FEATURE ARTICLE

STANDARD SETTING AND DIPLOMACY

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Introduction: Private sector standard setting is a recent innovation. Historically, the development of rules has been a governmental prerogative, and adherence to such rules was enforced through the power of the state. Not only was compliance compulsory, but punishment for a failure to conform could be severe. True, religions also fostered rules of behavior, and voluntary societies (such as trade guilds) created strictures binding upon their members. But those that entered into such communities had little or no voice in creating these rules, or freedom of choice in deciding whether to conform to them.

In the late nineteenth century, a new type of rule making came into being, inspired by the emergence of industrial society. The precursor to this process was the creation of interchangeable parts, which had the potential to allow the goods of unrelated vendors to be used by a single customer. The means of achieving this end was not found through the intervention of the state, but by the voluntary, organic efforts of those with an interest in the outcome. The spread of this technique – standard setting – rapidly became pervasive both throughout industries as well as geographically.

Not only was this process novel, but it was also in many respects contrary to strong traditions. Previously, competitors jealously guarded their trade secrets, and often sought differentiation through distinctive differences in their wares. Now, competitors voluntarily associated with each other, agreed upon common (although sharply defined and limited) goals, often shared the valuable intellectual property necessary to achieve these goals, agreed upon final standards through a process of collaboration and compromise, and then implemented these standards of their own free will.   Notwithstanding the concurrent evolution of antitrust laws, governments came to condone, and even encourage, this practice through the creation of permissive exceptions within those same laws.

How this novel process come into existence, and why participation in standard setting has become so pervasive in such a short period of time bears examination for the lessons that it may offer to society and diplomacy.

Rule making and society: Throughout most of human pre-history, anthropologists believe that governance was consensual. The basic societal unit was (and still is, in those few hunting and gathering societies that still survive) the band, comprising a small number of extended families and at most a few score individuals. The survival of such a group depended on the cooperation of all of its members, and in the mutual benefit of that cooperation lay the difference between life and death.

In many societies, this same consensual relationship was maintained through the next step of social evolution, with the rise of chiefdoms. Only with the advent of agriculture and the formation of larger polities did the concept of kingship emerge, and with that concept, the cession of control over many aspects of one's personal existence to government.

With the rise of democracies, the pendulum began to swing back, and the importance of personal freedoms gained a higher priority. But within these democracies, the power to make rules was still delegated to others (elected representatives and appointed agency staff). True, sophisticated controls such as an independent judiciary provided safeguards against abuses, but the individual was still bound by law to conform to an increasing range of rules created by others.

The concept of voluntary rule making (both in the sense of creation as well as compliance) is thus both revolutionary as well as traditional. Revolutionary, because the creation of standards has been the province of the formal governments that have maintained systems of weights, measures, coinage and laws for the last several thousand years, but traditional because the practice of consensus based rule making preexisted modern society for countless millennia.

The first standards: The re-birth of non-governmental standard setting was both organic and logical. It began when a gunsmith realized that assigning one person to expertly make multiple copies of a single part could enable the creation of more weapons in less time than could the same number of gunsmiths, each making every part of a gun. This practice also permitted the creation of spare parts, which in turn allowed armies for the first time to repair weaponry in the field. Employing this new technique, however, required that each replacement part be fabricated to exacting tolerances.

Once the concept of interchangeable parts became accepted, it was only a matter of time before manufacturers came to realize that the purchase, rather than the fabrication, of component parts might be desirable. Commodity parts of various types had been in existence for some time, but interlocking commodity parts from different vendors were not. For example, a shipbuilder might purchase a capstan from another artisan, but not the rack in which the capstan bars would be stored. That rack would still be fabricated by the shipwright to the size and shape of the bars that were delivered. Other parts, such as spars and ironwork, might also be made by other tradesmen, but these goods would either be custom work, or might need to be resized by the shipwright as they were incorporated into the fabric of the ship.

With the increasing complexity of locomotives, looms, pumps and other types of machinery in the maturing industrial age, the final breakthrough came in the form of a pair of humble items: the nut and bolt, thousands of which might be needed for a single project. Concurrent with the need for such items was the development of the machinery required to fabricate these parts. No longer did a blacksmith make simple spikes and nails one at a time to visual measurements. Instead, machinery could cut and mill more complex fasteners – and could make each product to the same specification and tolerances. Why not have everyone use the same thread count and bolt diameter when they created fasteners, so that nuts, bolts, taps and dies could all be compatible?

