that generates commitment and action from all involved.

The conference is part of a continuing series entitled "The Standards Edge." This conference series explores the impact of different issues in standardization by bringing together those who actively participate in and who are impacted by standardization to help strengthen the system. The Standards Edge conferences are accompanied by a series of books under the same name that explore and expand upon some of the conference themes. To download additional copies of this analysis or to order books in The Standards Edge series, please visit: www.thebolingroup.com.

BUILDING ECONOMIC STRENGTH AND SOCIAL BENEFIT: OPENNESS AS COLLABORATIVE ADVANTAGE

CONFERENCE SUMMARY AND ANALYSIS

INTRODUCTION

Collaborative advantage is essential to competing in the global economy. It is critical for building economic prosperity, delivering social benefits, and stimulating innovation. Quite simply, collaborative advantage occurs when greater results are achieved by working together than could be attained by individual efforts. This is not a new idea. Humans who excel at collaboration have always been more likely to survive. Sure, it would have been a great accomplishment to hunt a mammoth on your own. But, more likely, you would have ended up on the bottom side of your opponent's left foot. Actions like that usually result in blasting your genetic line into oblivion.

…collaborative advantage occurs when greater results are achieved by working together than could be attained by individual efforts.

Collaboration has always brought advantages when approached intelligently. Deciding with whom to work, how, and to what extent are critical business and policy decisions. These decisions aren't easy but rather require a good deal of thought and skill. Those who understand how to engage others, help them focus on a goal, and drive concerted actions towards results will be the most successful in this area.

Standardization as a Collaborative Mechanism

Standardization has long served as a collaborative mechanism. It has enabled technology producers—particularly those working on technology that benefits from use across networks—to standardize a particular function so that all applications that supported that function worked in a reliable, interoperable way. With standardization, producers collaborate and cooperate on the interfaces and innovate and compete in other areas, such as performance, energy usage, and other features. Approached correctly, standardization can minimize the barriers to participation, advance innovation, and facilitate international trade and idea sharing. Kofi Annan, the former UN Secretary General, stated, "ISO standards are crucial to sustainable development, as they are a key source of technological know-how, especially for developing countries and economies in transition. They are invaluable in helping countries develop their economies and build capacities to compete on global markets."[1] The World Trade Report of 2005 found that standards have risen due to consumer demand, innovation, and health and environmental issues.[2] Paragraph 44 of the World Summit on the Information Society Declaration of Principles, states "Standardization is one of the essential building blocks of the Information Society. There should be particular emphasis on the development and adoption of international standards. The development and use of open, interoperable, non-discriminatory and demand-driven standards that take into account needs of users and consumers is a basic element for the development and greater diffusion of ICTs and more affordable access to them, particularly in developing countries. International standards aim to create an environment where consumers can access services worldwide regardless of underlying technology."[3]

One of the conference speakers, Rishab Ghosh, pointed out that standards enable collaborators to create stable, agreed-upon "platforms" upon which to build future innovations. Though standards may limit innovation at some level, especially when adopted too early in emerging technologies, they ultimately reduce the risk for inventors and consumers while driving down costs for all.

Taken as a whole, the standardization system provides a flexible means for working together across geographical and organizational boundaries. Those who participate have extensive choices on where to standardize. According to Frank Post, Group Communications Director for

BSI, these choices are often about the desired level of consensus versus control. Formal international organizations such as ISO and IEC emphasize consensus, while consortia allow members to exert more control over process design, membership, and focus. So, as long as countries have the resources to participate, they should theoretically be able to employ standardization to gain collaborative advantage.

Standards Edge Conference

Given the importance and changing nature of collaboration and standardization in the ICT industry, a Standards Edge conference was held in Beijing, China in April 2007. This conference looked at how economic and social benefits could be created through openness and collaborative advantage in ICT standardization. Sponsors included:

- Ministry of Commerce of the People's Republic of China (MOFCOM)
- State Intellectual Property Office (SIPO)
- Sun Microsystems, Inc.

The conference had additional support from:

- National Development and Reform Commission (NDRC)
- Ministry of Science and Technology (MOST)
- Ministry of Information Industry (MII)
- The State Administration of Radio Film and Television (SARFT)
- State Council Legislative Affairs Office (SCLAO)
- State Council Information Office (SCITO)

Speakers came from different countries, cultures, and most certainly had different priorities. Some had the view that public good always outweighs private concerns. Others communicated that providing the right infrastructure can balance public and private needs. Some speakers argued that the protection of individual rights, particularly in the area of intellectual property protection, ultimately benefits society because the "best" solutions have the highest market uptake.

The diversity of opinions was the strength in this gathering. Collaboration that has a positive impact is difficult to achieve. If controlled too tightly, it will not gain commitment from enough parties to successfully implement a group's decisions and it might not be as flexible as needed. It can also run the risk of too much compromise so that, in the end, none of the parties

are enthusiastic about carrying a decision forward. Striking the right balance between public and private benefit, between consensus and relevancy, between access and competition, are critical to ensuring that collaborative advantage is possible. It is this balance that the conference participants focused on achieving.

INCREASING COLLABORATIVE ADVANTAGE

Using standards strategically can not only build a better ICT infrastructure, but may increase collaborative advantage for companies, industries, and nations. Though speakers differed on their ideas about how to create such an advantage through standardization, their support of standardization itself is evident in the significant amount of human and economic resources they invest in this activity. If standardization can be restructured to deliver collaborative advantage, it can create economic and societal growth. However, it can only be truly achieved worldwide when the relevant stakeholders in ICT understand how to work together effectively.

Stakeholders: Customers

Customers are generally the missing piece in standardization. On an individual level, consumers participating would require more resources than most would be willing to invest. There are consumer organizations that become involved in the process, but much of their time is spent on raising awareness of standardization's benefits rather than participating in creating standards. Influencing the system requires more consumer education and enthusiasm. Otherwise, they will remain small voices in a very large community. Large ICT customers, such as John Deere and many automakers, however, have a larger presence in standardization than consumers. Most Multinational Corporations (MNCs) must comply with a myriad of local standards to sell their products. They can certainly save money and increase product relevancy by influencing standardization decisions. These larger customers who invest significantly in ICT find participation in standardization to be strategic. For these companies, ensuring that available solutions interoperate and will continue to be supported is critical not only for cost reduction, but for future access to company data. In addition, their participation in standardization development can help to ensure that standards, and the resulting implementations, meet their requirements.

Stakeholders: Small and Medium Enterprises

Small and Medium Sized businesses (SMEs) typically do not have sufficient resources to influence standards efforts. Though they may be involved in niche working groups or strive to comply with standards mandated by their largest customers, their representation in the international standardization arena is minimal. To truly maximize the benefits from working together, consumers and SMEs must be able to cost-effectively participate in standardization in ways that ensures their ideas are heard and acted upon. As the system is refined, this is a goal that the other stakeholders can help to achieve.

