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Firm responses to disruptive innovations

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Chapter 1: Introduction

“Another One Bites the Dust”

- Queen

(..)

Are you ready, hey, are you ready for this?
Are you hanging on the edge of your seat?
Out of the doorway the bullets rip
To the sound of the beat

Another one bites the dust
Another one bites the dust
And another one gone, and another one gone
Another one bites the dust
Hey, I'm gonna get you, too
Another one bites the dust

(..)

Are you happy, are you satisfied?
How long can you stand the heat?
Out of the doorway the bullets rip
To the sound of the beat

(..)

But I'm ready, yes, I'm ready for you
I'm standing on my own two feet
Out of the doorway the bullets rip
Repeating to the sound of the beat

Another one bites the dust
Another one bites the dust
And another one gone, and another one gone
Another one bites the dust
Hey, I'm gonna get you, too
Another one bites the dust

(END)

1. General Introduction

For music publishers, the rise of digital downloading, piracy and the falling of CD sales resulted in a crisis, wherein firms had to deviate from their historical legacy in physical music recording and publishing (Moreau, 2013). For EMI Music the digitization of music meant a dramatic reversal of fortune; despite attempts to restructure, almost a century's experience in music recording and publishing turned out to inhibit a shift to new technologies resulting in the bankruptcy of EMI Music in 2012 (Business Week, 2007; 2008; 2011; 2012). Another incumbent, Universal Music, on the other hand, set forward a clear focus on digital, enabling the firm to increase its market share (i.e. turnover) during the disruption (Billboard, 2015; Music & Copyright, 2014). Even though both firms faced the *same* situation of a rapidly changing business environment created by the introduction of disruptive innovations (Christensen, 1997; Tushman & Anderson, 1986; 1990), their responses were *different*.

This real-life case represents an increasingly common phenomenon in modern society, when technological developments are introduced that have disruptive effects on firms' business models and performance and that disturb the strategic positions of incumbents while simultaneously opening windows of opportunities for newcomers that aim to exploit the disruptive technologies (i.e. *disruptive innovations*, Christensen, 1997; Christensen & Roosenbloom, 1995). By now, not only the music industry, but more industries – i.e. the newspaper, book, retail, travel and financial industry (Grossman, 2016)- face the challenge to respond to such technological disruptions (i.e. *firm responses*, Charitou & Markides, 2003). Nevertheless, the diversity in current discussions within extant disruptiveness research and within organizational practice regarding why and how firms should meet the challenges of disruptiveness indicate that coping with an uncertain, disrupted future remains a fundamental challenge (Charitou & Markides, 2003; Christensen, Raynor & McDonald, 2015; Danneels, 2004; Nagy, Schuessler & Dubinsky, 2016).

1.1 Responding to Disruptive Innovations

The purpose of this dissertation is to address the challenge of responding to disruptive innovations and to explore important contingencies that may contribute to a deeper understanding of how and why firms come to respond differently to these challenges of disruptiveness. At its core, it draws upon the work on *Disruptive Innovations* as developed by Christensen (1997; 2003). The central argument of his work is that disruptive technologies enable the introduction of *disruptive innovations*¹ that are able to destroy a firm's existing (technical) competences, skills and knowledge base (Tushman & Anderson, 1986, 1990) and to disrupt its value network and business models (Christensen, 1997; Christensen & Raynor, 2003). Unlike radical or breakthrough innovations, which are not necessarily competence-destroying, disruptive innovations fundamentally challenge, and even render obsolete, the required skills, capabilities and knowledge applied by firms in the "old" technological paradigm (Christensen, 1997; Tushman & Anderson, 1986, 1990). Disruptive innovations are thus not only different, but also in conflict with existing ways of doing business (Charitou & Markides, 2003; Kamien & Schwartz, 1982) and require the development and establishment of very different, new capabilities, competences, knowledge and value networks (Christensen, 1997).

