

## **Intellectual Property, Communism and Contextuality**

A non-essentialist exploration of German digital copyright and the public domain

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### **Abstract**

This paper explores current changes in German copyright legislation in two fields in which the digitalisation of creative works has changed the relationship between commercial and non-profit activities: the music industry and scientific publishing. For years the music industry has been facing a decreasing demand due to Internet distribution and filesharing networks and a lock-in of traditional business models. Scientific work is confronted with a supply crisis of information. The resources of libraries, which traditionally used to mediate commercial and non-profit activities, are dwindling while the role of commercial databases and meta-information systems for academic reputation is gaining importance.

These processes are well known, but both the current public debate and theoretical analyses suffer from a certain essentialism: The problem of intellectual property is mostly seen as inherent to the characteristics of knowledge *goods* and knowledge production. Thus, the arena appears like a zero-sum game to both commercial actors and promoters of the public domain, in which commodified goods are subtracted from the public domain and vice versa. This paper applies a process-oriented and interactionist sociological perspective to the shifting relationship of markets and public spheres. Knowledge goods and intellectual property institutions thus are mutually constitutive. In establishing them, situated flows of knowledge and meaning are bracketed institutionally and technologically for a time. However, current changes in copyright legislation tend to privilege commercial exploitation and thus may end up establishing the very zero-sum configuration that so far has been challenged theoretically.

## 1 Introduction

In recent years, issues of intellectual property have moved out of the domain of legal specialists and professional authors and inventors. Teenagers using the Internet, farmers or software developers find themselves confronted with intellectual property claims and possible infringements. Public debates on patents for living organisms or software, on piracy and private copying reach the general press. With and through the regulation of intellectual property, knowledge societies negotiate the boundaries of markets and public spheres and seek ways of handling knowledge, culture and innovation – all of which are supposed to be key resources for economic success and social welfare.

This paper applies a sociological perspective to these processes of negotiation which is not limited to rational interests and property rights. From an interactionist and constructivist view, actors in these fields of negotiation do not just distribute resources but indeed constitute them as such. Neither do they just establish rules and resources (Giddens 1984), but configure entire ensembles out of practices of creating and consuming, roles of authors and audiences, and economic and social exchange relations, in which norms and values play as much a part as interests and strategies.<sup>1</sup> The institutions of intellectual property thus do not simply present an enabling and constraining framework for action. In this field they become a dynamic object of action, discourse, power and influence themselves.

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<sup>1</sup> This theoretical outlook shares the perspective on process and the mutual constitution of institutions and actors with Werle's actor-centered institutionalism (Werle 1998). Due to its subject matter it focuses on a wider range of actors including social movements and civil society, and addresses both strategic action and normative and expressive orientations of actors in the field (cf. Döbert/van den Daele 2002).

While this view may be almost commonsensical to sociological approaches to knowledge and technology, this paper argues that both public debates and theoretical reflections on intellectual property and the public domain mostly restrict themselves to an essentialist view. The significance of the public domain and the need for copyright protection are ascribed to specific properties of knowledge goods and knowledge production. Thus, the intellectual property regime appears like a zero-sum game to companies interested in property rights and to promoters of the public domain, in which either intellectual "property is theft" or freely circulated digital goods are just stolen profit ("piracy").

In the perspective developed here, knowledge goods and intellectual property institutions will be seen as mutually constitutive, temporary results of an institutional/technical bracketing of situated flows of knowledge and meaning. However, the current changes of intellectual property governance with their privileging of markets and property rights, in combination with the likely strategies of commercial actors in the field, may end up implementing the very zero-sum configurations that players in the field evoke – with the added imbalance of a fortified property regime and an impoverished public domain.

This paper does not claim to be more than an exploratory study. It is part of a broader study on the boundaries of economic and organisational sociology in which the author seeks to address the question: how do companies, institutions and social norms and movements draw the boundaries of markets, private and public spheres; shape goods and services; and configure and challenge customer and other non-work roles in relevant arenas of knowledge societies (Holtgrewe 2005)?<sup>2</sup> The present analysis is based

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<sup>2</sup> This paper began as a *Habilitation* talk at the Faculty of Social Science of Duis-

on a review of literature, an analysis of the recent media and public debate on copyright legislation in Germany, an analysis of relevant actors' websites and participation in workshops and conferences on intellectual property and public goods.

The paper first introduces the key concepts of the public domain (1.1) and of copyright (1.2). In the second section it discusses the theoretical concepts relevant to the subject: The economics of information goods (2.1), the modernist sociological concepts of the knowledge society in the Mertonian tradition, and the concept of the contextuality of knowledge (2.2). Section 3 analyses the contexts of music (3.1) and scientific publishing (3.2) through a modified value-added chain concept which includes non-profit activities of knowledge creation and absorption. Section 3.3 analyses recent changes in copyright law which are relevant to these empirical fields. The discussion and conclusion in section 4 first compares the configurations and path-dependencies for relevant actors in the empirical fields (4.1) and then draws conclusions for the politics of intellectual property and the public domain (4.2).

