Productivity Commission – Draft Research Report Standard Setting and Laboratory Accreditation

Comments

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1 Consideration of Submission

I have discovered that my original submission to the Commission was misplaced and not considered in the production of the Draft Report. I attach a copy of this original submission for consideration.

2 Overall Comments

Overall I am supportive of the draft Recommendation of the Commission. It is disappointing however that the report does not specifically address the issue of standardisation in Information Technology. In this industry there has been an explosion of standards and standardisation efforts over the past five – ten years (see, for example, *The fortune of the commons.* In *Coming of Age - A Survey of the IT Industry.* The Economist, May 8th 2003) and this has led to significant fragmentation of effort within the industry.

The development of company-based and other de-facto standards has led to considerable confusion within the marketplace, and may tend to reduce the value of national and industry contributions to the standardization effort if the issues are not considered and addressed.

I have referenced some of the concerns arising in my original submission. They include the question of the cost of standards; in the face of freely available competing frameworks, the value of National and International standards is significantly reduced, and firms that develop "private" standards stand to gain considerable power in a marketplace where the adoption of international standards is discouraged because of price reasons.

In the current situation within the IT industry, the place of specific National standards is limited. In recognition of this, our Committee (IT-15 – Software Engineering standards) has a ling-established policy of discouraging local standards development in favour of active involvement in international standardisation. However, the funding mechanisms within Standards Australia (and more widely within other Government departments) do not encourage such an approach; the level of funding available to our Committee has been well below that needed to maintain a reasonable level of involvement. Again, this issue is addressed in my original submission. I would urge that mechanisms be provided for a more flexible approach to funding that enable more active involvement in international activities in critical domains.

In summary, then, I would urge that the Commissions final report should explicitly address the problems of standardisation within the IT sector; the concerns with pricing of national and international standards, and the advantage this provides to freely-available corporate-based frameworks; and the development of more flexible approaches to funding Australian involvement in international standardisation activities.

Submission to Productivity Commission

Review of Standards Setting and Laboratory Accreditation Services in Australia

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1 Introduction

I am an Associate Professor in the School of Information and Communications Technology at Griffith University, and associated with the Software Quality Institute, a centre established in 1991 to undertake research, technology transition and policy development in relation to the quality of software and software-intensive systems. I have been involved in the development of standards in the domain of systems and software engineering since 1991, when the Standards Australia Committee IT-15 was established, and have worked in international standards through ISO/IEC JTC1/SC7, the International Committee on Software and Systems Engineering Standards, since 1992. I have served as the overall Project Editor for ISO/IEC 15504 – Process Assessment since 1996.

Within Standards Australia, I served as Chair of Committee IT-15 from 1993 to 1999, and as Deputy Chair to the present. In these roles, I led the Australian delegation to Plenary Meetings of SC7 from 1994 to 1999, and also actively participated in Working Group meetings over this period. Funding for these activities has largely been drawn from consultancy activities undertaken through Griffith University, but some support has been obtained from Standards Australia and from some other Government sources.

I have been involved with NATA as a member of a Committee to establish a mechanism for accreditation of Software Testing Laboratories, but my principal expertise has been in the development of standards for systems and software engineering and my submission will relate primarily to this aspect.

2 Background

When the IT-15 Committee was first established, there were no available Australian Standards in the field of Software Engineering. The committee's initial step in addressing this was to establish a relationship with the Software Engineering Standards Committee of the IEEE Computer Society, allowing for the adoption of several IEEE Software Engineering Standards as Australian standards. This provided an initial impetus to our work.

Following on this, the inaugural Chair of the Committee, Mr John Phippen, and I attended the 1992 SC7 Plenary Meeting in London, and as a result of our experiences there, together with feedback from the other members of the Committee, a decision was taken that the development of Australian standards for software engineering should be undertaken primarily through active involvement in the international standards development process. The Committee still follows the policy, and several members of the Committee have taken roles as convenor and editor in International standards development projects.

The investment required by this policy is substantial, in terms of the costs of travel for those members who participate directly in the international meetings, and in terms of the resources invested by them, and by other reviewers and technical contributors who do not attend the

working group meetings. While there is limited support for travel provided by Standards Australia, from Australian Government sources, it is inadequate for the size of delegation that normally attends from this country, and there is a substantial level of investment by the members of the Committee and their employers and sponsoring organizations.

While these efforts have been of considerable success in raising the profile of Australia in the international arena, and in ensuring that Australian interests are considered during the development of critical international standards, there are several adverse results from the current situation.

A significant issue is that of membership of the IT-15 Committee. The personnel on the committee are highly professional and of considerable expertise, but there are several domains relevant to its concerns that are unrepresented in our work. There is little doubt that the cost of travel associated with a close involvement in the technical work of the Committee has deterred some potential members and their sponsoring organizations; moreover, it is known that several active members have been unable to participate in the international technical work to the extent they see as needed because of the associated costs.

