IDEA GROUP PUBLISHING
701 E. Chocolate Avenue, Suite 200, Hershey PA 17033-1240, USA
Tel: 717/533-8845; Fax 717/533-8661; URL-http://www.idea-group.com
ITJ2583

Standardization and Innovation Policies in the Information Age[1]

Ken Krechmer
Fellow, International Center for Standards Research
University of Colorado - Boulder, USA

ABSTRACT

In the information age, governmental policies in support of innovation are having a growing impact on trade and free market coordination. A balance between innovation and coordination is often achieved by market-sensitive standardization. Governmental policies that interfere with the balance that market-sensitive standardization can achieve are not usually successful. But governmental policies that recognize the changes occurring in the information age and support corresponding changes in innovation and standardization policies are needed.

Keywords: information age; standardization

INTRODUCTION

In the information age, available electronic communications, such as TV, telephone, and the Internet, are "freedom of the press." This ability to communicate electronically is the basis of the information age. As communications technology becomes more widely utilized, standards that define the compatibility between different devices used to transfer information (TV, modems, cellular telephones, fax machines, PC software applications, etc.) become important to almost everyone.

Previously, communications standardization was supported by public communications utilities such as AT&T, Deutsche Bundespost, or NTT. With the conversion of public communications utilities into commercial companies, conflicts between the rights of different stakeholders (equipment developers, government, carriers, and users) have emerged, and such conflicts have split communications standards development into the *de jure* process (formal communications standards development organizations, FCSDOs[2]) and de facto consortia.[3] The previous success of FCSDOs is being undercut by commercial consortia driven by short-term economic interests. This change is occurring because the FCSDOs no longer balance the legitimate interests of all their stakeholders, so the stakeholders look elsewhere. If the FCSDO standardization system is to continue, and there

This papers appears in the *International Journal of IT Standards and Standardization Research, Vol. 2, No.2.*

are good reasons that it should, rebalancing the process to support the legitimate interests of all the stakeholders will require government policy support.

An example of the impact of governmental standardization policy on trade is the dramatic difference in economic growth between some European and U.S. cellular communications equipment manufacturers. Standardization for cellular telephony, the new technology for wireless communications, was approached quite differently in North America and Europe. North America pursued a laissez-faire policy, letting the commercial organizations to do as they wished. This policy resulted in three competing cellular standards.[4] The European Union pursued a single unified standard, GSM, for all EU countries. In Europe two equipment developers, Nokia and Ericsson, pulled far ahead of their largest competitor, Motorola, headquartered in North America. This occurred even though Motorola was initially a much larger wireless communications equipment manufacturer.

Certainly the success of Nokia and Ericsson is not wholly due to standardization policy. The "home court" advantage of Nokia and Ericsson in the European markets was significant, but Motorola held major patents on cellular technologies.[5] Even with U.S. intervention to protest (and change) the GSM cellular patent policy, Motorola was not as successful in the GSM cellular market as its European competitors. Conversely, during the same period an emerging U.S. cellular communications equipment company, Qualcomm, grew dramatically by taking advantage of the U.S. laissez-faire standardization regime and promoting a different technology (CDMA) for cellular service. In the case of Qualcomm, the laissez-faire U.S. standardization policy was very desirable.

These examples of the different impacts of standardization regimes in the same industry and time period suggest that complex mechanisms link standardization and innovation policy. It also suggests that the policies that impact the formal standardization process have significant economic import. The purpose of this paper is to identify and explain these mechanisms, and propose new approaches to modify the innovation and standardization policies to improve the innovation and growth of free market economic systems.

ALL STANDARDS DO NOT CAUSE THE SAME EFFECT

As the complexity of technology increases, the complexity of standards that define the technology also increases. When the complexity of the technology increases sufficiently, a paradigm shift occurs that is often described as a new age. The transition from the industrial age to the information age is one such paradigm shift. The author uses the terms 'similarity standards' to describe the standards most closely related to the industrial age and 'compatibility standards' to describe the standards most closely related to the information age. Similarity standards define the things produced as a result of repetitive processes (manufacturing). Compatibility standards define the interfaces between communicating devices (e.g., the