A large body of disruptiveness research has indicated how and why inertial constraints and the liabilities of devalued and obsolete competences handicap established firms in their adaptability to the disruption (Christensen & Roosenbloom, 1995; Hannan & Freeman, 1977; Henderson & Clark, 1990; Leonard-Barton, 1992; Nelson & Winter, 1982; Tripsas & Gavetti,

¹ We follow previous work to broadly define disruptive innovations as new products, processes or business models that utilize (disruptive) new technologies (Christensen, 1997; 2006). Such innovations are initially inferior to existing mainstream technologies on dominant product attributes that mainstream customers value and are therefore considered financially unattractive to incumbents (Ansari & Krop, 2012; Christensen, 2006; Markides, 2006). As they also introduce novel features, initially liked by a niche segment, mainstream customers are ultimately attracted after considerable (technological) advancements and improvements of the disruptive innovation over time (Christensen, Raynor & McDonald, 2015; Govindarajan & Kopalle, 2006).

2000). Main predictions therefore are that incumbents' market leadership will be replaced by new entrants that introduce disruptive innovations based on new technologies (Christensen, 2006; Christensen et al., 2015; Markides, 2006; Schumpeter, 1994).

Nevertheless, within organizational practice and the extant literature on disruptiveness numerous exceptions to this "standard model" of entrant-incumbent dynamics during disruptiveness prevail. They indicate that *some* incumbents are able to survive (i.e. Bergek et al., 2013; Hill & Rothaermel, 2003; King & Tucci, 2002; Rothaermel, 2001; Roy & Sarkar, 2016; Tripsas, 1997), and that *some* new entrants struggle to rise to market dominance (i.e. Golder & Tellis, 1993; Ozcan & Eisenhardt, 2009; Suarez & Lanzolla, 2005). As a result, discussions regarding the relevance, applicability and generalizability of disruptive innovation theory continue, leaving firms bewildered with regard to the firm responses that enable them to respond to the challenges of disruptiveness (Christensen et al., 2015; Danneels, 2004; King & Baartagtokh, 2015; Nagy et al., 2016).

Even when extant studies specifically address firm responses as an important mechanism for firms to adapt to disruptive technological change, these studies treat the identified response as the reason why a specific firm has survived, much like "best practices". As a result, these in-depth case studies provide inconsistent and incomparable accounts of different organizational responses to disruptive innovations. Table 1 illustrates how each study has identified a different number of responses and used different terminologies to identify and define the different organizational responses to disruptiveness, which can conveniently be grouped as either defensive or offensive (see table 1): *defensive* responses aim to defend, preserve and further exploit the traditional business model and limit the growth of the disruption (Adner & Snow, 2010ab; Bode, Wagner, Petersen & Ellram, 2011; Charitou & Markides, 2003), while *offensive* responses are focused on embracing the disruption by reallocating resources to invest in the disruptive business model either independently, among

others via spin-off organizations or via strategic partnering (Charitou & Markides, 2003; Christensen & Overdorf, 2003; Macher & Richman, 2004; Madhavan, Koka & Prescott, 1998; Rothaermel, 2001).

Table I: Organizational responses to disruptive innovations

Reference	Identification of responses (taxonomy)	
	<i>Defensive</i>	<i>Offensive</i>
Adner & Snow, 2010	<i>Bold retreat</i>	
Bode et al., 2011	<i>Buffering Bridging</i>	
Charitou & Markides, 2003	<i>Focus on traditional business Ignore</i>	<i>Attack back Embrace</i>
Christensen & Overdorf, 2003		<i>Reorganize (internal) Spin-off Acquisition</i>
Dewald & Bowen, 2010		<i>Adopt change</i>
Macher & Richman, 2004		<i>Pursue disruptive opportunities</i>
Rothaermel, 2001; Rothaermel & Boeker, 2008		<i>Interfirm cooperation</i>

