

RESEARCH CONTRIBUTIONS TO ORGANIZATIONAL SOCIOLOGY AND
INNOVATION STUDIES / STUTTGARTER BEITRÄGE ZUR ORGANISATIONS-
UND INNOVATIONSFORSCHUNG

SOI Discussion Paper 2011-02

The Music Industry and the Internet

A Decade of Disruptive and Uncontrolled Sectoral Change

Ulrich Dolata



Universität Stuttgart

Institute of Social Sciences

Organizational Sociology and Innovation Studies

Ulrich Dolata

The Music Industry and the Internet: A Decade of Disruptive and Uncontrolled Sectoral Change

SOI Discussion Paper 2011-02

University of Stuttgart

Institute of Social Sciences

Department of Organizational Sociology and Innovation Studies

Prof. Dr. Ulrich Dolata

Seidenstr. 36

D-70174 Stuttgart

Tel.: 0711 / 685-81004

Fax: 0711 / 685-81006

<http://www.uni-stuttgart.de/soz/oi/>

Research Contributions to Organizational Sociology and Innovation Studies

Discussion Paper 2011-02 (April 2011)

ISSN 2191-4990

© 2011 by the author(s)

Ulrich Dolata is Professor for Organizational Sociology and Innovation Studies at the Institute for Social Sciences at the University of Stuttgart.

ulrich.dolata@sowi.uni-stuttgart.de

Additional downloads from the Department of Organizational Sociology and Innovation Studies at the Institute for Social Sciences (University of Stuttgart) are filed under:

<http://www.uni-stuttgart.de/soz/oi/publikationen/>.

Abstract

Since the late 1990s, the music industry has been undergoing a period of significant and crisis-ridden changes. This period was launched and driven forward by a new set of technologies: digitalization, data compression and the Internet. This paper analyzes the repercussions of this new technological constellation on the socio-economic structures and institutions of this sector. The depiction of this technology-driven sectoral transformation shows that at that time the constitutive impulses for restructuring came from the not well-established fringes of the sector and from external actors. The established companies of the music business were hesitant in accepting the new technological challenges. They initially reacted with blockades and containment strategies and only defined a strategic repositioning upon massive and undeniable pressures to change. The paper argues that the low ability to anticipate and adapt to these technological, organizational and institutional challenges is based on the interplay of several factors. Among these are: (1) general difficulties in anticipating the socio-economic impact of fundamentally new technological opportunities; (2) complex and time-consuming processes of establishing a new techno-institutional match; (3) technological conservatism; (4) the oligopolistic structure of the sector; as well as (5) the hierarchically structured focal companies. Together these factors obstructed a controlled sectoral transformation orchestrated by the established core players.

Zusammenfassung

Die Musikindustrie befindet sich seit Ende der 1990er Jahre in einer tiefen und anhaltenden Restrukturierungskrise, die maßgeblich durch ein neues Set an Technologien – Digitalisierung, Datenkomprimierung und das Internet – angestoßen worden ist. In diesem Text werden die Wirkungen dieser neuen technologischen Konstellation auf die sozioökonomischen Strukturen und Institutionen des Sektors sowie auf die Handlungsorientierungen seiner Kernakteure untersucht. Die Rekonstruktion des technikgetriebenen Wandels der Musikindustrie zeigt, dass die wesentlichen Impulse der Restrukturierung von den Rändern des Sektors beziehungsweise von sektorexternen Akteuren ausgingen – und nicht von den etablierten Musikkonzernen. Diese haben die neuen technologischen Herausforderungen sehr zögerlich aufgenommen, darauf zunächst vor allem mit Blockadehaltungen und Eindämmungsstrategien reagiert und erst vor dem Hintergrund eines massiven und unabwendbaren Veränderungsdrucks damit begonnen, sich strategisch neu zu positionieren. Die geringe Antizipations- und Adaptionsfähigkeit der zentralen Akteure der Musikindustrie wird aus dem Zusammenspiel mehrerer Faktoren erklärt. Neben (1.) generellen Schwierigkeiten der Antizipation grundlegend neuer technologischer Möglichkeiten und (2.) aufwändigen Prozessen der Etablierung neuer, zu ihnen passender institutioneller Rahmenbedingungen haben (3.) der technologische Konservatismus und (4.) die oligopolistische Struktur des Sektors zusammen mit (5.) den hierarchischen Organisationsstrukturen seiner führenden Unternehmen einen vom Kern des Sektors ausgehenden und durch ihn kontrollierten Wandel blockiert.

Contents

1	New Technologies and Sectoral Restructuring – Initial Considerations and Object of the Investigation	5
2	The Music Industry in Crisis – Empirical Evidence	7
3	MP3s, the Internet and the Transformation of the Music Industry – A Socio-economic Reconstruction	9
3.1	<i>Case History: Non-copy Protected CDs and Open-format MP3s</i>	9
3.2	<i>Pre-Napster: Law-making Processes, DRM Initiatives and the Industry’s First Pilot Projects on the Internet</i>	10
3.3	<i>From Napster to iTunes: File Sharing Networks and Attempts of the Record Companies to Establish Themselves as Online Businesses</i>	11
3.4	<i>iTunes and Its Repercussions: Newcomers to the Industry, Old Modes of Distribution on a Digital Basis and the Continuing Search for New Business Models</i>	14
4	Disruptive Technologies – Deficient Strategies. Reflections Regarding the Low Adaptability of the Sector and its Actors	17
4.1	<i>High Transformative Capacity of New Technologies – Low Sectoral Adaptability: Crisis-ridden and Uncontrolled Sectoral Change</i>	17
4.2	<i>The (In)ability to Adapt: Structural, Institutional and Organizational Approaches</i>	20
5	Radical Change as Gradual Transformation	24
	References	28

1 New Technologies and Sectoral Restructuring – Initial Considerations and Object of the Investigation

New technologies are, without a doubt, an important factor influencing the socio-economic and institutional transformation of economic sectors. They can trigger changes within economic structures or organizational and business models; contribute to the constitution of new markets and market relations; shift existing constellations of cooperation and competition; expand the scope of action open to new actors; make the readjustment of regulatory frameworks necessary; or produce modifications in consumption patterns.

Although the socio-economic effects of new technologies are obvious, nevertheless, for a long time they were not the central focus of sociological research on technology and innovation. Research has dealt extensively with the social shaping of new technologies – and as a result, has, to a large degree, lost sight of their repercussions within social contexts. Existing structural and institutional arrangements, which either encourage or inhibit processes of innovation, are at the foreground of works on sectoral (and national) systems of production and innovation. Simultaneously, their transformation in the course of technological changes has received very little attention. Even notions of the co-evolution of technology and institutions, which programmatically discuss the relationship between technology, socio-economic structures and institutions aim, as a rule, at examining and explaining processes and variations of *technological* change (Werle 2005; Dolata and Werle 2007; Hage and Meeus 2006; Campbell 2006).

By contrast, in this article technology-induced socio-economic and institutional restructuring will be examined based on the empirical example of the music industry. The article will question how a new set of technologies exerts a significant pressure for change upon this economic sector and its actors. And it will also inquire into the way this pressure is perceived and processed from within the sector, and how the sectoral transformation is carried out.

The following case-oriented line of argumentation is linked to two fundamental conceptual considerations regarding technology-induced transformations of economic sectors, which I have developed more fully elsewhere (see Dolata 2009, 2011). According to the *first consideration*, the (potential) reach of technology-induced sectoral restructuring initially depends upon the extent to which new technological opportunities affect a specific sector's conditions for functionality and reproduction. The more relevant a new technology – or a bundle of new and complementary technologies – becomes for the future reproduction of a sector, and the less that it can be fitted within the established sectoral set-up, the greater the pressure to significantly change or to adjust the existing socio-economic structures, institutions and actors becomes. I refer to this interrelation as the *transformative capacity of new technologies*.

Admittedly, explicit sectoral logics and patterns of restructuring cannot be derived from the above. Just how serious technology-based pressures for changes or adjustments are dealt with depends, per the *second consideration*, on the *ability to anticipate and to adapt to new technological opportunities*. In other words, it depends on how the new technologies and their potential are perceived and acted upon. On the one hand, economic sectors and their established actors can be characterized by a structural, institutional, and organizational openness that encourages early on the appreciation for and proactive adoption of fundamental new technological opportunities. Sectoral restructuring then generally ensues not as a belated reaction to an exogenous shock in the form of a crisis-ridden change, but as a coordinated transformation that is controlled, to a large extent, by established actors. Nevertheless, these sectors can be differentiated – and this is the other end of the range of possibilities – from other sectors that are characterized by a pronounced path dependence and structural inertia. These hinder a restructuring process that is rooted in and widely controlled by the core of the sector. In such instances this obstructs early detection as well as the proactive adoption of new technologies and the accompanying socio-economic challenges. At the same time, crisis-ridden and uncontrolled modes of restructuring are likely to occur, which are generally driven forward by actors that are either from the fringes or from outside of the sector.