Stakeholders: Large ICT Companies

Some companies develop a strategy that determines where, when, and how to participate in standardization. This goes beyond simply choosing the right standards setting organization (SSO) and assigning the most appropriate employees to participate. Rather, a standardization strategy is often developed and driven from the top down based on extensive economic, competitive, and market analysis. Businesses that are most successful in this area use extensive communication to generate support, cooperation, and enthusiasm for their standardization activities both internally and externally. While engineering is still an essential part of creating a standard, those on the business side of a corporation (including product management, marketing, and sales) need to also understand, influence, and leverage standardization activities to gain market advantage.

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Stakeholders: Industries

While most people view competition within a standards setting activity as between companies within a single industry, SSOs actually present opportunities for competition and cooperation between industries when previously distinct technologies begin to come together. One of the most obvious examples is the convergence of the telecommunications and information technology industries. Although we use the term information and communications technologies (ICT), the two industries have continuing differences in terminology, long term visions, and

goals. These demonstrate the level of competition as well as the potential for misunderstanding that can occur. As more technologies are contained in a single product or solution (e.g., cellular phones often now involve the camera, wireless, music, security, calendar and contact management, and news industries), the lines between industries will become even less distinct. This blurring of traditional industry boundaries means not only a heightening of competition between enterprises, but between industries as well. However, it also increases the opportunity for cooperation. The entire market landscape is changing constantly, offering opportunities for united industries (or even countries) to lead in a direction that offers them the greatest collaborative advantage.

Stakeholders: Countries

Countries can also influence standardization to gain collaborative advantage. Although the World Trade Organization's Technical Barriers to Trade Agreement (WTO TBT) prohibits the use of technological regulations simply to gain domestic advantage, countries can and do use procurement policies, government investments, standardization, and their legal infrastructure—particularly around intellectual property rights and antitrust—to facilitate their domestic industries. In addition, countries with larger numbers of consumers can generate wealth for businesses either through high volume or high margin purchases and thereby gain more influence over the market and thus standardization. However, countries can also use these advantages to create powerful opportunities for greater cooperation both within and between nations and industries.

…WTO decisions clearly have impact on a country's ability to maximize standardization and collaborative advantage.

A key to countries gaining collaborative advantage is a realistic understanding of the international arena not only in terms of standardization but also in world trade. There is a growing discussion concerning the World Trade Organization's (WTO) influence over the use of standardization. Whether requiring adherence to de jure standards in some cases or determining how standards can be used in trade and procurement (e.g., the TBT Agreement), WTO decisions clearly have impact on a country's ability to maximize standardization and collaborative advantage. Those countries that not only understand how to meet the WTO's

requirements, but also how to negotiate the political intricacies that influence those requirements and concession demands, gain a better position for maximizing standardization.

However, strategies for WTO participation are not enough to allow a country to benefit from cooperation. Just as a company should base its standardization strategies on solid analysis and the use of the abilities of its engineering and business sides, so should governments. And, while companies may derive their standardization strategy from their overall vision and business plan, countries, especially those with a centralized approach, may use their domestic and trade policies to drive their own agendas. At the core should lay a thorough understanding of how international standardization truly operates. Only then can countries determine how best to participate. Simply becoming adept at participating within the current structure of ICT standardization and its established rules (e.g., regional and international organizations, consortia, hybrids) is not sufficient. Rather, countries (and companies, for that matter), need to understand how to influence and change those structures. Strategies such as lobbying government for support as well as voters within an SSO, forming alliances and partnerships to further interests, and creating standards blocks are common. Though these methods are rarely publicized or openly advocated, international standardization participants often benefit when they are used strategically.

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More obvious ways to influence standardization both domestically and internationally are through government policies, laws, and regulations. Including intellectual property rights can provide an excellent opportunity for gaining collaborative advantage for some participants. Often, this will reap better rewards through the increased market size and power that standardization brings than the more traditional strategy of licensing IP for direct revenue gains. A country with high IP producers (particularly those who exploit IPR through patents, copyrights and trademarks coupled with the royalties they yield), may be more likely to have laws and trade policies that protect the patent owner. On the other hand, some countries tend to be users more than developers of IP. This includes those that specialize in manufacturing or

creating products based on pre-designed components. These countries benefit more from policies that promote the social good or technological advantages of sharing IP either free of charge or at a nominal rate. Additional mechanisms, such as antitrust laws, can also be designed and enacted to create a positive impact. For example, a country can structure its competition law to favor ex ante disclosure of patent usage terms and conditions in standardization. This would allow members to base their choices not only on the technological quality of different options for a standard, but on the economic implications as well. As a result, standardization could spur lower cost technologies both in terms of manufacturing and in final product purchasing.

All stakeholders must unite to change the standardization system. To do this successfully, they must understand today's system and how it operates. Only by grasping the current dynamics and practices, can concerned stakeholders succeed in refining the standardization system so it maximizes collaborative advantage.

THE CURRENT STATE OF COLLABORATION

Increasing Complexity

Collaboration used to be a fairly straightforward process. Groups were smaller and generally located within the same campus or city. Working together in a village, while it probably had its challenges, often had the advantage of a shared locality, culture, and language. Completing a project within an organization used to be less challenging as well. Of course, there were different personalities and priorities with which to contend. However, everyone was usually located within the same building or campus and shared common ideas and values. Today, even gaining commitment to a strategy within a single company's department is a daunting task. It is rare to find a team from the same location, from similar cultures, and with cohesive ideas and opinions. Given this complexity, it is easy to see why collaborative attempts between organizations can be exceedingly challenging.

Of course, as human and organizational structures have changed, so have our mechanisms for working together. In-person meetings still have their benefits, but limited budgets and time often make it preferable to have meetings using technology to connect. As technology advances, it expands the ways we can interact. While this enables us to better meet our situational needs it has two side-effects. First, complexity rises, and this requires increased management. While organizations take on some of this task, it more frequently becomes the individual's burden. If technology becomes too complex, it can detract from productivity. Second, the entry barrier for collaboration increases. Those without access to technology will often be prevented from participating. While technology has brought people together all over the world for social and economic reasons, it is also pushing the "have-nots" further into the background. Those who are connected can manipulate those who cannot afford technology. In addition, the people in those areas generally have minimal recourse for influencing the world in return.

New Players

Governments in many developing countries recognize this problem and are taking action to rectify it. The decision to hold this conference in China was strategic. China is rapidly becoming a major player in global politics and the world market. It is transforming from the world's manufacturer to an innovator. Its goal is no longer "made in China" but "invented in China." China is taking a centralized, strategic approach to standardization. The country has a thorough understanding of the international standardization system and has spent extensive time examining the standardization policies and strategies of many nations. Unlike some countries or regions, China's government places a high value on standardization and its different agencies are collaborating to execute a powerful strategy and supporting policies in this area. Further, China serves as the cornerstone of the BRIC economies. These countries are gaining influence and increasing their participation in world economics. They expect collaborative systems to meet their needs, not just those of the G8 countries, and they are actively working to meet this goal.