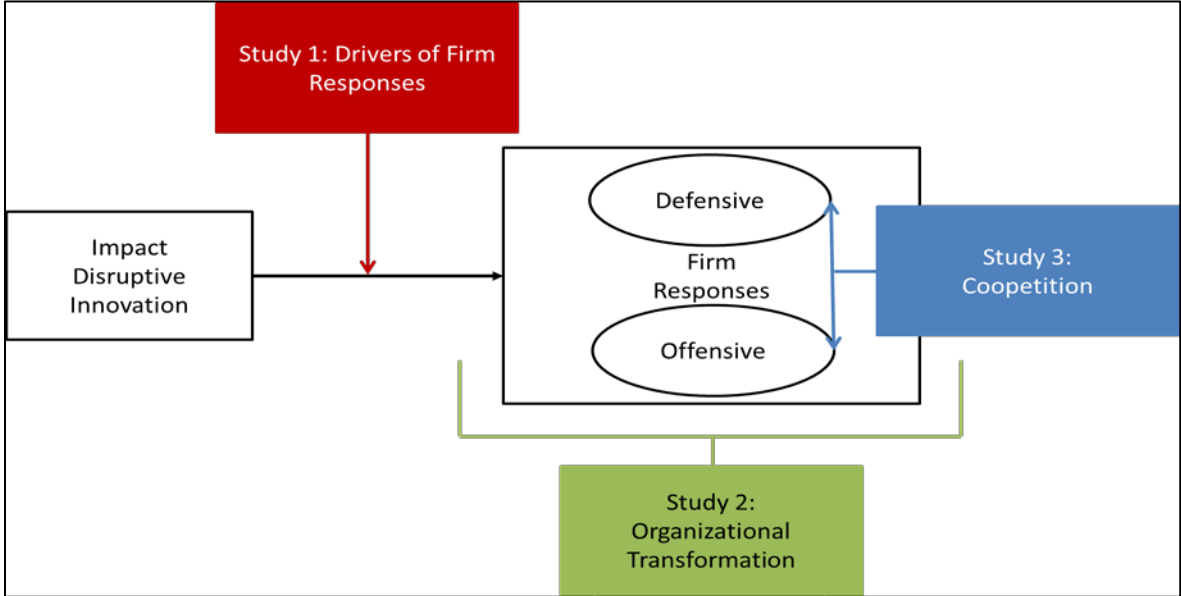
1.2 Theoretical Approach

Taken together, extant disruptiveness research has provided valid, yet partial and isolated insights into different firm responses to disruptive innovations. Despite the theoretical and managerial interest and relevance of the topic, extant research so far has not provided thorough empirical accounts of how and why such different responses to disruptive innovations come about, which may ultimately lead to aggregate differences in organizational survival. In this dissertation, we therefore aim to go beyond merely addressing organizational survival during disruptiveness, or merely identifying an organizational response to disruptiveness. Instead, we aim to provide a deeper understanding of the different

contingencies that stand at the origin and the evolution of different responses that help firms to cope with disruptiveness.

This dissertation consists of three studies that explore these contingencies that stand at the origin and evolution of different firm responses to disruptiveness. The first study explores the origin of different organizational responses to disruptive innovations by addressing the organizational drivers, in terms of firm capabilities and motivations, which make firms respond to disruptions in a certain way. Using a survey methodology, we provide one of the first quantitative analyses that links the drivers to numerous firm responses for the same disruption. The second study goes beyond considering the key drivers that make firms respond to disruption and provides one of the first multiple-case comparative views on the role of organizational identity in how firms transform their organization in response to disruption. Finally, study 3 goes beyond addressing individual firm responses and organizational transformation processes in order to address how firm responses are situated within a larger ecology of interdependent firms. Using an in-depth case study approach, we provide one of the first accounts of how cooperative forces influence firm responses to disruptiveness. Figure 1 provides an overview of the studies.

Figure 1: Positioning dissertation studies



1.2.1 Study 1: Drivers of Firm Responses

In the first study of this dissertation (Chapter 2), we explore organizational drivers, in terms of firm awareness, capabilities and motivations, which can explain how and why firms respond differently to the same disruptive innovations. While extant research has examined organizational drivers that can facilitate firms to adapt to disruption on the one hand (Christensen, 1997), and the strategic organizational responses that firms can employ to react to disruption on the other hand (Charitou & Markides, 2003), these studies have largely examined the effects of these drivers, or the type of responses, in isolation. As a result, extant research has not considered how the type of response to disruptiveness might be contingent upon how drivers interact. This is why in this chapter we build upon the Awareness-Motivation-Capability perspective, previously applied in competitiveness research (Chen, 1996; Chen, Su & Tsai, 2007), to dissect the contingencies that stand at the origin of the different organizational responses to disruptive innovations. We argue that firms' awareness of the pervasiveness (i.e. the perceived impact) of the disruption urges firms to respond to the disruption (Bode et al., 2011; Chen, 1996; Govindarajan & Kopalle, 2006), but that the type of response depends on both the firms' capability and motivation to do so (Charitou & Markides, 2003; Chen, 1996). We test the hypothesized relationships using a survey study among independent record companies in the Netherlands.