### 1.1 The public domain

The public domain emerges in the debates about copyright and its limitations as a somewhat diffuse and normative concept which is opposed to

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burg/Essex University in 2003. Other versions were presented as contributions to the 4<sup>th</sup> Austrian Conference of Technology Assessment on June 7<sup>th</sup> 2004 in Vienna and to the plenary session 1 on "Knowledge, Power and Inequality in Knowledge Society" conference of the German Sociological Association in October 2004 in Munich. I am grateful for the comments and ideas provided by the participants of these conferences and to Jens Aderhold, Virginia Doellgast, Andrea Fried, Christian Kerst, Manfred Moldaschl, Michael Nentwich, Peter Sanders, Karsten Weber and two anonymous reviewers. Of course the author remains responsible for all remaining misconceptions and imprecisions.

the establishment and extension of intellectual property rights. As a legal term, it means the status of a creative work which is not protected by copyright laws (in German: "Gemeinfreiheit")<sup>3</sup> and may be used, reproduced and distributed by anyone either because copyright has expired (e.g. 70 years after the death of the author in German and US copyright law), because it is generally exempt from copyright (e.g. government publications) or because the author has failed to establish copyright (Gasaway 2003, cf. Lessig 2001: 20). "Public domain" or open source/free software thus mostly is not literally in the public domain, but the copyright holder permits such use (or a specific range of possible uses) to anyone through the terms of the licence. In its more general use in debates on knowledge, the Internet and copyright, the public domain means the sphere of freely accessible knowledge and/or cultural goods that may be circulated, used and further developed by anyone. This is possibly put more precisely by terms such as the "creative common property" or, in a good German translation, the "Wissensallmende" (Grassmuck 2000). Behind these programmatic terms is the general idea that this common property is the "seedbed" for any production of creative work and innovation: producers of knowledge and cultural goods inevitably stand "on the shoulders of giants" or at least those of other creative people: "In the digital world, all the stuff protected by copyright law is in one sense the same: It all depends fundamentally upon a rich and diverse public domain." (Lessig 2001: 50)

### 1.2 Basic concepts of copyright: Institutionalising creativity

The chief institutions of intellectual property that grant property rights to inventors and authors of intellectual creations are

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<sup>3</sup> [http://de.wikipedia.org/wiki/Public\\_Domain](http://de.wikipedia.org/wiki/Public_Domain), retrieved February 5<sup>th</sup> 2005.

- patents,
- copyright,
- copyright contract law,
- trademark protection,
- and trade secrets (Leadbeater 2001).

The following sections will focus on German copyright and after discussing the basic concepts, on copyright in digital spaces. German copyright protects "personal intellectual creations" ("persönliche geistige Schöpfungen", § 2 (2) UrhG), e.g. works in science, arts and literature. Notably, copyright in general does not protect ideas but their instantiation – nobody can claim copyright on the form of a sonnet or the method of narrative interviewing, for example. Copyright addresses both property rights and non-commodified claims. Different from US or British copyright, continental European copyright distinguishes between the author's personality rights and the rights of exploitation. Since authors' personality rights cannot be transferred, the author and her "intellectual and personal relations to the work and its use" (§ 11 UrhG) are not subject to commodification. Personality rights reserve the author's right to decide on publication and communication of the contents and assure her right both to be recognised as the author of the work and to prohibit distortions and impairments. In contrast, the rights of exploitation and use can be transferred, i.e. the rights of reproduction, distribution, exhibition and performance. Such rights can be simple or exclusive and may be limited spatially, temporally or with regard to content.

German copyright has so-called "barriers" ("Schranken") which regulate fair use. They permit the reproduction of works or parts of works for church, school or teaching use, the rendition for non-profit purposes or for the reporting of current events, citation and the making of private copies. Some of these uses are compensated through a fee on photocopiers, audio- and video-cassettes. For specific media and tech-

nologies there is a range of special regulations.

This brief summary makes it obvious that copyright confers 'thinner' and more relational property rights than property in land, cars, computers etc. (but cf. Strathern 1999 on the culturally specific concepts of property). They cut certain modes of exploitation use and communication out of the general production of culture and knowledge. This point is also made by Bowrey and Rimmer:

"Copyright locates legal rights to cultural production within a system of interdependencies. It is not really the case that copyright creates two competing domains – private and public. There is no private 'domain' in a closed sense. The boundaries that exist are permeable. This is because ownership is determined by overlapping cultural limitations that express the realities of that copyrightable work's genesis, and enable similar relations with other cultural producers to the benefit of cultural production generally. For example, fair use, taking of insubstantial parts, taking ideas but not the expression, and limits to the duration of protection all interrupt the owner's 'domain'. There are no 'walls' around the copyrightable work in that property sense." (Bowrey/Rimmer 2002)

The barriers of copyright thus address such practices of use that are institutionally situated outside the market. With their focus on educational uses they support especially the production of new or future knowledge and the socialisation of future producers – an area in which markets tend to fail. Intellectual property and knowledge as a public good thus are interrelated rather than complementary.

Currently both copyright and patent law are being changed on the level of legislation, jurisdiction and practical implementation. The majority of these changes aim at

- a stronger protection of intellectual property,
- an extension into previously exempt areas,
- shifts between the domains of trademark, copyright and patent law,
- and a redistribution of functions between the state, the respective industries and technology.

They are triggered by

- international agreements (WIPO, TRIPS; GATT);
- EU directives harmonising intellectual property;
- and US-American law (cf. Kuhlen 2004).

The structural reasons for these changes can be found in changing modes of innovation: On the technological side, science, technology and even previously basic research are moving closer to actual and potential markets, and they are increasingly evaluated in terms of their commercial potential. In the cultural industries, a long process of mergers and acquisitions has continued. Media and distribution modes have multiplied, and the Internet has become a cheap but hard to control way of distributing and using digital goods.

In Germany, copyright law is being adapted to meet the requirements of the EU Copyright Directive 2001/29/EC on the "Harmonisation of certain aspects of copyright and related rights in the information society" in two steps. The first amendment became effective on September 13<sup>th</sup>, 2003, the second is currently under legislation. The new regulations will be discussed in section 3.3.