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Organizations must decide whether they will help to build a global trade and technology environment that encourages participation from all interested countries or whether they will risk fragmentation. As the economic and political powers of the BRIC and other countries grow, they can use those to either influence the current system or create their own. Their course will depend heavily on whether they are successful at the former. If they can participate in world collaborative structures on terms that are redefined to meet the needs of all countries, we should have a powerful, innovative system. If the barriers for new international market entrants are too great to overcome, it would make sense for them to form their own coalitions and create their own structures. If that happens, the fragmentation and Balkanization that we find challenging today will seem minimal compared to the results of this type of rupture.

There are many collaborative systems in the world. Some are more formal and structured, such as the World Trade Organization, others are less so, such as online communities. The open source world has created its own ways to work together that have attracted many of the traditional technology vendors. These different systems, which bring ideas and efforts together from diverse participants, can encourage innovation, or stifle it. They can facilitate participation, or inhibit it. Their impact depends on the existing structure, flexibility, and motivations of its stakeholders.

Fragmented Collaboration

However, the philosophical ideals of a system and the realities of its implementations are often different. Today, for our global society to truly achieve the benefits of collaborative advantage, the standardization system needs to be changed. Its rules and processes should accommodate an expanding set of goals, cultures, and languages. Richard Suttmeier, professor of Political Science, at the University of Oregon explained that the pace of technological growth is increasing and alienating those who aren't involved in the culture of the Internet. Further, as additional countries participate in the digital world and in standardization, they find that they are unhappy with the current international "regime." As a result, standardization is in danger of becoming too politicized.

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Both a growing fear and a growing support of regionalism were indicated at the conference. Standardization can be used to create domestic advantage. Although the WTO TBT prohibits this, it does not eliminate the practice. National or regional standards can be mandated in government procurement policies or at the very least encouraged. Regions can join together to create voting blocks in international collaborative efforts, such as standardization at ISO. Regionalism can result from a pure quest for power and money, but it can also be spurred by frustration, such as when countries believe that international processes do not allow them to influence or participate fairly. Developing countries, for example, sometimes communicate their belief that international standardization processes and policies are structured for the benefit of G8 countries. To compensate, banding together to create change may seem like their only recourse. The main danger of regionalism is fragmentation. An interoperable and reliable technological environment cannot be created in world that does not collaborate effectively. When regionalism becomes prevalent, the resulting standardization decisions are based on political preferences rather than on advancing technology or benefiting society.

The challenge, according to Suttmeier, is how to reconcile economic efficiency, technical progress, and equity. How do we move past fragmentation to deal with institutional integration that also takes into account the needs of different industries and cultures? As Guo Xiao Ming, chief of the law department of ZTE Corporation, via a spokesperson, explained, collaboration is essential to globalization and takes place between countries, regions, companies, SSOs and other types of organizations. With all of these different entities, he asked, how can you establish a mechanism that balances conflict between them?

This question is ultimately what the conference sought to answer. How can standardization change to accommodate the needs of the growing diversity of participants and serve as the mechanism for maximizing collaborative advantage? To begin answering this question, it is important to look at what is happening today in standardization.

STANDARDIZATION SYSTEM TODAY

Understanding the current system requires more than a simple diagram. One of the best representations requires an entire wall just to display vertical relationships between standards organizations, and this only includes official national and international organizations. The innumerable industry consortia and other alternative standardization groups are left to the imagination.

Of course, sometimes the best communication and innovation comes from breaking hierarchical structures. It is often the connections between groups that don't normally work together that provide the most valuable advancements. This is what the *Standards Edge* series aims to do—to bring together those working to improve the economic and societal benefits of standardization so they may create their own collaborative advantages.

The speakers at this conference examined the current state of standardization. They did not delve into the mechanics of formal relationships. Rather, they spoke about how things work behind the scenes. The standardization system is complex and the barriers to entry (and to leveraging the system effectively) are high. Manuel Lousada Soares, Brazil's Deputy Secretary for Industrial Technology in the Ministry of Development, Industry and Foreign Trade, explained that, in the past, barriers were more visible. It was, for example, difficult to ignore or overcome the "Great Wall." Today, though barriers are not as visible, they are just as potent.

Restrictive licensing conditions, exorbitant fees, and elaborate, confusing contracts and processes all inhibit trade.

Restrictive licensing conditions, exorbitant fees, and elaborate, confusing contracts and processes all inhibit trade. Complex standardization laden with varying intellectual property rules, unpredictable implementation costs, and confusing contracts can prevent a company or a country from competing in the global market or taking part in its governance. Only those who can afford a large team of lawyers to interpret the rules and provide proactive protection can truly risk contributing to the standardization system. This system worked when there were only a few companies and countries in the world participating. Now, however, it requires extensive investments of human

and monetary resources. These requirements result from challenges in the areas of intellectual property, voting realities, convergence, and differences in the definition of “open.”

Intellectual Property in Standardization

The top issue at this conference, and in most conversations about standardization, is whether intellectual property should be included in a standard. The answer is “yes” largely because avoiding IP is impossible. Almost any creation or idea is, in a sense, intellectual property. The better question is how should IP that's embedded in a standard be treated? For example,

- If an idea was created within the standards body in the course of standardization work, does it then become the IP of the standards body, the individual members, or the original inventor?
- If IP is created in a standards setting organization, can that be patented and exploited? If so, by whom?
- If IP is included in a standard, should it be included only if certain conditions are met?
- Should IP included in a standard be subject to compulsory licensing?
- Should IP in a standard be considered private property or a public good?
- Should the holder of an IP in a standard be able to control the implementations of that standard?
- Should the conditions for including IP in a standard be negotiated at the beginning of the process?
- If an IP holder includes their IP in a standard, should they give up future rights to that IP, at least in regards to implementers of that standard?

Moreover, who decides the answer to these questions, and how? This issue is a key problem in standardization collaboration.

This list could go on to include questions about processes, allowable royalties, and policies. The answers depend, of course, on who you are asking and when. Large patent holders tend to favor more control over their IP. Most argue for at least some compensation in royalty fees. Those with fewer patents promote the idea of royalty free when possible or minimal royalties when necessary. Of course, there are exceptions. There are situations in which large royalty holders anticipate an economic and market advantage from “donating” their IP to a standard. Similarly, there are IP holders with minimal, but extremely valuable patents, who can make a solid business case for maximizing their licensing revenues. These positions are not surprising. Businesses that do not keep revenue and market growth in mind will not survive.

No one effectively argues against this point. Businesses must survive to innovate and to distribute their innovations. ICT standardization is a way to grow markets for technology products that must interact and interoperate over a network, like the Internet. There should be some compensation and reward for contributing to a "virtuous circle" of innovation, productization, distribution, and further innovation. What is the best way to reward these innovators so that they can continue their contributions? Is the traditional means of rewarding patents and allowing licensing fees still working both for innovators and for the public good? Or, is it stifling technological advancements? Can innovation be rewarded and encouraged in other ways?