The latter consideration typified the way that the music industry, especially the major record companies, reacted to the challenge posed by the Internet. A reconstruction and explication of this phenomenon are at the center of this case study. As early as the end of the 1990s, the music industry was the first of the major media sectors to find itself in a crisis of adjustment that has persisted up until today. This crisis was shaped significantly by a new set of digital technologies that effectively called the sector's smoothly functioning mode of operation into question. The fundamental impetus behind the restructuring came not from the core of the sector, but instead from its fringes or rather from outside of the sector. By contrast, the record companies were extremely hesitant in accepting the new technological challenges and only began to strategically reposition themselves to a greater degree in response to major and irrefutable pressures to change. A high degree of transformative capacity inherent to the new technologies is confronted with a low level of adaptability on the part of the sector and the actors who long dominated it. Accordingly, the music industry's transformation is not the type of restructuring that is carried out by established actors. It does not stem from the core of the industry nor does it ensue in a targeted and organized manner (Campbell 2006). The opposite is true, it occurs as a sectoral transformation that is disruptive and out of control. The central questions that will be answered in this paper are why this occurred and why at the time the sector's core ac-

tors demonstrated such a low level of anticipation and adaptability opposite new technologies and their socio-economic implications.¹

In order to provide some general orientation, the following first presents a brief overview comparing the current situation in the music sector with that of the mid-1990s (Chapter 2). Following this is an empirical depiction and systematization of the sector's transformation and its actors since the end the 1990s (Chapter 3). Against this background, the question will be addressed as to why the ability to anticipate and to adapt to the new technological challenges was so low on the part of both the sector and its established core actors (Chapter 4). Finally, the paper will discuss two related questions: what are the typical modes of the transformation process within the music industry and what are the characteristics of this radical and disruptive sectoral change (Chapter 5)?

2 The Music Industry in Crisis – Empirical Evidence

In the mid-1990s, the music industry was a clearly structured and flourishing sector. In 1983 the result of a joint venture between Philips and Sony was introduced to the market in the form of compact discs. This innovation coupled with the simultaneous growth in music television and music videos brought new momentum to a previously stagnating music market (Sanjek and Sanjek 1991: 256–260; Denisoff 1988). In particular, the transition from vinyl records to CDs and the related opportunity of secondary usage of back catalogs ensured significant growth in industry sales: worldwide sales for the recording market tripled between 1985 (\$12.3 billion) and 1995 (\$39.7 billion) (Hertz 1999: 63; IFPI 1999). Furthermore, a wave of mergers and acquisitions occurred in the second half of the 1980s. As a result of this, five record companies dominated the global market: Universal/Polygram, Sony Music Entertainment, EMI, Warner Music Group and the Bertelsmann Group (BMG) (Tschmuck 2006: 160–168; Steinkrauß 2005: 29). In 1997 they alone held over an 80 percent share of the market. Referred to as *majors*, they almost entirely controlled the sector's value chain. These vertically integrated companies dominated not only the selection and management of musicians and their repertoires, and recording and copy-rights, but they also managed music production in their own recording studios and

¹ The methodology used here is based on an assessment of the existing literature on the music industry as well as that covering socio-technological, structural and organizational transformations. It also involved a systematic analysis of documents and news coverage since the end of the 1990s. A dozen problem-centered interviews were also conducted with sectoral actors (with representatives from companies and associations, and with members from sub-communities) and with experts between the end of 2006 and the beginning of 2008.

pressing plants and controlled their products' global distribution via their own distribution systems (Burkart 2005; Bishop 2005; Hull 2004: 130–135).

Over a decade later the situation appears to be almost completely different. For the time being the four remaining majors still continue to dominate the global music industry with a 75 percent share of sales. Despite all this, since the end of the 1990s the industry has found itself in a state of deep crisis. Since that time recording sales have continued to sink: decreasing worldwide from \$40.5 billion in 1999 to \$31.8 billion in 2006 and to \$27.8 billion in 2008 (IFPI 2007, 2010; Bundesverband Musikindustrie 2010: 58). Sales fell in the USA from \$14.3 billion in 2000 to \$10.4 billion in 2007 and to \$7.7 billion in 2009 (RIAA 2008, 2010); they also fell in Germany from 2.63 billion euros in 2000 to 1.53 billion euros in 2009 (Bundesverband Musikindustrie 2008: 13; 2010: 12). Even the newest developments give little cause for sounding the all-clear. The USA represents the largest market for music with approximately 29 percent of global music sales in 2009. Even in a market of this size, total sales from music products – physical recordings as well as non-physical digital music² – retreated another 12.3 percent in 2009 in comparison to the previous year. These decreases in sales are mainly due to the drastic drop in the traditional core CD sales business. Especially in the USA, CD sales faced an unrivaled drop since the middle of the decade and once again fell by nearly 22 percent from 2008 to 2009. The setbacks in the physical recording market have not yet come close to being compensated for by the accelerating dynamic of the digital market. Nonetheless, the latter increased its pace from 2006 on and already comprised a record 41 percent of total music sales in the USA in 2009 (RIAA 2010). This is above all due to digital demand being primarily geared towards the purchase of individual titles (and not entire albums) and to the continuing problem of peer-to-peer piracy in the music sector (IFPI 2008: 5–7; 2011).

There are a variety of reasons behind the music industry's long and persistent crisis. The exceptional growth in demand for CDs that supplanted that for vinyl records had already slowed down in the second half of the 1990s: with this fell profits from the largely uncreative sales idea of rereleasing older music in the newer format. In addition to this, consumer media preferences have become clearly differentiated: today DVD movies, cell phone use and computer gaming compete directly with (paid) music consumption. Primarily however, since the end of the 1990s the music industry has been confronted with a radical technological change that has effectively called into question the long-successful structuration of the industry that had been controlled by the majors. On the one hand, music and films are now digital goods, which can be repeatedly copied without any loss of quality. On the other hand, data compression standards allow for the unproblematic exchanging and downloading of even data-intensive digital products. And finally, since the beginning of this century, the

² These include downloads (of singles, albums and music videos), music subscriptions and so-called *mobile music*, encompassing ring tones, individual songs and music videos that are downloaded on-to cell phones.

Internet has rapidly established itself as the ideal medium for the global exchange of these sorts of products. The interplay between these three technological developments not only significantly changed the consumer preferences regarding usage, especially amongst teenage music consumers. Simultaneously, this interplay made an enormous increase in the non-commercial exchange of music via the Internet possible. Aside from this, it exerted noticeable restructuring pressure upon the sector, its leading companies and institutions (Peitz and Waelbroeck 2006; Leyshon et al. 2005; Friedrichsen et al. 2004).

3 MP3s, the Internet and the Transformation of the Music Industry – A Socio-economic Reconstruction

3.1 Case History: Non-copy Protected CDs and Open-format MP3s

The story behind the music industry's technology-driven transformation begins at a point in time when the world of the music business was still in its traditional working order. It was shaped by two technological developments at the end of the 1990s, which laid the basis for what began as a loss of control on the part of the music industry. This loss of control was not limited to supervision over its own products but also over the sector's process of transformation as a whole.

Unlike DVDs, which were introduced in the middle of the 1990s, compact discs were introduced to the market in 1983 without any form of copy protection. Based on this restriction-free foundation, the launch of CD recorders and writable CDs in the second half of the 1990s made it possible to copy digital media from physical recording devices without any loss of quality. Nor were there any use-restrictions pertaining to these copies. Apart from this, starting in the second half of the 1990s, the dissemination of data-compression software in open-format MP3s opened up the possibilities not only for the unproblematic file sharing of music online, but also for the conversion of music data onto CDs. The dramatic impact of these two technological developments was not anticipated – but was rather underestimated – by the music industry. In the 1980s the opportunity posed by digital copies of physical digital recordings lay well beyond the industry's horizon of expectations. And the potential impact of the MP3 standard in combination with the Internet, the effects of which were already foreseeable in the middle of the 1990s, were nonetheless only belatedly recognized or initially only perceived as constituting a potential threat that should be averted (Barfe 2004: 324–330; Burkart and McCourt 2006: 44–50; Brandenburg 2004).

3.2 Pre-Napster: Law-making Processes, DRM Initiatives and the Industry's First Pilot Projects on the Internet

In the second half of the 1990s, the record companies and their interest groups, in particular the Recording Industry Association of America (RIAA) and the International Federation of the Phonographic Industry (IFPI), initially reacted to the new technological challenges with two containment strategies.

First, early on interest groups began to place pressure on US and International law-making processes. At the prompting of the music and media industry in the US and driven forward largely by the US government and under the auspices of the World Intellectual Property Organization (WIPO) two treaties were already signed by the end of 1996 by the nearly 100 WIPO member states. These were the WIPO Copyright and the WIPO Performances and Phonograms Treaties. These treaties entitled music companies and artists the exclusive rights to place their music online. In addition to this, they also provided far-reaching legal protections for shielding their products against the circumvention of technical protections. In the fall of 1998 the Digital Millennium Copyright Act (DMCA) came into force after massive lobbying on the part of the RIAA and the Motion Picture Association of America (MPAA). This Act transposed the WIPO treaties into national law (Litman 2001; U.S. Copyright Office 1998).³ Thus, for the time being, a legal foundation existed in the USA for the purposes of prosecuting copyright violations. This legal basis was also immediately utilized by the music industry. Copyright infringement suits against non-commercial file sharing networks, service providers and private persons have since then become part of the strategic core-repertoire of the industry and its associations (Peitz and Waelbroeck 2006).

