

Vural Ünlü

Content Protection

Economic Analysis and Techno-legal
Implementation



Herbert Utz Verlag · München

Law and Economics

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Band 29

Zugl.: Diss., München, Univ., 2004

Bibliografische Information Der Deutschen Bibliothek:
Die Deutsche Bibliothek verzeichnet diese Publikation
in der Deutschen Nationalbibliografie;
detaillierte bibliografische Daten sind im Internet über
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ISBN 3-8316-0462-2

Printed in Germany

Herbert Utz Verlag GmbH, München
089-277791-00 · www.utzverlag.de

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1 Introduction

1.1 Scope of the problem

In today's information society, the commercialisation of creative works and the industries associated with this field have assumed a significant role with regard to the economy and employment [Wirt01,14-17]. It is estimated that currently 5% to 7% of the Gross Domestic Product is generated in branches of the economy concerned with the creation or commercialisation of copyrighted products [Krög02,14]. Such industries are currently threatened by extensive product piracy. Representative bodies of the entertainment industry claim that the negative impacts on these industries are significant. For example, the International Federation of the Phonographic Industry (IFPI) estimates in their *Commercial Piracy Report 2004* that commercial piracy of physical formats accounted for an estimated US\$4.5 billion in 2003 in terms of illegal sales worldwide [IFPI04]. The Motion Picture Association of America (MPAA) estimates that the US motion picture industry alone loses \$3 billion in revenues yearly [MPAA04]. Neither of these statistics includes losses due to Internet piracy, which are assumed to be substantial.

However, the scope of losses claimed by the media industries should be accepted with caution. A careful study of the assumptions upon which the calculations of losses are based suggests that the figures have been obtained simply by multiplying the estimated number of pirated media products by the retail price. Thus, these theoretical calculations are based on the assumption that in a world without piracy, the present consumers of pirated products would instead purchase legitimate content. However, without price reductions, it is unlikely that all illegal users would purchase the legitimate products, in the event that piracy was prevented by whatever means. It can therefore be seen that the methodology employed in some studies of illegal commercial copying leads to exaggerated estimates of losses in revenue [CSTB00,188-190].

Furthermore, the point should be made that not all media segments are equally affected by piracy. This is because not all media segments are dependent on the generation of direct revenues. Media companies can also derive indirect revenue from advertising, which is based on the generation of attention [Sche02,38-45]. As Figure 1.1/1 illustrates, the ratio between direct and indirect revenues differs according to the media segment. Whereas a book publishing company generates almost its entire turnover by means

of direct revenues, a free TV broadcaster usually derives most of its revenue from advertisements and related sources [Wirt01,19].

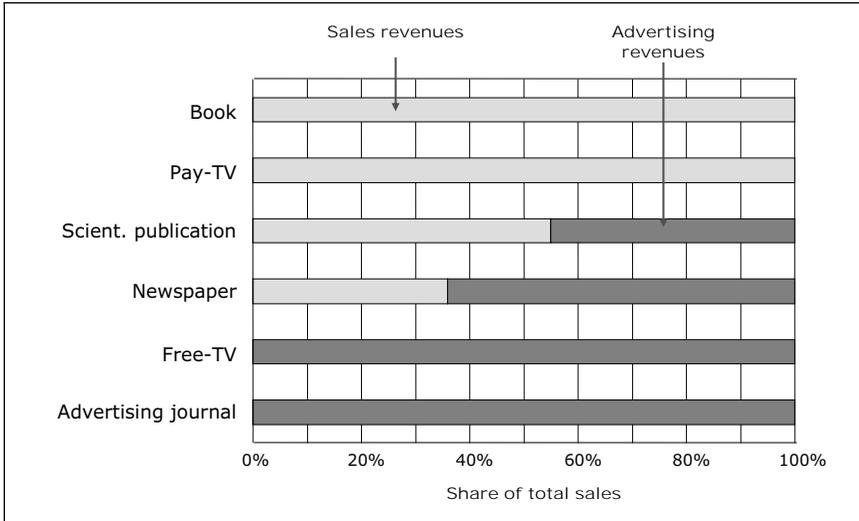


Figure 1.1/1: Proportion of direct revenue in various media segments [Sch02,23]

Despite the above-mentioned methodological shortcomings of some of the reported studies, and the fact that some media segments are protected from piracy through advertising-based revenue models, it can still be seen that the overall scope of content piracy is substantial. This is especially true in the case of the music segment, where worldwide turnover declined by about 10.9% in the first half of 2003 [IFPI03]. This significant decrease in revenue cannot be explained in terms of ageing demographics, the excess revenues generated during the vinyl-to-CD conversion cycle and greater competition for the disposable income of young consumers, but rather is to a significant extent attributable to copyright infringements.

As the downward trend continues, extensive segments of the cultural industries are threatened - as a logical consequence - with a loss of their means of existence. This tendency also has negative implications for society as a whole, since the provision of information, the motor of societal development, is endangered. The relevance from a micro- and macroeconomic point of view is obvious, and the immense short- and long-term implications for media companies and legislators warrant investigation of this problem. The aim of this dissertation is therefore to analyse how the

media industry and public policy should address the proliferation of content piracy.

The problems and objectives have been broadly outlined in this introductory section. They will be refined in the following sections, which will look beyond the symptoms to analyse the structural change factors that have led to the current situation, so as to suggest economically sound techno-legal remedies to help media companies resolve these issues.

1.2 Refinement of problem structures and objectives

In a situation with extensive Intellectual Property (IP) piracy, where current legislation fails to provide the necessary security, media companies need to develop self-help mechanisms, so as to ensure their means of existence [Dam99]. The content industry is determined to address this critical situation by seeking various means of preventing the uncontrolled redistribution of content, in order to safeguard sustained sources of direct revenue. Three major strategies for protection against the present piracy challenge can be identified: technical, legal and structural strategies [CSTB00,184]. These are illustrated in Figure 1.2/1 in conjunction with concrete actions.

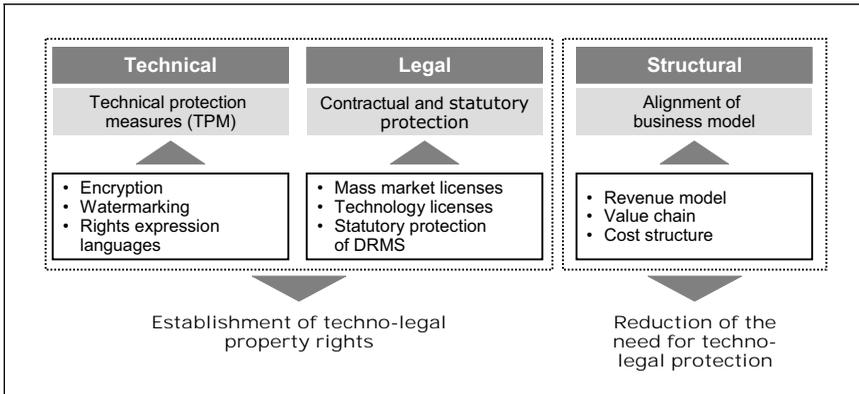


Figure 1.2/1: Copyright protection strategies in the digital context

Technical strategies aim to protect the economic interests of media companies through the deployment of *Technical Protection Measures (TPMs)* based on key technologies such as encryption, watermarking and rights expression languages. In this context, Charles Clark has stated that "The answer to the machine is in the machine" [Clar96]; in other words, the survival of the media industries presupposes the development of suitable technical