In the context of this conference, there was one question no one directly asked. Can including IP in a standard bring comparable economic rewards to the innovator if they forego licensing fees? Of course, this is the underlying argument used by royalty free proponents. They believe that standardization often creates more market growth than would have happened otherwise. At the very least, a larger market often translates into higher volume. Those who invented the IP could have "first mover advantage" and thus productize faster, and possibly more cost effectively, than their competition. In addition, because they invented the IP, they often have complementary technologies or services that can capitalize on wide implementation of the standard.

Can including IP in a standard bring comparable economic rewards to the innovator if they forego licensing fees?

Others in the conference indicated that the debate over innovator reward was secondary to that of public good. While IP mechanisms tend to award exclusive rights to the inventor, sharing that innovation for the larger good should be emphasized, according to these speakers. This could take the form of mandatory licensing terms if an IP is included in any national standard, for example. Or, it might apply only to essential patents. There might be a policy created to cover all of these areas. For example, a government might declare that any essential patents included in a national standard must be available on a royalty free basis. This might apply only to those companies participating in that particular standardization activity or could expand to

cover any IP holder. Alternatively, government might intervene only when it believes that the IP is critical to public welfare. The same debate occurs in the pharmaceutical industry. Should pharmaceutical companies be able to maintain exclusive rights over their patents? Is this necessary for encouraging future innovation? What about those whose lives will be detrimentally affected because they cannot afford a particular medicine? Do they have more rights than the pharmaceutical company? And how should these rights be viewed if instead of impacting on just a few individuals, there is an epidemic? At what point, if any, do collective rights dominate the exclusive rights of the innovator?

The increasing involvement of nonG8 countries is stimulating this debate over standards as private vs. public good, exclusive rights vs. collective rights. Since these countries are not generally large IP holders, trade and standardization rules need to be revised if they are to effectively participate in the global market and reap the rewards of technological advancement. These countries are not only working through international standardization organizations such as ISO, but through other organizations as well. Members of the World Intellectual Property Organization (WIPO), for example, have adopted a Development Agenda that will strive to make changes in several areas, including how WIPO handles IP, technology transfer, and technological assistance. Its purpose is to ensure that the needs of developing countries are met in international intellectual property matters. Part of the question is whether G8 countries will support this agenda and continue to work through WIPO or whether they will abandon the effort in order to focus on areas where they have more exclusive influence over international IP policies.

The increasing involvement of nonG8 countries is stimulating this debate over standards as private vs. public good…

Discussions about how to handle IP are numerous but reliable studies in this area are not. Clearly, there is perceived value in having one's IP included in a standard. The recent and ongoing efforts around wireless and document standards illustrate the wealth of resources that companies (and countries) are willing to invest in standardization. However, there has been insufficient research in this area to determine whether standardization can replace traditional intellectual property rights and licensing fees as a mechanism to reward and encourage

innovation. A few studies have shown benefits to the GNP. For example, according to BSI's Frank Post, an econometric study found that the economic benefits of standardization contribute 1% of GNP in Germany (estimated at 16 billion euros), more than patents and licenses. The study found that standardization can have a positive impact on technological innovation and dissemination.[4] Further research is needed to determine the rewards organizations can reap when they contribute their IP to a standard.

Lobbying

The inclusion of intellectual property in a standard raises the stakes significantly. Whether one argues that standards are for public good or should benefit the private sector, the consequences of one standard "winning" over another can be significant. As Andy Updegrove, a partner at Attorney, Gesmer Updegrove LLP, explained, "Those that control the standard, control the market." He cited WAPI and WiFi as examples. It is no longer a matter of simply putting the right engineers in a room to come up with the best, or at least most agreeable, standard. Today, companies invest significant resources in generating support for their preferred standard before a vote occurs. They harness the efforts of their public policy, engineering, marketing, and legal teams, along with their executives and business strategists, to influence an outcome. In formal standardization, this can involve influencing recommendation committees that advise their voting representatives at the national and international levels. In less structured circumstances, it can mean informally lobbying voting members or even setting up standards setting organizations whose members have similar goals. Either way, making significant progress in getting a desired standard approved requires far more than just sending the right technical people to the right meetings. It requires the resources and expertise to negotiate agreements that will result in positive (or negative) votes for a standard.

Some may argue that negotiation before a vote on a standard is an essential part of the process. Proponents might say that it helps to build consensus; to ensure that an approved standard reflects the needs of the majority of stakeholders. However, other speakers felt differently. Andy Updegrove, for instance, reported that the process has become so political that some countries have provided objections in JTC1 about being lobbied by Multinational Corporations (MNCs). As Updegrove stated, "The orderliness of the process and outcome are often inversely

proportional to the importance of the standard." In other words, the more that is at stake, the more negotiations and lobbying there will be behind the scenes before a vote occurs.

Convergence

When people talk about convergence, they are usually referring to the intersection of technologies. Telecommunications and technology, cameras and cell phones, cars and the internet are just a few examples and most agree that these create positive advancements. However, there is another type of convergence that some speakers deemed harmful: that is between intellectual property rights and standardization. Mr. Yi Xiao Zhun, Vice Minister of MOFCOM, suggested that inappropriate convergence between standards and IPR has caused problems. These problems include:

> *…there is another type of convergence that some speakers deemed harmful: that is between intellectual property rights and standardization.*

- Hindering technological advancement
- Obstructing trade
- Impeding harmonious development of society and the economy

This convergence, according to Yi and many of the other speakers, is creating a wider gap between developed and developing countries, especially in international trade. Crawford Beveridge, Executive Vice President at Sun Microsystems, said that if standards contained less IPR, they would stop serving as technical barriers to trade (TBT). Manuel Lousada Soares, Secretary for Industrial Technology in Brazil's Ministry of Development, Industry and Foreign Trade noted that the TBT is important to international trade. Brazil supports organizations such as ISO and IEC because they generally avoid including items in standards that are covered by patent rights.

Rather than removing IP from standardization, some speakers suggested that we look more closely at the underlying conflict. Michael Frolich of ETSI stated that the main basis of conflict is that the IPR holder has the potential ability to block a standard, thus preventing other companies from developing new solutions that talk to existing solutions. Others felt that the inclusion of IP in standards can magnify antitrust issues. Zhang Niagen of Fudan University

stated that standardization, antitrust, and patent licenses have a triangular relationship. He noted that antitrust would not be an issue without the patent licensing system.

"Open" Standards

One remedy proposed by many of the speakers was to embrace the concept of "open standards." Of course, the difficulty in implementing this solution is the lack of consensus about what an open standard actually is. Does it eliminate the challenge of convergence as described previously or simply manage it? Is an open standard available free of charge? Is it one in which each country has a vote, each stakeholder has a say, or are there limitations on who has decision making power? What's more important in determining the level of "openness," the characteristics of the standards development process or characteristics of the final standard—or are both equally important? Even if there were agreement, it would need to be determined how "open standards" could effectively be implemented across the numerous ICT standards organizations worldwide.

