

# Access Decisions in a Partly-Digital World

## Comparing Digital Piracy and Legal Modes for Film and Music

Veitch, Rob

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# Access Decisions in a Partly-Digital World

Comparing Digital Piracy and Legal Modes for Film  
and Music

Robert Veitch  
Department of IT Management  
Copenhagen Business School  
November, 2012

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## English Abstract

The emergence of the Internet in the late 20th century and its continued prominence after the year 2000 have created challenges and opportunities for firms and scholars alike. For firms, information technologies (IT) have facilitated access to foreign markets but exposed them to new forms of competition, both commercial and non-commercial, which have undermined their successes. For scholars, the new contexts created by IT have enabled new forms of behaviour not well explained by existing theory. Confronted by these developments, firms attempted to maintain their business models, while scholars applied established theories to explain and predict decisions and behaviour in the new digital landscape. The emergence of widespread digital film and music piracy facilitated by the Internet provides an example of how existing models are often insufficient to explain behaviours enabled by new technologies. Scholars seeking to explain and predict digital piracy have drawn on theories from across the social sciences to inform their investigations into the phenomenon. While these investigations have revealed important insights into the antecedents of digital piracy, the research literature is limited in three key ways. It is theoretically fragmented. It has largely decontextualised digital piracy by not examining how it occurs in relation to legal access. It has underemphasised factors that vary from title-to-title. This project integrates the key streams of piracy research, namely the research informed by social psychology, criminology, business ethics, marketing and economics, and presents a model that addresses the key limitations in the literature. The model was examined over three successive empirical investigations conducted between the autumn of 2010 and the spring of 2012, drawing on samples of university students and consumers in Denmark. The findings from the investigations emphasise the value of an integrated model that contextualises piracy and includes product-title factors. The model explains more variance in access decisions than the models previously offered in the literature. The empirical findings of the research conducted for the project indicate the importance of product-title factors, namely price perceptions, legal availability, and desirability, in addition to access-mode factors such as subjective norms, ethical judgements, and quality risks. The research contributes to the literature on digital piracy in information systems (IS) by emphasising the importance of product-title factors in individuals' access decisions. Furthermore, it demonstrates the value of using an integrated theoretical model in IS research, when a variety of potential explanations are offered for behaviour.

## Dansk Abstrakt

Internettets fremkomst i slutningen af det 20. århundrede og dets fortsatte vigtighed efter år 2000 har skabt udfordringer og muligheder for både virksomheder og forskere. For virksomheder har informationsteknologier gjort adgangen til udenlandske markeder lettere, men samtidig udsat dem for nye former for konkurrence, både kommercielle og ikke-kommercielle, som har undergravet deres succeser. For forskere har de nye sammenhænge skabt af informationsteknologier gjort nye former for adfærd muligt, som ikke kan forklares fyldestgørende af eksisterende teori. Virksomheder forsøgte at fastholde deres forretningsmodeller, mens forskere anvendte etablerede teorier til at forklare og forudsige beslutninger og adfærd i dette nye digitale landskab. Fremkomsten af udbredt digital film og musik piratkopiering, gjort lettere af internettet, giver et eksempel på, hvordan enkelte modeller ofte ikke er tilstrækkelige til at forklare adfærd, som nye teknologier gør mulig. Forskere, som søger at forklare og forudsige digital piratkopiering, har trukket på teorier fra hele det samfundsvidenskabelige spektrum for at undersøge fænomenet. Selv om disse undersøgelser har afsløret vigtige indsigter i forgængere for digital piratkopiering, er forskningslitteraturen begrænset på tre afgørende måder. Den er teoretisk fragmenteret. Den har i høj grad dekontekstualiseret digital piratkopiering ved ikke at undersøge, hvordan det forekommer i forhold til lovlig adgang. Den har ikke lagt vægt på faktorer, der varierer fra titel til titel. Dette projekt integrerer de centrale strømme af forskning om piratkopiering, særligt forskning påvirket af socialpsykologi, kriminologi, forretningsetik, og markedsføring og økonomi, og præsenterer en model, der adresserer de vigtigste begrænsninger i litteraturen. Modellen blev undersøgt over tre på hinanden følgende empiriske undersøgelser, som fandt sted mellem efteråret 2010 og foråret 2012, der bruger prøver af universitetsstuderende og forbrugere i Danmark. Resultaterne fra undersøgelsen understreger værdien af en integreret model, som kontekstualiserer piratkopiering og omfatter produkt-titel faktorer. Modellen forklarer mere varians i adgangsbeslutninger, end hvad forskningslitteraturen har foreslået hidtil. Desuden viser de empiriske resultater af forskning udført for dette projekt betydningen af produkt-titel faktorer, særligt prisopfattelser, lovlig tilgængelighed og ønskværdighed, foruden adgangsmåde faktorer såsom subjektive normer, etiske vurderinger og kvalitetsrisici. Forskningen bidrager til litteraturen om piratkopiering i informationssystemer ved at understrege betydningen af produkt-titel faktorer i enkeltpersoners adgangsbeslutninger. Desuden påviser den værdien af at bruge en integreret teoretisk model i forskning i informationssystemer, når mange forskellige potentielle forklaringer udbydes vedrørende adfærd.

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# 1. Background and Context

## 1.1. Overview

This chapter provides a general introduction to the research project. After an opening that contextualises the research, a brief discussion of film and music is presented, noting their similarities with, and differences to, other experience and information goods. Subsequently, an overview of the laws that control the distribution and use of films and music in Denmark is given, with specific attention paid to the Consolidated Act on Copyright (2010) and its implications for individuals. Next, a description is given of how these products can be accessed via piracy, noting the various downloading and streaming technologies that can be used. The chapter concludes with a discussion of the Danish market, with particular emphasis on the prevalence of information technologies (IT) and the status of film and music markets in Denmark.

## 1.2. Introduction

Since the development of the first technologies that enabled video and sound recordings, audiences for films and recorded music have surfed the waves of technological innovation that have washed over the markets for these products. For the most part, the film and music industries have been able to tame these waves. The industries have released titles in formats enabled by new technologies and reaped rewards for doing so. Yet at the end of the 20th century, the rising wave of the Internet and accompanying information technologies (IT) was one for which the film and music industries were largely unprepared. This new wave of digital technologies greatly expanded the ways in which individuals could access and consume films and music. In doing so it also facilitated wide-spread digital piracy by enabling film and music to be reproduced and distributed in digital formats. More recently firms have utilised these technologies and introduced a variety of legitimate Internet-based film and music services to cater to online demand. Such services have seen varying degrees of success competing against each other and with technologies that facilitate digital piracy. Due to these technological and commercial developments, individuals now have a broad array of modes that can be used to access film and music. We can access a film by seeing it in the cinema. We can also purchase a copy on DVD, Blu-ray or as a digital download. We can rent a copy by streaming it online, downloading a temporary copy from an online store, or obtaining a physical copy from a rental store. In addition to these legal access modes, we can also use digital piracy. We can download a copy from the Internet or stream it online. Occasionally we may be able to obtain a version from a friend. The options for music are similarly broad. Various modes allow us to access music legally, such as by purchasing physical formats and downloading digital copies as well as using streaming services. Digital piracy also enables access by via downloading and illegal streaming.

While technological developments have created considerable challenges for firms, such changes have been enormously beneficial for individuals who consume film and music. A significant proportion of the market now has alternatives if it is unwilling to pay the purchase price for a title. Recent evidence indicates that for many people accessing film and music via digital piracy is easy enough to serve as a viable alternative to legal options (e.g., Benner and Vuorela 2012). It has been suggested that rates of digital piracy represent the failure of the market to capitalise on the “numerous consumers with a very low willingness to pay but [whose] combined consumption would be valuable” (Towse 2005, p. 18). Others have concluded that piracy is often a

“defensive and opportunistic consumer strategy applied in order to lessen perceived risk and prevent losses” (Gupta et al. 2004, p. 268). In an environment where access to digitally pirated films and music is easier than ever, differences in national release dates often restrict the legal availability of new titles. Digital piracy thus offers access to film and music to individuals living in countries outside the primary market for a title. Moreover, many individuals seem to find digital piracy unproblematic from an ethical perspective and unlikely to feel judged by their peers or family for engaging in it. So what does this mean for the film and music industries?

The rise of digital piracy has accompanied the fall of profits of firms within the film and music industries, which have struggled to adapt to the digital age. These developments have disrupted business models and challenged laws designed for the physical world, which are frequently being revealed as inadequate for a digital environment. As products and services increasingly become produced, distributed, and consumed digitally, the piracy of digital products continues to be a very real challenge for the film and music industries. “Technology”, as noted by Altschuller and Benbunan-Fich (2009), “is a stone that creates ripples in the social and political institutions that in turn must scurry to keep up with new realities” (p. 50).

The digital piracy of film and music is remarkably common. Evidence from the United States indicates that 40 percent of people have pirated music and 22 percent have engaged in film piracy, and for individuals aged between 18 and 29, more than two thirds admit to having engaged in these activities (Karaganis 2011). In Europe rates are even higher. Findings from Denmark show that more than three quarters of people between the ages of 18 and 29 have pirated films or music (Benner and Vuorela 2012). While software piracy has traditionally been the focus of academic research on digital piracy (e.g., Conner and Rumelt 1991; Im and Vanepps 1992; Straub and Collins 1990; Swinyard et al. 1990; Taylor and Shim 1993), the public debate about how to manage digital piracy primarily focuses on its impact and ramifications for the film and music industries (e.g., Benner and Vuorela 2012). This may be because these industries have performed poorly over the last ten years and have sought to influence public discourse in their favour. For example, the Business Software Alliance reported that the software industry managed year-on-year growth of 14 percent from 2007 to 2008. In comparison, global sales of recorded music fell by around 30 per cent from 2004 to 2009 (IFPI 2010) and the revenues from rented films have decreased significantly over the last decade (International Video Federation 2012).

The debate over whether digital piracy is the cause for the falling profits of these industries remains open. Research examining the impact of digital piracy is largely split into two categories: that which examines the impact of file sharing on sales across titles and that which looks at individuals' access decisions. The evidence using aggregate sales in the music industry is somewhat conflicting. Some findings indicate that piracy has a major impact on music sales (e.g., Liebowitz 2006; Liebowitz 2008) while others conclude that it does not (e.g., Oberholzer-Gee and Strumpf 2007). Research examining access decisions for music at the individual level indicates that piracy displaces between zero and 30 percent of sales in the United States (US) and Europe (Rob and Waldfogel 2006; Zentner 2006). For film, the sales displacement is even higher. Findings indicate that displacement is nearly 100 percent if the first viewing is facilitated by piracy, and 20 percent for the second viewing (Rob and Waldfogel 2007). These conflicting findings may reflect what are seen to be different effects of piracy. One effect occurs when digital piracy allows for sampling and thus increases sales. Another effect occurs when piracy serves as a substitute for legal consumption and thus displaces sales (Gopal et al. 2004; Quiring et al. 2008).

While the evidence about the potential impact of digital piracy is mixed, one thing remains clear: the software and video-game industries, which were born digital, have performed better than the film and music industries, which have migrated to digital products. For some, the relatively poor performance of the film and music industry is evidence of 'creative destruction', a concept first introduced by Austrian economist Joseph Schumpeter in the 1930s to describe the impact that clusters of 'radical innovations' had in creating new industries and destroying older ones via indirect competition (Schumpeter 1994). In today's context, the film and music industries have faced competitive pressure from the emergence and spread of new technologies, especially the emergence of technologies that facilitate digital piracy. The film and music industries' declining performance over the past decade indicates that they need help. Part of helping firms in these industries involves increasing our understanding of how individuals make decisions about how to access film and music. This knowledge can be used to encourage individuals towards legal access over piracy.

The remainder of this chapter is structured as follows. First, it continues by outlining the research question that guides the project. Subsequently, a brief discussion of film and music is presented, examining their similarities with, and differences to, other experience and information goods and the laws that control their distribution and use in Denmark. Then a presentation of how

these products can be accessed via piracy is followed by a discussion of the Danish context, with particular emphasis on the prevalence of IT and the film and music markets in Denmark.

### **1.3. Research Questions**

As we have seen with the forced closure of the file-hosting site Megaupload, the war against piracy is far from over. Forces on both sides of the digital battlefield continue to compete, utilising new technologies and legal frameworks to gain an advantage. We need a new set of tools to keep up with these developments. Such changes require new methods and techniques, but also the right theoretical lenses. Understanding how individuals make decisions about how to access products available digitally contributes to the development of business models that better cater towards individual preferences. If we know which factors influence access decisions we can design models that respond to these factors.

Questions about the consumption of digital products are increasingly important as our lives shift into the digital realm and developed economies increasingly focus on intangible goods. This thesis explores the factors that influence individuals' decisions about how to access films and music in Denmark. Specifically, it asks the question:

- Why are some films and pieces of music accessed legally while others are accessed via piracy?
- Moreover, this thesis seeks to identify the factors that influence how individuals access film and music and how these factors vary between these two products.

### **1.4. Film and Music as Digital Products**

This research is primarily motivated by the difficulties faced by the film and music industries in transitioning their business models to digital distribution. To a certain extent these troubles are the result of the shared characteristics that make film and music more prone to piracy than other digital products, such as software and video-games. Some of these characteristics apply to film and music in their traditional recorded, pre-digitised form, including their status as information goods, experience goods and hedonic products. Other characteristics relate to their transition to digital products, where film and music occupy a middle-ground between club goods and public goods. In order to evaluate how product characteristics contribute to access decisions, it is worthwhile discussing how an economic perspective can help classify the products. The table below

summarises the characteristics of film and music and does so in comparison to other digital products: software, video-games, and text-based digital content products.