Our exploratory analysis of 118 firm responses to the same disruption in the music industry illustrates what leads firms to respond defensively, as opposed to offensively, to disruptions is not a divide between incumbents and new entrants. Rather, our analysis indicates that what drivers firms' responses is far more complex than previously assumed: offensive and defensive responses originate from vastly different constellations of the impact of the disruption and the capability- and the motivation-to-respond. Our analysis indicates the

added value of our proposed model of drivers of organizational responses to disruptive innovations.

1.2.2. Study 2: Organizational Transformation and the Role of Identity

In the second study of this dissertation (Chapter 3), we go beyond addressing firm responses and the mechanisms that drive a certain response by focusing on the actual process of organizational transformation in response to disruption. We posit that organizational identity plays a critical role in organizational responses to disruptions (Albert & Whetten, 1985; Ashforth & Mael, 1989), especially when firms are confronted with disruptions that are identity-challenging (Corley & Gioia, 2004; Tripsas, 2009; Tushman & Romanelli, 1985): as the core essence of the firm, organizational identity serves a coordinating and guiding role that provides firms with a focal point for what constitutes legitimate action. When a disruption challenges that guiding role of identity, firms have to undertake the difficult task to adapt their identity, and hence their firm, to the disruption. We therefore explore the concept of “identity shift” or the extent to which a firm adapts its identity after an identity-challenging shock like a disruption. We base our research on multiple in-depth case studies among record companies and publishers in the Dutch music industry.

Our analysis suggests that firms attach heterogeneous meanings to disruptions in relation to enduring, central and distinctive aspects of their organizational identity. Ultimately, we illustrate how this variation indicates the existence of a typology of three types of identity shift in response to disruptiveness. Our analysis further provides evidence of how these identity shifts guides a firm’s strategic decisions and actions during the disruption. Together, our findings indicate that organizational identity plays an important role in actual processes of organizational transformation during identity-challenging disruptions. Organizational identity shifts therefore provide a compelling explanation for how and why

similar firms respond differently to disruptiveness, while different firms respond similarly to disruptiveness.

1.2.3. Study 3: Coopetitive Dynamics during Disruptiveness

In the third study of this dissertation (Chapter 4), we extend the focus from individual responses to consider collective responses as well. Missing within the extant disruptive innovation literature is a consideration of how firm responses are placed within a larger ecology of interdependent firms, incumbents and new entrants, which aim to deal with the challenges of the same disruptions within the same timeframe. We draw upon the coopetition literature, which explores the simultaneous engagement in both cooperation and competition among firms (Bengtsson & Kock, 2000; 2014; Brandenburger & Nalebuff, 1996; Gnyawali & Park, 2009) to address the balance between cooperation and competition among firms and how disruption affects this balance over time. A unique in-depth case study of 9 competitive firms collaborating over a period of one year to introduce a new product in the Dutch music market is used to study coopetitive moves and countermoves. Our findings indicate that coopetition is a viable and strategic firm response to disruption, which enables firms to go beyond simply adapting to the disruption, by enabling firms to develop their own “disruptive capacity” by actually exploiting disruptive growth opportunities themselves. A coopetitive firm response should therefore be considered alongside other firm responses to disruption. Our findings further indicate that coopetition among multiple firms help that to identify and pursue opportunities that lie beyond the reach of individual firms. Coopetition with multiple firms further enables firms to overcome important path-dependent trajectories that handicap firms during disruption.

