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OPEN STANDARDS, INFORMATION SYSTEMS STRATEGY, AND ADOPTION OF INNOVATIVE TECHNOLOGY: THE CASE OF THE RECORDING INDUSTRY AND THE MP3 STANDARD

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Extended Abstract¹

Examining the strategy underlying adoption of new information technologies has long been an interesting and challenging research issue. The emergence of the Internet, and the myriad new technologies that it makes possible, increases both the complexity and the importance of this issue. This research focuses on strategic response to threats posed by innovative new technologies adopted as open standards in electronic markets for information goods. Standards have always been important in the development of commercial markets, and are especially so in e-commerce, and many established industry leaders face a difficult challenge in responding appropriately to disruptive shifts in the marketplace, yet the link between these two phenomena has not been examined. This study begins to address the issue of whether the existence of open standards affects the strategic response of industry leaders, and in particular whether it pushes them to more rapidly embrace e-commerce opportunities.

We use the music recording industry as an example of an industry confronted by competitive pressure from the MP3 open standard for audio-video encoding, and its widespread adoption. The recording industry's attempts to restrict the diffusion and acceptance of MP3 by legal means have slowed but not stopped illegal uses of the standard and have proved powerless against legal uses. Attempts to establish alternative standards have encountered difficulties simply in reaching agreement among rivals on what that competing standard would be, let alone in gaining acceptance among users.

To address strategic responses of record labels to the threat posed by the MP3 standard, we rely on relevant research in the IS strategy literature to generate hypotheses concerning the growth of record label Internet presence, and more specifically the growth in involvement with e-distribution of music. Using content analysis of record label web sites in 1998 and 1999, we find support for these hypotheses. We conclude that the open standard MP3 and the piracy that it enables have pushed record labels toward development of e-commerce, as indicated by early adoption of web sites, and toward experimentation with e-distribution of music. We also find that record labels will offer complementary rather than substitute formats for e-distribution of music, when they do engage in it.

The publication of an open standard for content encoding threatens the loss of control of content. This is evident not only in the case of MP3-based distribution of music on the Internet, but in other key control-of-content battles. The Norwegian teenager who broke the DVD encryption code, and the web sites that have posted his program, has effectively taken the proprietary market-leading DVD standard and attempted to make it a published open standard. The implications have not been lost on the movie industry, which sued to stop distribution of the program. Even in the Instant Messaging market, where copyright protection of content is not an issue, a proprietary standard allows America Online to maintain control of messages, so that they cannot be exchanged with users of other instant messaging products. Its competitors have formed a coalition, IMUnified, to expedite the

¹**Keywords:** Strategic IS, diffusion of innovation, open standards, piracy.

process of publishing standards of interoperability and ultimately an open standard (through the Internet Engineering Task Force), all to pressure AOL to open its system and give up a major part of its competitive advantage.

Clearly the existence of an open standard, the act of establishing one, or the opening of a proprietary standard, all raise important strategic issues for the affected firms, especially when it enables piracy of copyrighted materials. This study examines the potential of established theory in information systems strategy to explain the competitive response to open standards by examining recent developments in Internet-based e-distribution of music and the recording industry's response to those developments. We analyze data collected from the early phases (1998–1999) of the rapidly developing market for Internet music distribution, in which the established interests of the recording industry are represented by a series of proprietary standards while the market demand for music encoded using the open MP3 standard grows rapidly. We measure the extent of use of the MP3 standard and the impact of that use on record labels, controlling for record label size. To gauge the strategic response of the recording industry, we test hypotheses based on established theory from the information systems strategy literature, as well as theory from the diffusion of innovation literature.

We find that the threat of Internet piracy does appear to drive record labels to establish a web presence, establish that web presence earlier, and experiment with e-distribution of music, albeit with a focus on complementary rather than competitive formats. We find too that these actions on the part of the record labels, in the period of this study, are not likely to be driven simply by the popularity of a record label's recordings. For example, country music labels have many very popular recordings, but little piracy exposure, and they tend not to respond in the same manner as those with both popular recordings and high levels of piracy exposure. We also find that record label size, as captured by big-five record label ownership, tends not to play a significant role in response to piracy exposure.

Historically, we have seen many companies compete by attempting to set *de facto* standards in the marketplace. Well-known examples include the betamax versus vhs video format battle, and the Microsoft PC operating system monopoly charges. These battles have involved efforts to obtain dominant market share among consumers, as well as strategic issues such as whether or not to license technologies to competing firms. The rise of open standards that has accompanied much of the growth of the Internet poses fundamentally different strategic challenges than those posed by *de facto* market standards. Our results suggest that the development of open standards can affect the strategic actions of market leaders. However, the general implications of these pressures and strategies on the adoption of IT innovations remain to be examined.