*Table 1: A Typology of Digital Products*

Dimensions	Type				
	Software	Video Games	Films	Music/Audio	Books/ Documents/ Magazines
Stored or streamed	Stored	Both	Both	Both	Both
Passive or interactive	Interactive	Interactive	Passive	Passive	Passive
Reproduction control	High	High	Low	Low	Low
Instrumental or hedonic	Instrumental	Both	Hedonic	Hedonic	Both
Single or repeat consumption	Repeat	Repeat	Single	Repeat	Both
Granularity	Low	Low	Low	High	Low
File size	Variable	Variable	Large	Small	Very Small
Variety	Moderate	Moderate	Large	Large	Large
Format standardisation	Low	Low	High	High	Low
Network effect	Yes	Yes	No	No	No
Native or migrant	Native	Native	Migrant	Migrant	Migrant

Film and music are considered information goods as their worth or utility comes from their content not the material that hosts their content, and this has implications for how they are produced, distributed, accessed and consumed. A copy of a film on Blu-ray is valuable to us because we want to see the content encoded on the disc, not because the disc itself has any intrinsic value. As information goods, film and music they are costly to produce but inexpensive to reproduce without any loss in quality (Shapiro & Varian, 1999). Many so-called blockbuster films have production costs in the hundreds of millions of US dollars, yet producing digitised versions of these products for cinema projection costs very little at all, and nothing but time for an individual to copy. For example, the 2012 blockbuster super-hero film “The Avengers” reportedly cost \$US 220 million to produce (Breznican 2011), while per-unit costs to reproduce versions of the film on DVD and Blu-ray can be as low as \$US 0.50 (Green Solutions 2012). Hit songs can also be expensive to produce, though are not in the same range as a major studio-produced film. Zoe Chace (2011) of NPR’s Planet Money recently reported that the 2011 song “Man Down” by pop star Rihanna cost \$US 78,000 to produce when costs for studio time, mastering, as well as producer and songwriter fees were taken into account. However, the reproduction and distribution of the song cost almost nothing, as it was available digitally on download services such as iTunes. The stark difference between production and reproduction costs has important implications for how these industries function. Unlike other industries, those producing information goods are much more prone to piracy. If an industry is unable to control the reproduction of its products, it loses control of the ability to generate revenues from the products it produces. In this sense, if an individual has the means and ability to easily obtain a copy illegally, then other considerations weigh more heavily on



his or her access decisions, such as the ethical and social considerations of accessing copies illegally.

Like all information goods, film and music are experience goods, where a consumer needs to experience them before he or she can ascertain their utility (Chellappa & Shivendu, 2005), and so product sampling is common. However, the enjoyment derived from film and music differs in relation to repeat experiences, which has implications for product sampling. Whereas the enjoyment of a song initially increases as it is continually re-experienced by an individual, the enjoyment declines for film, where the novelty of a narrative is important. Thus, sampling an entire music title is more likely to lead to legal access for music than for film (Bhattacharjee et al. 2006). These differences are reflected in the promotion strategies used by the film and music industries. When promoting upcoming film releases, it is common industry practice to release trailers for the film. These trailers are designed to give the potential audience an indication of the film's content without decreasing its narrative value. In a sense, they are a form of product sampling, but they do not allow an individual to sample the entire film. Promotional strategies for music are much different. It is typical for the music industry to allow individuals to stream or preview an entire album online before the release. In this way, individuals are able to sample the entire product, because the enjoyment of the music does not decrease dramatically after subsequent listens. These differences in sampling have implications for individuals' access decisions. If an individual treats access via piracy as a form of sampling, he or she is much less likely subsequently to purchase a film after sampling it than a piece of music, as the enjoyment of watching a film again is greatly diminished after first seeing it, though this is not necessarily true for music.

Film and music are not only experience goods, but are also considered hedonic goods, as their utility to an individual is primarily based on the enjoyment of the experience they provide (Dhar and Wertenbroch 2000; Moe and Fader 2001). Hedonic goods contrast with utilitarian goods, whose value is based upon specific characteristics or the ability to perform a function. Generally, individuals watch films and listen to music because they enjoy the experience, rather than the function they perform. While there are some exceptions to this distinction, such as DJs buying songs to play to as part of their work, most films and music are bought for personal non-work purposes. Evidence indicates that decisions about hedonic products are driven by different factors than those used to make decisions about utilitarian products (Babin et al. 1994; Chitturi et al. 2008). Film and music decisions are to a certain extent comparable decisions as they both concern hedonic

information products. Thus, functional concerns are less likely to be important in decisions about film and music than for products that are utilitarian, such as software.

Film and music are migrant digital products, not native digital products, and their transition to digital has created challenges for the industries producing these products. In the analogue era firms were able to exert a high degree of control over the reproduction and distribution of film and music, but the digital era has enabled others to engage in these activities without the firms' authorisation, a challenge with which these industries have struggled. Film and music are appropriate for digitalisation because they are information goods. In digital form, film and music can be considered club goods, as they are non-rival but excludable (Gopal & Sanders, 1997). Non-rival means that one's consumption of a digital film or song does not prevent another from consuming it. For example, an individual can create a digital copy of a song or a film for another individual and by creating that copy both can enjoy the title separately. Excludable means that it is theoretically possible to prevent people who have not paid for a film or song from using it. Differences in international release dates for film and music reflect this characteristic, where firms try to prevent individuals gaining access to these products. However, the rise of digital technologies began to challenge the excludable characteristic, as these technologies enabled individuals to produce copies of film and music without the firms' authorisation.

The film and music industries initially introduced digital rights management (DRM) technologies to limit the ability of individuals to illegitimately copy and play films and music (Singh et al. 2006). However, such controls reduced the value of the goods for individuals and after frequent calls for their removal, a number of major retailers such as Apple have subsequently ceased using DRM on many products (Jaisingh 2007). In a sense, the removal of DRM from purchased digital music has changed the status of these products from club goods to public goods. This difference means that while the products continue to be non-rival, they are also no longer excludable. Moreover, downloaded film and music products typically do not have the features of video games and software that provide incentives for individuals to purchase legitimate copies. Software and videogames are often updatable or have network features that are contingent on the version being legitimate. For example, many updates for the Microsoft suite of programmes require a legitimate copy. Similarly, video games that have online multi-player functions such as those played on Xbox Live can only be played if a copy is authenticated as legitimate. By abandoning DRM and absent of any supplementary features, film and music typically do not have such incentives to encourage individuals to obtain legitimate versions. Without such considerations, the

factors that are likely to influence consumption decisions for film and music are much fewer than those for software and video games.

The absence of additional functionality considerations for film and music reflects their relative standardisation, which has implications for how decisions about these products are made. While film and music differ considerably in their content from title-to-title, the products adhere to relatively standard formats. Films, whether they are works of fiction or documentary, are typically between 90 to 150 minutes in duration. For example, 18 of the 20 highest grossing films in Denmark in 2010 had runtimes between these durations (Danish Film Institute 2012). Moreover, films typically follow a standardised release schedule, where they are first released to cinemas, and then to purchase on DVD, Blu-ray or digital download, and finally are made available for rental. Music is similarly uniform, primarily oriented to formats based on the limitations of CDs. Of the top 20 selling albums in Denmark in 2011, 16 had between ten and 14 tracks. The remaining albums were multi-disc compilations (Borre et al. 2012). Moreover, the durations of the sixteen single-disc albums were all between 35 and 52 minutes. In addition to the relative consistency of duration, pricing for film and music products is more homogeneous than software and video-game titles. Individuals can find items in the Apple iTunes app store and Google play for a few kroner, but can also be expected to pay thousands of kroner for copies of some software titles, such as Adobe Photoshop. While not all consumption decisions for film and music are comparable, they are much more alike than those concerning other digital products. While the status of the film and music industries indicates that they have struggled to adapt in the transition to the digital era, the standardisation of these products within their respective categories make them appropriate for study. Film and music are both relatively standardised in their formats and their methods of distribution and thus access decisions for these products are comparable.

Despite their availability in digital forms, access decisions about film and music are not exclusively about the digital forms due to their availability in physical versions as well. However, without the physical illegal markets for illegitimately produced films and music that can be found elsewhere in the world, much of the illegitimate access of these products in Denmark occurs digitally. Thus, illegitimate digital copies compete with legitimate digital and physical versions of the content. The following section describes the copyright laws in Denmark and how these laws determine what can be considered digital piracy in the Danish context.

## 1.5. Film, Music and Copyright in Denmark

All discussions about digital piracy remain unclear without a precise definition of the act, so it is necessary to understand what constitutes legal and illegal access (i.e., digital piracy). In Denmark the ownership and use of films and music are controlled by the Consolidated Act on Copyright (2010). This law enacts a number of directives by the European Economic Community (EEC) and the Parliament of the European Union in order to ensure consistency across the copyright laws of the member nations in EEC and the European Union (EU; The Council of Europe/ERICarts, 2012). It also ensures that Denmark meets its international obligations with respect to intellectual property set out in the Agreement on Trade-Related Aspects of Intellectual Property Rights.

Danish copyright law seeks to balance the economic and moral rights of the author or authors of a copyrighted work with the rights of the public for free utilisation of protected work (The Council of Europe/ERICarts, 2012). Under §2(1), the law gives the author “right to control the work by reproducing it and by making it available to the public”, where according to §2(2) reproduction covers “any direct or indirect, temporary or permanent reproduction, in whole or in part, by any means and in any form.” Moreover, the law specifies under §11(3) that “copies may not be made on the basis of a reproduction of the work which is contrary to section 2 or on the basis of circumvention of a technical device... .” Thus, in Denmark it is illegal to reproduce any copyrighted material without the consent of the owner of the work. Practically, this means that accessing any film or music over the Internet without the consent of the owner of the copyright is illegal in Denmark. This includes activities such as downloading the material, which creates a full copy on a physical device of an individual, in addition to streaming the material, which creates a temporary copy of the work on the device of the individual which is played as it is downloaded.

However, the rights of the authors are limited by provisions about fair use. Under §12(1) the law states that anyone is “entitled to make or have made, for private purposes, single copies of works which have been made public if this is not done for commercial purposes. Such copies must not be used for any other purpose.” Moreover, under §12(2)(v) “The provision of subsection (1) does not provide the right to... make single copies in digital form... unless this is done exclusively for the personal use of the copying person himself or his household.” Practically, this means that the owner of a legitimate copy can make copies for him- or herself, or members of his or her family. However, any copying of copyrighted works for others is illegal. Thus receiving a copy of a film or piece of music for a friend, if one does not have the right to do so, is illegal in Denmark.

The law also specifically sets the limits of what fair use entails. For example, under section 12(3), a person is not permitted to “produce copies in digital form on the basis of a copy that has been lent or hired.” This means that individuals do not have the right to produce copies of films or music borrowed from friends or a library, nor copy films rented from a video rental store. Moreover, under §12(4) of the act, a person does not have the right to “engage another person to make copies of (i) musical works [and] (ii) cinematographic works...” This means that it is illegal for an individual to ask a friend to make a copy of a film or piece of music.

Based on the Danish law, it is apparent that any sort of copying without the consent of the author, unless for personal use, is illegal. For the purpose of clarity, when the term digital piracy is used here it refers to illegally accessing digital products, where access covers both downloading products and streaming content, in addition to other forms of access not conducted over the Internet, such as copying files from friends. But how does this compare with other definitions? In the research literature on piracy, a diverse range of definitions can be found. Some researchers see piracy as illegal copying (Altschuller and Benbunan-Fich 2009), while others see it as unauthorised copying (Peitz and Waelbroeck 2006), unauthorised distribution and copying (Coyle et al. 2009) or simply copyright infringement (Stryszowski and Scorpecci 2009). With the exception of Coyle et al.’s definition, all of these definitions would be considered equivalent to copyright infringement involving unauthorised copying, which is illegal under the act.

This investigation uses the term digital piracy to describe behaviour that enables an individual to illegally access copyrighted films and music. This term is consistent with the broader cultural discourse on the topic, and captures the full range of the behaviours that constitute different forms of piracy. While many authors such as those cited above also use digital piracy, others have used alternative terminology when investigating the phenomenon. For example, Oberholzer-Gee and Strumpf (2007) focus on file-sharing, a specific form of Internet piracy described in a subsequent section of this chapter. Others have focused on downloading (Ouellet 2007). But both of these activities can be engaged in legally. What is important is not the type of behaviour engaged in by the individuals, determined by the affordances offered by the technology, but the legality of that use, which is why piracy is used as the construct of choice in this research.

While films and music are treated as intellectual property, what is seen as infringing activity varies across countries (Nill and Schultz 2009; Stryszowski and Scorpecci 2009). For example, in the US it is illegal to circumvent technological measures that control access to a copyrighted work,

whereas in the EU it is only illegal to do so if a person knowingly commits the circumvention (Blythe 2006). Such differences in intellectual property laws present challenges for researchers wishing to investigate the phenomenon, and it is necessary to acknowledge that there are minor differences as to what constitutes digital piracy across the globe. However, most of the research on digital piracy in developed nations typically focuses on accessing digital products from other people, which is illegal in most places this research has been conducted. Thus, the findings in this domain are for the most part comparable. While the discussion above outlines what constitutes illegal behaviour, and thus digital piracy, the following section of this chapter details the various access modes that facilitate illegal access to pirated films and music.