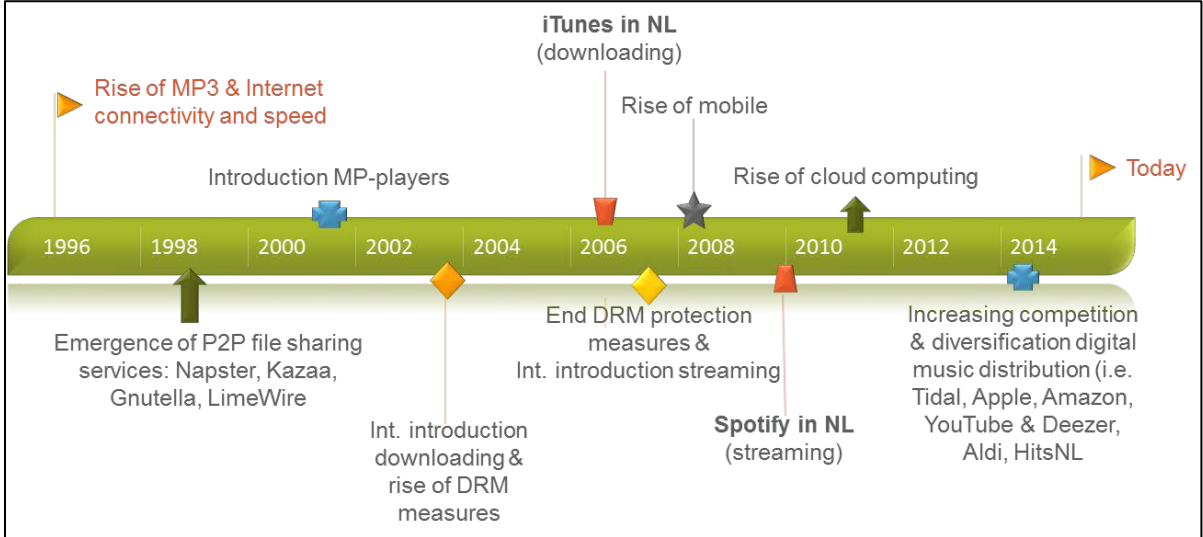
1.3 Research context: Digitization as Disruption in the Music Industry

The empirical data of this dissertation has been collected in one specific industry: the music industry. Technological change is common in the music industry. The introduction of the CD introduced a golden era for record companies: most songs could be reissued in higher quality on an entirely new medium. With the introduction of cassette recording and the CD-R upheaval surrounding illegal reproduction surmounted. Nevertheless, these concerns turned out to be minimal compared to the impact of new disruptive technologies, like MP3 technology and Internet bandwidth, that were introduced at the end of the 1990s (Byrne, 2012; Leyshon, Webb, French, Thrift & Crewe, 2005; NVPI, 2012). Innovations that utilized these disruptive technologies challenged established competitiveness patterns and traditional competences, like the production of physical albums or the access to important retailers and intermediaries (i.e. radio and TV stations) and cut worldwide revenues in half (Aguiar & Waldfogel, 2015; IFPI 2015; Moreau, 2013). The music industry thus represents a unique setting to investigate firm responses to the same disruptions in a recent time frame. In addition, such a focus on one industry and disruption helps to eliminate potential contingencies based on industry or disruptive innovation characteristics and keeps the scope of this study focused (Charitou & Markides, 2003; Govindarajan & Kopalle, 2006).

When tracing the critical event timeline of the (Dutch) music industry, see Figure 2, we see that the introduction of MP3 sound compression technology (1993), coupled with increasing bandwidth Internet speed and usage (>1995) enabled the distribution of digitized content, like music files, over the Net (Einhorn, 2003; Moreau, 2013). It did not take long before illegal and often free P2P file sharing services, such as Napster (1999), LimeWire (2000) or Kazaa (2001), appeared that utilized these disruptive technologies to introduce innovative (il-)legal ways of distributing, promoting and selling music (Alexander, 2002; Walsh, Kirchhoff & Newbert, 2002). Many of these initial services did not make it: even

though these early platforms were able to distribute digital music, the offered quantity and quality of music was still limited. Still, these platforms also offered consumers new performance criteria: the opportunity to personalize music consumption, to share your music with friends and family and to carry it with you wherever you go (Alexander, 2002). As there was no viable business model attached to these platforms yet, most incumbents in the music industry found them financially unattractive and ignored the potential of the new technologies. Instead, most incumbent and major record companies fought fiercely to end illegal file sharing of music in order to protect their established market positions and competences (Liebowitz, 2006; Moreau, 2013).

