The Swedish ICT Commission

The failure of European ITC standards policy
And a possible future?

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Abstract

The fact that the world's de jure standards organizations have had no significant role in the development of the Internet has played poorly with European ICT standards strategy. This strategy for the harmonization of EU member-states' standards activities, expects standards to be created within the de jure sphere, where Europe, by the strength of their national votes are able to exert considerable leverage. Unfortunately for the EU, the real work of standardizing the Internet has taken place in de facto and informal standards consortia outside the formal sector.

For a member-state of the European Union, including the country of Sweden whose government has sponsored this paper, the situation is highly unsatisfactory. European agencies, national and municipal governments, firms and research institutions are coaxed by European Standards Organizations into participating in "European" standards initiatives. Funding is provided for "European" projects with "European" partners, and these European solutions are considered the equivalent of global solutions - which often they are not.

At this moment the standardization of Internet related ICT is in a state of flux. The economic downturn has strained the resources and curtailed the power of the two acknowledged leaders in Internet standardization; the IETF and the W3C. IPR issues are crippling consensus. De facto standards constellations are being put together by discriminatory alliances. The Internet needs voluntary and impartial standardization procedures that lead to global and open standards - which happens to be the very same goals professed by the international de jure community. But the de jure community has failed to politically and procedurally reinvent themselves to accommodate the Internet - the schism has not been bridged.

Its a surprising world we live in. Just when we think equilibrium resides, dynamic events occur causing change. There are strong possibilities that the next few years will see rapprochement between the informal and de jure communities egged on by the former's economical straits, the latter's desire to participate in the real ICT world, and not least, growing consumer dissatisfaction with de facto standardization run rampant. These changes offer Europe new opportunities for participation in global standards activities.
Standards - The Dull Science

ISO fumbles the ball

ICT is built on standards. How these standards are produced and proliferated influences the applications, systems and usage of the technologies they underwrite. The end of the Second World War saw the rejuvenation and strengthening of international standards bodies in the hope of fostering a new era of world peace through the multilateral expansion of global trade.

Despite the acknowledged success of the international de jure standards process, in the last 15 years the Internet-related ITC sector, (designated in this paper by the acronym: ITC-I) has proved to be more than a match for the bureaucracy, anachronistic procedures and formalism of the de jure SDOs. This has given uprise to a new generation of informal and de facto standards setting consortia.

Not oblivious to these challenges, the de jure sector has launched various "fast-track" initiatives to keep ITC-I standards under their wing. In most cases these actions have met with (to put it politely) limited success.

The JTC1 is the Joint Technical committee set up to coordinate the activities of ISO and the IEC, and its main thrust is to lead standardization in the areas of information technology. The following quote is from the JTC1 "Special Group on the Development of a Business Plan for Standards Availability" meeting in New York in March of 2000.

*JTC1 has lost considerable numbers of experts to participate in its work and is now at risk of failing in its mission to develop standards in the Information Technology sector. The present approach is inhibiting the widespread application of JTC1 1 standards. JTC1 may be unable to compete in new business areas because of the non-competitive JTC1 pricing and distribution model. A recent example of this is the loss of the XML (a key electronic commerce standard) work to the World Wide Web Consortium (W3C).*
The reference above to "pricing and distribution" relates to the problems caused by the selling of standards specifications - a cardinal sin in the eyes of the Internet community, especially when those specifications were only available on paper and deliverable by the post office.

The pioneers of the Internet realized that not only were they creating a new communications medium, but also a channel (and methodology) for hashing out and publishing the specifications of that medium. These innovators, being primarily from the academic community and seeing the cost of building the Internet underwritten by agencies of the American government, had little concern as to the commercial aspects of their projects. They were best served by free and universal access to their work. The "selling" of protocols of the Internet was simply not on the agenda.

The de jure communities insistence on peddling paper-based specifications was not the only clash of interests.

*The role of formal standards organizations (globally, ISO, IEC and ITU) has become somewhat muted in the world of "ICT". This is perhaps principally because the processes of the formal organizations have been deemed to slow to keep up with the furious pace of market change...ISO Website [www.iso.org](http://www.iso.org)*

Since the Internet community had immediate, direct and essentially 24/7 access to their own standards and since the time-to-market of Internet applications was being measured in coffee cups rather than calendar months, there was little incentive for the community to approach the de jure SDOs at all. On the contrary this new force of upstarts quickly became a challenge to the de jure world.