## **1.6. The Network of Piracy Access Modes**

Given the prevalence of digital piracy, it is apparent that individuals' access decisions do not only include considerations of legal access modes, but also the various illegal alternatives that facilitate piracy. Since the rise of the Internet, a wide range of technologies have been developed that allow individuals to produce copies of copyrighted film and music. Many of these still exist today, though vary in prevalence and effectiveness. These avenues include Internet-based access modes such as file-hosting services, online streaming services, and peer-to-peer (P2P) protocols, as well as physical devices that allow individuals to copy and transfer digital material without using the Internet (International Intellectual Property Alliance 2010). The use of Internet-based technologies has a long history that includes the use of distribution channels such as Usenet, File Transfer Protocol (FTP) and Internet Relay Chat (IRC). However, this set of technologies has become less important since the emergence of P2P protocols over a decade ago and so is covered in less detail here. It is important to note that the technologies detailed in this section are not illegal per se. Rather, they facilitate illegal activity. In the same way that it is legal to use automobiles to transport goods on road networks, but illegal to transport illicit goods, technologies that facilitate digital piracy can be used both legally and illegally.

The films and music distributed on the technologies listed above are often in a different format to those sold legitimately to individuals. Although it is now a standard industry format for legitimate music, the MPEG Layer Audio 3 (mp3) compression standard came to prominence because it enabled music to be pirated easily (Bakker 2005). The mp3 standard is able to compress music to a tenth of its size in wav. format on a CD, and thus allow for it to be quickly distributed over the Internet illegally. Though there is a reduction in sound quality when .wav files are

converted to mp3s, this reduction is often not perceivable if one is listening to music on inexpensive headphones or speakers. Like music, when pirated films appear online in digital form, they are not in the same formats that would allow them to be played on DVD or Blu-ray players. Rather, the files are typically in .avi, .divx, or .mkv formats, which are container formats that specify how video and audio files should be played together. Often special programmes are required that contain the algorithms to play files in these formats.

### **1.6.1. File-hosting Services**

File-hosting services are web-based for-profit services that enable individuals to upload and download digital content from servers connected to the Internet. Such services typically use web browser interfaces that enable individuals to access the hosted files. A number of services such as Dropbox also provide free proprietary software applications that enable individuals to upload and download content without a browser. While the use of file-hosting services can be legitimate, this type of service can also be used to host and share illegally copied digital material, as shown by Antoniadou et al. (2009) who reported on how file-hosting services offer a wide variety of copyrighted content. These services typically run on a 'freemium' model that is supported by advertising, allowing all individuals to download material for free, but with limits on the size of files and the rate and frequency at which they can be downloaded. Those who register with such services and purchase premium accounts are typically able to download at the maximum rate available and without limitations of the size of files downloaded or the frequency with which they download. Thus, individuals can pay to improve their access to files hosted on such sites.

The use of file-hosting services can be appealing to people wishing to distribute and download content illegally because they require very limited technical knowledge. For example, standard web links to specific files can be shared and searched for using standard web browsers. Recently, Maier et al. (2009) noted a shift in Internet traffic away from P2P technologies, claiming that the majority of Internet traffic by volume is a result of hosting services and streaming media websites such as YouTube.com. From a legal standpoint, if copyright-protected content can be shown to have been uploaded to a service, the operators can be forced to comply with requests to remove the material. Theoretically, this means that it is easier to have illegally hosted material removed from these sites than it is from P2P networks, as the files are centrally hosted on servers rather than distributed among thousands of individuals. However, the problem for copyright holders is that the number of hosting services has proliferated over recent years and it can be difficult to

keep track of which services are continuing to operate. More recently, a number of services such as Megaupload.com were shut down because they were deemed to be actively promoting Internet piracy, and the void has been filled by a number of smaller operators.

A network of illegitimate websites supports many of the file-hosting services. Internet message boards often direct individuals to content. In such instances, links are shared on specialised boards that require individuals to have a membership in order to view the links posted by others or to be able to search for content. Other sites such as RSLOG.net operate more editorially, publishing links to content illegally hosted on file-hosting services and are able to generate revenue from advertising. It is typical for these sites to have search capabilities, allowing individuals to find the specific content they seek. Such sites also compete with web-based indexing services such as Filestube.com and Filestram.com that aggregate links hosted on the websites and on Internet message boards. These indexing sites provide alternatives to the other websites and message boards and cater to individual demand for pirated content by providing a searchable index of content on file-hosting sites. In a way, the indexing sites serve as specialised search engines with special search functions enabling individuals to limit their searches to specific file sizes, type, and hosting sites.

### **1.6.2. P2P Protocols**

P2P protocols are an Internet-based collection of technologies that enable individuals to share content with one another directly. When participating in a P2P network, an individual's device is known as a peer. Thus, the name peer-to-peer indicates that individuals share content directly with one another. These technologies bypass the need for centralised servers to distribute files. In contrast to the server-client dissemination models utilised by the file-hosting services, P2P protocols allow individuals to act as hosts of digital content as well as consumers of digital content. A number of P2P protocols have been developed over the past decade, including Napster, Gnutella, Limewire and BitTorrent. Of these technologies and services, BitTorrent is currently the most utilised for piracy, though it is important to note that it is also used extensively within the open-source community to distribute files legally.

The BitTorrent protocol works by breaking down content files, such as films or music, into many very small parts and distributing them across a network. BitTorrent tracker servers such as the Pirate Bay and Isohunt host and index metadata files for the content files that individuals offer to share with the network. These websites also provide a search capability for individuals seeking to find content available on these networks. Using information in the metadata file for each shared



content file, tracker servers list all the individuals who have made the content file available to other peers and distributes the metadata file (termed a ‘torrent’ file) to the individuals (Bauer et al. 2009a; Bauer et al. 2009b). Upon having obtained the metadata file for a particular content file, peers can access the content file using BitTorrent software on their computers that contacts the tracking server to obtain a randomly selected subset of the other individuals currently sharing the content file. A peer’s participation in downloading and sharing a content file using the BitTorrent protocol is made public via the peer’s IP-address. In the process of obtaining a peer list from the server, the peer registers itself with the tracker, enabling others to contact it and request parts of the content file hosted by the peer.

In contrast to the relatively simple legal process involved in removing content from file-hosting services, P2P protocols make the task of responding to reports of piracy more difficult, as each individual peer who is sharing the content file must be identified and contacted. However, unlike downloading files using file-hosting services, using P2P services is potentially more risky for individuals because they reveal their IP addresses to the Internet. The openness of the technology which facilitates the open distribution of files is able to be used against the individuals participating in downloading and sharing files. For example, the RIAA in the USA has used the technologies to identify offenders and have them fined (Lyonski and Durvasula 2008) and the IFPI has filed civil lawsuits against individuals living in Europe. While the file-hosting and P2P technologies allow individuals to download complete copies of the content they seek, other technologies allow the individual to access the content without storing a permanent copy.

### **1.6.3. Online Streaming Services**

Individuals are not only limited to downloading content illegally, but may access it illegally by streaming it online. While this is most common for film and television, it may also occur for music in cases when tracks ‘leak’ online before they are officially released. Such sites typically rely on Flash-based web-browser plug-ins, allowing individuals to watch content without having to install any extra programmes on their computer. Sites that specialise in streaming content can be broadly distinguished by the intended legality of the content they stream: there are those such as video-streaming service YouTube and audio-streaming service Soundcloud that are designed to legally stream content, while other sites such as VideoWeed.es and NowVideo.eu primarily cater to streaming content illegally. Additionally, a number of hybrid services such as PutLocker.com and Novamov.com provide both streaming and file-hosting capabilities and cater to individual demand

to both download and stream content. When streaming content from the illegally-oriented sites, individuals often need to navigate through an onslaught of pop-up browser windows and play a sort of hyperlink-roulette when trying to find the element on the page that will activate the video. These pop-up windows often attempt to trick individuals into installing malware onto their computers, making the use of such services somewhat risky for an inexperienced individual. While unauthorised content can be found on legally-oriented sites such as YouTube, these services strive to take down content that is uploaded by individuals without the authorisation of the copyright holders and thus such content tends to only be available for short durations. Indeed, YouTube has recently been criticised for its algorithms that search for illegally uploaded content and block access to it automatically (Dayal 2012). While the use of such algorithms is intended to prevent the distribution of pirated content, it has often blocked access to legitimately uploaded content.

A number of websites cater to individual demand to find films to stream illegally, mirroring those that facilitate illegal downloading. Individuals can employ regular search engines to find content uploaded onto the various streaming sites, or use indexing sites such as Solarmovie.eu or Alluc.org that provide searchable databases of links to films hosted on third-party streaming sites. Such sites often cater to demand for television programmes by international audiences who are not served by domestic broadcast and streaming services. These illegitimate services operate in much the same way as those catering to individuals who download content illegally: they are ad-supported.

#### **1.6.4. Physical Distribution**

Pre-dating the Internet, physical copying, distribution and selling or sharing of digital content is the oldest form of digital piracy and has existed for as long as digital content has been available on portable media. Physical piracy involves the unauthorised distribution of content on physical media such as DVDs and CDs. The distribution networks employed vary from small circles of friends to organised crime where businesses engage in the mass reproduction, distribution, and sale of pirated content at below-market prices (International Intellectual Property Alliance 2010). In some cases, duplicated film and music are hard to distinguish from the original legitimate versions. The magnitude of this piracy channel is difficult to estimate with any degree of accuracy, but is common in certain countries, such as Italy, Spain, China and India, who are on the watch list of the International Intellectual Property Association (International Intellectual Property Alliance 2010). However, in Denmark, much of this form of piracy relies on real-life social networks, with friends

trading or giving away films and music on portable media such as portable hard-drives, DVDs and USB flash drives.

### **1.6.5. Legacy Internet Technologies**

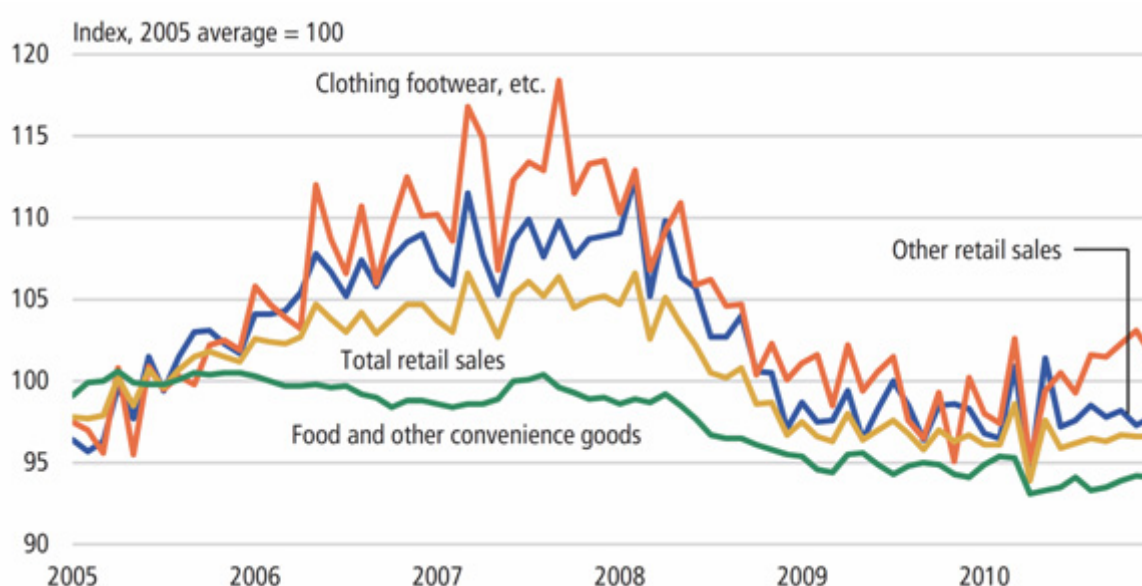
In addition to the avenues detailed above, a number of legacy technologies are used to facilitate film and music piracy, including Usenet, FTP and IRC. Usenet is a decentralised network launched in the 1980s to enable online text conversations before the development of web forums. Usenet facilitates piracy by allowing individuals to upload files rather than messages to newsgroups. While Usenet may have played a role in file distribution in the past, it does not play a prominent role today. The File Transfer Protocol (FTP) is specifically designed for sending files over the Internet. FTP servers are centralised and therefore prone to being shut down by legal entities if discovered to host illegal content. FTP access is usually restricted to a small group and hence is not a common piracy method. The Internet Relay Chat (IRC) method was developed in the late 1980s to facilitate real-time communication, before the development of instant messaging clients. IRC can be used to share files, but downloading over IRC can be technically complicated compared to other methods, and may involve long waiting periods.

While the Internet-based technologies that facilitate illegal access to films and music vary considerably, all enable either two modes of access: online streaming or downloading. Moreover, because these technologies are Internet-based, such networks are international. Unless a site is blocked by domestic authorities that have jurisdiction over the Internet, individuals are able to access content from sites from all over the world. For example, one of the most dominant P2P torrent sites is a Swedish site called the Pirate Bay, yet most of its traffic comes from outside of the country (Renkema 2012b). Moreover, many of the illegal streaming sites function to provide individuals living outside of the primary markets for television programmes access to this content before it is broadcast elsewhere. In contrast to the illegal access, which is international, much of the legitimate options available to individuals are restricted to their countries. Thus, the following section focuses on the Danish consumer market and some of the legal alternatives to these technologies are discussed.

## **1.7. The Danish Context**

Denmark is an advanced and prosperous nation with a mature economy and sophisticated Internet infrastructure that enables individuals to legally access film and music through a wide variety of

different services. As this research focuses on access decisions for film and music in the Danish context, it is worthwhile considering the economic environment in the country. Denmark is a wealthy country where levels of disposable income are high and due to relatively low income inequality, the distribution of wealth is more even than in other western countries (Economist Intelligence Unit 2012). For example, according to Danmarks Statistik, the median annual disposable income in 2009 for individuals over 15 was DKK 172,700 (183,800 for men; 164,000 for women). On average, Danes spend 12 percent of their disposable income on recreation and entertainment, for which film and music must compete. At nearly DKK 21,000 annually at the median, this creates a large market for entertainment products.