Figure 2: Critical event timeline – Digital Disruption in the (Dutch) music industry



The introduction of new technological developments such as mobile phones, portable MP3 devices and the rise of social networks from 2006 onwards enhanced the new performance metrics of digitized music, especially its portability and share-ability. These technological developments, alongside the increasing quantity and quality of music being offered online, accelerated the development of legal downloading music services, most notably iTunes (US launch in 2003, NL launch in 2006) that resonated among increasingly more mainstream consumers. As the business model attached to iTunes directly challenged

the traditional way of doing business within the music industry, more and more firms started to feel the consequences of the digital disruption of music (Aguiar & Waldfogel, 2015; Mol, Chiu & Wijnberg, 2012; Moreau, 2013): it is in this time period that most firms decided that responding to such disruption is an inevitable necessity. The following quote from the VP of Digital Strategy of Warner Music Group, Alex Zubillaga, is illustrative:

“The digital music revolution is also contributing to the transformation of Warner Music Group from a traditional record and song-based company into a diverse, music-based company (...). Warner Music Group will continue to make digital music and new media a core part of the company’s global mission” (IFPI, 2006).

Finally, from 2010 onwards, streaming platforms such as Spotify (Swedish launch in 2008, NL launch in 2010), Deezer (French launch in 2007, NL launch in 2012) and Apple Music (Worldwide launch in 2015), appeared that relied on the increasing use of mobile technologies alongside new cloud computing technologies. Unlike downloading, the streaming business model is not built upon buying and owning content, but rather on gaining access to music (Moreau, 2013). Over time, revenues from streaming music came to surpass those from downloading music (IFPI, 2016; NVPI, 2016). In sum, we conclude that the digital disruption of the music industry is a process that developed over three different phases, see Figure 3.

Figure 3: The three phases of digital disruption in the (Dutch) music industry

<p style="text-align: center;">Phase 1 <i>P2P File Sharing</i> 1990s-2006</p>	<p style="text-align: center;">Phase 2 <i>Downloading</i> 2006-2010</p>	<p style="text-align: center;">Phase 3 <i>Streaming</i> 2010-2015</p>
<p>Demand for digital music grew out of unauthorized music file sharing services in the 1990's that build upon new technologies (i.e. MP3) and greater network bandwidth and internet accessibility to distribute music directly to end consumers.</p>	<p>Demand for digital music grew due to the introduction of mobile music, portable MP3 devices and the rise of social networks that enhanced the portability and share-ability of music. Legal music services provided more convenience and quality.</p>	<p>Demand for digital music grew even more as new cloud computing technologies enabled the development of streaming platforms where consumers congregate not to buy content but to buy access to it.</p>

Note: Similar patterns of digital disruption of music are found in other parts of the world, although the exact timing and development of the disruption in each phase can differ per country.

1.3.1. Research Setting: Dutch Music Industry

The empirical data of this dissertation were collected from the Dutch music industry. The Dutch music industry represents a suitable setting as the structure of the Dutch music industry and the effect of digitization on the music industry largely resembles patterns found in larger, foreign music industries like the US and the UK (IFPI, 2016; Mol et al., 2012). The Dutch music industry is particularly interesting for this study because the Netherlands is one of the front-runners when it comes to digital music exploitation, especially in comparison to current market leaders such as the UK, France, Germany and Italy (IFPI, 2016), see Table II. This front-runner position might be, in part, due to the fact that the Netherlands also provides a suitable digital infrastructure that enables digital music consumption more than other countries: even as early as 2010 internet access in the Netherlands was well above 90%, the available broadband speed exceeded 6 Mbps and since 2012 more than 50% of the Dutch population owned smartphones with Internet access (Akamai, 2016; CBS, 2016).