The de jure community took it for granted that once the pioneers realized the importance of stability, due process, and so on, they would come knocking, hats in hands. This proved not to be the case.

**Europe gets a smart idea**

In Europe, the EU has tackled the market-splitting inefficiencies caused by member-state's diverging standards through the creation of pan-European standards organizations directly coupled to the international SDOs (fig 1). These European agencies have become powerful *en bloc* actors within their international counterparts.
Fig 1. Alignment of European SDOs with their international counterparts:

<table>
<thead>
<tr>
<th>Domain</th>
<th>International</th>
<th>European</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards in general</td>
<td>ISO</td>
<td>CEN</td>
</tr>
<tr>
<td>Electro-technical standards</td>
<td>IEC</td>
<td>CENELEC</td>
</tr>
<tr>
<td>Telecommunication related standards</td>
<td>ITU</td>
<td>ETSI</td>
</tr>
</tbody>
</table>

The principles of European standardization were formalized in May of 1985 by the "New Approach to technical harmonization and standards". European national standards agencies were not to be dismantled, but joined together through "…national commitment [so that] formal adoption of European Standards is decided by a weighted majority vote of all CEN National Members and is binding on all of them" [CEN web site](http://www.cen.eu).

Working together also came to mean voting together on the technical committees of International SDOs in an effort to ensure that European standards became world standards. Since the ISO and IEC process is one where each member country has one vote, the European block could act as a unified group orchestrated by their pan-european agencies, in essence exercising control over the international organizations when desired.

This tactic has run into two major stumbling blocks:
To begin with, it was greeted by the American standards community with utmost suspicion: the Europeans were seen to be hijacking the international standards process. This encouraged countermeasures from the Americans and has weakened the status and impartial image of the International SDOs.

Secondly, the greatest technological event of our time saw fit to manage its own standards arrangements without the assistance of any of the de jure SDOs, be they American or European.

Any EU member-state, following the three-step (national-european-international) path of pan-european standards strategy, will find themselves in two-fold isolation from mainstream ICT-I development.
The desire to do things in a European framework, or just do things in Europe - period, leads to incompatibility with things done elsewhere. Since much of Internet related technology is done elsewhere any ICT-I expenditures authorized by the Union or its member-states citing EU, or even ISO standards as prerequisites to procurement, run the risk of supporting offbeat or worse; end-of-the road technologies, to the detriment of European producers and consumers.

First the American reaction...

**America calls foul**

The United States has been accustomed to running the ICT show in Europe. During most of the 20th century American firms or more accurately one American firm - IBM has controlled the market - first in punch-card technology and then from the fifties on - in computers. According to one source, in the 1960's IBM installed over 90% of all the computers in Europe.

*By 1985, the U.S. dominance in IT - in market share, in intellectual property, in research and development, and in deployed base - was firmly established. Because of this market dominance, the dominance of the U.S. in formal standards was also established; a majority of IT standards were those proposed or initiated by U.S. companies, either through the U.S. standardization bodies (e.g. ASC X3 or the IEEE Computer Society) or through U.S. company representatives acting in foreign standards bodies (such as the Deutsches Institute for Normung [DIN], the German national body where U.S. subsidiaries exercised heavy influence).* **Carl Cargill in testimony before the House of Representatives**

The idea of automatically equating European and International standards, as drawn up in the treaties of Vienna and Dresden is considered a protectionist move aimed at US industry. And the abundance of European votes in international standards committees, where America had but one voice has never gone down well.

*We often hear from our TAG's that the members of the European Union vote as a bloc on particular issues and that standards coming from ISO are reflections of European, not American, technology.* **James A Thomas president of the ASTM testifying before The House Science Committee - Subcommittee on Technology in 1996**
And as late as February 2002, at a presentation before the American Academy for the Advancement of Science, ANSI President and CEO Mark Hurwitz stated that he believed that the Europeans engaged in block voting to stop U.S. standards initiatives.