*Figure 1. Seasonally-Adjusted Quantity Index for Retail Sales in Denmark (Source: Danmarks Statistik 2011)*

Despite its prosperity, Denmark has not avoided the impact of the global financial crisis. As can be seen above in figure 1, retail sales fell markedly in 2008. The impact of the financial crisis on the index of retail sales has been substantial. The blue line of 'Other retail sales' indicates the category of consumer spending which includes recorded film and music. Thus, spending on consumer goods has dropped more than ten percent since 2008, and as detailed later, sales of recorded film and music have not been immune to this decline.

While retail sales may have declined since 2008, Danish consumers still have the necessary devices to play films and music. Evidence from Danmarks Statistik indicates that Danish consumers have a variety of devices that allow them to experience film and music in the home, and that ownership of these devices is common. Concerning appliances and devices that facilitate the

consumption of films, 70 percent of Danish households have a flat-screen television, 85 percent have a DVD player, 10 percent have a BluRay player, and 35 percent have a game console. Figures are similarly high for devices that can play music. Approximately 84 percent of Danish households have a CD player, and 50 percent have a portable music device. Yet music is not just played on specialised devices: 96 percent of Danes own a mobile phone and 39 percent of these individuals used their mobile as a music player in 2011. In addition to owning devices that play music, Danes appear to be enthusiastic Internet users.

### **1.7.1. Computer Use and Internet Penetration**

As one might expect from an advanced country with a cold, dark winter, statistics about Denmark reveal that Danes are a remarkably capable and Internet-savvy population. Within the population, 52 percent have a stationary computer and 72 percent have a portable computer. As consumers, most Danes are competent Internet users and able to conduct transactions online. Approximately 70 percent of Danes between 16 and 74 have shopped online, and 91 percent of them have bought goods from Danish businesses. These skills are not only limited to the young and middle-aged: every third Dane over 65 has used the Internet to search for or order trips abroad or overnight travel. This level of proficiency indicates that many individuals are likely to be able to purchase films and music online if they desire, indicating that their proficiency in using legal access is unlikely to be a barrier to their decision to purchase film and music online.

The Internet penetration in Denmark reflects its status as a highly developed networked economy. In 2010, 89 per cent of all Danes had access to the Internet from their home. Ninety-three percent of those with Internet access in the home, or 83 percent of all Danish citizens, had access to broadband Internet. Only 11 percent of individuals in Denmark did not have access to Internet from their home in 2010. Six percent had access to the Internet but not to a broadband connection. Reports from the IT- og Telestyrelsen (2011) indicate that rates in the Danish fixed-line connections have an average download speed of 15.7 Mbit/s. Moreover, in the middle of 2011, 38 percent of all households and businesses in Denmark had a broadband connection of at least 100 Mbit/s. In mid 2011, only 0.1 percent of all Danish households could not get a connection at least 2 Mbit/s. These statistics indicate that the speed of the Internet is unlikely to prohibit most Danes from using either legal or illegal access modes as a means to stream or download content.

Danish Internet users are able to choose from a wide array of broadband providers in a very price-competitive market. For example, the price for a 2Mbit/s broadband connection has fallen 90

percent from 2002 to 2012, and today costs under DKK100 per month. The Danish market offers a wide variety of mobile, fixed-line cable and fibre optic broadband Internet service providers that, depending upon the mode used to deliver the Internet connection, may offer bundled television, Internet and content packages. These bundled service offerings expand the range of modes available to access film and music to Danish individuals beyond traditional distribution outlets. Taken together, the statistics about appliance and device ownership, as well as Internet penetration and use, reveal the Danish market to be highly developed and show a population willing to purchase products online. However, in order to understand how access decisions for film and music are made, it is necessary to know about how markets for these products operate in the Danish context.

### **1.7.2. Film Market in Denmark**

Any examination of decisions about accessing films in Denmark requires coverage of the legal offerings in the domestic market. The film market in Denmark caters to individual preferences by allowing films to be accessed in a variety of avenues. Mainstream film titles typically follow a standardised distribution system whereby they are first released to cinemas and shown to audiences. Subsequently, such films become available for purchase on DVD and Blu-ray through brick and mortar and online retail outlets. At present, Denmark's market is not served by firms enabling individuals to purchase film titles for download, though firms such as Apple provide such services through their iTunes platform in countries such as USA and New Zealand. Following their release for purchase, the titles are then released to the various rental equivalents. This includes traditional rental, where outlets such as Blockbuster have physical stores that allow consumers to rent titles on DVD and Blu-ray for limited duration. Physical titles can also be borrowed from libraries in Denmark, which hold extensive collections of DVDs. These titles are free to borrow and typically available for a week.

Recent market innovations have seen the introduction of a variety of video-on-demand (VOD) services that allow consumers to access digital versions of films using a variety of services. In the figure below, these various VOD services are distinguished along two dimensions. The first is the platform used to access the film, which includes Digital TV, browser-based Internet services, and mobile devices. Of these services, the first two are more prevalent in Denmark. The second dimension concerns the payment system used, including the temporary viewing of a single program for a fee, which is a digital equivalent to traditional brick and mortar film rental stores, subscription

based VOD, ad-supported VOD and electronic purchase. Of such payment services, the first is most prevalent in Denmark.

<b>12 forms of VoD</b>	<b>TV (television)</b> Delivery to television/monitor through set-top box/decoder primarily by cable/satellite/broadcast and increasingly IPTV or Internet protocol	<b>I (internet)</b> Internet meaning accessible over Internet	<b>W (wireless)</b> Wireless/mobile meaning cell phone or other device serviced by wireless providers as Verizon and Sprint
<b>TVOD</b> Transactional video on demand: Temporary viewing of a single program (movie or episode) for a fee.	<b>TVOD/TV</b>	<b>TVOD/I</b>	<b>TVOD/W</b>
<b>SVOD</b> Subscription video on demand: temporary viewing of a group of programs for a recurring or subscription fee	<b>SVOD/TV</b>	<b>SVOD/I</b>	<b>SVOD/W</b>
<b>AVOD</b> Ad-supported video on demand: free to consumer, temporary viewing of a program with promotions/advertising/commercials	<b>AVOD/TV</b>	<b>AVOD/I</b>	<b>AVOD/W</b>
<b>EST</b> Electronic sell-through ownership of an electronic copy of a program for a fee	<b>EST/TV</b>	<b>EST/I</b>	<b>EST/W</b>

*Figure 2. A Typology of Video on Demand Services (Source: Copenhagen Entertainment 2011)*

However, not all VOD services require payment in Denmark. The Danish municipal service website FilmStriben.dk is a public library-based film-streaming service that allows individuals to stream up to five titles per month for free, so long as they are registered with their local library system. Similarly, the Danish state broadcaster DR often allows people within Denmark to stream titles recently shown on Danish television. This service is not free per se, as the state broadcaster is funded through a domestic license fee, which each household is legally obligated to pay if it owns a device such as a television, laptop computer or a smart-phone that allows content shown by the broadcaster to be seen. In this sense, the DR streaming services are the final avenue for films, which occurs when titles are released to broadcast and cable television. Here the films are licensed to companies which play the titles according to a schedule.

Of the various channels for distributing film, cinema is still performing relatively well and box office revenues for films remain relatively high in comparison to over a decade ago. Figures have fallen somewhat over the last three years, but this likely reflects broader changes in the Danish economy and the changes in overall consumer spending indicated in figure 1. The figure below shows Danish box office takings by the origin of the film.

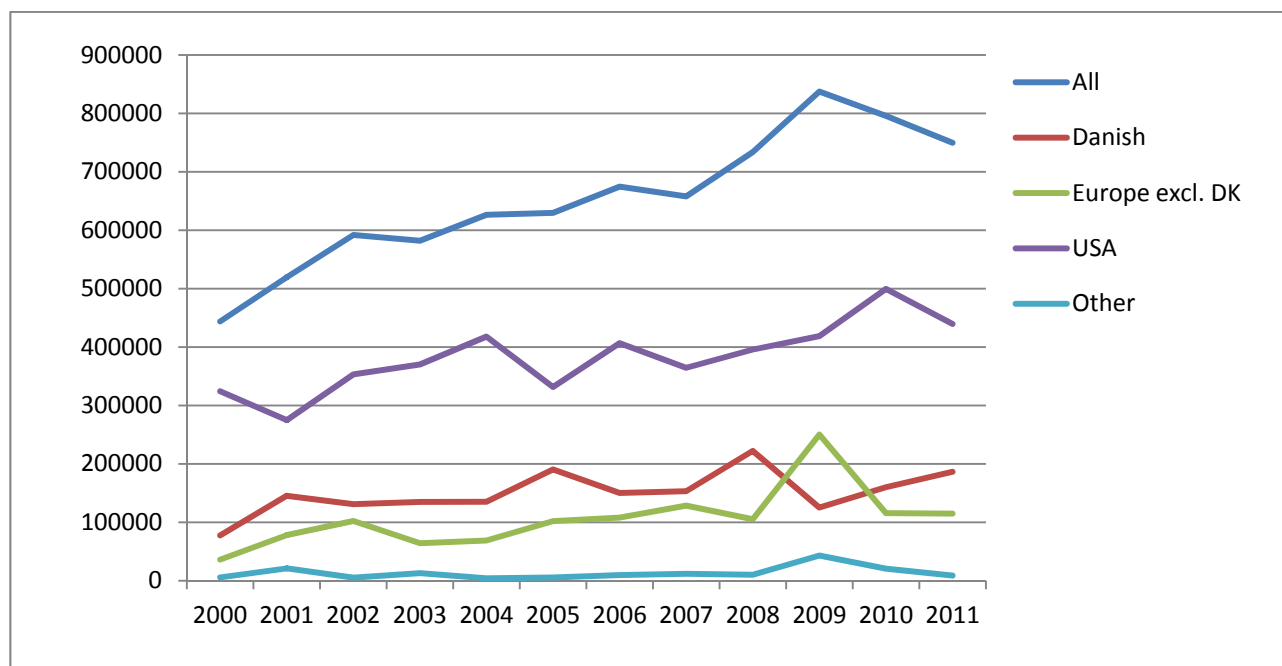


Figure 3. Danish Box Office Takings for 2000-2011 by Origin (DKK '000, excluding Moms; Source: Danish Film Institute 2012)

Of particular note is the share of box-office takings for films not from Denmark. As can be seen in the figure above, box office takings for Danish films make up approximately 20 percent of box office takings. With the exception of films in competition at premier international film festivals such as Cannes, Danish films premier in Denmark before being exported internationally. Thus, cinemas and film-makers are able to capitalise on the surge in demand for Danish films soon after they are released. However, the vast majority of box-office takings for films in Denmark are for films that are not produced in the country. The Danish box-office release dates for foreign films often lag considerably behind those of other countries, which may lead individuals to seek alternative access methods to see the film. Often these delays are so substantial that the titles shown in Danish cinemas are often available on DVD in other countries. Such availability typically means that reasonable quality versions of these titles are able to be accessed online in Denmark while the title is shown in the cinema.

Similarly, retail sales of films and other audio-video titles have remained steady over the past decade, rising to a peak in 2006 and now resting at a point below 2002 levels. The figure below shows the value of total consumer spending on audio-visual titles by the format of the title. As can be seen, VHS disappeared as a format after 2005, and Blu-ray emerged in 2007, however the introduction of this new and higher quality format for releasing films does not seem to have compensated for the decline in sales of DVDs in recent years.



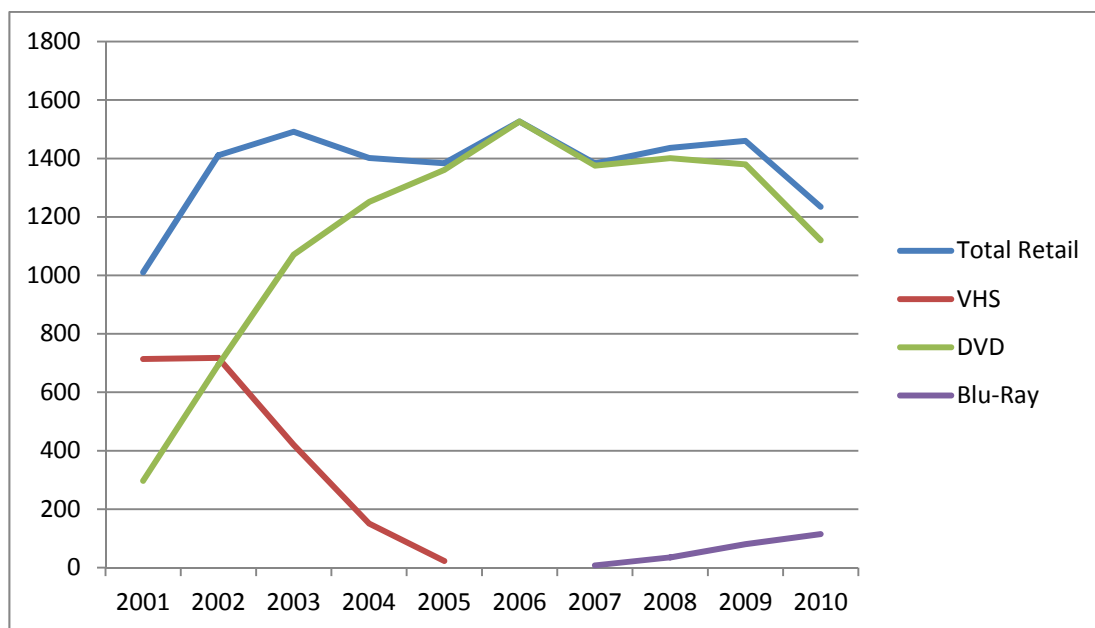


Figure 4. Consumer Spending on Audio-Visual Titles for 2001-2010 (DKK '000,000, incl. Moms; Data source: International Video Federation 2012)

In contrast to consumer spending on cinema tickets and purchasing titles for watching at home, the value of the rental market for audio-visual titles has steadily declined over the past decade. While spending on television VOD (TV VOD) and digital videos has contributed something, spending on the various forms of rental remains much lower than its initial position at the beginning of the decade.