The answers to these questions depend on whom you are asking. Scott McNealy. Chairman of the Board for Sun Microsystems and Sun Federal, Inc, defined an open standard as "an open interface, published clearly, and is unencumbered by IP." Guangnan Ni, a Fellow with the Chinese Academy of Engineering, described an open standard as a specification whose content should be open and royalty free or possibly RAND. Its evolution should be controlled by an open organization and products should be readily available in the market. Michael Frolich explained that ETSI does not believe an open standard is royalty free; there is a recognized definition of open standard by the GSC (a consortium of Continental standards bodies). The definition, in resolution 10-04 and reaffirmed in resolution of 11-04, states that an open standard should include a collaborative consensus-based process that is transparent, no exclusion, and RAND or FRAND that do not mandate but permit licensing by the IPR holder.

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If you add continued confusion between open source and open standards, it is easy to see why the issue has become so convoluted. For this analysis open source is a type of license that gives users access to software's source code rather than access to only binary code. Code is what “runs” software applications. Open source licenses usually require that a developer who innovates on that source code share those innovations with the community. On the other hand, open standards are specifications that define and describe a method of doing a particular computing function or action. That computing function defined by a standard “runs” in code, either binary or source. Licensing arrangements around standards do not outline any requirements for the code that implements those standards. In some standardization licensing agreements, IP holders give up monetary licensing rights to their IP for standards implementers (“royalty free licensing”). In others, they can exact licensing fees, as in the case of DVD players. Products based on open source code can be sold for a price as can those products based on open standards. Neither are guaranteed to be available free of charge. In other words, an “open” and free input (source code or standard) does not necessarily mean that the final product, which is usually made of many technical inputs, is also “open” or free.

It's important to note that open source code does not guarantee interoperability between applications. With regards to interoperability, the key difference between open standards and open source is that the latter often defines interoperability based on the implementation, and, in bad cases, the particular version of the implementation. Lack of a common, well specified description makes it difficult to converge independent implementations as well as prevent unplanned divergence. Well written standards, whether “open” or not, should ensure interoperability. However, technology is always changing and most standards implementers do not have to submit their technologies to outside certification testing. Certainly, both open source and open standards can contribute to resolving interoperability issues but, in their current state, they do not provide the entire solution.

> *Without open source, there would not be a Chinese software industry—Hu Caiyong, Beijing Red Flag Two Thousand Software LTD.*

Despite the difficulty in defining the terms, open source and open standards can yield positive results. Open source can help developing countries to bridge the digital divide. As described by Hu Caiyong, General Manager of the Beijing Red Flag Chinese Two Thousand Software LTD (Red Office), open source is very helpful to Chinese companies. It helps them to change quickly and helps smaller companies to compete. Without open source, he stated, there would not be a Chinese software industry. Similarly, open standards can help to facilitate digital inclusion and a country's participation in the global market. Open standards can promote fair competition, which increases flexibility for consumers, improves security, and lowers costs, according to Guangnan Ni. Rishab Ghosh, Senior Researcher, University of Maastricht said that they are characterized by a high degree of competition for products and services, as illustrated in Table 1.

Types of Standards	**Degree of Competition for Products and Services**	**Access to Technology by other Players**	**Right Holder Advantage**
Proprietary	None	None	Full
Semi-open	Some	Some	Some
Open	Full	All, on equal terms	None

Table 1: Based on information provided by Rishab Ghosh, University of Maastricht

Open standards can allow others to more cost effectively localize technologies or build complementary and competing solutions that contribute to a technology's ecosystem. Essentially, standards can facilitate participation in the digital age and the global market by enabling more economical localization of products and more innovation. This lowers the barriers to market entry so that small and medium sized (SMEs) businesses and developing economies can contribute. The more contributors to an ecosystem, the more variety and choices a consumer will have. In addition, the increased competition should help to drive down consumer costs, making access to technologies more widespread. The more people there are who access the technologies, the larger the market. Thus, open standards should ultimately build a larger market for vendors, more choice for consumers, and spur digital advancement.

THE WAY FORWARD

Most of the speakers were in agreement that changes need to be made to the standardization system. Some described recent efforts while others provided recommendations. The changes need to take place across many different entities including countries, regions, international organizations, and ICT vendors. Without a concerted effort by all involved, any changes will have minimal impact. Making progressive changes will involve not only analysis of current processes and regulations, but also affect the way we essentially work together. Traditional boundaries must be made more flexible, whether those are between countries, competitors, or cultures. While advances in ICT are opening up our ability to communicate to an expanded community, sometimes the most harmful barriers remain in place. Traditional players in ICT must open up participation, including governance, to new entrants. Governments must work with industry and not just with one another. Competitors must learn how to thrive through strategic cooperation and new business models. And traditional organizational hierarchies that served the needs of the pre-digitized world must be softened to allow the right people to connect. Without these changes to the way we work, invent, and live, increasing digital connections will make little difference.

…the normalizing and regulatory aspects of the WTO have taken on a large role in guiding fair impact of standards.

The speakers proposed changes in three areas: the World Trade Organization (WTO), standards setting organizations, and government involvement. Clearly changes in one area must be reflected in changes to the other areas. They are all interlinked and consistency is vital to creating social and economic benefit worldwide.

World Trade Organization

As standardization has increased its importance in global trade, the normalizing and regulatory aspects of the WTO have taken on a large role in guiding fair impact of standards. Standards can be used to facilitate interoperability, ensuring a broader market and more choices for consumers. They can ease compliance with local regulations. Similarly, standards can be used to facilitate exports, which is why a study showed that 84% of German companies use European and International standards as part of their export strategy,[5] according to Frank Post.

In addition, standards can be used to localize existing products and technologies more economically. This capability can help to facilitate digital inclusion. Modifying existing technologies that are originally based on more traditional, westernized infrastructures to meet the needs of developing countries and those of individuals who may have physical accessibility challenges can enable a larger population to participate in the digital world.

Many of the speakers look to the World Trade Organization to ensure that standardization is used fairly in global trade. According to the Counselor of the Trade and Environment Division of the WTO, Patrick John Rata, WTO's role is to maintain an open, equitable, non-discriminatory standardization system. Harmonization is essential to the TBT agreement and standardization must be transparent and inclusive.

The danger is that a standard will be used to create a technical barrier to trade (TBT). China reconfirmed its belief that IP in standards is a trade-related issue that must be resolved in the WTO. Zhang Naigen is the Director of the International Law Center and of the Intellectual Property Study Center at Fudan University. For example, he believes that patented technology is increasingly being included in international standards. The TBT agreement is supposed to prevent this (as TRIPS is designed to ensure that copyrights do not create trade barriers). Therefore, he stated, it is important to discuss this issue within the WTO. He explained that this is a universal issue that countries of different economic levels will eventually have to face. Because it is difficult to reach consensus on this important issue, he warned that participants should be prepared to deal with the challenges. Zhang Qin, Deputy Commissioner of the State Intellectual Property Office of the People's Republic of China (SIPO), added that technology standards are mainly under the control of developed countries and multinational corporations. These standards, according to Qin, have become the main obstacle to international trade.