Here we have the classic ingredients of an arms race. The "other side" is plotting or ganging up on "our side" so our side must retaliate. Irregardless of Europe's purported block-voting, one nation - one vote organizations will always be problematic for individual super powers who feel they could get along quite well on their own.

**Thank you, but no thank you**

We have quickly become accustomed to taking the Internet for granted: SMPT- email, FTP - file transfers, the World Wide Web based on HTML and HTTP - it is hard to envision how things could have been any different, but the de jure SDOs, Governments and Telecommunications industry actually had another design for the Information highway: The Open Systems Interconnection (OSI).

History can be written in many colors and the story of OSI has its fair share of authors and experts - often with conflicting views, but for the hardcore Internet community the following excerpt from a mailing list sums things up succinctly.

*The nanny forces decided that OSI was better than TCP/IP. They decided that X400 was the way to go for email. They mandated one silly thing after another. The Internet community junked these centrally mandated solutions: the Internet's guiding principle has always been that what matters is what works.*

In the words of Tim Berners-Lee, *"The Internet was nearly invisible in Europe because people there were pursuing a separate set of network protocols being designed and promoted by ISO."*[TBL99]

**Those were the days my friend**

At this moment the very consortia that built the Internet are themselves besieged on the one side by industry cartels and market dominators dictating de facto standards, and on the other by the Open Source movement, managing valuable standards property such as Java, Linux and Apache.
The downturn in Internet investment and the dotcom bubble burst have left middle-tier standards groups such as the IETF and W3C in a substantially weaker position than at the peak of the dotcom boom, when they seemed destined to conquer the world. While open-membership Consortia are still a commanding force in Internet standardization, the question is: for how much longer?

The "standardization" of Web services, the current ICT-I vogue, has created turmoil throughout the entire standards sector. Just as the W3C thrived on the browser war era, preceding Microsoft's vanquishing of all competitors, consortia standards organizations might well have been fueled by the wide-open nature of Web service competition. Only this time around things turned out differently.

It is apparent that all Web services participants are not prepared to give up potential market lock-in and product leverage by abiding by the dictums of "impartial" consortiums.

The politics of Web service standardization are too complex to cover satisfactorily in this paper, but it is apparent that:

1. Consortia can be played against each other. Consortia are after all businesses subject to the dictates of profit and loss like any of the rest of us.
2. Consortia can be ignored altogether. Companies can join in self-serving cartels that deny membership either openly or tacitly to competitors.
3. Companies or cartels can take advantage of ISO's desire to maintain a presence in ICT-I and use backdoor channels to gain ISO imprimatur without subjecting themselves to the drudgery of the de jure process.
4. Companies with sufficient market clout can choose to ignore external standardization all together. Code that in other hands might become open standards can remain proprietary secrets.

**de facto standardization**

The digital network is notoriously susceptible to the recursive effects of monopolization and path dependencies. Monopolies create path dependencies, path dependencies strengthen monopolies. Alice buys product X. Tom buys product X because Alice did. Beatrice builds applications for product X, because Tom and Alice both have it. Carol buys product X because Beatrice has made programs for it, and off you go.
A point of contention in this matter is; to what extent path dependencies are conflated with market failure? That is, to what extent do path dependencies inhibit superior technology from its "just deserts". Because if path dependencies still lead to the best possible solutions - then why bother about them. In the words of one economist - "Why punish excellence?"

The classical examples of path dependency debates are two battles between competing de facto standards: in typewriter keyboards; QWERTY (the winner) versus the Dvorak (the alleged technically superior) and in video recorders: VHS (the winner) versus Betamax (the alleged technically superior).

The keyboard skirmish concerned not just what sort of typewriter you or your company might buy but also as a consequence of that purchase, what sort of typing skills you would be investing in. And the video recorder fight entailed, beyond what make of machine you chose, the investment in media (cartridges and tapes) that would work in only one type of machine. Path dependencies have network effects. Eventually a large pool of QWERTY trained typists and VHS standard cassettes would seal the fate of the Dvorak and Betamax technologies.