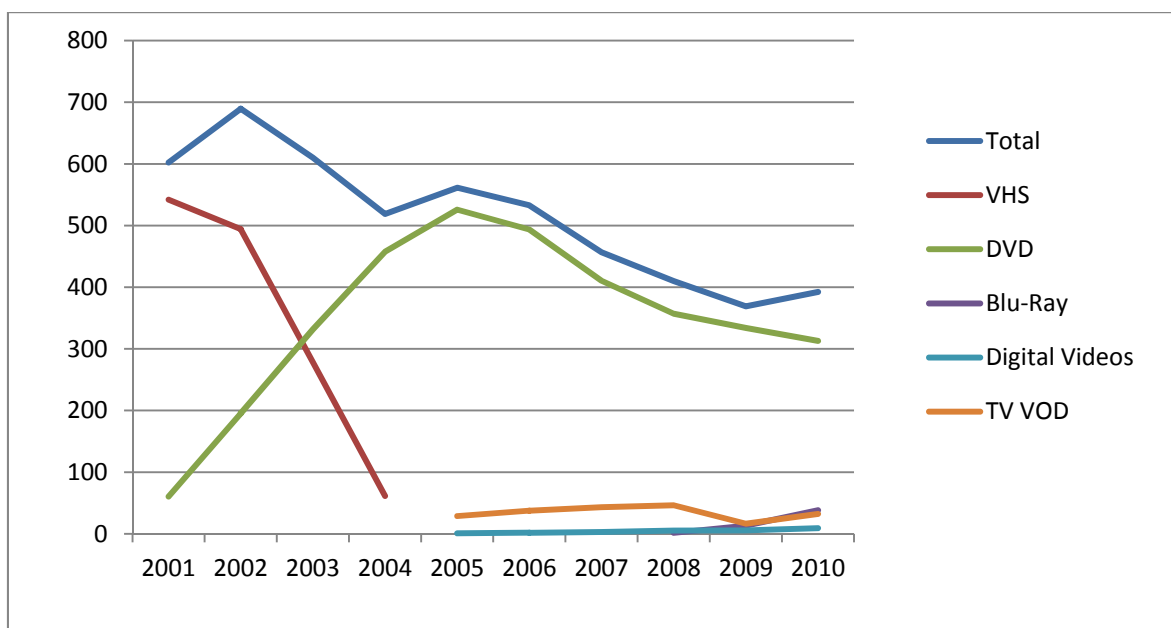


Figure 5. Consumer Spending on Audio-visual Rentals (DKK '000,000, including Moms; Data source: International Video Federation 2012)

### 1.7.3. Music Market in Denmark

Like the film market, consumers in Denmark are well catered for and have a variety of avenues to gain access to music. Music continues to be released in a variety of physical and digital formats and individuals in Denmark are able to access both forms legally by purchasing and borrowing such titles. Physical music titles are sold in a variety of formats, including CDs and DVDs encoded with digital content as well as analogue formats such as LPs. Such titles are available to individuals through brick and mortar stores, though the number of such stores has declined substantially in Denmark over the past decade.

Online stores such as iTunes sell digital copies of titles to people in Denmark. Streaming services also operate on the freemium model, with ad-supported free subscriptions available in addition to paid services. Spotify and Wimp are examples of this. In addition to streaming services, different forms of subscription services are available. TDC Play allows individuals to stream and download titles for free, but with strict digital rights management to stop them from sharing or format-shifting the downloaded titles. A municipal version of this also exists in Denmark, called Bibzoom, and has an extensive number of titles, but is only available to a limited range of municipalities that subscribe to the service.

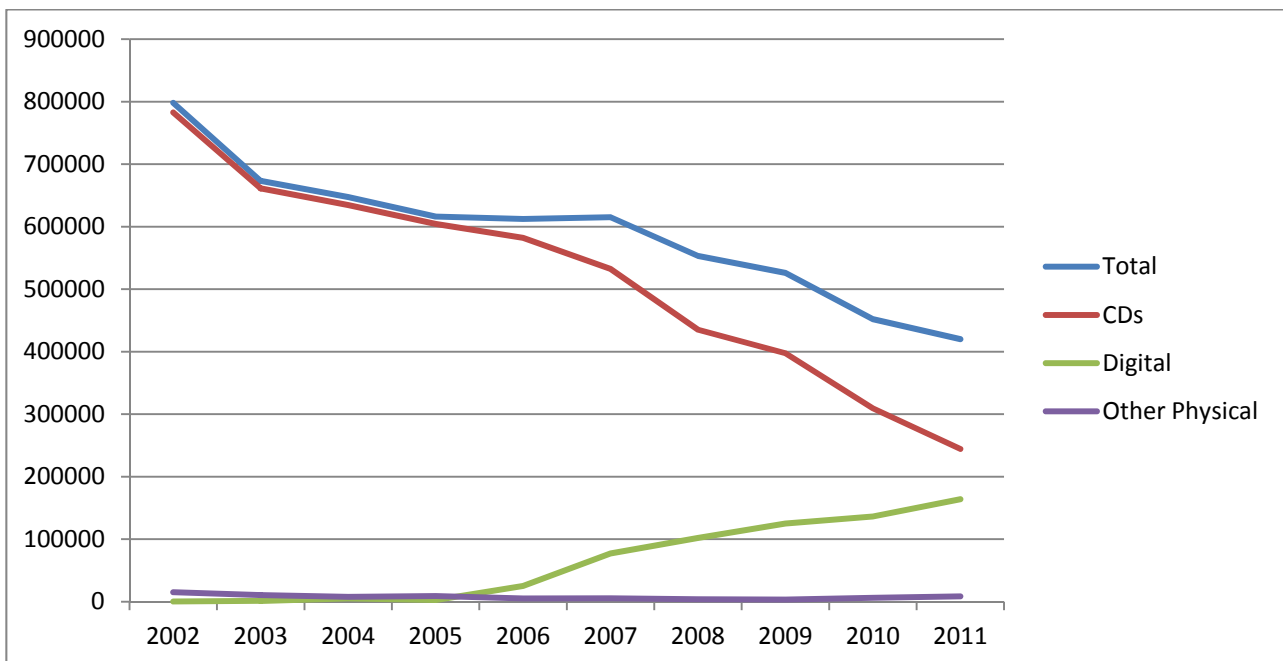
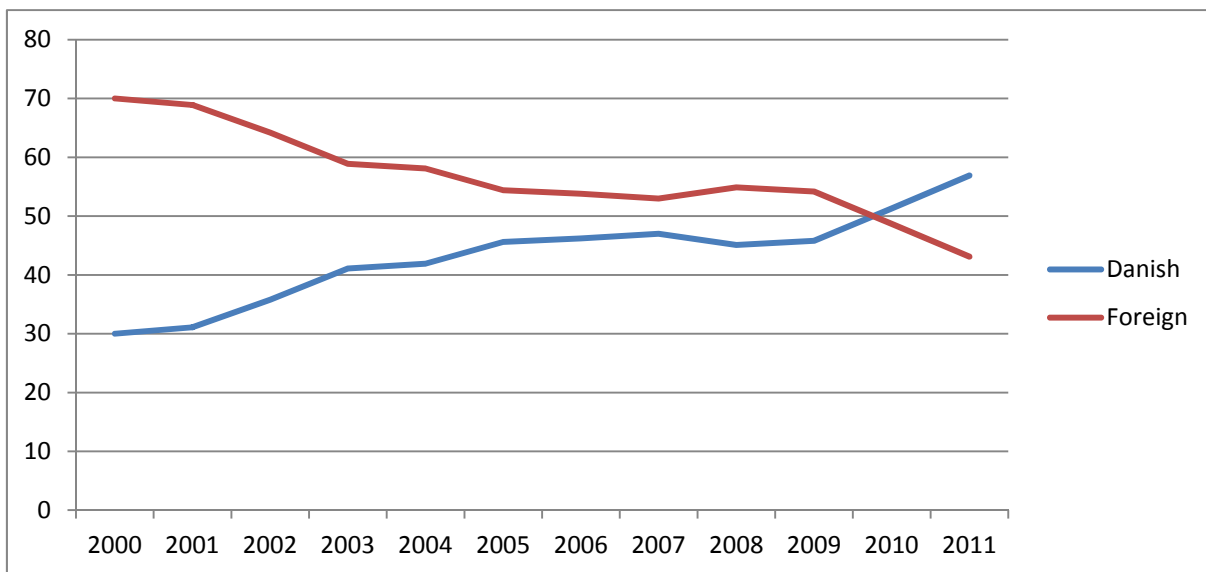


Figure 6. Consumer Spending on Music 2002-2011 (DKK '000, including Moms; Data source: IFPI 2011)

Perhaps due to the proliferation of alternatives to purchases, sales have declined incredibly over the past decade, as can be seen in the figure above. While revenues from digital sources have risen significantly over the last few years due to the sale of downloads and revenues generated from licensing agreements, these revenues have not been able to make up for the decline in the sales of physical music formats. Moreover, while much has been written about the rise of vinyl record collecting, revenues from vinyl sales still only amount to a minor contribution of total music revenues.

Despite the drop in sales, the relative popularity of Danish artists has increased steadily in recent years. As can be seen in the figure below, the proportion of music revenues in Denmark generated by Danish artists has almost doubled over the last decade, from just over 30 percent in 2002 to almost 60 percent in 2011. These changes are observed most abruptly in the figures for the highest selling Danish albums in 2011 (IFPI 2011). Of the top 20 albums by sales, fifteen were Danish artists, and an additional compilation album with some Danish tracks. Similarly, nine of the top 20 selling tracks of 2011 in Denmark were local artists.



*Figure 7. Proportion of Music Revenues 2002-2011 (DKK '000, including Moms; Data source: IFPI 2011)*

The implication of this rising preference for Danish artists may reflect differences in availability when individuals' make access decisions for music. Unlike the popularity and acclaim for Danish cinema, Denmark has few international music stars, perhaps due to the lack of appeal of Danish music in other countries. This lack of appeal outside the country is likely to influence the illegally availability of Danish artists on the networks discussed earlier. People are unlikely to

upload content if they feel that others will not like it. Thus, dominance of local music on the Danish charts may reflect its lack of availability elsewhere. Danes may opt to purchase local music, while they are able to find the music of foreign musicians available illegally online for free.

In contrast to the film industry, prices for music have remained relatively stable over the last 20 years. Figures from IFPI-Danmark (Bay and Lindholm 2010) indicate that while the general consumer price index increased to 139.7 in 2009 from a base level of 100 in 1993, and to 194.7 for cinema tickets, the price of CDs is actually below what it was in 1993, sitting at 91.1. These figures demonstrate that while the price of a cinema ticket nearly doubled over the period from 1993 to 2009, the price of a CD actually fell in relative terms. However, it is worth noting that such comparisons are not entirely equivalent. According to the International Video Federation (2012), the average price of DVDs fell substantially over the past ten years, while figures for the price of an average concert are not available. Taken together, these findings indicate a trend where prices for recorded content sold for private consumption have decreased or at least not kept up with inflation, while prices for the service components of these industries have increased. Whether such changes have altered consumers' price perceptions is not known, but the changes are indicative of a market in transition.

## **1.8. Thesis Progression**

This chapter provided a background and context for the investigations into access decisions concerning film and music in Denmark. Chapter 2 outlines the philosophy of science and details the ontological and epistemological assumptions that informed the research reported in this thesis. Chapter 3 provides coverage of relevant empirical research on the antecedents of individuals' access decisions for film and music. It integrates the findings from prior research and presents a theoretical model. Chapter 4 describes the three empirical investigations conducted between autumn 2010 and spring 2012 that evaluated the theoretical model described in the previous chapter. Chapter 5 describes the findings of the empirical investigations reported in chapter 4 and reflects on their relevance for theory, future research and practice. Chapter 6 concludes the project.

## **1.9. Chapter Summary**

This chapter gave a general introduction to the research project. After an opening that provided a background to the research, a brief discussion of film and music was presented. In comparison to other products available digitally, such as software and video games, film and music share a number

of characteristics that make them especially prone to piracy. The industries producing recorded films and music have performed poorly since digital piracy facilitated by the internet became widespread. Subsequently, an overview of the laws that control the distribution and use of films and music in Denmark was given, with specific attention paid to the Consolidated Act on Copyright (2010) and its implications for individuals. Almost any form of copying without authorisation is considered illegal in Denmark, and thus a form of digital piracy. Next, the various means that enable film and music to be accessed via piracy were presented. Although the technologies are varied, they typically enable the digital piracy of film and music by allowing individuals to either download or stream content illegally. The chapter concluded with a discussion of the Danish market, with particular emphasis on the prevalence of IT and the status of film and music markets in Denmark. While relatively prosperous and providing an array of legal access modes, the lack of availability of film titles in particular may be one reason why individuals access titles via piracy.