The primary hindrance to our effective working is the inability to maintain continuous involvement in the technical work at the international level, because of funding shortages. A significant issue in this appears to be a relatively inflexible approach taken by Standards Australia to the distribution of the available funds. The "formula" appears to take little account of the explicit strategy adopted by the Committee, and seems to result in a situation where the same funds are provided to send a delegation of 10 – 12 experts to an SC7 plenary as another committee can receive for a delegation of 2. If I am in error in this observation, it is because there is a lack of clear information available to the Committee regarding the funding arrangements.

3 Efficiency and Effectiveness of Standards Setting Services

Given the nature of the software engineering industry and profession, the strategy adopted by Committee IT-15 remains valid and effective for the provision of standards suited to the needs of the Australian software industry.

Within SC7, the overall efficiency of standards development is reasonable; regular reports from the SC7 Chair to JTC1 highlight the growth in standards development over the years, and particularly flag the importance of institutional liaisons established with groups including the Object Management Group (OMG), IEEE Computer Society, IFPUG, ITU-T, INCOSE, ECMA, the Quest Forum and the SPICE Users Group. SC7 provides mechanisms for fast-tracking standards developed within these groups, and this ensures rapid "internationalisation" of relevant standards.

Following approval of a standard at the International level, it has been my observation that the process for local approval is generally highly efficient, and that standards can be made available for local sale at reasonable prices quickly. The general pricing scheme for standards, however, attracts considerable criticism from industry, and places endorsed standards at a disadvantage compared to freely available "de-facto" standards distributed by other interest groups. I am aware from discussions with international colleagues that this is a significant issue of concern, and may be detracting from the uptake of standards where their use is not mandated.

A narrowly-defined economic view of standardisation does not in my view pay adequate attention to the important role of standards in providing an effective infrastructure for the

development of industry in a context of international competitiveness. The effective use of standards provides confidence to customers and end-users in the proper functioning of products, and in the ability of suppliers to meet market demands. An absence of agreed common standards provides a confused market-place.

Active involvement by local experts in the process of standards development in turn provides significant benefits, not only for the sponsoring organizations but for the industry as a whole. Those involved in development provide a reservoir of local expertise and an effective enabler of more rapid transition of the standards into industry use.

4 The Appropriate Role of the Australian Government

In my view, the Government has two roles to play in relation to the development and transition of standards. On the one hand, as a Government, it has concerns relating to industry policy and the competitiveness of Australian firms in the international marketplace. In addition, however, as a significant acquirer and developer of complex systems, it has a vested interest in encouraging the greater use of appropriate standards, to provide added confidence in its acquisitions and production.

In the area of industry policy, it is important for Government to ensure an environment in which industry can develop competitive practices. The experiences of countries such as Japan, Finland and India have demonstrated forcibly the benefits that can arise from a supportive infrastructure. To maintain competitiveness in the current international market requires the abilities to be innovative, flexible, and at the same time demonstrated efficiency in use of time and resources. These attributes all require the imaginative application of effective standards, especially in the field of complex systems.

The role of Government as policy maker, then, should be (a) to establish an environment that encourages Australian companies and institutions to become involved in the development of standards, in both national and international forums; and (b) to establish mechanisms encouraging effective transition of newly developed standards into general use within industry. In achieving these goals, Government will have to cooperate with the Standards bodies, and also with the participants in standards development.

When the role of Government as a "consumer" of standards is considered, it can be seen that effective action here can reinforce the policy aims. Government as an acquirer and developer of complex systems needs to ensure effective management of risk, and also gain confidence in its own and its suppliers' abilities to deliver correctly functioning systems efficiently. This implies an obligation on Government to establish within its own operations an effective infrastructure for development and acquisition; and again, this implies the effective use of standards.

As a user of standards, Government bodies in general should (a) involve themselves in the standards development activities through both national and international forums; and (b) encourage the use of appropriate standards by suppliers, as a means to govern risk and gain confidence in their ability to deliver.

5 Appropriate Terms for Agreements between the Australian Government and Standards Australia

The key issue in these arrangements is that there should be some approach that will provide greater encouragement for involvement of key industry players in the development and transition of standards. The current arrangements are based around involvement from "industry-based organizations" and this frequently results in key players and technical experts

being unable to find a "seat at the table". At the same time, there should be built into the agreements terms that will result in clear benefits flowing to organizations, companies and individuals from their involvement in standards development. These benefits would not be seen as monetary but in terms of access to standards, support for standardisation activities (on a greater level than the current) and similar forms of recognition.

6 Appropriate means of funding activities of Standards Australia in the national interest

Broadly speaking, if the goal of government is to establish infrastructure, then there needs to be an underlying level of funding to support basic standardisation activities. In addition, however, there should be supplementary sources of funding available to support specific standardisation initiatives, based on defined criteria and levels of industry and stakeholder support.

In addition, it must be remembered (and this is the second aspect of the terms of reference, which I have not to date addressed) that effective and independent systems must be established to monitor the evaluation of conformance to standards. This is the role of laboratory accreditation facilities; with increasing international emphasis on the demonstration of confidence, not just in products, but also in processes and in the competency of the workforce, an infrastructure to support this needs to be established with a clear local focus and representing the interests of Australian stakeholders.