The *second* containment strategy relied upon in earlier years aimed at developing a general technical safety standard for digital music that would control the legal sales of music files. Simultaneously, it was targeted at helping to contain the illegal distribution of music files by implementing technical restrictions. The majors, the RIAA and the IFPI founded the Secure Digital Music Initiative (SDMI) for just this purpose at the end of 1998. This brought together a consortium of more than 200 companies, who alongside the large music companies also included leading producers of consumer electronics as well as those firms belonging to the hardware and software producers amidst the information technology industry. The very ambitious goal of the consortium was the development and implementation of a universally applicable and

³ The WIPO treaties were taken up by the European Commission at the end of 1997 in a proposal for a related directive. This was finally transposed into European law with *Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society* (Amtsblatt Nr. L 167 from 2001.06.22: 10–19). The European Copyright Directive in turn forms the basis for the *German Act on Copyright Regulation in the Information Society (Gesetz zur Neuregelung des Urheberrechts in der Informationsgesellschaft vom 2003.09.13 in Deutschland)* (BGBl. I, 2003, Nr. 46: 1774–1788).

compatible Digital Rights Management Standard (DRM) for digital music, recorders and players. This was quickly defeated across the board. On the one hand, the initiative emerged too late: by the end of the 1990s most music was available exclusively in unprotected media formats. It could thus be distributed online without difficulty via open data compression standards. On the other hand, there were greatly diverging interest groups within the consortium itself, especially between the music and consumer electronics industries. These differences hindered reaching an agreement on a generally applicable DRM standard (Burkart and McCourt 2006: 101–117).

Besides these attempts to both check the exchange of free music as well as to control commercial downloads through both legal and technical means, there were also isolated initial activities within the music industry aimed at creating individual downloadable offerings. At that time Music on Demand (MoD) was simultaneously the industry's most ambitious attempt and the world's first downloading service that involved all of the majors. Both the conceptual and technical development for this service began in Germany in the fall of 1997. Download prices were however significantly higher than store prices and downloading the tracks took as long as the pieces themselves lasted (Braun 1997; Zombik 1998; Hertz 1999). Similar to comparable efforts in other countries, the MoD scheme had the characteristics of an experimental pilot project that the music industry, in collaboration with technology providers, used in order to first test the possibilities behind their own online music enterprises. Such projects failed quickly due to their technical, organizational and commercial shortcomings. Yet, at the same time they showed that towards the end of the 1990s at least those portions of the industry that were open to technological changes had begun to appreciate not only the Internet's risks, but also its potential opportunities. Counted among those perceptive enough to recognize this were admittedly relatively few employees and departments at the periphery of the music companies (especially amidst their IT departments). As a rule they experienced great difficulties communicating the importance of the new technological developments to the top levels of the hierarchically structured firms (Weikert 2007; Renner 2004; Zombik 1998).

3.3 From Napster to iTunes: File Sharing Networks and Attempts of the Record Companies to Establish Themselves as Online Businesses

The music companies were accordingly taken by surprise at the end of the 1990s by the sudden success of the file sharing network Napster and the subsequent boom in free online music file sharing that was triggered by Napster and other networks. The upsurge in free music file exchanges began in the fall of 1999, with music fans trading directly with one another – exchanges were either organized through an central server (as was the case with Napster) or were completely decentralized, functioning only through the use of specialized search and exchange software (such as that made available by Gnutella, Freenet or Kazaa). The online exchange of free music thereby

reached a new level of quality: ca. 44.6 million consumers worldwide made use of Napster in February 2001 alone (Alderman 2001; Schliesche 2007).

Copying and exchanging music did of course exist prior to the advent of the Internet. But it was local in nature, limited to circles of friends and acquaintances and restricted to the music that was available to them in the form of physical copies. The rise in file sharing services freed music exchanges from these limitations and made significant changes in demand behaviors possible, especially amongst teenage listeners. It was no longer necessary to purchase music in order to be able to make copies of it, in place of this it was available somewhere online in all its forms and could be downloaded or erased with equal speed. The exchange of music shifted from local contexts to the global scale of digital community networks (Hughes and Lang 2003). The management and use of music was shifted from record collections and stereo systems to the computer, a server and a portable digital audio player (Peitz and Waelbroek 2006; Liebowitz 2004). The product itself shifted from a commodity to a digital gift (Currah 2007).

In the following years the music industry relied on two strategies to react to the new challenge of massive amounts of free music exchanging online. On the one hand they continued using their containment strategy and intensified their legal battle against file sharing services. In December 1999 the RIAA and five majors filed suit against Napster claiming damages caused by continued copyright infringement. Napster ceased to exist in its original form in mid-2001 after a series of defeats in court. At the same time, the RIAA filed suits against other file sharing services such as Gnutella and Kazaa and was able to force through the closure of a number of other providers (Bishop 2005; Alderman 2001).

On the other hand, between 2000 and 2003 the music companies tried to succeed with their own commercial downloads and attempted to bring the digital marketplace under their control. No noteworthy market for digital music existed at that point in time, even though the first commercial providers like eMusic had established themselves within the independent label business at the end of the 1990s (Tschmuck 2006: 169–177). Songs from the majors were, in contrast to those from the independents, effectively unavailable for digital purchase until 2000.

But, from 2000 on the attempts made by the majors to organize and control their own music quickly failed. These attempts were characterized by missed chances and by changing coalitions and fronts between the majors as well as by the development of digital distribution models that notably disregarded the interests of music consumers. The following briefly outlines the two fundamental strategies that were employed by the majors. Both embodied the sum of the contradictions and shortcomings of their attempts.

The first variant sought to take the success of the non-commercial model of Napster and transform it into a legal commercial platform for downloading music belonging to the majors and other firms. Thomas Middelhoff, then CEO and chairman of the board of Bertelsmann AG, promoted this strategy in the fall of 2000. The German company lent Napster \$50 million (in exchange for which the company received the option for controlling interest) and tried to convert the technically well-functioning and socially established Napster network into a legal subscription service under its control. At the same time the RIAA and five majors, including the Bertelsmann subsidiary BMG, were attempting to eliminate Napster via legal channels. Unsurprisingly, the Bertelsmann attempt failed in the face of resistance by the other majors. They feared that Bertelsmann would monopolize the market for digital music and in response they blocked not only the plan itself by refusing to license their music to Napster, but also by extending the scope of their suit against Napster to include Bertelsmann as well (Röttgers 2003: 17–47; Renner 2004: 153–158; Burkart and McCourt 2006: 59–63). The chance to gain control over the digital music marketplace by using a commercial adaptation of the leading non-commercial file sharing service was gambled away as a result of the heightened hostilities between the majors.

Instead – and this was the majors’ second strategy – in the period that followed they concentrated their efforts on forming strategic alliances. Thus, they focused on developing separate and competing platforms for digital music purchases with varying business models, price structures and DRM systems. In 2001 BMG, Warner and EMI entered into a joint venture with the technology provider RealNetworks to found the downloading service MusicNet. Parallel to this, Universal and Sony launched the competing service Pressplay. These attempts also failed quickly due to the majors’ pronounced inability to cooperate with one another and the unpopularity of their user interfaces. Although the majors aggressively switched over and began to even place their digital catalogs at the disposal of other independent providers, the two major platforms neglected to license their songs to one another. As a result, both repertoires displayed large gaps. In addition, both were fitted with rigid proprietary DRM systems and restrictions on use. These two features made the services downright uninteresting for music consumers and led, as early as 2003, to the termination of both experiments (Friedrichsen et al. 2004: 68–71; Renner 2004: 151–153).

With it ended efforts to organize digital music distribution under their own auspices, to eliminate middlemen and to control the entirety of the industry’s value chain. Their attempts failed because of technologies that were immature and because of distribution models that were unattractive for the end customers. Their failure was also due to the majors rapidly changing fronts in heated conflicts and thus being characterized by a low ability to cooperate with one another. Moreover, the majors were dependent upon technology providers (such as RealNetworks) who were pursuing their own interests and were simultaneously engaged in developing their own downloading platforms.