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Technical barriers to trade can be seen in different situations. A government, for example, might rule that imported products must comply with a local standard. While sometimes this is

necessary for safety and health reasons, it becomes an issue if that standard is either not available to all prospective implementers or if it is not available to all prospective implementers on the same terms. Even when the standard is available, world trade would slow significantly if each government demanded compliance to a large set of domestic standards as a means of creating national advantage. Clearly, businesses would not remain economically viable if they had to revise their product for each country. Unfortunately, this situation does exist to an extent. Most multinational corporations complain about the extensive demands for localization as it drives up costs. Of course, smaller businesses do not have the economic or human resources to meet these types of requirements.

Add to this situation the rising popularity of Free Trade Agreements (FTAs) and it is amazing that anyone can participate in the global market. FTAs can facilitate trade by helping the involved parties come to agreement more quickly than could be achieved in a larger negotiation activity. However, they can also undermine the larger, global multilateral trading system. First, there is little incentive to fix the global trade infrastructure if a country can obtain better terms through more exclusive agreements. Second, those with less bargaining power may be forced to succumb to the wishes of more powerful countries and agree to undesirable conditions. This, of course, could be mitigated if countries banded together for negotiations. However, a united front is difficult to achieve when each country has different goals and needs.

It is because of these conditions that countries look to the WTO to provide solutions. Many believe that working through the WTO to address the convergence of patents, antitrust, and standardization will result in a stronger, more relevant international trade framework. China, in particular, has been proactive in seeking change to the global trade infrastructure around standardization. In May 2005, it submitted a proposal to the World Trade Organization to encourage discussions on resolving IPR challenges. David Vivas, Programme Manager for Intellectual Property for the International Centre for Trade and Sustainable Development (ICTSD), discussed the need for more countries to become engaged in this issue. He stated that the Chinese proposal brings out the need for transparency, traceability, speed, and trust. While Brazil and India support the Chinese proposal, he stated, the US and the European Commission

are a bit more skeptical. There is a need to generate more awareness, according to Vivas, especially since the Chinese proposal is a footnote in the Triennial Report of the TBT.[6]

Manuel Lousada Soares of Brazil suggested that ISO and IEC should analyze the current situation in sectors such as information technology and provide a report to the WTO's TBT committee. He further proposed that ISO/IEC and the World Intellectual Property Organization (WIPO) cooperate more closely, particularly on converging terms in WTO agreements and on creating an objective definition of RAND (reasonable and non-discriminatory) licensing terms.

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Though RAND is referred to frequently in standardization, some speakers explained that the lack of an agreed upon definition makes innovation and manufacturing costs perilously unpredictable.

Of course, the role that the WTO takes depends, among many things, on how intellectual property is ultimately viewed. If the winning view is that traditional models that reward IP through strict protection (e.g., full control, licensing fees) are necessary for innovation, then measures to protect it will proliferate and be further integrated into the trade and standardization frameworks. Zhang Quin, Deputy Commissioner of SIPO, has proposed that IP start to be considered as a public good in some strictly-defined instances. If that happens, the WTO may then serve a different role. As Quin discussed, the WTO should then help to remove these barriers to aid all of society. He indicated that there is a need to define the direction of standardization in a way that will benefit society and help all countries to participate in international trade. There is a question, as mentioned previously, whether standardization of a technology can provide greater rewards to an inventor than the current benefits that come with patent or copyright ownership. If that can be proven, then the WTO's role might be to structure the global trade framework to facilitate this outcome.

The WTO will clearly play a significant role in ensuring that standardization contributes positively to global trade. Its biggest challenge will lie in incorporating the expanding needs and considerations of its members. If it does so correctly, the WTO can contribute to the

world's ability to generate collaborative advantage, particularly through digital means. Of course, in accomplishing this, the task becomes even more difficult. The more countries that come "online" and so are able to contribute to trade governance and structure, the larger the diversity of cultures and needs that will have to be balanced. As Patrick John Rata of the WTO stated, the WTO's goal is to help trade flow. And, to be successful, that flow must extend to all countries who want to participate.

Standards Setting Organizations

Standards setting organizations are positioned most effectively to resolve the challenges of the convergence of IP and standards. As the traditional mechanisms for cooperation in the ICT industry, these organizations have processes and infrastructures that can further collaborative advantage. Of course, many of these infrastructures were designed to fit the needs of bygone eras with radically different market conditions than exist today. But, with the increase in competition among SSOs, some have been working to align their methods with current market needs. This is an ongoing process, of course, as the participants and goals are constantly evolving. The key is to keep the dialog moving in a manner that encourages participation, negotiation, and compromise. Those compromises should not weaken the system but should strive to build upon the changing nature of ICT and the expanding diversity of its stakeholders to strengthen its capabilities.

Many of the recent changes in SSOs have occurred in two areas: processes and intellectual property. Most people are familiar with process changes that have come in the form of fast track capabilities that enable groups to submit a specification for approval and hybrid solutions such as those offered by CEN/ISSS and JTC 1. The treatment of intellectual property, both in SSO IP policies and in government policies and regulations, has the greatest impact on societal and economic growth.

Intellectual property changes and the debates around them focus mainly on the timing of disclosure of licensing terms and conditions. The proposed solutions depend on how the situation is framed and who is doing the framing. Standards setting organizations have responded with varying solutions. Many have learned lessons from cases such as *Rambus, Inc.*

v. Infineon Technologies and *In the Matter of Rambus, Inc.* These have led them to clarify their intellectual property policies. In doing so, they have held contentious debates in which the power of their larger members has become evident. Several speakers discussed the progress their organizations have made in refining their IP policies.

Jack Sheldon, Standardization Strategy Manager for IEC, spoke on behalf of ISO, IEC, and ITU. While he remarked that the issue of IP in standardization is important, he warned the audience not to exaggerate the problem. For example, he explained that only about 10% of IEC standards contain IPR. Further, according Sheldon, current European regulations do not specify any IEC standards that contain IPR. Rather than eliminating the current IP system, Sheldon stated that we must respect the system that is in place. As such, ISO/IEC developed a new patent policy that went into effect earlier this year.[7] This policy requests patent disclosure based on a good faith effort, even if the patent holder is not participating in the standards process. Once disclosed, the IP holder can choose from different options that range from RAND licensing to reciprocity. If a company is unwilling to license their IP, the technical committee is asked to withdraw or work around it. Most importantly, these SSOs do not take responsibility for patent rights. Therefore, although they request good faith disclosure, it is up to the standardization participants to negotiate terms.