## 2 Economy and sociology of knowledge

### 2.1 The economic view of information goods

From an economic point of view, the current problem of intellectual property rights is tied to the characteristics of digital goods (Stehr 1994; 2001; Kuhlen 1995; Quah 1996, 2003; Cortright 2001; Hutter 2000, 2002). They are immaterial and non-rival – my enjoyment of a Nick Cave song or a lecture by Lawrence Lessig is not affected by others listening to the same song or lecture. The cost of producing digital goods is concentrated on the first instantiation. If cultural or knowledge goods become digital, the cost of reproduction and distribution gets very small. Cultural and knowledge goods are also generative (Moldaschl/Diefenbach 2003) or recombinant (Quah 2003): Their use enhances their value since it is accompanied by communication. Knowledge generates new and emergent knowledge, and cultural production draws on previous cultural products and practices.

For all these reasons, markets for digital goods are likely to fail or to have severe limitations and 'leaks'. Traditionally, markets in knowledge goods have been based on the materialisations of these goods, and intellectual property rights regulate the rights to produce and distribute these materialisations: Books, vinyl records and CDs, journals or videocassettes are of course rival and material – but they still can be copied at low cost. Yet even such pre-digital markets have been complemented by other, non-profit modes of distributing knowledge and cultural goods: By public libraries, mass media, institutions of education and training, 'alternative' and communal cultural centres, and by interpersonal networks of friends taping audio cassettes or lending books. Notably all these distribution modes do not simply replace the market. They inform and

educate audiences and shape their competencies and tastes.

The establishment of intellectual property rights over knowledge and cultural products gives potential creators (or distributors) of knowledge goods an incentive to produce by assigning them a temporary monopoly over the reproduction and distribution of these goods – provided that it is chances of material gain which motivate producers. However, intellectual property governance is dilemmatic since on the other hand it limits the circulation of and the access to knowledge and cultural goods – which do not just provide education and entertainment but also form the basis for further creation of knowledge. If the knowledge good has been produced already, its maximal (free) distribution may maximise social welfare and enjoyment. On the other hand, if prices drop to zero, the risk of not making a profit or even recuperating the cost of creating a new knowledge good may be a disincentive for potential creators (Quah 2002: 8). As Richard A. Posner, former chief judge of the US court of appeals, phrased it: "Granting property rights in intellectual property increases the incentives to create such property, but the downside is that those rights can interfere with the creation of subsequent intellectual property." (Posner 2002: 12)

Intellectual property rights thus mediate the interests not just of producers, distributors and consumers of knowledge and cultural goods, but they also implicitly articulate past and future, actual and potential knowledge creation and circulation.

Digitalisation now de-materialises and de-spatialises knowledge and cultural goods thoroughly. Hence, the dilemma of intellectual property rights is widened. Access to cultural and knowledge goods is potentially global, given Internet access. The limitations or 'barriers' ("Schranken") of intellectual property rights that permit the non-

profit and educational use ("fair use") of cultural goods no longer tie in with the previous temporal/spatial boundaries of these uses: Music may be distributed beyond circles of friends to millions of fellow enthusiasts, libraries may make and distribute digital copies of books and journals.

From a Marxist point of view, this is an instance of the capitalist contradiction between forces and relations of production. Brödner et al. pointed out this contradiction in 1981: the use of databases under capitalist conditions would lead to a monopolisation and commodification of information which in turn requires a strict regimentation of information exchange in order to maintain the value of these goods (Brödner et al. 1981: 148; cf. Boyle 2000). On the other hand, the expansion of human knowledge and socialisation of production increase the need for general access to information and render this monopolisation socially counterproductive (Brödner et al. 1981: 150).

## **2.2 Knowledge communism and contextuality**

Sociological approaches address the subject of intellectual property in terms of the knowledge society. Approaches within modernisation theory emphasise the aspect of unfolding forces of production. Mertonian communism (Merton 1973) in science is expected to expand to other spheres of knowledge production. Stehr for example (1994; 2001) argues in this vein that the central character of knowledge as a force of production challenges the institutions of property and the economics of scarcity. He regards knowledge as a "capacity for action" so that in knowledge societies these capacities are redistributed, empowering small groups of actors.

In current debates on intellectual property and the public domain, left wing and libertarian views are more or less explicitly based on these modernist and Marxist concepts. In Germany

they are pursued for example by the Heinrich-Böll-Stiftung (2000, 2002, 2002a), the Green Party's think tank (cf. also Hofmann 2002; Kuhlen 2002 and other contributions in *prokla* 126; Lutterbeck 2002). In this view, the increasing relevance of knowledge is seen as a dialectical process between forces and relations of production, e.g. an empowerment of labour power versus the dominant institutions of property and power. André Gorz writes: "Transforming capital opens up the perspective towards a society of knowledge and culture but resists its development in order to retain its power." (Gorz 2002: 28, translation UH)

Currently among the authors representing digital neo-Marxism we find optimistic and pessimistic positions. Optimists (such as Gorz 2002; Maurizio Lazzarato 1998; or Paul Adler 2002, 2003) emphasise the possibilities of knowledge production beyond the market and its inherently free and co-operative logics. Pessimists describe an ongoing capitalist expansion and exploitation (Rifkin 2000) leading to observable social polarisation.

At this point, the perspective of the sociology of knowledge brings in a contrasting view. It emphasises the contextual, processual, potential and generative character of knowledge. Here the focus is on the practical and embedded utilisation of knowledge. Knowledge may be tacit or explicit (Polanyi 1985); individual or collective (Lam 2002); and all these forms and aspects of knowledge are articulated in its utilisation (e.g. Håkanson 2002; Malhotra 2003). Knowledge thus consists of heterogeneous ensembles of knowledge goods, of "knowledge machines" (Rammert 1999, 2003) of expertise embodied in human brains, of intersubjective sensemaking processes requiring attention, selection and understanding (Weick 1995), of communities and networks of practice (Lave/Wenger 1991) and so on.