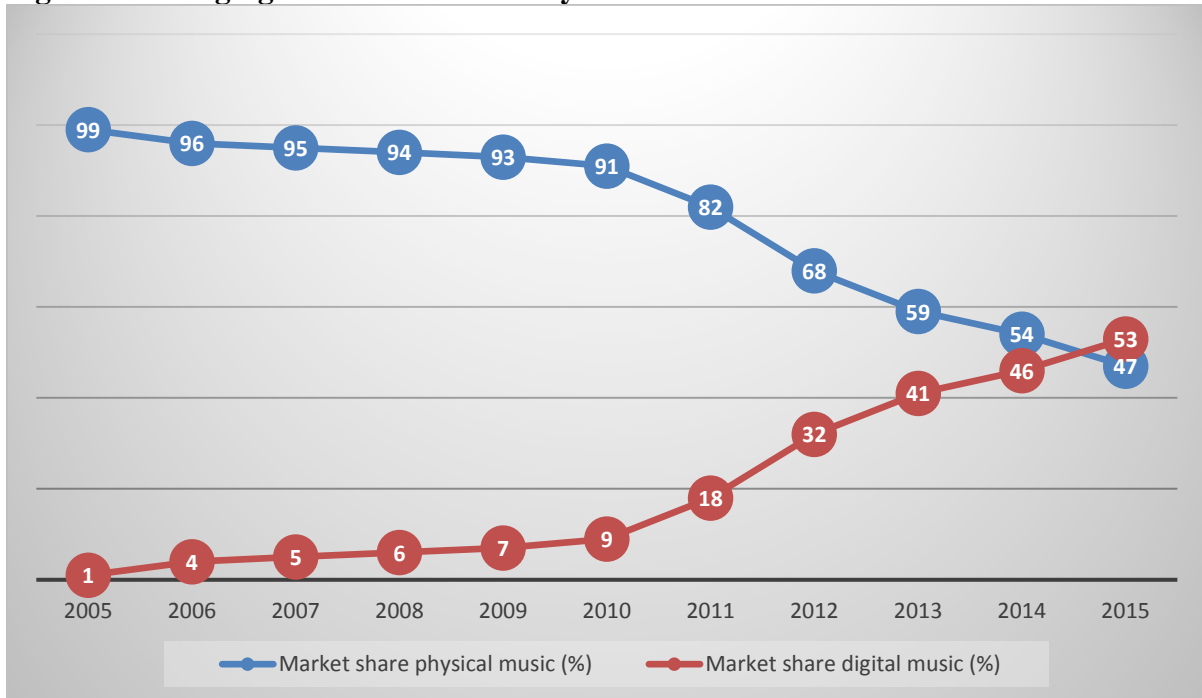
Table II: Market size and the market share (turnover) of digital music

	Global Market share (turnover)	% Market share digital
1	United States	United States
2	Japan	Canada
3	Germany	Australia
4	United Kingdom	South Korea
5	France	<i>Netherlands</i>
6	Australia	UK
7	Canada	Brazil
8	South Korea	France
9	Brazil	Italy
10	Italy	Germany
11	<i>Netherlands</i>	Japan

Source: IFPI 2014 & 2015

In the past 10 years, digital disruption significantly affected the Dutch music industry tremendously as half of the revenues of the Dutch music industry has evaporated (NVPI 2000-2016). What is more, when tracing the market share in terms of turnover of offline and online music we can see that within a period of 10 years the market share of digital music has outrun the market share of physical, creating a tipping point in 2015 (NVPI 2005-2015), see Figure 4. Being a frontrunner in digital music thus makes the Netherlands a unique setting to investigate firm responses to disruptive innovations using different methodologies. Insights gained will be applicable to countries that will soon reach similar digital market share levels.

Figure 4: Changing Dutch music industry



Source: NVPI 2005-2016

1.4 Methodology

A unique feature of this dissertation is its mixed method approach in combination with different sources of primary and secondary data that have been collected in close connection and collaboration with businesses in the Dutch music industry. Together, they enable an unprecedented opportunity to conduct three vastly different empirical studies - a survey study, a multiple case study and an in-depth (group) case study- to address the overarching research problem of this dissertation.

Primary data, meant to measure organizational issues, are mainly collected from managers and CEOs of record companies, publishers, experts/consultants and music industry associations (i.e. Buma/Stemra, SENA, NVPI) using in-depth interviews and company visits, surveys, industry meetings, informal conversations and focus groups. Secondary data sources, such as company websites, news articles, reports and data from the chamber of commerce and Orbis, have been collected to complement the primary data. Each chapter of the dissertation contains a methodology section, which discusses the chosen methodology and data sources in

more detail. The appendices provide more detailed information regarding the survey and its analysis (Appendices A-B), the data sources and interview guide for the multiple case study (Appendix C-D) and the data sources and timeline of the in-depth case study (Appendix E-F).

1.5 Structure of the Dissertation

The dissertation consists of a bundle of academic articles each related to the overarching research theme of firm responses to disruptive innovations. This implies that each of the following chapters (Chapters 2-4) has the same format consisting of an introduction, literature review, methodology, findings, a discussion and a conclusion. Chapter 5 offers a reflection of the findings, a discussion of the theoretical and practical implications and a conclusion.