3.4 iTunes and Its Repercussions: Newcomers to the Industry, Old Modes of Distribution on a Digital Basis and the Continuing Search for New Business Models

The breakthrough of commercial digital music distribution occurred thanks to an industry outsider. Apple Computers first opened its iTunes music store in the USA in 2003, followed up a year later with stores also in Germany, France and the UK. The iTunes stores offered nearly the complete digital repertoire from all of the five leading music companies as well as those from over 1000 independent labels. Coupled with its iPod digital music player, which was initially released in the USA in 2001, Apple was the first to be able to offer a commercial downloading and hardware package. It boasted technology that was easy to use, that functioned with minimal DRM restrictions, was accepted by the music companies and was well received by music consumers (Gasser et al. 2004; Gasser and Begue 2005). Up to the middle of 2007 iTunes had sold over 3 billion song titles and Apple had sold over 100 million iPods; in the second half of 2007 alone this sales total increased by a further 22 million iPods (Apple 2007, 2008; heise-online News v. 2007.10.17; heise-online News v. 2008.1.24). Although there were over 500 different online digital music stores in 2007, Apple has continued to clearly dominate the business since 2003 with iTunes claiming between a 70 and 90 percent share of the leading digital music markets in 2007 (IFPI 2008).

iTunes' success and the establishment of additional commercial digital music provider offerings signaled, in effect, a return to the previous distribution model, albeit on a digital basis. The industry's attempt to largely eliminate the middlemen and to sell digital music direct to their end customers had failed. By contrast, what happened was the extension upon the traditional role of retailers with the introduction of digital music stores that were granted access to the repertoires of the major companies. Unlike retail stores that were dominated by major national chains, with iTunes Apple was able to establish itself worldwide as the unquestioned market leader – and as such it became a powerful and domineering negotiating partner in this new area of business. An explanation for why the leading music companies both accepted the iTunes store and made their digital repertoires available to Apple can be traced back to the massive pressure that was exerted on the industry. In the wake of its own failed attempts, it scrambled to quickly find a legal and widely acceptable response to free music file sharing (Weikert 2007).

In more recent times, three developments have been particularly significant: the complete abandonment of DRM systems for digital music purchases; the ambitions of new actors like Amazon or Nokia to enter the digital music market; and the attempt by the majors to reduce the erosion of the market for music and their own influence by introducing new business models that are tailored to the digital music business. These developments arose in addition to the establishment of an expanding

commercial market for digital music as driven by iTunes since 2005 as well as the reduction in cases brought by the music associations and companies against consumers for illegal downloads.

Up until 2007, all of the online stores that included the digital repertoires of the majors in their collections were outfitted with DRM systems. These determined exactly what consumers could do with their music. But, after attempts at creating a universally applicable DRM standard had failed, each of the large download providers introduced their own proprietary DRM technology. The result of this was that music consumers were often only able to play their purchased songs on specific players or that the songs could only be played by specific software (Buhse and Günnewig 2005; Pohl 2007). The four majors were unanimously against getting rid of DRM systems despite the fact that they hindered legal downloading from developing into a mass market. This solid front eroded over the course of 2007 after Steve Jobs released a statement at the beginning of the year advocating the total abolishment of DRM systems. In April EMI became the first of the majors to be won over by his plea. It subsequently pledged to henceforth offer its digital repertoire for purchase without copy protections on iTunes (Jobs 2007; heise online News v. 2007.4.2). By the end of the year the three other majors – Universal, Warner and BMG/Sony – had given up resisting and announced that in the future they would allow their music to be distributed largely without restrictions (IFPI 2008: 14–15). The objective behind Apple's appeal was to make the iPod and iPhone more attractive to those consumers that used the other online stores. That the other music companies agreed to go along with this is largely owed to the momentum that developed in 2007. Other already well-established or emerging downloading platforms, such as Amazon, Walmart or the German service Musicload, spoke out in favor of offerings that were free of copy protection after EMI, which was most severely affected by the music industry's crisis, broke ranks with the majors and was openly applauded by Apple for doing so. In the end the Majors had no other choice but to join the movement.

Moreover, a new round of debates began in 2007 surrounding digital distribution and iTunes' predominance in the growing digital music market. This debate was conducted on two sides: on the one side were new providers that were crowding into the quickly expanding market. On the other were the majors who sought to influence the competitive dynamics resulting from the preferred or rather restrictive licensing of rights. Among those new providers to receive support from the music companies was Amazon, the world leader in sales of books, music and media that in 2007 initially expanded upon its recordings sales in the USA and later on in other developed markets by introducing digital music offerings. Another recipient was Nokia, the world's largest manufacturer of mobile phones that entered the combined market of digital music and multimedia cell phones with its own music and media portal in 2008 (IFPI 2008: 14–15). Nonetheless, all efforts to challenge the predominance of Apple and iTunes in the digital music market were unsuccessful. Nokia failed with its digital

music service 'Ovi Music Flat' in 2011, and Amazon was never really able to catch up with iTunes. The flagship of digital music distribution continued to lead all digital music retailers. According to the NPD Group, in the USA Apple's iTunes Store counted for 70 percent of the digital music download market in the first Quarter of 2010, whereas Amazon's MP3 reached only 12 percent (http://www.npd.com/press/releases/press_100526.html; Apple 2010, 2011). Apple's strong predominance within digital music distribution is also typical for the other leading music markets. At the end of the first decade of digital music use there are over 400 licensed services – download stores, streaming and subscription services (IFPI 2011). But there are only very few powerful players: Apple, of course, and – at a considerable distance – Amazon and one or more regional competitors (like Walmart in the USA or Musicload in Germany).

For a long time the majors held fast to their traditional core business with CDs, which they were afraid of disrupting without first having secure and commercially viable alternatives. Due to this fact, they neglected to search for new business segments and sources of revenue. As of 2006, however, there have been more sincere attempts to experiment with new business models that extend beyond the typical record business. Among them are cross-marketing approaches, which are aimed at providing complete marketing packages to signed musicians. Musicians that are signed to a label are offered not only the sales and distribution of albums and paraphernalia but also tour marketing and the creation of interactive websites. Going beyond this are experiments with new online marketing and sales models – for example with access to free music on social networks (as with MySpace or Facebook). The aim is to finance such methods with proceeds from accompanying advertisement sales or through new, differentiated price models, wherein the customers have the chance to determine, to a certain extent, exactly how much money they want to spend on albums that can be purchased online. Finally, there has been a large increase in the number of digital releases, in other words of albums and music tracks that are no longer available in a physical format, and are instead available only as downloads (IFPI 2008, 2011).). In spite of this, to this day such attempts by the majors to bring new life to their business by creating new areas of distribution and by introducing new sales models, have generally been started comparatively late, were slow in evolving and were far from being successful. In fact, at the end of the decade the transition from physical to digital music has made considerable progress: In 2010 worldwide already 29 percent, and in the USA almost 50 percent of the overall recorded music sales accounted for digital music. But the growth of global digital music sales has slowed down significantly and has risen only 6 percent in 2010. This is far away from what is needed to replace the long-gone sales of compact discs and to compensate their sharp decline especially in the US market (IFPI 2011).

4 Disruptive Technologies – Deficient Strategies. Reflections Regarding the Low Adaptability of the Sector and Its Actors

4.1 High Transformative Capacity of New Technologies – Low Sectoral Adaptability: Crisis-ridden and Uncontrolled Sectoral Change

The as of yet still incomplete socio-technical transformation of the music industry that is described herein is greatly influenced by a new set of externally developed technologies. Yet, the digitalization of the industry's main product alone functioned as a stabilizing factor for the established conditions of production, distribution and sales that strengthened rather than weakened the majors' market power and sectoral control until the middle of the 1990s. Far-reaching effects first unfolded at the end of the 1990s with the linking of non-protected digitalization with open standards of data compression and the rise of the Internet. Such effects have since then served to gradually shift the socio-economic basis of the sector.

This combination of complementary technologies did not only change the *technological basis* of the sector. Music is now no longer tied to physical recordings, which would have allowed for controlled production and distribution. It is available as a digital data set, which can be copied numerous times without any loss in quality, can be distributed over the Internet and can be managed from a computer. The new technologies have, beyond all of this, initiated significant *institutional and socio-economic changes*.

First of all, this applies to the *legal foundations* of the music business. Digitalization, data compression and the Internet could not be functionally represented within the legal and utilization framework that was tailored to the physical recordings business. In lieu of this these required a fundamental redesign of the institutional relationships between music companies and artists, between licensors and licensees as well as between copyright holders and consumers. They also necessitated a substantial overhaul of copyright, property rights and rights of use.

Second, the new technologies brought about serious shifts in *production, distribution and market structures*. Music production is no longer tied to recording studios in the traditional sense, but can be produced independently and in a decentralized manner by the artists themselves. Music sales no longer occur only through a global distribution system controlled by the majors in close connection with retail shops. Instead these sales take place digitally in even greater numbers via online stores. The market for music is shifting ever more rapidly away from physical recordings towards digital music files – and with it away from the sale of the more profitable albums towards the sale of individual songs or rather to the sale of music subscriptions. This calls for

the development of new business and revenue models that clearly go beyond the mere sale of titles.

Third, and finally, technological upheaval ushered in substantial changes in the constellation of actors and their power relations. These changes clearly extended further than the mergers and acquisitions dynamics instigated by the majors that had been common in the previous decades. Non-copy protected music and generally available data compression standards temporarily opened the doors to the free exchange of music to the numerous file sharing networks emerging on the fringes of the sector, as well as to consumers. Commercial digital music providers, a branch dominated by well-established actors from outside the sector, were able to take root as powerful new actors. This was due to their superior technical and organizational competencies in comparison to the retail stores as well as to the digital music business ambitions of the majors. Successful musicians and groups increasingly used the new technological opportunities in order to independently organize the production and overall marketing of their music and thus only involve the music companies as service providers selectively or on a case-by-case basis.