But it is essential to understand the difference between typewriters, VCR's and the Internet. The network effects of the former objects are contained - for example, the choice of a VCR, a keyboard or the wheel base of your automobile have no effect upon each other. Their paths are limited to specific domains. Since any thing that can be digitalized will come to coexist in a common digital environment, the path dependencies established for such a universe will have an network effect on all of its members.

Anyone gaining control of strategic parts of this digital path; the mountain passes and river crossings of the Internet, will be able to exert wide influence upon the entire network and all measures of physical-world activity that pass through its digital arteries.

This is why the Web service infighting is so intense. Everyone is looking for that easily defended strategic mountain pass. Though most ICT-I companies will compete on a level playing field if necessary, they realize how much easier (and how much more profitable) it is to grab some exclusive territory and hope for the development of path dependencies and proprietary lock-in.
The IETF and the W3C changed the nature of standardization by sidestepping the de jure process while simultaneously reigning in the excesses of would-be de facto monopolists. In the days of the browser wars these informal organizations stood for reason, consensus and credible solutions, but today their authority has been undermined. Ironically, they have themselves paved the road for a new generation of de facto consortia that could eventually spell the demise of the informal era of standardization.

The question remains: Do the mega path-dependencies attainable in a universal global network represent market failure and the support the persistence of inferior products?

One measure of successful standards implementation in software is exchangeability. To what extent can a fragment of a software be replaced by another fragment, even if those fragments are built by different engineers at different companies, in different places, at different times?

If the prerequisite of exchangeability can be upheld satisfactorily, then it would be very difficult to fault monopoly positions merely on the basis of market share, since competition could always exist at any point of exchangeability allowing the market mechanisms to hold sway. Obviously the crux in this classification is the size of the interchangeable fragments.

In conclusion

Standards, of course, are not just about technology, nor that segment of technology we call ICT-I. Standards are about quality, safety, measurement, statistics, process, terminology, liabilities - literally any aspect of interaction that can be formalized. Yet ICT-I puts greater demands on standardization than any other domain, because ICT-I, more than any other domain, is specifically about interaction. The essence of ICT-I is the network, and the strength of the network is its ability to incorporate a diversity of applications, information resources, agents and agencies. The interconnection of universal networks demands that solutions must be designed to work in a multilateral electronic habitat.

There is no sens moral to this story featuring good-guy and bad-guy nominees. Europe, the US or any other region with the strength to do so will develop and use standards strategically, as will individual
companies. But in the ICT-I domain the idea of upholding national or regional standards as barriers to trade is unsustainable. The Internet does not need specific European or American solutions. The Internet needs global multilateral solutions.

There are signs that the informal standards consortia who saw the light of day with the emergence of the Internet and the World Wide Web, will eventually be absorbed into the de jure process they once rebelled against. In such case, the lessons these organizations taught us must not be allowed to go to waste. The International de jure SDOs must take this opportunity to change their ways, the burden of adapting must be on the de jure sector.

Following the initiatives of OASIS in seeking cooperation with de jure world agencies, we can expect the W3C and ISOC (the organizational home of the IETF) to initiate contacts with ISO, the ITU and the IEC. Perhaps new joint technical committees can be formed, as the JTC1 was once created in order to accommodate coordinated ICT activities between ISO and the IEC.

Though the unfortunate tribulations of ICANN attempting to turn an American protectorate into a independent International Agency are disheartening, it would be truly unfortunate to let this act as a deterrent. We must profit from the mistakes made. The alternative to voluntary standardization is mandatory regulation or the acceptance of de facto monopolization.

Europe can not expect to dominate any new de jure standards constellation on the strength of coordinated voting, the practice of one nation-one vote is an invitation to partisan maneuvering. Here again we must learn from the experience of the informal consortia and insist on procedures of consensus that inhibit national or regional thinking. The Internet and the World Wide Web is the closest the inhabitants of this planet have come to creating truly global and accessible institutions and we would be wise to treat them accordingly.
Acknowledgements

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References

A considerable amount of literature was researched in the making of this paper. In order not to overshoot the maximum permitted size of a paper at this conference all bibliographical references, as well as links to the standards organizations mentioned in this paper have been moved to an external URL
http://www.skical.org/standards/budapest/bibref.html

Author Vitae

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