Once this type of reasonable uniformity became feasible, then standards could truly come into their own, and manufacturers could seek multiple sources of supply at more competitive prices. For their part, suppliers could bid on more business, and create products at lower cost due to the ability to make far larger runs of a single product.

A new paradigm: But who would set such standards? Government was already beginning to create standards of its own choosing, in the form of regulations that addressed issues such as sanitation, safety and transportation. Those areas fell within traditional boundaries of governmental action, and also involved situations where compliance without sanctions might be unlikely.

Uniform specifications for bolts, on the other hand, were not high on the governmental agenda, nor was the governmental infrastructure sufficient to create the volume of standards that would be needed as industry ever more rapidly evolved. The result was that the commercial sector was faced with a situation where there was a clear need for a solution, and no one to look to but itself.

At the same time, the sale of some new products was being inhibited by safety concerns. Boilers, for example, were exploding at such a rate that design criteria were clearly needed in order to permit manufacturers to create products that could be used without undue risk. But in the late 1800s, government was not yet interested in regulating product safety.

Such needs brought recognition to industry that interoperability and safety requirements existed that could only be achieved through joint action. Thus, out of need came the realization that new opportunities, efficiencies and, indeed, entire markets could only be attained through collaboration with one's competitors.

The result was the evolution of the modern standard setting process. Initially, standards were set on a national basis, and often asserted defensively to erect trade barriers rather than to facilitate international commerce. But eventually the need for global standards became evident, and the same methodology

was soon deployed globally through the creation of national standards bodies participating in international organizations such as ISO. With the increasing globalization of trade and the advent of new boundary-indifferent technologies such as telecommunications, the number and importance of the standards recognized by such international organizations inevitably increased.

Today, organizations such as ISO are more effective and respected than some agencies and programs of the United Nations, despite the fact that there is no central mechanism to enforce their standards, and participation in their programs is wholly voluntary. Indeed, members of standard setting organizations are not even required to implement the standards that they help to create.

Why does standard setting work? The rapid emergence and success of the modern standards infrastructure is not much short of miraculous, for all of its imperfections. As communications, information technology, defense, and other heavily standards-dependent areas have become increasingly essential to modern society, this same infrastructure has begun to assume a quasi-governmental importance.

For example, by enacting the National Technology Transfer and Advancement Act of 1995, the United States Congress instructed all federal government agencies (including the Department of Defense and the Department of Energy) to use voluntary consensus standards created by the private sector in preference to "government unique" standards whenever possible. Similarly, while traditional utilities such as electricity and water remain subject to government regulations, the Internet and the Web are maintained by independent, non-profit consortia, notwithstanding the fact that they are swiftly becoming the lifeline of communication, government, finance, and just about everything else. And again, while radio frequencies remain under the control of national governments, all of the standards that are enabling the explosive growth of new wireless devices and services are maintained by accredited and non-accredited standards development organizations (SSOs).

In short, more and more of the power to control the rules that enable vital societal functions is being assumed by private sector SSOs.

At the same time, the effectiveness of the standard setting process is high, and complaints of inequities and abuses are surprisingly infrequent. What is it about this methodology that allows a voluntary process with no method of enforcement to be so successful? And how can so effective a system have arisen, given that the evolution of this process has been so ad hoc?

The success of this *nouveau* methodology of standard setting is doubly impressive, when it is recalled that after thousands of years of experimentation, and endless philosophical examination of formal governmental systems, the vast majority of the peoples of the world still live in countries ruled by governments that are at best unresponsive to the will of their peoples, and at worst outright abusive of human rights. Similarly, the evolution of a fair and effective system of international relations is still seemingly in its early stages. What, then, are the differences between governmental and SSO processes that lead to such divergent results?