These factors combined placed the established actors within the sector, especially the majors, under considerable pressure to adapt and restructure. After the limited success of the legal and the failure of the technology based containment strategies, and the majors' unsuccessful attempts to themselves enter and control the digital market, all that remained was the difficult search for new business and profit models in order to maintain a position of relevance in the digital music business.

Overall, as a result of the described technological changes the long-functioning interplay in the music industry between technology, structures, institutions and business models had come apart at the seams. It then led to a phase of experimental searching for and interest-led discussions of a new socio-technical structuration of the sector fitted to the modified technological constellation. At the beginning of this paper I labeled this phenomenon the high *transformative capacity of new technologies* that exerts a significant amount of pressures towards adaptation and modification upon the structuration of the sector. It pushes established actors to far-reaching strategic and organizational revisions, while simultaneously allowing enough space for the establishment of new actors (Dolata 2009).

How such a phase of technology-induced sectoral change occurs with all its concrete structural, institutional as well as organizational modifications and shifts in power and influence – this is certainly not deterministically derivable from the characteristics of the new technologies themselves. Rather, such periods of considerable sectoral transformation depend on how the actors involved react to these challenges. They also depend on the extent that the conditions under which they act allow the room to maneuver and the space to search for unusual deals beyond their retracted guiding orientations, rules and routines. At the beginning I referred to this as *sectoral*

adaptability. What it refers to is both the capability on the part of a sector's defining structures and institutions to pick up and integrate radical new technological opportunities as well as to the anticipatory and restructuring capacities of its dominant actors (Dolata 2009; see also Smith et al. 2005).

The notably low level of adaptability is typical for the core of the music industry over the course of the observed period. The majors and the industrial interest groups, who for a long period of time were able to almost completely control and shape the sector, at first underestimated the new technologies' explosive potential. They then subsequently interpreted such technologies as threats that needed to be averted. They reacted with blockade mentalities and restrictive adjustment strategies that were aimed at defending the successful structures, rules and business models of the past. Only in the face of massive and irrefutable pressures to change did they begin to strategically reposition themselves to a greater extent and to abide by the new rules of the game – and this often in very contradictory ways and from rapidly changing starting points. Altogether this led to a considerable loss in control and in the ability to reshape the sector on the part of its established actors. The music industry's sectoral change did not occur at those actors' bidding nor through the restructuring channels of their choosing, but in a crisis-ridden form of adjustment that was largely defined by dynamics and actors that were present on the fringes of the industry or that came from outside of the sector (Geels and Schot 2007; Leblebici et al. 1991).

The causes for the low levels of adaptability on the part of the music industry and its established actors are little known. Indeed, the idea that the music industry was completely taken by surprise by the rapid technical changes has been voiced repeatedly (Bishop 2005; Barfe 2004; Renner 2004). Nevertheless, the reasons why the industry allowed itself to be surprised and why it failed to reposition itself after the initial shock are rarely discussed. The majority of the existing literature on the subject limits itself to accusing the music industry of blatant management failures and strategic mistakes – simultaneously suggesting that the majors could have effortlessly behaved otherwise and that this would have led to completely different results.

Why then did the music industry have such difficulties with the challenges posed by the Internet? Why did it underestimate the dimensions of the transformation and attempt to confine its impact as opposed to recognizing them early on and responding effectively and comprehensively by repositioning itself? And how under such circumstances of a loss of control on the part of the central actors did the processes of sectoral transformation proceed? In order to answer these questions it is necessary to not only consider the organizational features of the majors that hindered a consistent adjustment. One must also look at the structural and institutional framework that influenced their interpretation and how they organized their responses. Accordingly, the following refers back to several theoretical and conceptual approaches in order to

explain the music industry's low level of adaptability and the strong influence that this had on the process of sectoral transformation. Among these are:

- works on organizational change and especially on organizational failures, which have extensively dealt with the question of the cognitive and structural inertia of saturated actors (Mellahi and Wilkinson 2004; Sorge and Witteloostuijn 2004; Amburgey et al. 1993; Hannan and Freeman 1984);
- discussions on socio-economic or institutional path dependency and on the starting points for path deviation that deal with the interplay between the tendency towards stability, the persistency of structures and crisis-ridden transformations (Beyer 2006; Werle 2007; Garud and Karnoe 2001);
- considerations regarding structural and institutional changes, which conceptualize this process as the accumulation of gradual transformations leading to substantial restructuring (Thelen 2003; Streeck and Thelen 2005; Mahoney and Thelen 2010; Campbell 2004).

4.2 The (In)ability to Adapt: Structural, Institutional and Organizational Approaches

The music industry is not a sector in which new technologies are developed and produced. All of the relevant technologies for recording, production, storage and, most recently, the distribution of music are based on developments that occurred outside of the sector. A high level of sectoral adaptability can be referred to in such cases as sensitivity and receptiveness to even new, fundamental technological developments that are initiated outside of the sector.

The ability to reliably assess the potential socio-economic and institutional effects of new technologies early on and to rapidly create around them a sustainable, institutionally safeguarded, new business segment is admittedly difficult.

The first general difficulty can be labeled as an *anticipation problem*. By the end of the 1990s it was at least clear to those recording company employees and association representatives who were open to technological changes that the Internet would pose a serious challenge to the industry. At this point in time however, it still remained unclear what sort of dynamics would be taken on by the developments, which concrete commercial (and non-commercial) opportunities would become apparent and which specific business model would prove to be sustainable (for an example see Zombik 1998). Instead, there were greatly differing and contradictory projections for development, promises and warnings, the substance of which at that point could not be deemed as reliable. For established actors such a situation, which is associated with high levels of uncertainty and ambiguity, represents a dilemma that is difficult to manage. As long as the future direction of developments remains unclear, then

greater strategic adjustment and restructuring would remain extremely risky. Such adjustment would accompany a relativization of a previously successful business. And when the future direction does become clear, then the danger is great that new actors, who are not bound to shoulder the weight of the established business, are already on their way and have started producing fait accompli that are insurmountable (Garud and Nayyar 1994; Anderson and Tushman 2001; Sorge and Witteloostuijn 2004; Henderson 2006).

The second general difficulty can be labeled as a *problem of implementation*. This refers to the concrete introduction of large-scale organizational and institutional restructuring measures. Not only the music business, but naturally also its underlying legal and use relations, were, until very recently, tailored to physical recordings (Hull 2004). However, a sustainable online business is impossible to set up and commercially run without greatly adjusting these factors to account for digital production, utilization and distribution. Organizational and institutional adjustment processes that are aimed at accomplishing this are admittedly anything but trivial procedures (Campbell 2004, 2006). Organizational restructuring had to be carried out under uncertain conditions and could proceed only in the form of experimentally testing new digital distribution, business and profit models (Ala-Fossi et al. 2008). Moreover, larger institutional adjustments could evolve only through complex processes of searching, negotiating and voting. Such processes were driven by divergent interests and involved a large number of relevant actors – the music companies, artists, music publishers, collecting societies, technology companies and the online digital music providers. The exploration of the commercial opportunities and the starting points for entering the digital music business as well as the search for a new and appropriate legal and use framework necessarily took time and could not keep pace with the dynamics stemming from the non-commercial exchange of music online in the late 1990s. This was more so the case as this exchange was in no way bound to the institutional restrictions.

These essential problems of anticipation and adaptation to new technological opportunities were exacerbated by the *organizational characteristics of the majors*. These characteristics are typical for established actors and are discussed in particular in research on organizational failure (Mellahi and Wilkinson 2004). The saturated core companies of the sector or field generally oriented their behavior to a great extent upon the available structural and institutional framework – the existing markets and competitive structures, legal and use frameworks. These frameworks were themselves significantly determined by these companies and built the foundation for their prior success (Leblebici et al. 1991; North 1990). They are distinguished by their specific operational and transformational routines that legitimize and structure their actions. These factors also enable them to react to incremental changes with adaptations that do not fundamentally question the existing structural and institutional framework (Hannan and Freeman 1984; Amburgey et al. 1993). At the same time this admittedly desensitizes them to radical changes within their environmental set-

tings that do not match their cognitive perceptions, business practices, routines and procedures (Henderson 2006; Henderson and Clark 1990). They typically react to this at first with incomprehension, then with strategies for defending the status quo. Finally, they react with attempts to integrate the new addition to the furthest extent possible into the existing structures, institutions and procedures.

For this reason the music industry is an instructive example. Due to their hierarchical and centralized structures as organizations, its core companies were at first blind to the explosive potential of the new technological opportunities. These companies later aimed at defending the status quo via the described legal and technical containment strategies and oriented their attempts at creating their own distribution models for the digital business. These attempts were closely tied to their experience with physical recordings – and they therefore suffered from the illusion that they could protect, market and distribute digital music the same way that they did with CDs.