ETSI, according to Michael Froelich, believes in preserving the rights of the IP holder. They encourage FRAND and early disclosure so that an IPR holder cannot block a standard later in the process. To address this need, ETSI developed a new IPR policy. Participants are asked to disclose IP early in the process, though there is no requirement for patent searches. Failure to disclose early can result in trouble with the European Commission Competition Authority. All disclosures are featured in the ETSI IPR database.[8] While disclosure and FRAND are encouraged, ETSI does not allow licensing discussions to take place at its organization nor does it assume responsibility for defining FRAND. The organization acts as a depository, not as a means for defining or enforcing specific licensing terms. Further, ex ante discussions are considered voluntary and are defined as a "mechanism about submitting anticipated licensing terms for a given standard draft before the contribution is locked-in as a standard."

While there are those who believe that IP should be included in standardization, others strongly advocate for their elimination or at least tighter control. Crawford Beveridge, for example, called for SSOs to ensure unambiguous IP licensing policies. He promoted the notion of ex ante licensing, a licensing model in which IP holders must state their licensing terms to other participants early in the standards development process. Guo Xiao Ming, as represented by a ZTE spokesperson, called out the need for predictable costs in manufacturing. The EU's recent decision to disallow ex ante royalty caps makes manufacturing costs unpredictable, according to Ming. To mitigate this unpredictability, he called for a viable patent licensing model in which RAND is more clearly defined. He suggested that there needs to be more deliberation about RAND as the current ambiguity gives more room to the patent holders. This ultimately undermines the commercialization of standards.

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Several of the speakers took a more academic approach. Yin Tianxin, Director General, Department of Treaty and Law of SIPO, for example, stated that China has two task forces looking at the issue of patents and standardization. They are examining such questions as:

1. Should standards include IP, and, if so, what kind of standards?
2. When drafting standards, should we obtain written consent from rights holders in advance?
3. If IP holders are unaware of their IP in a standard, how can we deal with it after the standard has been released?

While China plans to deal with many of these questions in patent, competition, and standards laws, the answers will clearly have implications for how SSOs address IP inclusion in standards worldwide.

The convergence of IP and standardization has created another problem: fragmentation. With so much money and market power at stake, standardizers tend to "play" in many SSOs to ensure the best outcome for their organization. This is partly risk management. If a company doesn't know which standard will get the most market uptake, it's prudent to influence and be familiar with all of the likely winners. This enables them to not only contribute to the specification but to implement it more quickly once the standard is released. In many

situations, participation in multiple, competing SSOs is aimed at getting one's IP included in a standard. While there are few studies that prove the economic benefits of this strategy, the market provides plenty of examples. The much publicized battles over wireless standards and document formats illustrate the importance that companies (and their countries) place on including their IP in a standard. Since significant resources are invested in not only creating the standard but in lobbying to get it through at the international level, the companies clearly expect a large return on their investment. Some expect to reap the rewards through licensing. Others waive licensing fees in the hopes of stimulating market infiltration and capitalizing on first mover advantage.

The rush to back the winning standard has created a standardization system that is fragmented and competitive. Theoretically, this can result in the "best standard wins" scenario. Those that believe in letting the market decide support the idea of multiple standardization options. However, fragmentation can also increase costs for consumers when the need for vendors to invest in multiple competing standardization activities multiplies their development costs. Further, it can actually inhibit market uptake as consumers, particularly large purchasers, hesitate to invest in a standard that may become obsolete.

…John Ketchell of CEN/ISS stated that there are too many standards wars and not enough coordination.

Two sets of solutions were proposed at the SSO level. John Ketchell of CEN/ISSS (who was also speaking on behalf of CENELEC and CEN) stated that there are too many standards wars and not enough coordination. As a result, many standards are not accepted. For example, numerous companies are still relying on EDI, a twenty year old standard, rather than risk going with more current options. Ketchell's proposed solution included:

- Reducing the number of industry consortia
- Providing more comprehensive information on "who does what"
- Improving collaboration between standards bodies
- Expanding marketing and education efforts to explain what standardization is and how to participate

Andy Updegrove agreed with Ketchell on the need for more coordination. Because technology convergence is so extensive, it overwhelms the ability of a single SSO to provide the relevant

standards for a particular area. Updegrove proposed the use of meta-SSOs that focus on creating solution profiles based on use cases rather than specific standards. These do not replace standards organizations but rather help to provide the level of coordination necessary for a more efficient and responsive market.

Frank Post of BSI puts the responsibility of standards coordination on the standardizers. He said that standardizers have the responsibility to ensure the interoperability between standardization options. Further, standardizers must support the user community. The availability of choice in standardization methods should continue. Some, such as international standards organizations, focus on consensus while others, such as consortium, feature more control over a standards outcome. Both of these types of options need to be available to suit situational and changing market needs.

Frank Post of BSI…said that standardizers have the responsibility to ensure the interoperability between standardization options.

Standards setting organizations have an obligation to fix the system. Or do they? They are, in a sense, acting in a strategic manner. As with private organizations, they need funding to survive and that funding usually comes from their member base. So, is it more prudent for standardizers to continue in their competitive mode, embracing the philosophy that the market will eventually choose the best models? Or, will this competitiveness ultimately undermine the standardization system until it disintegrates into irrelevant fragments or is replaced by different collaborative models?

Government's Role

The role of government in standardization ranks second in contentious issues next to that of intellectual property. Clearly, government can never totally be removed from standardization as it is a significant and influential ICT consumer. A government can specify standards in its procurement policies that yield great wealth for compliant companies and effectively shut other companies out of the market.

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The issue becomes even more controversial when a government specifies its national standards, especially if those standards are only available to domestic companies or preferred vendors. The potential degree of influence government has over standardization based on its purchasing power alone is extensive.

Government can, of course, direct or at least guide the standardization infrastructure. Domestically, the policies and regulations governments implement determine such aspects as whether RAND or ex ante licensing and even standardization itself is anticompetitive; whether intellectual property should be subject to mandatory licensing; and, in some cases, what standards organizations will be sanctioned and how the hierarchy should be structured. .

Speakers debated whether it is best to let the private market sort out standardization options or whether the government should take a stronger role in structuring this system. Although it would be expected that those from capitalist countries would favor private market and citizens from socialist countries would support government control, this was not always the case. In fact, Scott McNealy stated that open standardization is so critical that it needs to be entrusted to governments and SSOs and expressed skepticism that business will make the right choice for the public good. As Scott reported, the stakes are high:

1. Two million users are being added to the Internet everyday
2. Forrester reports that there will be 220 billion electronic transactions this year
3. Up to 80% of the 400 gigabytes created everyday are saved, often in incompatible document formats
4. Yet, approximately 75% of the world remains unconnected

As we rely more on technology for productivity, health services, education, and job opportunities, those that have limited or no access will be left behind. They will simply not be able to participate in an increasingly interconnected world nor will their countries be able to compete in the global market. Some speakers, such as McNealy, indicated that this issue, which significantly impacts social and economic welfare, needs to be actively addressed by government. Crawford Beveridge explained that standards are a technical specification written by a sanctioned standards body that allows multiple competing implementations. Since standardization is essentially a government grant that allows companies to work together, he explained that governments have a duty to ensure that standards are used for public good.