## 2. Philosophy of Science

### 2.1. Overview

This chapter outlines the philosophical assumptions that inform the research project. It begins by discussing the diversity of methodological and philosophical perspectives within information systems (IS) research. Next, it the chapter details how the approach of this research project is consistent with the approaches of the field of IS. The ontology of cautious realism and an epistemology of falsification that inform the project are described, which together comprise paradigm of critical rationalism (Blaikie 2010). According to this paradigm knowledge is developed by engaging in theory testing through empirical falsification, where assertions are evaluated against accumulated evidence. The chapter concludes by describing the research's deductive approach to integrating theoretical evidence, given the existing empirical findings.

## 2.2. Philosophy of Science within Information Systems

The pervasiveness of IT in the 21st century encourages us to consider the ramifications of how we integrate IT into our lives. Films and music once had to be bought at physical stores, but can now be acquired in a matter of minutes with a few clicks of a mouse or finger taps on a screen. This integration is both broad and deep and its impact is observed at the individual, group, organisational, and societal levels. Within the field of IS, a broad range of philosophical perspectives have informed investigations into the discipline's core phenomena of interest: the design, implementation, management and use of IS (Baskerville and Myers 2002). While initially focused on IS within the organisation, the discipline has broadened its scope to contexts only peripherally related to the organisation, but where the central phenomena concern an IT artefact or a collection of artefacts (Gregor 2006; Vessey et al. 2002). In doing so, researchers have investigated IS used outside the organisational context by individuals acting as consumers rather than employees. By examining access decisions about film and music, this research project fits into the broader scope of IS research, where individuals' options are broadened by the proliferation of various IT. The technologies have created a new context for decision making that sits at the intersection of various academic disciplines. However, as this new context was enabled by technological developments, a strong claim can be made that this project sits within the realm of IS research.

In addition to broadening the scope of our phenomena of interest, we have also broadened the foci of our analyses and the research generated by the discipline reflects this development. Some scholars focus their analyses at the individual level (e.g., Davis 1989; Venkatesh et al. 2003), others at the group or team (e.g., DeSanctis and Gallupe 1987; Guinan et al. 1998), the business unit (e.g., Bass et al. 1999; Brown 1997), organisation (e.g., Bresnahan et al. 2002; Brynjolfsson and Hitt 1996) and even national levels (e.g., Chellappa and Shivendu 2003; Gopal and Sanders 1998). Fittingly, the diversity of methods for investigating the design, implementation, management and use of IT mirrors the various levels at which IT can be analysed (Vessey et al. 2002). In order to do this, scholars have adopted methods appropriate to their phenomena and level of analysis from disciplines across the social sciences (Baskerville and Myers 2002; Gregor 2006). Those examining markets tend to use techniques from economics. Those examining groups and organisations borrow from anthropology and sociology, and those examining individuals often borrow from psychology. In a sense, the other fields have served as reference disciplines for IS, providing appropriate

theoretical and methodological frameworks for our investigations. However, the discipline is not wholly reliant on other disciplines for theories and methods. The field has been successful in generating theories that have been adopted elsewhere in the social sciences as IT has become more pervasive. To take the most cited example, Davis's (1989) Technology Acceptance Model is regularly used in marketing and other social science research.

Nonetheless, as a young discipline, IS is still reliant on other fields and in addition to borrowing methods and theories from elsewhere, scholars within the field have adopted the ontologies and epistemologies of their reference disciplines. As a result, scholars have contributed to a body of literature that is varied not only in its phenomena, foci, contexts, investigative methods and theories, but also in the ontologies and epistemologies that inform its investigations. The diversity of the field and the approaches to investigating the phenomena have led some to question the relevance of a discipline that is so diverse and led them to advocate for a narrower focus (Benbasat and Zmud 2003). However, other authors have praised the diversity of the field, suggesting that this is cause for celebration (e.g., Banville and Landry 1989; Robey 1996). Some have gone even further and advocated that the discipline should become trans-disciplinary as it develops (Galliers 2003).

The diversity of theoretical, methodological and phenomenological paradigms within the IS discipline necessitates that scholars wishing to contribute to the field position themselves relative to others and make their ontological and epistemological stances clear. Put another way, the diversity within IS research means that one cannot take another researcher's ontology and epistemology for granted. Researchers such as Klein (2004) have noted that "We are split not only by specialising in different parts of the domain of inquiry of interest to IS as a discipline, but also by radically different methodological and philosophical orientations" (pp. 123-124).

This research project investigated individual decisions in the current socio-technical context where innovations and technologies have created opportunities for individuals to access products both legally, using traditional as well as new products and services, and through piracy, using illegitimate means. A substantial body of research on digital piracy has emerged over the last 20 years, and this research project takes this as its point of departure. However, in order to understand how this research project builds upon prior literature, it is necessary to know about my ontological and epistemological assumptions. Moreover, it is necessary to know how these assumptions are similar to and differ from those underlying the broader IS research literature. As noted by Robey



(2004), such “... philosophical concerns bear direct consequences for choices of research methodology and related issues such as the identity of information systems as an academic discipline” (p. 85). This chapter outlines the philosophical assumptions guiding the research reported in this thesis. By presenting the ontological and epistemological assumptions, the paradigm that informs the research is made clear to the reader. Building upon these assumptions, the approach for conducting the research is established and the reader is able to get a picture of how the various components of the research fit together.

### **2.3. Ontological and Epistemological Assumptions**

The variety of perspectives that inform research in IS is reflected in the various foci and phenomena under investigation, the investigative methods used to examine them, and the theories used to explain them. At a more abstract level, the variance within the discipline of IS is also reflected in the ontological and epistemological perspectives used in the field (Mingers 2004). What follows is an elaboration of the ontological and epistemological assumptions that inform this research project.

According to Blaikie (2010), ontological assumptions in the social sciences are those concerned with the nature of social reality, specifying the kinds of phenomena that exist, the conditions of their existence and the ways in which they are related. This project is informed by what Blaikie describes as the ontology of cautious realism. This ontology supposes that reality has an independent existence, but because of limitations of human sense and cognitive functions, observing reality is an interpretive process because reality cannot be observed directly or accurately. Thus a cautious and critical attitude must be adopted in analysis. This ontology lays the platform for the identification and examination of existing evidence and the building of hypotheses related to a topic. It informs the investigation and the approach to interpreting the existing theoretical literature and its application to the phenomenon. Further details of the concepts and theoretical grounding of the research are provided in the next chapter.

Related to the ontological assumptions are the epistemological assumptions, those assumptions that are concerned with what kinds of knowledge are possible and the criteria for deciding if knowledge is both adequate and legitimate (Blaikie 2010). This research project is informed by an epistemology of falsificationism (Blaikie 2010; Popper 2002). Falsificationism holds that knowledge is best produced by testing theories against empirical evidence. Moreover, because humans are unable to observe reality directly, theories must be directed towards trying to falsify rather than confirm theories. Thus, it is not possible to establish whether or not knowledge is

true. Therefore, what we consider knowledge must be open to revision. Any investigation into the potential factors that influence decisions about how to access film and music has many possible existing hypotheses, and the evaluation of these hypotheses using testing is an appropriate way of determining whether these factors are influential.

In combination, an ontology of cautious realism and an epistemology of falsificationism can be described as the paradigm of critical rationalism (Blaikie 2010). This philosophical paradigm broadly rejects some of the notions of positivism. Specifically, it rejects the assertion that anything that cannot be verified by experience is meaningless and that observations derived from sensory experiences are a secure foundation for scientific theories. Rather, critical rationalism asserts that observation is used in the service of testing theories developed from deductive reasoning, which serve to account for observations. Such theories are subjected to rigorous analysis of relevant data, with the aim to reject false theories. The reliance on deductive reasoning is an important part of the critical rationalist paradigm, and has implications for how research should be conducted. The following section outlines the research process undertaken in this project and details how the process relates to the goals of the project.

## **2.4. Deductive Research Approach**

Before venturing further, it is worthwhile considering the broader purpose of the research and specifically the aims of the knowledge produced by the project. Writing from a sociological perspective, Blaikie (2010) distinguishes between two broad categories of social science research: theory-oriented research and policy-oriented research. In the context of IS research, one could take policy-oriented research more broadly to mean applied research with a technological- or business-policy application. Social science research focused on identifying the theoretical framework that best describes a phenomenon is what Blaikie (2010) describes theory-oriented research. This type of research aims to produce “knowledge for understanding” (p. 49) and is concerned with “advancing fundamental knowledge about the social world, in particular, with the development and testing of theories” (p. 49). One of the core aims of this PhD project is to integrate the various theoretical streams and lines of evidence in order to identify the factors that are the strongest determinants of individuals’ access decisions. Such a motivation is theory-oriented research, as it aims to determine which factors provide the best explanation for a phenomenon where there are many potential explanations. But that is not all.

While grounded in theoretical motivations, this research also aims to contribute to our understanding of the phenomenon in order to inform practitioners dealing with the issue. Thus, the research can be considered policy-oriented. Blaikie describes policy-oriented research as “producing knowledge for action” (p. 49) and is concerned with “with practical outcomes, with trying to solve some practical problem, with helping practitioners accomplish tasks, and with the development and implementation of policy” (p. 49). This project is applied in a sense that it is motivated by the issues and challenges, including piracy, faced by those in the film and music industries. As a unique phenomenon, digital piracy raises questions that are theoretically interesting. Thus, the empirical context under examination is the source and motivation for the theoretical enquiry. Understanding which factors are the strongest determinants of individuals’ access decisions is important for developing government and business policies that will encourage individuals to use legal access modes rather than digital piracy. Ultimately, the development of theoretical research in this area can help inform policy interventions and the development of business models, but these are implications that are indirectly inferred from the empirical findings, not direct implications.

The goals of any research project, whether these are theoretically or practically oriented, are always related to the current understanding of the phenomenon. When it comes to digital piracy, the existence of markets where legal access of film and music occurs in parallel to illegitimate piracy presents a theoretical conundrum for researchers. It is clear that the social phenomenon occurs, but it is not well understood. In such circumstances, Blaikie (2010) argues that a deductive research strategy is most appropriate.

Research using a deductive strategy aims to “find or formulate a possible explanation, a theoretical argument for the existence of the behaviour or the social phenomenon under consideration. The task is to test that theory, by deducing one or more hypotheses from it, and then to collect appropriate data. Should the data match the theory, some support will be provided for its continuing use, particularly if further tests produce similar results. However, if the data do not match the theory, the theory must be either modified or rejected” (p. 19). In this research strategy “knowledge of the social world is advanced by means of a trial and error process” (Blaikie 2010, p.19). When it comes to digital piracy it is widely acknowledged that the phenomenon is taking place. What remains unknown is why it is taking place under some conditions, but not others. What differentiates the decision to access something legally and the decision to access something via piracy? This research project builds upon the foundations previously laid by other researchers. It

draws upon the theories that they use to describe piracy as a phenomenon and predict behaviour, but also builds upon the empirical evidence accumulated over the last two decades. The purpose of the research is not to describe the phenomenon, but rather to test a combination of theories that have been previously used to predict behaviour.

Decisions about how to access film and music lie at the intersection of many disciplines and modes of enquiry. As decisions that involve considerations about products and their purchase or non-purchase, such decisions can be investigated using theories and concepts from economics and marketing. As decisions which may involve considerations of illegal modes, they may be analysed using frameworks from criminology. As the ethicality of the various modes is frequently questioned, investigations of such decisions may be informed by frameworks of ethical decision-making. Further, as the decisions may involve judgements of other people and occur in social contexts, investigations may also draw on the literature of social psychology. Last, as the decision is inevitably one involving the use of IT, the context is firmly in the domain of IS research. Thus a researcher investigating access decisions for film and music must decide upon which discipline should serve as the appropriate source of theoretical frameworks, but also which body of empirical evidence should be considered before undertaking new research efforts.

At a theoretical level, the research of this project builds upon theories and models that come from across the social sciences and seek to explain different varieties of behaviour. This project is informed by theories and models that concern individuals' intentions to perform behaviour, their engagement in criminal and illegal activities, their engagement in ethically questionable acts or contexts with a salient ethical dimension, and their consumption decisions. A substantial body of empirical evidence examining these theories and their applicability to decisions and behaviour of individuals across various contexts has been accumulated. Thus, before data were collected this project reviewed the empirical evidence to identify which theories were best suited to explain the phenomenon of interest.

The various disciplines in the social sciences become potential sources for what Carmines and Zeller (1979) term substantive theory: the theory that links concepts in the research to one another. The substantive theory used in this investigation is aligned with its ontology of cautious realism, and informs the identification and selection of concepts and how they influence the decision and behaviour. At a broad level the substantive theory comes from the across the social sciences and is conceptually integrated based upon notions from consumer behaviour. In addition to

being sources of substantive theory, other disciplines are also sources for what Carmines and Zeller term auxiliary theory: theory about the relationships between the concepts and the measures of the concepts. The auxiliary theory of this investigation is informed by falsificationism, which outlines a process of evaluating the hypotheses and relates to the measurement and evaluation of the concepts in the investigations.

In order to progress within the paradigm of critical rationalism, using a deductive research strategy, the following steps were followed in conducting this research project:

- A research question was developed with reference to phenomena of interest and unanswered questions.
- An analysis of the relevant theoretical and empirical literature was undertaken in order to devise an appropriate theoretical model to describe the phenomena.
- A set of hypotheses were derived from the theoretical model, which was in turn influenced by the existing theoretical and empirical evidence.
- A number of studies were undertaken in order to evaluate the hypotheses that derive from the model.
- The model was evaluated in light of the findings from the empirical investigations to see if the findings were corroborated.
- Relevant implications for the investigation were identified.