Furthermore, the hesitant absorption and contradictory treatment of the new technological opportunities were compounded by a pronounced *technological conservatism* that traditionally characterized the core of the music industry. Crucial new technologies such as the audio tape, the audio cassette or the CD are not attributable alone to the activities of external actors, in particular to electronics companies. Moreover, the music industry's collective response was part hesitant and part defensive in its acceptance. In retrospect, even the extensive market potential that resulted from the transition from vinyl to CDs was at first blatantly underestimated within the industry. It was overshadowed by the fear that this new medium could cannibalize the then core of the record industry and would be unable to compensate for the core business' demise. Even after the commercial breakthrough and success of CDs as the new recording medium technology, it was still a long time before the more far-reaching potential of digitalization – in particular the opportunities for production and electronic distribution of non-physical musical products – was recognized. Instead, CDs were merely understood to be a digital substitute for vinyl records, but one with a higher storage capacity (Tschmuck 2006: 149–177). As was shown in the above, this defensive, at best hesitant, and normally uninformed general attitude towards technological innovations has persisted until recent times and applies as well to the delayed appreciation of data compression standards and the Internet.

The fundamental reason behind this technological conservatism lies in the fact that technological innovations and the struggle for technological leadership were not traditionally at the center of competitive clashes within the music industry. The music companies primarily competed with one another over the development, contractual arrangements and marketing of artists and their repertoires. Although technology was always understood to be an important part of the infrastructure and was seen as a precondition for the music business, it was however not understood to be a factor that could structure the market and demand nor as a starting point for the attainment

of competitive advantages. Therefore it was not at the center of the record companies' attention and strategy formulation. Apart from a few exceptions – mentionable among these is primarily Bertelsmann under the direction of Thomas Middelhoff, who as a member of the board at AOL since 1995 was accordingly sensitized – in the early stages perceptiveness to the potential impact of the new technological opportunities stemmed only from the fringes of the companies. Those persons at the fringes were in any case irrelevant to decision-making and did not hail from the strategically relevant levels of the executive, production management nor from sales. Everything that extended beyond the incremental further development of the existing technological basis of the music industry therefore systematically landed outside of the narrow field of vision of the established actors.

Finally, even the *general structural features of the sector* supported the halting approach and the false assumption of consequence-free integration and unproblematic control over the new technological opportunities. Until the end of the 1990s, the sector was defined by a handful of companies that were hierarchically managed and vertically integrated and that were virtually in control of the entire value chain. These companies were capable of integrating artistic and technological innovations that arose elsewhere into their existing production, market and distribution structures with comparative ease and according to their interests. New styles of music – such as rock'n'roll, disco, punk, hip-hop, or heavy metal – often developed at the fringes of the sector and were popularized first by independent labels. But time and again these new styles and artists could be drawn in by lucrative record deals with other commercially interesting artists or through the acquisition of independent labels. They can then become integrated into the majors' lineups (Hull 2004). Thus, the music companies primarily acted not as *first movers*, but as *second exploiters* – and could afford to do so based on their production and market power.

This self-reliant combination of a hesitant attitude and a strong belief in their ability to catch up in terms of integration and control was rooted in the sector's market and power structures. Furthermore, it defined the way that the companies handled the new technological opportunities that had been emerging since the middle of the 1990s. These behaviors were sustained after an initial period of ignorance by the collective assumption that the new technological opportunities could be controlled through legal and technical restrictions. They were also maintained by the notion that these new technological opportunities, similar to the CD, could at any time be adapted to fit into the existing structures of the music business on the basis of reactive strategies and protectionist designs (Utterback 1996). In addition to this, there lacked a leading company that could use a proactive strategy to deviate from this collective attitude and to elicit from the core of the sector the initial spark needed to trigger the transformation. The only attempt at veering away from the main phalanx and its strategy of delaying – Bertelsmann's involvement at Napster – was quickly isolated and hedged in by the competitors.

5 Radical Change as Gradual Transformation

The causes for the low level of adaptability on the part of the core of the music industry extend well beyond individual management failures. They can be traced back to a number of other complementary factors:

- *Difficulties with Anticipation and Implementation.* The large amount of uncertainty and ambiguity surrounding the potential of the new technologies and their possible socio-economic effects made it fundamentally risky and challenging for the established actors to undergo a rapid and solid repositioning. Instead, it supported strategies of delaying or even the defense of successful and established business models in the face of initially unclear changes. The implementation of these changes and their institutional mooring occurred primarily through experimental and interest-led processes of searching and adjustment, which did not take place without contradictions and which required a considerable amount of time.
- *Organizational Inertia.* Added to this is the fact that, from an organizational perspective, hierarchically structured companies displaying the typical indicators for structural inertia characterized the sector. Their operational routines and strategic orientations were tailored to the established core business. Besides, their centralized decision-making structures hindered internal communication and the diffusion of the basic recognition of the new problems. Yet, at the same time such awareness was present at the companies' edges.
- *Underestimated Technology.* Furthermore, from a technological perspective the music industry is traditionally conservative. For a long period of time it had been defined by its collective disinterest in new technological opportunities and their socio-economic potential. Within the industry technology was reduced to what was absolutely necessary in terms of infrastructure for the music business. There was no recognition of any notable competitive, socio-economic and institutional impact that the new technologies could potentially have.
- *Overestimated Power.* Ultimately this is a structural matter concerning a starkly concentrated market and an oligopolistic sector. Until recently the sector has been defined by the behavior of its dominant actors, which was profoundly self-centered and self-reliant. Moreover, the strategies of the majors were heavily affected by their collective experience with the power-based control and integration of artistic and technological innovations within the given market framework and sectoral institutions.

Taken together these factors justify the low level of adaptability of the core of the music industry, which was long characterized by a high degree of path dependency and resistance to change. This makes the established core of the industry heavily susceptible to uncontrolled transformations caused by factors emerging at the fringes of

the sector and driven by actors that come from the outside (Beyer 2006; Werle 2007; Geels and Schot 2007).

When one observes the sector as a whole, the level of adaptability certainly varied greatly at the actor level. The low level of adaptability of core actors and institutions corresponded with a high degree of sensitivity and receptiveness on the part of new actors towards emerging technological opportunities. These actors from the fringes or from outside the sector thereby became the main drivers behind the sectoral change. Initially these 'entrepreneurs' were mainly the operators of file sharing networks as well as teenage music consumers who began to play around with the new technological opportunities without having any firm strategic aims. They were also positioned well outside of the commercial structures and institutions, which they simply ignored. To paraphrase Raghu Garud and Peter Karnoes' (2001) perception of path creation this could be referred to as *mindless deviation* from the established path of development within the music industry, which then provided the starting point for the subsequent period of transformation. The commercial embedding and institutionalization of path deviation, which Garud and Karnoe refer to as *mindful deviation* and *generating momentum*, were then mainly driven by actors who were already established outside of the sector, and above all by Apple and its iTunes store.

The essential impulse behind the serious transformation that has been occurring within the music industry since the end of the 1990s came therefore from the non-commercial fringes of the sector. This impetus for change was then adopted and institutionalized by actors already established outside of the sector. Recounting this process serves to show, however, that this transformation was not a radical disruption that occurred over a short period of time, but that it can be characterized as a longer period of mismatch (Freeman and Perez 1988). This period of transformation, that will last a total of approximately 15 years and is now in 2011 still incomplete, is crisis-ridden and results in substantial changes to the structural, institutional and organizational foundations of the sector (Streeck and Thelen 2005; Thelen 2003; see also Geels 2007; Campbell 2004). In addition, this reconstruction of events should also have made it clear that this radical sectoral change unfolds as a process of gradual transformation. When placed into perspective, it shows that this did not lead to the complete deterioration of the music industry and the indiscriminate decline of the industry's prior central actors, a fate that had previously been prophesized (Röttgers 2003).

The transformation of the music industry is instead shaped *first* by a gradual transformation of the market and market relations. This is chiefly evident in the relativization of physical recordings in favor of digital music files. It is also evidenced in the diversification of music marketing models that are characterized not just by the parallel marketing of physical music recordings and music files but which also include digital-only releases, music on a subscription basis and music provided free of

charge that is paid for through advertisements, tours or cell phone purchases. This provides chances, not just for the newer, but also for the established music producers, who with the help of new, sustainable business models may be able to find their way back into the newly structured game.

Second, the transformation is also characterized by new modes of distribution of digital musical files on the Internet that supplement the retail business and the online sale of physical recordings. These new internet-based modes of distribution seem to have become the dominant channels of distribution. They have, however, not seriously changed the sector's traditional distribution models. Even the sale of digital music files occurs primarily via specialized middlemen. Attempts at the disintermediation of the market, in other words the removal of intermediaries and the direct sale of digital music to the final customers (Schaber 2000), were unsuccessful.

Third, both of these processes are accompanied by the search for new business and profit models based on digital music. Methods of institutional safeguarding established through changes to the legal foundations of the music business are also sought after. These include, in particular, adjustments to copyright protection and to the complex legal relationships between all the parties involved with the conditions of digitalization.

