



Chapter VI

Standardization and Intellectual Property Rights: Conflicts between innovation and diffusion in new telecommunications systems

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INTRODUCTION

In today's environment of rapidly evolving information and communication technologies (ICTs), technical standardization is said to be confronted by a "minefield" of intellectual property rights (IPRs). Patents and other industrial IPRs that might belong to individual developers of technology have the potential to undermine the collective pursuit of technical standardization that might serve the common interests of the sector or industry. This tension between the individual and the collective, between the development of technology and its diffusion, is however by no means new; it is an inherent feature of standard development as an institution of innovation.

The fact that this tension has only recently been converted into conflict raises a host of interesting questions about standardization in the evolving environment of the 'digital age'. In this chapter, we will address some of these. We are especially interested in the fundamental question concerning the roles of standard development organizations and IPRs in the "technology infrastructure" (Tassey, 1995) and how these roles are "co-evolving" (Nelson, 1995) with the rapidly developing ICT industry. The contention is that this process of coevolution is bringing what are initially complementary functions in the innovation process into increased confrontation.

In this chapter such questions will be explored in terms of innovation-theory in which the role this ‘technology infrastructure’ plays is explicitly recognized. The discussion of this relationship moreover will be largely presented in terms of a case study, featuring the controversy that arose during the standardization of the now popular GSM system, produced by the European Telecommunication Standards Institute (ETSI).

BACKGROUND

The ‘minefield’ of intellectual property rights said to face SDOs such as ETSI includes a wide variety of different hazards. There are different types of mines, in the form of patents and more recently copyrights covering software. But more importantly, the different types of IPRs in the minefield pose different types of danger to the standardization process depending especially on their number and the disposition of the owners.

In this chapter, we are interested in what are termed “essential IPRs”, as it is this type of mine that is dangerous to standards-development. The potential for conflict arises when the implementation of a standard, by its *essence*, necessitates the application of proprietary technology. A standards development organization, for example, that sets to work codifying a set of standard signal-transmission specifications for a mobile-communication system, will be working in an area where private companies have already researched and perhaps have developed their own solutions. The standards body thus risks infringing the rights of those companies who have invested valuable R&D resources in this field if the standard ‘specs’ it proposes, by their depth and detail, necessitate the usage of technical solutions that are protected by active IPRs. Should it do so, the collective interest of the industry in a standard confronts the private interests of an IPR holder.

Though not necessarily agreeable, these interests will in many cases be amenable, and the confrontation will not spell conflict. To simplify, the discovery of essential patents is most often settled peacefully through different licensing arrangements. The innovation system comes under strain only in cases where licenses threaten to undermine the technology’s marketability. This can occur either where the terms of individual rights-holders exceed what the SDO’s understanding of ‘reasonable terms’ or where cumulative royalty costs of several rights-holders do so. The GSM-case will provide a good case to illustrate. We will see among other things how cumulative costs of licenses were considered to threaten the extensive standardization of this mobile system. In this case, there was more than one intellectual property holder involved each with more than one patent. Is it a unique case? Tendencies in the ICT markets suggest not and experience seems to bear this out. (see below)

The conflict can be far more damaging if the IPR-holder for some reason refuses to license his technology to those wishing to utilize the standard. It should be said that this risk is somewhat more remote because a property-rights holder generally benefits when his rights are implicated by a standard. It is nonetheless a factor, and in the case of GSM, which was a *mandatory standard*, it was a particularly unwelcome factor, because a conflict between legal objectives became involved to which there was no obvious legal recourse available. We will see why the potential

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