This complexity, fluidity and heterogeneity of knowledge lead Michel Callon to argue against the Mertonian tradition, that even science does not produce essentially public goods. The very contextuality of knowledge makes it exclusive. Scientific statements by themselves are useless and only their utilisation and re-contextualisation render them effective and valuable: "Knowledge cannot be applied without being transformed." (Callon 1994: 405)

These transformations are costly: they require not just time and attention, but also the use and maintenance of complementary goods, i.e. they require information work (Kuhlen 1995). In this view, the appropriability and (non-)rivalry of knowledge goods are gradual: "Degrees of appropriability and of rivalry are the outcome of the strategic configurations of the relevant actors, of the investments they have already made or are thinking of making." (Callon 1994: 407)

Contrary to the view of knowledge economics which abstains from these processes, in order to become a knowledge good, knowledge needs to be explicated, decontextualised and packaged, and in order to be used, these goods need to be recontextualised, unpacked, and absorbed.

It is the explicated and materialised bodies of knowledge and culture, i.e. knowledge goods, that are the objects of intellectual property rights. Their (possible) market value may consist in their innovativeness, since new and innovative knowledge is scarce (Stehr 2001), but innovativeness is of course relational and needs to be compatible with existing knowledge. With regard to cultural goods, originality and distinctiveness may confer market value – but so may the conformity to current tastes and fashions.

Taking the sociology of knowledge perspective into account, both intellectual property and the public domain thus are not static institutions framing strategic action but are instantiated

and contextualised in and through processes of production, distribution and use of digital goods. Their legal regulation enables and restricts particular modes of production and use, but it does not determine them. Regulation becomes even less deterministic if boundaries between public goods and markets become permeable and if actors' options and perspectives multiply.

### **3 Producing, exploiting and using digital goods: popular music and scientific publishing**

In the following sections we shall explore the connections between markets, non-profit distribution and use, economies and norms in two fields, music and scientific publishing. While music is one of the classical domains of cultural industries, science just as classically is thought to constitute a public domain – but in both cases the emerging picture is rather more patchworked.

#### **3.1 Failing from previous successes: the music industry**

The music industry, like the film industry, represents the traditionally commercial distribution of cultural goods. However, the anti-commercial critique of artistic avant-gardes and subcultures is just as traditionally connected to 'alternative' ideas of creatively connecting producers and audiences.

The industry is highly concentrated. After a long history of mergers and acquisitions, the last of which was Bertelsmann Music Group's merger with Sony Music in 2004, four major labels share roughly 80% of business volume and dominate the industry associations accordingly. Yet the global market is stagnating at about 40 billion US-\$ since 1995, and turnover has decreased in recent years. Notably, this stagnation began before MP3.com, Napster and other filesharing systems enabled the free distribution of digital music.

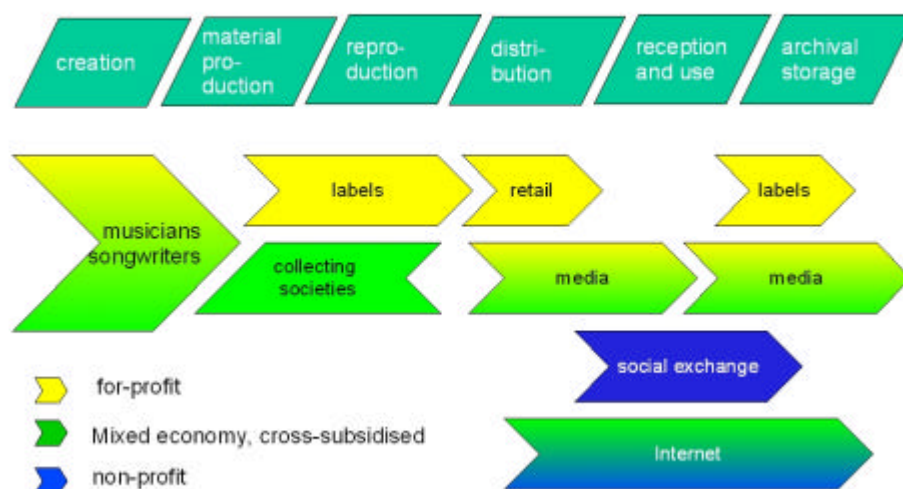
Traditionally, the music industry's business models have been tied to material cultural goods, such as vinyl records, CDs or DVDs. Other modes of distribution and consumption represent mixed economies: collecting societies (e.g. the German Verwertungsgemeinschaft Wort) control and licence certain performance rights and distribute the fees on copying machines and media. This involves certain redistributions and consolidations into lump sums which reduce transaction costs and sometimes privilege smaller producers over larger ones (Kretschmer 2005). Mass media distribute music without separate fees and generate and distribute audiences' attention. Users have their own ways of distributing and exchanging music: In school playgrounds and friendship networks people exchange copies and compilations and evaluate musicians.

The mixed-economic value-and-use-chain thus can be described as follows (see fig. 1): the creation of music, the writing, composing and performing happens mostly in relations which are not purely for-profit. Indeed, the majority of musicians subsidise their music from teaching or performing (Kretschmer 2005). The production and distribution of music are commercial activities – though they may be cross-financed as in media broadcasting. Users buy music, but a large share of distribution and consumption takes place outside of the economy and in social exchange (Haug/Weber 2002). The archiving of music is a mixed economy as well: broadcasting companies' archives are publicly subsidised, record companies' archives are private, and the Internet as a music archive is non-profit or cross-subsidised.

The technological possibilities of the Internet and the diffusion of advanced copying, data compression and distribution technologies to private households now endanger the music industry's business model as soon as music can be distributed digitally and users



Fig. 1: creation, exploitation and use of music



themselves are able to store it on diverse media. Users can thus multiply and globalise their practices of exchanging and listening to music. Creators also have gained options: the traditional countercultural scenario of "eliminating the middle man" and bringing audiences and artists into direct interaction has gained plausibility again (Dolfsma 2000; Kasaras 2002). However, beyond free distribution there is still a lack of models for business and culture which allow for the fair and viable compensation of artists.