Fourth, and finally, since the end of the 1990s the actor constellations, competitive relations and power structures were also gradually modified as part of the restructuring process. This is accompanied by winners and losers, but lacks a radical substitution of actors. On the contrary, what is common is a differentiation between actors, which is accompanied by changes in the relations of power and influence. The integral new actors, who have in the meantime become relevant players in the music business, come from the computer industry (Apple); the telecommunications industry (T-Online); the mobile communications and cellular phone industry (Vodafone, Nokia); or from retail (Amazon, Walmart). Their offerings allow them to dominate the distribution of digital music online, in some cases they even offer hardware specifically adapted for such purposes (this mainly refers to Apple). And they are the central drivers behind the web-based music business, which is now also where the music companies are placing their bets. These new actors have not only become negotiating and contractual partners on equal footing with the music companies, but also pose a challenge to the large retail chains and belong to the new core of the sector. In the future, business with music files, which was initially clearly dominated by Apple, will continue to be sustained by just a few large companies. But, at the same time, competition will increase while, besides the ambitious new market entrants such as Amazon, the larger retail companies (such as Walmart) are also enjoying the success of their own downloading platforms. Ultimately, the music companies that for a long period of time were able to dominate the market unchallenged were, for the above-mentioned reasons, unable to control the transformation and lost influence

over the composition of the sector. They may, however, remain important actors in the newly restructured music industry as producers, global promoters and copyrights holders, insofar as they are consistent in engaging the new terms and conditions.

Without question, all of the above accounts for a radical change within the music industry. Nevertheless, this radical change proceeds as a gradual transformation of the sector. It occurs as a longer process of restructuring, which is characterized by the diversification of the methods of marketing music; the creation of new forms of distribution; the redefining of the sector's institutional framework; the differentiation of the spectrum of actors responsible for the sector; and the accompanying changes in the sectoral structures of power and influence. Substantial change as the result of an extended period of gradual transformation: that is the essential feature of the music industry's technology-induced change. This is less than a radical breakage occurring within a short period of time and more than an incremental further development of what already existed.

References

- Ala-Fossi, Marko/Piet Bakker/Hanna-Kaisa Ellonen/Lucy Küng/Stephen E. Lax/Charo Sabada/Richard van der Wurff, 2008: The impact of the Internet on business models in the media industries. In: Lucy Küng/Robert G. Picard/Ruth Towse (eds), *The Internet and the Mass Media*. Los Angeles/London: SAGE, 149–169.
- Alderman, John, 2001: *Sonic Boom. Napster, MP3 and the New Pioneers of Music*. Cambridge: Perseus.
- Amburgey, Terry L./Dawn Kelly/William P. Barnett, 1993: Resetting The Clock: The Dynamics of Organizational Change and Failure. In: *Administrative Science Quarterly* 38, 51–73.
- Anderson, Philip/Michael L. Tushman, 2001: Organizational environments and industry exit: the effects of uncertainty, munificence and complexity. In: *Industrial and Corporate Change* 10, 675–711.
- Apple, 2007: *Q4 2007 Unaudited Summary Data*. Apple: <http://images.apple.com/investor/>
- Apple, 2008: *Q1 2008 Unaudited Summary Data*. Apple: <http://images.apple.com/investor/>
- Apple, 2010: *Q4 2010 Unaudited Summary Data*. Apple: <http://images.apple.com/investor/>
- Apple, 2011: *Q1 2011 Unaudited Summary Data*. Apple: <http://images.apple.com/investor/>
- Barfe, Louis, 2004: *Where have all the good times gone? The rise and fall of the record industry*. London: Atlantic Books.
- Beyer, Jürgen, 2006: *Pfadabhängigkeit. Über institutionelle Kontinuität, anfällige Stabilität und fundamentalen Wandel*. Frankfurt/New York: Campus.
- Bishop, Jack, 2005: Building International Empires of Sound: Concentrations of Power and Property in the “Global” Music Market. In: *Popular Music and Society* 28, 443–471.
- Brandenburg, Karlheinz, 2004: *Interview mit “MP3-Erfinder” Prof. Karlheinz Brandenburg, 16.3.2004*. MP3 Audiostream: <http://www.tonspion.de/newsartikel.php?id=777>.
- Braun, Thorsten, 1997: *Music online – Grundsätzliches zur Rollenverteilung zwischen Dienst und Inhalt*. Berlin: IFPI.
- Buhse, Willms/Dirk Günnewig, 2005: Digital Rights Management. In: Michel Clement/Oliver Schusser (eds), *Ökonomie der Musikindustrie*. Wiesbaden: Deutscher Universitätsverlag, 215–228.
- Bundesverband Musikindustrie (eds), 2008: *Musikindustrie in Zahlen 2007*. Berlin: Bundesverband Musikindustrie.
- Bundesverband Musikindustrie (eds), 2010: *Jahreswirtschaftsbericht 2009*. Berlin: Bundesverband Musikindustrie.
- Burkart, Patrick, 2005: Loose Integration in the Popular Music Industry. In: *Popular Music and Society* 28, 489–500.
- Burkart, Patrick/Tom McCourt, 2006: *Digital Music Wars. Ownership and Control of the Celestial Jukebox*. Oxford: Rowman & Littlefield.
- Campbell, John L. (2004): *Institutional Change and Globalization*. Princeton: Princeton University Press.
- Campbell, John L. (2006): What’s New? General Patterns of Planned Macro-institutional Change. In: Jerald Hage/Marius Meeus (eds), *Innovation, Science, and Institutional Change*. Oxford: Oxford University Press, 505–524.
- Currah, Andrew, 2007: Managing creativity: the tensions between commodities and gifts in a digital networked environment. In: *Economy and Society* 36, 467–494.
- Denisoff, Serge R., 1988: *Inside MTV*. New Brunswick: Transaction.
- Dolata, Ulrich, 2009: Technological Innovations and Sectoral Change. Transformative Capacity, Adaptability, Patterns of Change. An Analytical Framework. In: *Research Policy* 38, 1066–1076.

- Dolata, Ulrich, 2011: *Wandel durch Technik. Eine Theorie soziotechnischer Transformation*. Frankfurt/New York: Campus.
- Dolata, Ulrich/Raymund Werle, 2007: Bringing technology back in. Technik als Einflussfaktor sozio-ökonomischen und institutionellen Wandels. In: Ulrich Dolata/Raymund Werle (eds), *Gesellschaft und die Macht der Technik. Sozioökonomischer und institutioneller Wandel durch Technisierung*. Frankfurt/New York: Campus, 15–43.
- Freeman, Christopher/Carlota Perez, 1988: Structural Crises of Adjustment, Business Cycles and Investment Behaviour. In: Giovanni Dosi/Christopher Freeman/Richard Nelson/Gerald Silverberg/Luc Soete (eds), *Technical Change and Economic Theory*. London/New York: Pinter, 38–66.
- Friedrichsen, Mike/Daniel Gerloff/Till Grusche/Tile von Damm, 2004: *Die Zukunft der Musikindustrie. Alternatives Medienmanagement für das mp3-Zeitalter*. München: Reinhard Fischer.
- Garud, Raghu/Peter Karnoe, 2001: Path Creation as a Process of Mindful Deviation. In: Raghu Garud/Peter Karnoe (eds), *Path Dependence and Creation*. Mahwah/London: Lawrence Erlbaum, 1–40.
- Garud, Raghu/Preveen R. Nayyar, 1994: Transformative Capacity: Continual Structuring by Inter-temporal Technology Transfer. In: *Strategic Management Journal* 15(5), 365–385.
- Gasser, Urs/Derek Bambauer/Jacqueline Harlow/Charles Hoffmann/Renny Hwang/Georg Krog/Stephen Mohr/Ivan Reidel/Derek Slater/C. Lee Wilson/John Palfrey, 2004: *iTunes. How Copyright, Contract and Technology shape the Business of Digital Media – A Case Study*. Harvard: Berkman Publication Series No 2004-07.
- Gasser, Urs/Gabriela Ruiz Begue, 2005: *iTunes: Some Observations After 500 Million Downloaded Songs*. Harvard: Berkman Centre for Internet & Society at Harvard Law School.
- Geels, Frank W., 2007: Analysing the breakthrough of rock'n'roll (1930–1970). Multi-regime interaction and reconfiguration in the multi-level perspective. In: *Technological Forecasting & Social Change* 74, 1411–1431.
- Geels, Frank W./Johan Schot, 2007: Typology of sociotechnical transition pathways. In: *Research Policy* 36, 399–417.
- Hage, Jerald/Marius Meeus (eds), 2006: *Innovation, Science, and Institutional Change*. Oxford: Oxford University Press.
- Hannan, Michael T./John Freeman, 1984: Structural inertia and organizational change. In: *American Sociological Review* 49, 149–164.
- Henderson, Rebecca M., 2006: The Innovator's Dilemma as a Problem of Organizational Competence. In: *Journal of Product Innovation Management* 23, 5–11.
- Henderson, Rebecca M./Kim B. Clark, 1990: Architectural Innovation. The Reconfiguration of Existing Product Technologies and the Failure of Established Firms. In: *Administrative Science Quarterly* 35, 9–30.
- Hertz, Markus, 1999: Music on demand: Chance oder Risiko für die Musikindustrie? In: *Media Perspektiven* 2, 63–72.
- Hughes, Jerald/Karl Reiner Lang, 2003: If I Had a Song: The Culture of Digital Community Networks and Its Impact on the Music Industry. In: *The International Journal on Media Management* 5, 180–189.
- Hull, Geoffrey P., 2004: *The Recording Industry*. New York/London: Routledge.
- IFPI (eds), 1999: *The Recording Industry in Numbers '99*. London: IFPI.
- IFPI (eds), 2007: *The Recording Industry in Numbers '07*. London: IFPI.
- IFPI (eds), 2008: *IFPI Digital Music Report 2008*. London: IFPI.
- IFPI (eds), 2011: *IFPI Digital Music Report 2011*. London: IFPI.
- Jobs, Steve, 2007: *Thoughts on Music*. Apple: <http://www.apple.com/hotnews/thoughtsonmusic/>.