## **2.5. Chapter Summary**

Due to the diversity in the research philosophies within the field of IS, it is necessary to outline one's philosophical perspectives in order to contribute to the field. This chapter fulfils those obligations by outlining the ontological and epistemological assumptions that informed this research project. Specifically, the research is based upon an ontology of cautious realism and an epistemology of falsification, which in combination can be described as a paradigm of critical rationalism (Blaikie 2010). This paradigm relies upon theory testing through empirical falsification, where assertions are evaluated against accumulated evidence. This research project attempted to understand why films and music are in some instances accessed legally, while accessed illegally in others. This question lies at the intersection of many different disciplines, and a number of theoretical explanations deriving from different disciplines can account for why this behaviour may occur. This research attempted to integrate these various streams. In doing so, it took a deductive

approach to integrating the theoretical evidence, given the existing empirical findings, and then built a model which was subsequently tested. The remaining chapters of this thesis provide further detail about the hypothesis development and testing, and then reflect upon the implications of the results.

## 3. Literature Review and Model Development

### 3.1. Overview

This chapter provides a review of the existing research literature relevant to the research project and outlines the theoretical model that is evaluated in the following chapters. It begins with a review of the existing research on access decisions for products available digitally, focusing on the antecedents of individuals' decisions and behaviour and emphasising the research on film and music piracy. The literature review is organised into separate streams based on the disciplinary approaches used, in addition to a brief section on multidisciplinary research. These streams include studies informed by social psychology, criminology, business ethics, marketing and economics, and inductive methods. After outlining the key limitations of the literature, the chapter concludes with an outline of the theoretical research model. Theoretical and empirical evidence from the existing literature is drawn upon to provide support for each factor of the model.

### 3.2. Introduction

The evolution of the social sciences is one of specialisation, where scholars with common interests and inquisitive approaches have sought to examine human behaviour within distinct bounds. Psychology for individuals. Criminology for crime. Marketing for consumption. Economics for markets. Anthropology for cultures. Sociology for groups and social processes. IS for IS. Despite this specialisation, the lines between domains of enquiry have always been blurry, and disciplines have often borrowed from one another in order to better examine or explain phenomena. Once loaned, concepts and theories are often altered to fit within a new domain or discipline. When new a phenomenon arises in an area where disciplines overlap, scholars must decide which theory or set of theories provide the best account for it. In such circumstances, scholars tend to rely on their own fields, exploring the phenomenon within narrow disciplinary bounds. In the case of digital piracy, many theories can be drawn upon to inform our understanding of the phenomenon, as access decisions about film and music lie in a unique realm where a number of theories overlap. In this context, explanations for decisions come from theories about social behaviour from social psychology, ethical judgements from business ethics, consumption decisions from marketing and economics, and theories about criminal behaviour from criminology. However, because the context of this unique theoretical overlap is enabled by a confluence of IT, it also deserves the attention of IS research. However, unlike other areas of IS research where theoretical explanations for a phenomenon are lacking, the behaviour examined within this context is one where many candidate theories have been applied. In a sense, the state of current research on digital piracy is one of theoretical abundance rather than scarcity. Many theories have been drawn upon to explain access decisions for film and music, yet we do not know which is best suited to explain the phenomenon.

This project takes a deductive approach in seeking an answer to its research question, namely why films and pieces of music are accessed legally in some instances and accessed via piracy in others. As described in the previous chapter, this project is informed by the ontology of cautious realism and the epistemology of falsificationism. Combined, these perspectives constitute the paradigm of critical rationalism (Blaikie 2010), which asserts that observation is used in the service of testing theories developed from deductive reasoning, which serve to account for observations. Moreover, the paradigm asserts that theories should be subjected to rigorous analysis using relevant data, with the aim to reject false theories. When an existing body of theoretically-informed empirical research exists, a new research project should review prior research, and then



synthesise the various findings in order to generate hypotheses. The next section of this chapter reviews the existing accumulated evidence on the phenomenon, specifically focusing on access decisions for film and music. The section that follows the literature review describes the theoretical model that informed the investigations presented in the next chapter. An earlier version of the research model formed the basis of a peer-reviewed paper written with Ioanna Constantiou and presented at the Mediterranean Conference on Information Systems in Limassol, Cypress in September 2011 (Veitch and Constantiou 2011b).

### **3.3. Literature Review**

Research on digital piracy has been reported in the academic literature for over 20 years, beginning with analyses of software piracy (e.g., Cohen and Cornwell 1989; Eining and Christensen 1991; Swinyard et al. 1990) before the emergence investigations focusing on the digital piracy of music (e.g., Gallaway and Kinnear 2001; Giesler and Pohlmann 2003) and film (e.g., Bounie et al. 2006; Chih-Chien 2005). Most of the literature on digital piracy has emerged since 2000 and focused on piracy facilitated by the Internet. Much of the research on film and music accompanied the penetration of broadband Internet in the US, an important factor in the growth of digital piracy (Bakker 2005). Delimiting the scope of a literature review is important part of practically managing what can be covered and also clarifying its contribution. Though the ramifications of digital piracy are many, due to the volume of research literature produced on digital piracy, this literature review is limited to empirical research on the antecedents of film and music access, the majority of which is focused on access via piracy. More specifically, it attempts to summarise the research that investigates the factors that influence individuals' decisions about how to access these products.

While theoretically broad with respect to the empirical evidence accumulated, this review does not cover the associated implications of access decisions and digital piracy. Thus, this review does not seek to summarise the research on the effects of digital film and music piracy in terms of displaced sales. Previous researchers have examined this question. For example, Oberholzer-Gee and Strumpf (2007) examined sales displacement empirically using econometric techniques and Peitz and Waelbroeck (2006) examined this question theoretically using economic modelling. Rather, this review covers the literature that investigates why individuals choose one access mode over another, not the impact of such choices on the industry. Moreover, as the research is focused on access, this review does not cover research concerning the motivation to illegally share films and music. Accessing and sharing digital products are related activities, especially when content is

accessed using P2P networks such as BitTorrent, where sharing is a default option in many programs. However, research by authors such as Becker and Clement (2006), who explored the motivations of people who participate in sharing content over P2P networks, indicates that access and sharing are motivated by quite different factors. Last, as this research focuses on individual decisions, it does not review the literature concerning national differences in piracy rates for film and music, such as the research by authors Ki, Chang, and Khang (2006). While individual differences do aggregate at the national level, national differences are often not helpful when explaining behaviour at the individual level.

In order to build an appropriate corpus of material, Webster and Watson's (2002) steps for conducting a literature review were followed. An initial body of literature was identified by searching for articles in the social science citation index (Web of Science) based upon appropriate search terms. The initial search and library building was conducted in September 2009, and repeated again in June 2010 and March 2012 to ensure it included relevant research. In addition to articles found using the index search, a backwards citation search was conducted, whereby relevant articles cited by the articles in the index search were added to the corpus and incorporated. In total, 91 articles are included in the review, some of which include multiple studies, spanning a range of disciplines within the social sciences.

As noted above, research on digital piracy has been informed by theories and models from a variety of disciplines, including social psychology, criminology, business ethics, marketing and economics, and sociology and anthropology. For the most part, investigations have primarily been informed by one discipline that has formed the theoretical grounding for the study. As a result, different streams of research have emerged. Due to their various theoretical perspectives, these lines of research have tended to evaluate different sets of variables, and thus provided different insights into the antecedents of digital piracy. However, there are some conceptual overlaps. A number of researchers have sought to better explain the phenomenon by integrating theories and models from two or more disciplines. Given this disciplinary variety, the research on access decisions, which has primarily focused on access via piracy, can be found in journals from across the social sciences. Thus, the majority of research in this review does not come from journals that are dedicated to IS research. However, major IS journals have published such research. Papers on digital piracy can be found in the *European Journal of Information Systems* (Mlcakova and Whitley 2004), the *Journal of Management Information Systems* (Wang et al. 2011), the *Journal of Computer Information Systems* (Peslak 2008) and *MIS Quarterly* (Peace et al. 2003; Smith and Telang 2009). As an

applied discipline, IS frequently borrows theoretical models from other fields to examine a phenomenon. In the case of this research project, empirical evidence from other disciplines has also been drawn upon to inform the research.

The research that is summarised in the remainder of this section is not ordered by the disciplines of the journals that have published the research, but rather by the origins of the theories, variables and methods used to inform the investigations. For example, a number of studies have been grouped into a stream informed by social psychology, but were not published in journals that cater to the discipline of social psychology. Taylor, Ishida and Wallace's (2009) article is one such paper. It draws upon Perugini and Bagozzi's (2001) Model of Goal Directed Behaviour, a model from social psychology, but was published in a marketing journal, namely the *Journal of Service Research*. This is also true for those articles that have been grouped together as research informed by inductive research methods. Giesler and Pohlmann's (2003) research is an ethnography that builds upon methods from anthropology, yet was published in the marketing journal titled *Advances in Consumer Research*. In this review such research is grouped together with other ethnographies and studies using grounded-theory approaches, rather than with marketing research.

In building the review, there were a number of papers where it was difficult to directly identify the theoretical background of the work. These papers were categorised based upon the variables used in their analysis or the style and tradition of exposition used. This is particularly common for papers categorised as marketing and economics, which form a shared stream. Such papers are distinguished by their deductive arguments, which stem more from the logic presented by the authors of the research than existing theories published elsewhere. To cite an example, the Rob and Waldfogel (2007) paper does not explicitly build upon one theory in particular, but its exposition is clearly in line with the tradition of economics, and one would likely determine it to be an economics paper without knowing that it was published in the *Journal of Industrial Economics*. In order to provide an overview of the accumulated research on access decisions, the research is summarised below in figure 8, indicating the theoretical and conceptual overlaps in the body of literature. The review begins by covering the research informed by social psychology.

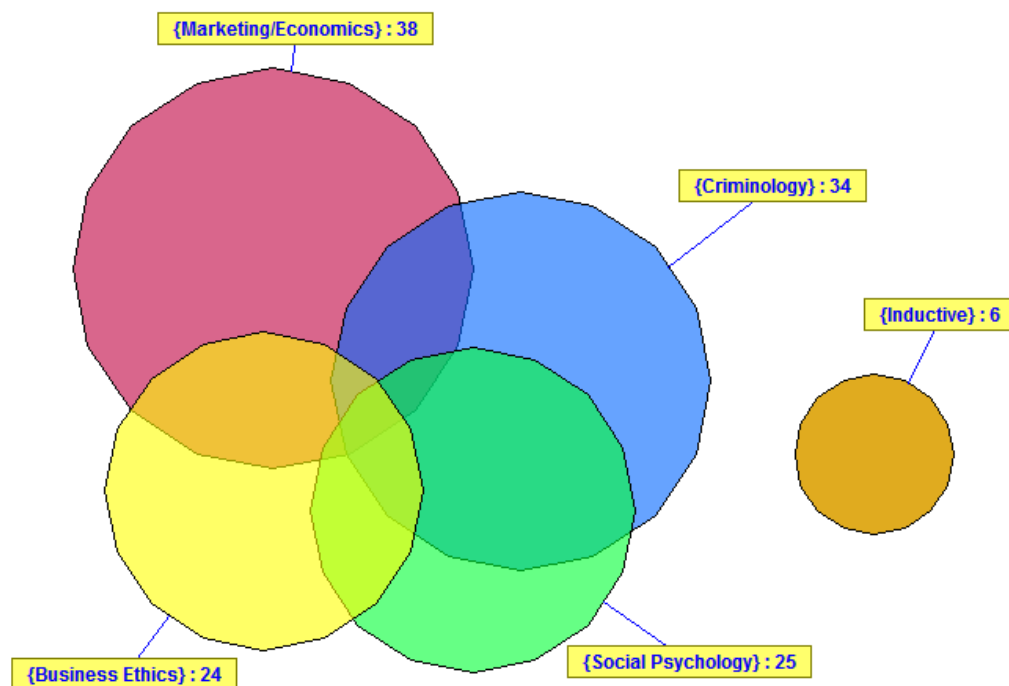


Figure 8. Literature on Digital Piracy

### 3.3.1. Research Informed by Social Psychology

Although access decisions about film and music involve considerations of legal alternatives to piracy, investigations informed by theories from social psychology have for the most part focused on the antecedents of the piracy option. In doing so, they have examined how evaluations of social considerations are related to individuals' intentions to engage in digital piracy. Intention frameworks, which theorise that an individual's assessments of various factors influence their behaviour via intentions, have primarily served as the basis for this stream of research. Much of the research has used Ajzen's (1985; 1991) influential Theory of Planned Behaviour (TPB), though other models from social psychology have also been used.

Like other intention frameworks, at the core of TPB is the notion that behaviour is determined by intention. Ajzen (1991) wrote that "a central factor in the Theory of Planned Behaviour is the individual's intention to perform a given behaviour. Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour. As a general rule, the stronger the intention to engage in a behaviour, the more likely should be its performance" (p. 181). TPB itself is an extension of Fishbein and Ajzen's (1975) earlier Theory of Reasoned Action (TRA), which was devised to explain and predict behaviour

when people had complete control over performing the behaviour. In such instances, Fishbein and Ajzen argued that intentions were determined by two variables, namely one's attitude towards the behaviour and the subjective norm. Attitude towards the behaviour refers to "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question" (Ajzen 1991, p. 188). Ajzen (1991) described the subjective norm as a social consideration, which "refers to the perceived social pressure to perform or not to perform the behaviour" (p. 188). TPB extends TRA to explain behaviour in instances where the behaviour is not under the control of the individual by adding the variable perceived behavioural control to the model. This variable refers to "the perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (p. 188). In the model, perceived behavioural control not only influences behaviour directly but also indirectly via intentions.