Another question is how the actual functions of intermediaries such as the music industry and media are going to change: they provide capital and attract and distribute attention and reputation. It is conceivable that beside the grassroots activities of music enthusiasts, clubs and music magazines or radio stations will take over more or less commercial distributive activities. The question is whether this will take place with or without the traditional music industry.

In a study of the music industry based on interviews with experts from the major labels, collecting societies and industry associations between 1996 and 1999, these actors were still quite confident facing digitalisation and Internet distribution (Kretschmer et al.

1999; 2001). They felt safe in their central position and expected to be able to develop digital distribution slowly. They wanted to avoid a 'cannibalisation' of the music market with its comfortable profits, to maintain their control over 'content' and its distribution and to build platforms in co-operation with large Internet service providers (ISP). The Internet was seen as a "promotion medium and mail order machine" (managers quoted from Kretschmer et al. 2001: 427) – and this view has been dominant until today.

However, the advantages of a cheap distribution medium, in which the central investments in bandwidth and storage technologies were made by users and ISPs, were attractive to the industry as well. When Bertelsmann's Thomas Middelhoff bought up Napster, for example, the strategy was to turn the 37 million Napster users into paying customers for unspecified services – a vision which may have been overoptimistic in the new economy boom but must have looked commercially irresistible to a company like Bertelsmann whose global success had traditionally been based on exclusive distribution channels. The conversion of Napster failed due to the other major labels' risk aversion and to Napster's limited development capacities (cf. Röttgers 2003).

After Napster, the music industry chiefly reacted defensively to the new technological challenges along the lines of their 1990s strategies: file-sharing networks such as Napster and MP3.com were bought up, copyright claims are legally enforced against ISPs and recently also against individuals, legislation is intensively and successfully lobbied to expand copyright, media campaigns are launched and CDs are technically protected against copying. Digital rights management (DRM) is gaining significance, i.e. the development of copying protection for potentially all digital information goods. DRM makes it possible to differentiate the ways of using digital goods such as listening, transferring files to different devices, and storing files on a CD, and to separately account for these uses (see Lessig 2001; Halderman 2002). Beyond the technical-legal limitation of distribution, new business models develop rather slowly: in the US, Apple's iTunes presents a quite successful combination of hardware and music subscription. In Europe the existing download websites so far are suffering from high prices, small assortments and a lack of agreements with collecting societies. Record companies but also radio stations and specialists distributing sounds for mobile phones set their future hopes in subscription models and mobile services.<sup>4</sup>

All these models no longer try to succeed in existing markets. In order to achieve market success, companies try to strategically configure new ensembles of organisations, products, pricing arrangements, regulations and customers. However, these strategies are countered by users' distributed and hedonistic practices, and increasingly users, communication scientists, artists and new social movements are developing some public voice in copyright issues. They assert the right to

"private copying" ([www.privatkopie.net](http://www.privatkopie.net)), demand access to a public domain of freely available music that should be funded through a "cultural flat fee" for unlimited copying ([www.fairsharing.de](http://www.fairsharing.de)), and develop new licensing models ([www.creativecommons.org](http://www.creativecommons.org)). In these debates about the boundaries of intellectual property and the public domain, not just innovation models but also norms of creativity, public spheres and the free circulation of knowledge come to the fore – although there is often some confusion between public goods and consumerism.

In this context it appears that the industry strategy that aims to fortify the traditional business model legally and technologically is likely to generate its own innovation blockade. Market actors dealing in licences, reputation or cultural images necessarily depend on cultural and institutional norms beyond the market. Although they seek to influence these and to increase their strategic options in the process, continuing strategies of the past and adapting the institutional environment to these strategies may lead to counterproductive lock-ins of technologically enforced property rights that are contrary to cultural innovation.

### 3.2 Scientific publishing

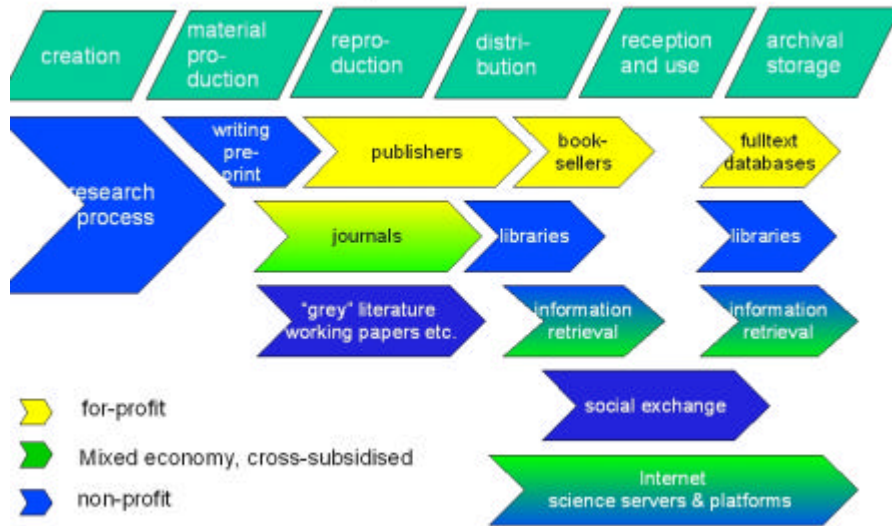
In contrast to the market-based music industry, science traditionally represents the ideal-typical public domain that Merton has described as "communist": "The substantive findings of science are a product of social collaboration and are assigned to the community. ... The scientist's claim to 'his' intellectual 'property' is limited to that of recognition and esteem." (Merton 1973: 273)

The roles and functions of performer and audience<sup>5</sup> within the social system

<sup>4</sup> [www.heise.de/newsticker/meldung/55442](http://www.heise.de/newsticker/meldung/55442)

<sup>5</sup> In the wide sense of Stichweh's "Leistungs- und Publikumsrollen" (Stichweh 1988).