- Leblebici, Huseyin/Gerald R. Salancik/Anne Copay/Tom King, 1991: Institutional Change and the Transformation of Interorganizational Fields: An Organizational History of the U.S. Radio Broadcasting Industry. In: *Administrative Science Quarterly* 36, 333–363.
- Leyshon, Andrew/Peter Webb/Shawn French/Nigel Thrift/Louise Crewe, 2005: On the reproduction of the musical economy after the Internet. In: *Media, Culture & Society* 27, 177–209.
- Liebowitz, Stan. J., 2004: Will MP3 Downloads annihilate the Record Industry? The Evidence so far. In: *Intellectual Property and Entrepreneurship. Advances in the Study of Entrepreneurship, Innovation and Economic Growth* 15, 229–260.
- Litman, Jessica, 2001: *Digital Copyright*. Amherst: Prometheus Books.
- Mahoney, James/Kathleen Thelen, 2010: A Theory of Gradual Institutional Change. In: Mahoney, James/Kathleen Thelen (eds), *Explaining Institutional Change: Ambiguity, Agency, and Power*. Cambridge: Cambridge University Press, 1–37.
- Mellahi, Kamel/Adrian Wilkinson, 2004: Organizational failure: a critique of recent research and a proposed integrative framework. In: *International Journal of Management Reviews* (5/6)1, 21–41.
- North, Douglass C., 1990: *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Peitz, Martin/Patrick Waelbroek, 2006: Digital Music. In: Gerhard Illing/Martin Peitz (eds), *Industrial Organization and the Digital Economy*. Cambridge/London: MIT Press, 71–144.
- Pohl, Gerrit, 2007: DRM: Digital Rights- oder Digital-Restriction-Management? In: Tina Rodriguez/Michael von Rothkirch/Oliver Heinz (eds), *www.musikverkaufen.de. Die digitale Musikwirtschaft*. München: Musikmarkt Verlag, 48–66.
- Renner, Tim, 2004: *Kinder, der Tod ist gar nicht so schlimm! Über die Zukunft der Musik- und Medienindustrie*. Frankfurt/New York: Campus.
- RIAA (Recording Industry Association of America) (eds), 2008: *2007 Year-End Shipment Statistics*.
- RIAA (Recording Industry Association of America) (eds), 2010: *2009 Year-End Shipment Statistics*.
- Röttgers, Janko, 2003: *Mix, Burn & R.I.P. Das Ende der Musikindustrie*. Hannover: Verlag Heinz Heise.
- Sanjek, Russel/David Sanjek, 1991: *American Popular Music Business in the 20th Century*. New York/Oxford: Oxford University Press.
- Schaber, Roland, 2000: *Digitale Distribution von Musik im Internet*. Ausgewählte Studien des EEC Handel, Bd. 2. Köln: Institut für Handelsforschung an der Universität zu Köln.
- Schliesche, Thorsten, 2007: Tauschbörsen und Downloadplattformen In: Tina Rodriguez/Michael von Rothkirch/Oliver Heinz (Eds), *www.musikverkaufen.de. Die digitale Musikwirtschaft*. München: Musikmarkt Verlag, 179–191.
- Smith, Adrian/Andy Stirling/Frans Berkhout, 2005: The governance of sustainable socio-technical transitions. In: *Research Policy* 34, 1491–1510.
- Sorge, Arndt/Peter Witteloostuijn, 2004: The (Non)sense of Organizational Change: An Essai about Universal Management Hypes, Sick Consultancy Metaphors, and Healthy Organization Theories. In: *Organization Studies* 25, 1205–1231.
- Steinkrauß, Niko, 2005: Wettbewerbsanalyse. In: Michel Clement/Oliver Schusser (Eds), *Ökonomie der Musikindustrie*. Wiesbaden: Deutscher Universitätsverlag, 25–40.
- Streeck, Wolfgang/Kathleen Thelen, 2005: Introduction: Institutional Change in Advanced Political Economies. In: Wolfgang Streeck/Kathleen Thelen (eds), *Beyond Continuity. Institutional Change in Advanced Political Economies*, Oxford: Oxford University Press, 1–39.
- Thelen, Kathleen, 2003: How Institutions Evolve: Insights From Comparative Historical Analysis. In: James Mahoney/Dietrich Rueschemeyer (eds), *Comparative Historical Analysis in the Social Sciences*. Cambridge: Cambridge University Press, 208–240.
- Tschmuck, Peter, 2006: *Creativity and Innovation in the Music Industry*. Springer: Dordrecht.

- U.S. Copyright Office, 1998: *The Digital Millennium Copyright Act of 1998. U.S. Copyright Office Summary*. U.S. Copyright Office.
- Utterback, James M., 1996: *Mastering the Dynamics of Innovation*. Boston, MA: Harvard Business School.
- Weikert, Stefan, 2007: Alte Plattenfirmen – neue Formate. In: Tina Rodriguez/Michael von Rothkirch/Oliver Heinz (eds), *www.musikverkaufen.de. Die digitale Musikwirtschaft*. München: Musikmarkt Verlag, 16–24.
- Werle, Raymund, 2005: Institutionelle Analyse technischer Innovation. In: *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 57, 308–332.
- Werle, Raymund, 2007: Pfadabhängigkeit. In: Arthur Benz/Susanne Lütz/Uwe Schimank (eds), *Handbuch Governance. Theoretische Grundlagen und empirische Anwendungsfelder*. Wiesbaden: VS Verlag für Sozialwissenschaften, 119–131.
- Zombik, Peter, 1998: *Music-on-Demand: Music-on-Demand: “Tanz auf dem Vulkan” oder “Gib dem Affen Zucker”?* Vortrag anlässlich des Medienforums “music:online. Symposium für M-O-D & Musik im Internet”. Berlin: IFPI.

Further Publications

Research Contributions to Organizational Sociology and Innovation Studies

Schrape, Jan-Felix, 2011: *Der Wandel des Buchhandels durch Digitalisierung und Internet*. SOI Discussion Paper 2011-01.

Books

Dolata, Ulrich, 2011: *Wandel durch Technik. Eine Theorie soziotechnischer Transformation*. Frankfurt/New York: Campus. (forthcoming)

Schrape, Jan-Felix, 2011: *Gutenberg-Galaxis Reloaded? Der Wandel des deutschen Buchhandels durch Internet, E-Books und Mobile Devices*. Boizenburg: Hülsbusch.

Schrape, Jan-Felix, 2010: *Neue Demokratie im Netz? Eine Kritik an den Visionen der Informationsgesellschaft*. Bielefeld: Transcript.

Journal Articles and Contributions in Edited Volumes

Dolata, Ulrich, 2011: Soziotechnischer Wandel als graduelle Transformation. In: *Berliner Journal für Soziologie* 21(2). (forthcoming)

Dolata, Ulrich, 2009: Technological Innovations and Sectoral Change. Transformative Capacity, Adaptability, Patterns of Change: An Analytical Framework. In: *Research Policy* 38(6), 1066–1076.

Dolata, Ulrich, 2008: Das Internet und die Transformation der Musikindustrie. Rekonstruktion und Erklärung eines unkontrollierten sektoralen Wandels. In: *Berliner Journal für Soziologie* 18(3), 344–369.

Dolata, Ulrich, 2008: Technologische Innovationen und sektoraler Wandel. Eingriffstiefe, Adaptionfähigkeit, Transformationsmuster: Ein analytischer Ansatz. In: *Zeitschrift für Soziologie* 37(1), 44–61.

Fuchs, Gerhard, 2010: Path Dependence and Regional Development: What Future for Baden-Wuerttemberg? In: Georg Schreyögg/ Jörg Sydow (eds): *The Hidden Dynamics of Path Dependence. Institutions and Organizations*. Houndmills: Palgrave Macmillan, 178–196.

Fuchs, Gerhard/Sandra Wassermann, 2009: Picking a Winner? Innovation in Photovoltaics and the Political Creation of Niche Markets. In: *Science, Technology & Innovation Studies*, 4(2), 93–113.

Schrape, Jan-Felix, 2010: Web 2.0 und Massenmedien: Visionen versus Empirie. In: *Forschungsjournal Neue Soziale Bewegungen*, 23(3), 72–83.

Werle, Raymund (et al.), 2010: Software als Institution und ihre Gestaltbarkeit. In: *Informatik Spektrum* 31(6), 626–633.

Werle, Raymund/Jürgen Feick, 2010: Regulation of Cyberspace. In: Martin Cave/ Robert Baldwin/Martin Lodge (eds): *The Oxford Handbook of Regulation*. Oxford: Oxford University Press, 523–547.