A different path: The following characteristics, among others, lie at the core of this dichotomy. In each case, the reality within SSOs and democratic governmental processes is pronounced:

   Lack of alternatives: Without SSOs, there would be no way to create standards unless governments were persuaded to take up the task. Given that most industries prefer to be self-regulating whenever they can, this leaves SSOs as the only palatable alternative. While the basic process of standard setting continues to evolve (e.g., with the rise of non-accredited consortia, and now Open Source projects), the central concepts underlying standard setting remain unchanged. Given that the need for standards is undeniable, those that depend upon standards to create their market opportunities have no choice but to support that process. In short, necessity drives behavior, because self-interest is best served by being part of the system.

In the case of governmental systems, however, there are multiple methodologies to choose from, each with its passionate adherents. These methodologies not only have major philosophical differences (e.g., communism, socialism and democracy), but there are variations within each system (e.g., some democracies opt for parliaments and prime ministers, while others have directly elected presidents).

While most first world countries have enjoyed consistency in their governmental systems since World War II, many third world countries have seen only turmoil and upheaval in the same time period, particularly while European countries gave up their colonies, and the Cold War played out through the proxies of East and West. Hence, many nations have suffered from the fact that there are too many alternatives, and an inability to gain the commitment of all to any single choice.

On the international stage, the situation is somewhat different, in that the United Nations is the single globally recognized governance body. But regional alliances offer an alternative for some purposes (witness the rise of the European Union, and the peace keeping action in the Balkans under the auspices of NATO rather then the U.N.). Similarly, the projection of power by individual countries permits those nations to achieve unilateral, or alliance supported goals, that weaker countries could only secure through a world body. Absent common agreement that a single body (e.g., the United Nations) can be the only authorized entity to act in certain fashions, these alternatives provide viable opportunities to pursue nationally, regionally, or politically unique goals. Hence, until the United Nations provides a more universally attractive venue, some nations will be more inclined to pursue alternatives whenever they appear to be more advantageous.

More to gain than to lose: Participants in SSOs have concluded that they will reap greater rewards by giving up certain choices, and even valuable rights to earn a return on their patents, than by going it alone. This is because the targeted work product that has been agreed upon is not only necessary, but will be available to all on comparable and reasonable terms. As a result, all have the same level playing field. While there may be winners and losers in the sense that the proponents of one alternative solution may succeed while those that support another may fail, the risk for any individual participant is bounded by the fact that all may make use of the finally approved solution.

But in the case of governments, the system is too often played to create binary results that ensure that one side will win, while the other will lose. Often, the benefits of specific pieces of legislation or international action will only be enjoyed by a minority. Even where all may well benefit, those benefits are often hard to prove, and therefore may not be appreciated by those that are philosophically opposed to the method employed to achieve a specific end. Worse yet, the riders and compromises added to many pieces of legislation in order to garner a majority of votes for passage often lead to expensive "pork" provisions that work to the benefit of only small, but politically significant, interest groups.

The lessons to be learned under this category are necessarily more obscure. Certainly there is no easy corollary to turning every government goal into the equivalent of a standard. Internationally, perhaps closer ties between economic opportunity and the exercise of political influence might more closely align desired results with incentives to cooperate. Similarly, perhaps there is a way to reset processes to provide greater rewards from cooperation than contention, and to engage in a deconstructive process intended to eliminate as much opportunity for partisanship and ideology as possible.

For example, in a domestic setting, requiring a bipartisan legislative committee to first agree on what priorities should be addressed before voting begins on how those priorities should be achieved would help warring political factions focus on the issues themselves. Once agreement was reached on such priorities (e.g., to create jobs), then the next step could be to determine what percentage of a balanced budget should be dedicated to that task, and so on. By the time it became appropriate to agree on the actual implementational steps to achieve the identified goals, the opportunities to manifest competing political philosophies would have been dramatically reduced.

Is such a proposal politically feasible? Probably not. But it does emphasize the fact that without alteration, the current system provides more incentives to work towards partisan solutions than towards common goals in the most efficient and effective fashion possible.

Self-correcting: A standard that is not expected to be useful is simply not adopted. As a result, those that create a new SSO or propose a new standards initiative within an existing organization must temper their desire to exercise too much influence. Otherwise, the resulting standard may not be implemented by one's competitors or by others whose cooperation is necessary (the recent failure of Microsoft's Sender ID specification, due to MS-required license terms deemed objectionable to the Open Source community is an example of such a result).