Fig. 2: creation, exploitation and use of scientific publications



of science are fluid and the close interaction desired by cultural avant-gardes is potentially real here. The exchange currency is academic reputation.

While theoretically scientific publishing thus creates and maintains a public domain, practically this domain is rather more patch-worked (Willinsky

2002). The creation of academic publications as knowledge goods is part of the research process, which is funded publicly to a large extent (fig. 2). The physical production of scientific publications is a commercial activity, although academics and their assistants have taken over the pre-press work. Distribution through booksellers is

commercial, while distribution through public libraries is publicly funded, and libraries also take over archiving. Archiving is, however, complemented by the information retrieval that libraries and both commercial and publicly funded data bases provide.

The exploitation of digital content and meta-information, such as databases and the just-in-time access to full text, is the domain of commercial services (Becker/Bickel 1992), i.e. scientific publishers who have become comprehensive information providers. Libraries offer access to the databases they subscribe to, and their networks and document delivery services come to resemble commercial providers in their business models (Kuhlen 2001). On the other hand, commercial publishers often offer abstracts and tables of contents for free through the Internet in such a way that, again, free distribution of limited information generates attention and demand for digital goods.

Considering the scarce public funds for libraries, the business models of publishers and data base providers, and the sheer volume of scientific publications, the ensemble of non-profit production and information provision through libraries on the one hand, and commercial duplication, distribution and value-added services on the other, has fallen into the so-called 'journal crisis'. In Germany, from 1991 to 1997 the funds of university libraries have increased by 1.3% per year while the prices for journals in the humanities have been raised by 27% and in the sciences by 77% (Nentwich 2001: 24).

The sustainability of this institutional arrangement becomes more questionable considering that the actual authors of scientific publications have hardly any share in the profits that accrue from the commodification of their production. They confer copyright to publishers, invest work into pre-press preparation, and may even subsidise publication (in the case of books

in Germany). In return, "universities need to devote ever larger shares of their library budgets to buying back their faculty's material previously given to the publishers" (Nentwich 2001: 22). For these, especially the large ones, this business is rather profitable: Elsevier Science&Medical in 2003 reported 2002 million € of business volume and 677 million € operating profit.<sup>6</sup>

For these reasons, the division between commercial and non-profit activities is likely to change. Print or print-and-digital publishing of traditional journals are supplemented by document servers and disciplinary internet platforms. Academics and research institutions use the Internet in combination with search engines to make working papers or published articles globally accessible in ways that bring formalised scientific communication closer to the informal one of conferences and talk. These practices differ along the lines of the communication and publishing habits of disciplines and communities. The contextuality and half-life periods of scientific results and the relative significance of conferences versus journals play a part here (Nentwich 2003).

Currently, a range of library networks, professional associations and grassroots initiatives are working on open archives,<sup>7</sup> standards for electronic publishing and on rules for bringing published work back into the public domain (Sietmann 2002). In Germany, the DFG (German Research Foundation) and the BMBF (Federal Ministry for Education and Research) fund the development of public science plat-

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<sup>6</sup> [www.reedelsevier.com/media/powerpoint/m/1/FINALpresentationforwebsite.pdf](http://www.reedelsevier.com/media/powerpoint/m/1/FINALpresentationforwebsite.pdf)

<sup>7</sup> For physics, mathematics and computer science, there is the pre-print server [www.arxiv.org](http://www.arxiv.org) in Los Alamos (Grötschel 2002). [www.openarchives.org](http://www.openarchives.org) has developed a standard for open archives, the Budapest open Access Initiative ([www.soros.org/openaccess](http://www.soros.org/openaccess)) promotes free access to academic publications on the Internet.

forms, pre-print-servers and decentralised forums (Wissenschaftsrat 2001; BMBF 2002). The DFG-funded project GAP (German Academic Publishers) is developing a platform for electronic journals and book publication. Krause and Schmiede (2004) give an overview of German developments in the social sciences.

For these reasons, Michael Nentwich (2003) already sees the variety of initiatives and projects as indicative of a phase 3 of re-de-commodified scientific publishing after the phase of the public domain and the phase of commodification. I suppose that, at least in some disciplines, the path-dependency of the traditional structures may be rather stronger. There is no reason why the mechanisms of peer-review should not be transferable to electronic and openly accessible media. Yet, currently the distribution of academic reputation is tied to established journals and hence, commodified distribution. The generation of strategically important meta-information such as the measuring of impact factors and ranking of these journals is largely dominated by commercial companies. Even an increase of this path-dependency is likely if academic evaluation mechanisms and indicators (Hornbostel 1997) diffuse in such ways that they give additional weight to the "old" agencies of reputation.

### **3.3 Market and technology in the information society – recent changes in copyright**

The current amendments to copyright law in Germany as elsewhere aim at a fortification and extension of intellectual property rights, and they tend to assimilate new technology to established forms of distribution. The central regulations for the fields analysed here are private copying, technical copying protection and the so-called "science barrier", i.e. the rules of fair scientific use.

In general, in spite of all the negotiations and compromises in the process

of legislation, the amendments follow mostly the interest and strategies of large commercial actors and thus prescribe the predominance of markets and property rights as opposed to an expansion of the public domain. However, some formulations leave a range of ambiguities to jurisdiction and to everyday practice.