There were those who felt that government should intervene more strongly than just guaranteeing openness or encouraging a standardization infrastructure. Creating advantage to encourage domestic business growth (especially for SMEs), according to these speakers, is something the government should lead. Hu Caiyong, in his presentation entitled "Fair Play Should Be Postponed," explained that the Chinese government should specify a document format for national security reasons, to preserve Chinese culture, and to help domestic industry. He called for the Chinese government to lead the convergence of a document standard based on UOF that does not exclude competitors. By creating the right ecosystem, he explained, the government can protect access to information and provide more consumer choice. Further, this ecosystem can help the domestic technology industry to grow as most are not yet in a position to compete effectively with multinational corporations.

Professor Zhang Ping, Professor of IP Law at Beijing University, explained that the existence of multiple standards is not good for consumers…

Audrey Winter, deputy assistant of the United States Trade Representative (USTR) office, took a different view. As someone who works daily with other countries to resolve trade issues, she explained that the government sets boundaries for action within which private parties can conduct their business. While government should set and enforce competition guidelines, it should not determine which standardization processes or licensing terms should be used. Instead, it can ensure the best standards are selected by creating a pro-competitive environment in which SSOs can operate. As she had in the previous Standards Edge conference at Georgetown University, Winter emphasized that standards should not be used to provide advantage to domestic industries.

Goh Seow Hiong, Director for Software Policy for Asia for the Business Software Alliance, took the idea a step further. He stated that government should not specify standards. Mandating standards, according to him, will result in freezing innovation, diminishing incentive, and depriving consumers of new features. He promoted the availability of different standards so that the market can choose which best meets its needs.

Many of the speakers recommended that government impact standardization through policy. For example, Dr. Qin Hai, Director General for the Policy Planning Department of the State Council Information Technology Office (SCITO) stated that a standards policy should serve economic development. He emphasized the need for a development framework that minimizes the digital divide, but only when it benefits all. He called for more discussion on this topic, particularly around defining terms and providing more incentive for economic development. Others talked about examining frameworks around IPR, competition, and standardization. Should countries have frameworks that protect their international industries? For example, Wang-Xiao Ye, Professor of Law at the Chinese Academy of Social Sciences, communicated that although companies have the right to grant patent licenses to others, that criteria must be objective and transparent. Therefore, IPR should be viewed under competition law to ensure fairness.

Professor Zhang Ping, Professor of IP Law at Beijing University, explained that the existence of multiple standards is not good for consumers as that can force them to purchase multiple products to meet their needs. She particularly recommended government intervention in patent pools. In this situation, patents are grouped together to help simplify licensing costs and hopefully to lower fees. Obviously, a company can gain market power and economic benefit if its IP is included in a patent pool under the right conditions. Difficulties arise when nonessential patents are included in the pool, forcing the purchaser to license unnecessary items, which usually drives up costs. Anyone who has bought a car and was “forced” to buy extra luxury items just to get a stereo can relate to this situation. Packaging in the auto industry, like the ICT industry, can increase consumer costs needlessly and yield larger profits for vendors. Professor Zhang Ping proposed that governments put some constraints on IP holders to eliminate the inclusion of nonessential patents in patent pools. She suggested that there should be an effective mechanism for judging whether a patent is essential, regulation to avoid monopolies, and a requirement for clear disclosure policies along with a mechanism for evaluating those policies. Professor Ping also encouraged researchers to communicate their findings in terms of practical applications and case studies to teach companies how to protect themselves by challenging patent rights.

A Collaborative Effort

Creating collaborative advantage requires that all stakeholders work towards strengthening and refining the standardization system. Wen Ku, Director General of China's Ministry of Information Technology, explained that China is committed to broadening digital access. It plans to provide digital communication capabilities to all villages that have at least 20 households. To accomplish this cost effectively, China will need standardization, an activity that China is actively embracing. The country participates actively in international standardization. Last year, it made 655 contributions to ITU, up from six in 2000. From Wen Ku's point of view, changes should take place across the standardization landscape. He recommended:

- Establishing a standards operation mechanism that can serve as a platform on which all stakeholders can interact and explore future standards
- This mechanism should be led by industry and incorporate research findings
- Motivating companies to incorporate standardization into their business strategies
- Increasing standards research, especially in the areas of IPR

Of course, most of the speakers would probably have agreed that changes in one area should be complimented by changes in others. Standardization has become a complex topic now that businesses and governments recognize the stakes that are involved. Twenty years ago, no one paid attention to it except for the engineers or regulators tasked with specific duties. Today, consumers still can't tell you what standards are. However, they can walk into their local electronics store and tell the clerk that they want a wireless modem with 802.11G. CIOs and CTOs do know what standards are—and they are hesitant to invest. Their question is always the same when it comes to "standards wars": can you tell me which is VHS and which is Beta? Until they can confirm that a standard will "win," that is, experience large market uptake that leads to an expansive ecosystem and continuing support, they are hesitant to bet their jobs on a hunch. Instead, they sit on the sidelines, waiting for vendors to sort out their wars, and relying on relics such as EDI to hand-entered data to ensure their business succeeds.

CONCLUSION

Collaborative advantage occurs when greater results are achieved through working together than could be attained through individual efforts. In principal, we would all agree. This is

especially true in today's environment where information is abundant and the ability to turn all that data into innovative knowledge is valuable. A single person can neither have the knowledge nor the experience to make the kind of technological advancement we are currently experiencing. This also holds true for individual companies no matter how powerful they might be. There is a reason that acquisitions are up along with IP infringement lawsuits. Collaboration is essential to not only advancing technology, but to stimulating market growth.

Collaboration should be about more than just gathering with a group of like-minded people, or organizations, or governments, to agree upon ideas. That is a luxury of the past. The world is more connected today and thus the stakeholders in technological advancement are more diverse. While this requires a great deal more effort to reach consensus, especially in reaching an agreement that can actually be implemented in a way that benefits stakeholders, this complexity can have a high return on investment. The model can be technology itself. While it adds more complexity to our lives in many ways (just think about the hours wasted on hold for customer support), it has also increased productivity extensively.

…collaborative advantage is about connecting people in a way that brings about positive results.

Ultimately, collaborative advantage is about connecting people in a way that brings about positive results. Even if technology was made accessible worldwide in the way and at the price necessary for each person, it might still be ineffectual. Though technology has made us more connected, it has not removed the traditional geographical, organizational, and bureaucratic boundaries we impose on ourselves. Collaboration is essentially about the way that people (and companies and industries and countries) work together. To change that, we don't need policies, or lawyers, or complicated international infrastructures. We simply need the awareness and willingness to build the type of innovative collaborative infrastructure that we revere in our technologies.

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ENDNOTES

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