In contrast, under most political systems the reelection of an individual representative has too little to do with the effectiveness of the legislation actually supported by the same representative. The current system instead rewards a representative for reflecting the political beliefs of the majority of her constituents, regardless of whether the voting record of that representative actually produced desirable results. In a better system, we would not only have interest groups that tracked whether a given representative voted in favor of left leaning or right leaning legislation, but whether she voted for legislation that proved to be effective, regardless of how it was viewed politically.

On the international stage, lack of assurance in the commitment of nations to support collective decisions ultimately undermines the ability of any such decision to be effective. When a participant has no confidence that others will truly commit to support collective action, then the safest course of action is to hedge one's bets as well.

Confidence in the process: Because anyone can opt out of the standard setting process, that process must inspire confidence in those that choose to participate. Since those with the greatest commercial power still need the buy-in of those that have less, there is a powerful incentive for the strong not to overpower the weak, and therefore to agree to a process that will seem likely to ensure fairness in results.

The contrast in this regard is perhaps most dramatic internationally. The United Nations would doubtless be more effective if the Security Council did not exist, since otherwise a majority of the nations in the world would need to support a decision before it could be implemented, and no proposal would need to be tailored to the goals of any single nation in order to avoid a veto. All nations (great as well as small) would therefore have an incentive to bring proposals before the organizations that were deemed to be beneficial (or at least not harmful) to all of the worlds' peoples, or there would be no point in proposing the action at all.

While the current Security Council system ensures that the largest nations will participate (at least nominally), it also means that many of the most important initiatives that are proposed will either be watered down, or will be proposed only for the purpose of highlighting the veto of a given Security Council member. Those resolutions that do pass successfully through the Security Council may thus be so tainted with proprietary intent that they are deserving of little respect, and there may therefore be little incentive for others to support these same actions.

Proven success: There are few incentives to invest resources, or to make important strategic commitments, in outcomes that are uncertain. One of the principal reasons that the standard setting process is so widely employed is that it has a track record of proven success.

In contrast, the record of United Nations initiatives in matters that would restrict the rights and actions of sovereign powers (as compared to humanitarian projects) is mixed at best. On the other hand, where nations seek to further their agendas outside of the U.N., success may be problematic where broad support is still required, and far more resources must be provided by the proponents to achieve success than would otherwise be the case.

Conclusions: Certainly the above line of thinking can only be taken so far. Standard setting is only comparable to other international situations up to a point, and the SSO process has its own weaknesses and failings. It is true, for example, that there are often too many SSOs trying to solve the same problem, thus failing the "no alternatives" test. Similarly, there have been times in some organizations that more participants seem to be seeking to game the system than to observe the rules.

But it is also true that there is something fundamentally effective about the system that sets standards that makes the constituent pieces of the standard setting infrastructure want to fall together rather than to fall apart. At root, the gravity that brings about this result is the fact that everyone involved has concluded that they have more to gain than to lose by participating, even when being part of the process requires ceding freedoms and (sometimes) even sacrificing valuable intellectual property rights.

What sorts of lessons, then, may the success of standard setting have for nations domestically, as well as for the United Nations internationally? Perhaps the strongest lesson may be that a system that does not have its incentives aligned with human behavior can never be truly effective and fair. Given the right

design, good results will likely follow. But with a flawed design, effective results can only be achieved by extraordinary effort, and consistently favorable action will be difficult or impossible to achieve.

What is the strongest foundation for such a design? The motivation of action through enlightened self-interest is perhaps the most useful political force in the world. Creating international policies that can lead (for example) to increased security for every nation should certainly make it possible to harness this same force if all are willing to come to the table in the same spirit. The result could be a world that truly wants to work together, rather than to perpetually strive at cross-purposes and run the risk of falling apart.

But perhaps the greatest and most heartening lesson to be learned from standard setting is by way of example.   In other words, an international system actually exists within with the most powerful corporations and nations have given up some of their rights, and even their valuable property at times, because they are convinced that the will of the majority will serve, rather than threaten, the interests of the individual participant. Certainly there is reassurance to be taken from the fact that such a system can, and indeed has, been successful.

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