The regulation of private copying allows limited numbers of reproductions for non-commercial purposes. Such reproductions are generally legal, but with a view to file-sharing networks one exception has been introduced: copies are legal "unless an obviously illegally produced master copy is used for reproduction"<sup>8</sup> (§ 53 (1), sentence 1 UrhG). Even for legal copies, "effective" (§ 95a) technological protection measures must not be circumvented. Devices to avoid or circumvent copy protection are outlawed, i.e. they may neither be used nor distributed.

Here, the technological defense against copyright infringements or more generally, against uses that are contrary to the will of the copyright holder, gains legal protection. This means that law is not simply replaced by code, as Lawrence Lessig stated (1999), but the law protects technological copy protection. Intentionally or unintentionally, it privileges those future business models that enhance the logic of increased monopolisation and control of consumers as described by Brödner et al. (1981) or Boyle (2000). For example, Digital Rights Management systems enable a division of uses which may be paid for differentially ("pay-per-use", with different fees for listening to music, recording it, or transferring it to other devices), and in order to implement this, they need to control users tightly. On the other hand, the law's formulations of "obviously" illegal copies and "effective" protection measures are legally diffuse

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<sup>8</sup> "sofern nicht zur Vervielfältigung eine offensichtlich rechtswidrig hergestellte Vorlage verwendet wird"

and leave the actual evaluation of up- and downloading or copying to users and the courts. Consequently, users' actual obligations to check the legality of master copies are controversial. Well aware of these imprecisions, both associations of culture industries and the Ministry of Justice seek to influence users' interpretations through public media campaigns. The code and the law (Lessig) are surrounded and in fact socially implemented through public discourses and images that are shaped by the actors in the field. The film industry ([www.hartabergerecht.de](http://www.hartabergerecht.de)) symbolically presents downloading as a criminal activity (and in fact overstates the legal sanctions), while the ministry ([www.kopien-brauchen-originale.de](http://www.kopien-brauchen-originale.de)) draws on everyday transpositions of icons of popular culture to claim that copies require originals.

In the field of science, a new fair-use rule has been established in § 52a UrhG, which, however, is set to expire by the end of 2006. It permits making small parts of a published work, small works or single newspaper articles available for teaching and recently also for research purposes. The public to whom such material is made available is, however, restricted to a delimited circle of researchers or students, i.e. a technologically circumscribed user group, and fees need to be paid to collecting societies.

In the second legislative package (BMJ 2004) this is made more concrete and the previous copyright barriers are drawn tighter. Here, a range of the technological possibilities of digital distribution is reserved for commercial distributors. If a library has digital works, these may only be read electronically inside the respective library, and not in more copies than the library has paid for. Electronic document delivery services may only deliver journal articles or parts of works by mail, fax or as a graphic file, i.e. not as a text file which can easily be processed further. Such delivery is permitted only if "the articles or small parts of works cannot

be acquired by members of the public at times and locations of their choice by a contractual arrangement" (BMJ 2004: § 53a (1), sentence 2, translation UH). This privileges the document supply by commercial databases over the supply through libraries.

Academic associations have voiced their concern over drastic cost increases and increasing inequality in the provision of scientific information.<sup>9</sup> For libraries, this implies that their function in the provision and archival storage of information tends to be restricted to a basic supply, which legally transfers the physical limitations of paper copies to electronic information. In the use of new technology, the market is privileged over the public sector – while on the other hand, the state funds electronic public domains, open archives and electronic publishing.

## 4 Discussion and conclusions

### 4.1 Digital music and digital science

If we compare the relationship between markets and non-market distribution in the fields of music and science, the technological possibilities have been used in the contrary directions of commodification and de-commodification. In the field of music, users in alliance with the IT industry have quickly integrated the options of digitally obtaining, distributing and playing music into cultural everyday practices. For a long time the music industry has had little success in attempting to integrate possible value added into their business models, and is now trying to legally enforce and technologically fortify their intellectual property rights. Other players such as IT companies (e.g. Apple) or specialist start-ups that distribute, for example, music for mobile phones (Jamba) have been more successful in innovating products and services and in shaping

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<sup>9</sup> [www.heise.de/newsticker/meldung/51961](http://www.heise.de/newsticker/meldung/51961).

consumers' practices of music reception. For the music industry, however, the empirical relationship of intellectual property and the public domain and the perception of that relationship by relevant actors takes the shape of a zero-sum game: Gnutella or DRM, free distribution or commodification.

In science, large commercial publishers have been able to realise digital value-added from an early point in time, and scientific databases have been developed rather earlier than the Internet. Actors from the fields of science and public libraries have only recently begun to re-emphasise the norms and self-descriptions of a public domain, and to develop its technological foundations. Here we find mixed and heterogeneous economies and practices of use.

The uses of digital goods and the institutions of intellectual property thus are developing in contradictory ways and in close interaction with the norms, practices, strategies and path-dependencies in their respective fields. Consequently, the music industry faces a crisis of demand and science a crisis of supply in their respective digital goods.

But why is it that large and global academic publishers have been able to position themselves so much more successfully in their market of digital goods than the major music industry labels? Or: why have computer users, teenagers and students been able to implement faster and more economical modes of distributing digital goods in their cultural everyday practices than professional knowledge workers, who are also normatively committed to the public domain?

From different theoretical points of view, there are different reasons: looking at users' incentives, the music market with its fairly expensive CDs gave consumers a considerable incentive to shift to free music distribution, while in publicly-funded science users do not pay the full price for their in-

formation supply. On the demand side, the information work and attention required to absorb music are considerably less than for reading scientific publications. Culturally and technologically, the omnipresence of music has been extended from public spaces to individual media devices, while scientific work is mostly situated in professional research contexts, though these tend to de-spatialise. In terms of innovation theory, timing is significant: the music industry appears to be suffering from its previous successes in digitalising music and realising high CD prices. Scientific publishers were able to establish value-added services on proprietary networks before the Internet offered an alternative.

This comparison of widely contrasting fields looks temptingly deconstructive with regard to academic self-images. Indeed, in science, path-dependencies and possible lock-ins are found in the non-profit sphere. When the academic distribution of reputation became tied to commercial patterns of distribution, academics relied on libraries as mediators between both sides, which could be expected to maintain a Mertonian public domain. With the journal and library crisis, this public domain turns into an *illusio* in the sense of Bourdieu (1998: 110): by relying on the institutionalised self-description of science as a public domain, the economic and social prerequisites of this domain and its maintenance moved out of focus as well as the existing exclusionary mechanisms. Academics disinterestedly took access to their own means of production for granted. In the author's view, the development of open access mechanisms and platforms could also do with some more institutional imagination. While a transfer of peer-review mechanisms will be indispensable in an era of wide-ranging performance appraisal, its limitations (cf. Hirschauer 2004) suggest that there is room for experimentation with diverse, more transparent and open forms of evaluation.

However, this comparative analysis gives merely a momentary picture. Considering the wide variety of digital initiatives in the sciences and humanities, it is quite possible that academic publishers still will be "napsterised" (Kuhlen 2002; cf. Nentwich 2003). At any rate, we have to expect the emergence of mixed economies and technologically/socially/culturally hybrid modes of use and practice.

Actors intending to profit from digital goods would be well advised not to concentrate on the legal and technological enforcement of intellectual property rights. More auspicious strategies would be to learn to cope with fluid boundaries and leaks between markets and public domains, to think about intelligent hybrids and modes of adding value and supporting creative practice and use.

#### **4.2 Conclusions for copyright and public domain politics**

These analyses of institutional fields have made clear that knowledge bases, digital goods, public domains and commodification processes are so heterogeneous that they cannot be described as either a one-way process of commodification or as an unfolding of the productive forces of the knowledge society. As Stehr argues, an expansion of individuals' and small groups' capacity for creative action has been observed: it is possible to extend the social exchange of cultural goods and knowledge, as well as the enjoyment of music and professional communication. This has turned out to be temporarily easier for everyday consumption cultures than for scientific communities. The development of copyright, however, does not move in the direction of an extension of free and context-unspecific access to digital goods.

Although copyright does not draw simple boundaries between property rights and the public domain but governs their interrelation, it tends to enclose property rights and contexts of use rather than opening them up. This

is obvious with the legal privilege for copy protection and commercial document delivery. With the fair scientific use rule ("Wissenschaftsschranke") a not-quite-public domain is recognised in a field where economically relevant contributions to innovation are expected, in universities and research institutions. Users in this domain are to be technically configured as members of these organisations. If, however, the boundaries of the science system become more permeable to other social systems or contexts, if sciences and their applications move closer together, and if such processes and arenas are not to be reduced to markets, a legal delimitation of scientific audiences and discourses appears counterproductive.

While technically, the new copyright law requires libraries to restrict their information supply to paper-analogous forms of distribution, scientific communities are required organizationally to restrict their audiences to formalized membership roles.

With the expansion and legal-technical fortification of intellectual property rights in the heterogeneous fields of knowledge and cultural production, specific modes of digital goods production and specific powerful actors' strategies are privileged over others: commercial production that tends to address existing expectations and reception modes of its market, small-scale control of customers and users, passive consumption, secondary and multiple exploitation, and the concentration of those content providers that are able to implement such strategies. These actors may expect increasing returns, which lead to monopolisation, path-dependency and lock-in, i.e. to an overdetermined convergence, homogenisation and ultra-stabilisation of existing technologies, contents and cultures (Callon 1994; Boyle 2000; Lessig 2001). Powerful actors who are further empowered in this way are quite capable of driving these processes by themselves, to increase a



vourable path-dependencies and extend their monopolies into the future.

The changing copyright regime thus fails to support and even endangers avant-gardist, hybrid and everyday practices of producing and using cultural and knowledge goods. These practices depend upon social exchanges beyond the market and are situated in between the delimited social spheres of science, culture and technology. Through the strategies pursued by commercial producers and exploiters of digital goods and through the short-termism, side-effects and unintended consequences of these strategies, the expansion of intellectual property rights may thus end up creating the very zero-sum situations between intellectual property and the public domain that we have challenged theoretically.

On the other hand, when copyright issues first emerged, a network of NGO and social movement actors, academics and technologists has developed, which we might term a digital civil society (cf. Kuhlen 2004) defending the public domain. For these, the public domain in its very non-specificity presents a useful normative focus to address the non-market prerequisites of knowledge and culture: their creation and circulation. It also presents a *Leitbild* to develop and implement institutional and social innovations: licences and models for distribution and use of digital goods that seek to balance and ally authors' and audiences' interests and norms in new ways. From an evolutionary perspective on innovation, cultivating public spaces beyond markets means maintaining higher social variability and seedbeds of potential and alternative innovations (cf. Rammer 1997).

However, the experience of digital science based on the Mertonian view contains a warning lesson for promoters of the public domain: a normative over-commitment to the public domain as a generally good idea may end

up underrating the heterogeneous and also unequal practices and contexts in which digital goods are created and used.<sup>10</sup> Attention to context-specific passions and interests and to the dynamics of inclusion and exclusion in the respective arenas of action will be conducive to a view that understands the public domain as a token for variability, open access and reflexive creativity.

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<sup>10</sup> The author has raised an analogous argument regarding open source/free software, cf. Holtgrewe 2004.

<sup>11</sup> A reference list with active links can be found at [www.sti-studies.de](http://www.sti-studies.de).

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