As a theory, the model is additive and the influence of the various factors in the model has been found to vary across different contexts. The theory is additive, in the sense that stronger attitudes towards the behaviour, subjective norms and perceived behavioural control result in stronger intentions, which in turn increase behaviour. This 'increase' in behaviour may practically translate as the likelihood of performing the behaviour or the frequency in which the behaviour is performed. Ajzen (1991) wrote as "a general rule, the more favourable the attitude and subjective norm with respect to a behaviour, and the greater the perceived behavioural control, the stronger should be an individual's intention to perform the behaviour under consideration. The relative importance of attitude, subjective norm, and perceived behavioural control in the prediction of intention is expected to vary across behaviours and situations" (p. 188).

Evidence seems to support Ajzen's claims as TPB has been used to explain a broad variety of behaviour across a number of contexts. A substantial body of research and meta-analyses have generally confirmed the structural relationships proposed by TPB. In a relatively recent review of 185 published studies, Armitage and Conner (2001) found that attitudes, norms, and perceived behavioural control accounted for an average of 39 percent of the variance in intentions. Moreover, the authors' review of 63 published studies found that intentions and perceived behavioural control accounted for 27 percent of the variance in behaviours. In ethically questionable contexts, Beck and Ajzen (1991) have used this theory to explain and predict dishonest actions such as lying, cheating, and shoplifting. Subsequent studies using the TPB have also shown some evidence for its applicability to shoplifting (Tonglet 2001) and in other circumstances that are similarly ethically

questionable (Dubinsky and Loken 1989; Randall and Gibson 1991). Continuing this line of research, TPB has been used as a framework for investigating digital piracy.

Researchers using TPB to explore digital piracy have generally found support for the model and have extended it by using elements from other theoretical models. The basic relationships between intentions and its theorised antecedents, namely attitudes, subjective norms and perceived behavioural control, have been found to be significant across a range of countries. Findings that support the model in the case of music piracy come from studies conducted in Hong Kong (Kwong and Lee 2002), Canada (d'Astous et al. 2005), the US (Morton and Koufteros 2008), Australia (Plowman and Goode 2009), and Taiwan (Chiang and Huang 2007; Wang et al. 2009). Similarly, when digital piracy across products types has been examined, the results have been supportive of TPB in studies from China (Yoon 2011), the US (Cronan and Al-Rafee 2008; Wang and McClung 2012), and South Korea (Khang et al. 2012). However, none of these investigations analysed the relationships between perceived behavioural control, intentions, and behaviour. Thus, this part of the model remains unexamined in the context of digital piracy.

Despite not examining the links between perceived behavioural control, intentions, and behaviour, each of the above-mentioned investigations has extended the TPB model. For the most-part, these extensions have advanced the model by adding variables as predictors of the antecedents of intentions, rather than direct influences on intentions. For example, in their model Kwong and Lee (2002) found that perceptions of an equitable relationship between record companies and consumers were found to be a significant negative antecedent of attitudes towards piracy. Moreover, they found that deterrent effects of anti-piracy legislation were significant negative antecedents of both attitudes and intentions. Similarly, d'Astous et al. (2005) found that negative personal consequences and ethical predispositions were negatively related to attitudes to music piracy, and that attitudes were positively related to past piracy behaviours. Furthermore, in their model attitudes towards piracy partially mediated the influence of past piracy behaviours and personal consequences on piracy intentions. In the Morton and Koufteros (2008) study, the authors tested a model where punishment certainty and severity were direct influences on attitudes, but found that these relationships were not significant. These findings indicate that there is some evidence that the variables in the TPB model are related to risks associated with the behaviour and ethical judgements.

In contrast to the investigations described above, other studies using TPB as a framework to examine piracy have hypothesised that additional variables directly affect intentions. Cronan and Al-Rafee (2008) found that intentions to engage in piracy for digital products were related to moral obligation (i.e., ethical judgement). Of the TPB variables, only subjective norms were not related. Using correlation analysis, Plowman and Goode (2009) found that in addition to the TPB variables, the perceived equity of the relationship between the industry and consumers and the price of legal music were positively related to the intention to download illegally, whereas the deterrent legislation was negatively related. However, computer deindividuation and quality of online music were not related to intentions. While interesting, these findings are difficult to evaluate, given that the variables' explanatory power is not able to be evaluated in the presence of other variables. Other researchers have used more advanced analyses, such as structural equation modelling. Wang and McClung (2012) found that anticipated positive emotions were positively related to intentions, but anticipated guilt was unrelated. Yoon's (2011) found that moral obligation and perceived benefits of piracy were both significantly related to intentions. Indirect effects were also part of their model. Moral obligations and justice beliefs were significantly related to subjective norms and perceived benefits, and perceived risks and habits were related to attitudes. Similarly, Khang et al. (2012) found that moral obligations were also significantly related to intentions, though subjective norms and perceived prosecution risk were not. Taken together, the results of the investigations extending TPB indicate that factors representing ethical considerations, such as moral obligations, justice beliefs and perceived equity, in addition to risks associated with criminal activity, seem to be related to piracy intentions.

Not all research based on TPB has been quantitative. White, Rao, and Minakakis (2010) used TPB in their qualitative investigation of physical film piracy among a small sample of individuals in the US. These authors used proxy measures to assess factors in TPB, using 'generalised views about piracy' and 'perceptions as anti-piracy messages' as proxies for attitudes towards the behaviour and subjective norms. Attitudes and subjective norms varied across age groups. Thus, despite the limitations of using proxy measures that were not well-aligned with the TPB concepts, the findings indicate that age may influence individuals' access decisions.

So what can be concluded from a review of the extensions of TPB in the context of digital piracy? Essentially, the investigations show support for the relationships between the key variables in the model, and that these relationships remain significant predictors of intentions when other variables are added to the model. Moreover, other factors seem to be relatively consistent predictors

of intentions, including ethical considerations and perceptions of risks associated piracy. However, due to the analyses performed, it is not possible to evaluate whether these additional variables are direct or indirect influences on piracy intentions.

When describing TPB, Ajzen provided some indication of how additional variables should be added to the model. Ajzen (1991) argued that at “the most basic level of explanation, the theory postulates that behaviour is a function of salient information, or beliefs, relevant to the behaviour... It is these salient beliefs that are considered to be the prevailing determinants of a person’s intentions and actions” (p. 189). In situations with social ramifications, the three TPB variables may be the primary determinants of intentions. In other contexts, such as access decisions for film or music, it is likely that additional factors are salient considerations. To be consistent with the model’s assertions, when adapting TPB by adding factors, such factors should be modelled as direct antecedents of intentions, rather than as antecedents to attitudes, subjective norms, or perceived behavioural control. However, of those investigations identified above, few added variables which were modelled as direct effects on intentions. As a result, their findings are more difficult to interpret.

In addition to the frequent use of TPB, research into digital piracy has drawn upon other theories from social psychology. Taylor et al. (2009) used a modified version of Perugini and Bagozzi’s (2001) Model of Goal Directed Behaviour as a framework for their investigation into digital film and music piracy in the US. They found that piracy intentions were associated with desires to engage in digital piracy and past behaviour, and that desires were associated with subjective norms, attitudes, anticipated positive emotions and past behaviour. Other authors have selectively chosen variables from various psychological models in order to develop their own models of piracy. For example, Nandedkar and Midha (2012) blended concepts concerning optimism bias (Weinstein 1980) and variables from TRA (Fishbein and Ajzen 1975), as well as Tan’s (2002) piracy risks and Triandis’s (1980) research on habits in their research on intentions to pirate music in a sample of university students in the US. Their analysis revealed that attitudes were related to intentions, though the measure of attitudes was measured as ethical judgement, and a number of variables influenced attitudes. Perceived risks (aggregated to include performance, prosecution, and social risks) were negatively related to attitudes, whereas habits were positively related to attitudes. Moreover, and optimism bias moderated the relationship between perceived risks and attitudes. Also focusing on optimism bias, Lai and Kuo (2007), examined intentions to disengage in piracy in Taiwan, where disengaging included ceasing to share and acquire. Using



multiple regression, the authors found that reductions in self-positivity bias were positively related to intentions to discontinue downloading. This finding indicates that when the difference of risk estimates between self and others is reduced, the intention to disengage in piracy increases.

The work of Al-Rafee and colleagues has also been informed by social psychology. Al-Rafee and Cronan (2006) blended elements from Ajzen's (1991) Theory of Planned Behaviour and Kohlberg's (1969) moral development with other variables to investigate attitudes towards digital product piracy in a study of university students in the US. The authors found that anticipated happiness, cognitive beliefs about the benefits of piracy, subjective norms, and Machiavellianism were positively related to attitudes towards piracy; whereas the perceived importance of piracy and age were negatively related to attitudes. Gender, anticipated distress and ethical judgement were not related to attitudes. These findings hint at what influences individuals' decisions to engage in digital piracy, but do so by focusing on attitudes, rather than intentions. More recently, Al-Rafee and Rouibah (2010) explored the impact of various dissuasion messages on digital product piracy intentions in a sample of university students in Kuwait. Of the three conditions aimed to reduce intentions, only that which emphasised religious (Islamic) reasons for not engaging in digital piracy was effective in significantly decreasing piracy intentions from initial levels. Neither legal disincentives nor arguments about the potential impact of piracy reduced intentions in their sample.

### **3.3.1.1. Summary of Social Psychological Research**

The research informed by social psychology indicates the key elements from Ajzen (1991)'s TPB influence intentions to engage in piracy. Thus, attitudes towards piracy, subjective norms and perceived behavioural control should be considered in future research efforts. While Ajzen's TPB seems appropriate for investigating digital piracy, large gaps remain in the research. The intention-behaviour link has remained un-examined, leaving a paucity of information regarding this relationship. Moreover, aside from those investigations that focus on digital products in general, we know little of how applicable the TPB is to decisions about accessing film. Moreover, extensions of TPB and blended models using concepts from social psychology provide evidence that additional considerations influence individuals' decisions, at least when they are considering piracy. Factors reflecting ethical considerations and legal risks were also important and related to piracy intentions. The following section reviews research that focuses on some of the factors that fall outside the realm of TPB, and covers research informed by theories dominant in criminology.

### **3.3.2. Research informed by Criminology**

While research informed by social psychology has endeavoured to explain piracy behaviours by focusing on factors such as attitudes, norms and culture, the research drawing on theories used in the field of criminology takes a different approach. This research takes its point of departure in the illegality of digital piracy. Digital piracy is emphasised as a criminal or deviant act. Researchers contributing to this stream of research have used criminological theories to examine digital piracy rather than examining it in the context of alternative access modes. While such investigations have drawn upon a variety of theoretical frameworks for their research, there are some similarities in the research findings. In this review, these investigations are categorised by the theories used to explain and predict digital piracy.

#### **3.3.2.1. Deterrence Theories**

As noted in the previous section, a number of researchers have incorporated risk variables into existing models from social psychology and found associations between digital piracy and perceived risks. Other researchers, contributing to a stream of research based on criminological theories, have also examined perceived risks in their investigations. Such researchers have drawn on theories such as Becker's (1968) theory of crime and Ehrlich's (1973) deterrence theory. Becker's theory of crime was developed in order to determine the "optimal amount of enforcement" (p. 170) to reduce crime, and was written at a point in history when crime rates in the United States had escalated steadily for forty years. Differing from other approaches to analysing criminal behaviour at the time, Becker argued "that a useful theory of criminal behaviour can dispense with special theories of anomie, psychological inadequacies, or inheritance of special traits and simply extend the economist's usual analysis of choice" (p. 170). Thus, Becker attempted to determine "how much punishment should be used to enforce different kinds of legislation?" (p. 170). Becker suggested that it was possible to determine the optimal amount of enforcement based upon "the cost of catching and convicting offenders, the nature of punishments... and the responses of offenders to changes in enforcement" (p. 170). It is the last of these factors, the responses of individuals to the risks of engaging in behaviour, which is most relevant to individuals' access decisions for film and music.

Becker's (1968) paper outlines the determinants of criminal behaviour, what he termed the "supply of offences". He argued that "when other variables are held constant, an increase in a person's probability of conviction or punishment if convicted would generally decrease... the

number of offenses he commits” (p. 176). Becker’s approach to analysing the decision to engage in criminal behaviour was based on economic notions of choice. It “assumes that a person commits an offense if the expected utility to him exceeds the utility he could get by using his time and other resources at other activities. Some persons become “criminals,” therefore, not because their basic motivation differs from that of other persons, but because their benefits and costs differ” (p. 176). Together, these notions imply that “there is a function relating the number of offenses by any person to his probability of conviction, to his punishment if convicted, and to other variables, such as the income available to him in legal and other illegal activities, the frequency of nuisance arrests, and his willingness to commit an illegal act” (p. 177). Moreover, Becker argued that the influence of these two risk components depends on an individual’s preference for risk. The certainty of punishment is more influential than the severity of punishment in the decision of whether or not to commit crime if an individual is risk acceptant. If an individual is risk averse, then the severity of punishment is more important than the certainty of punishment.

Ehrlich’s (1973) deterrence theory further refined Becker’s (1968) idea by incorporating “costs and gains from legitimate and illegitimate pursuits... rather than the cost of punishment alone” (p. 523). Moreover Ehrlich presented “the offender’s decision problem as one of an optimal allocation of resources under uncertainty to competing activities both inside and outside the market sector, rather than as a choice between mutually exclusive activities” (p. 523). Upon review of empirical evidence he collected, Ehrlich concluded that the “rate of specific felonies is found to be positively related to estimates of relative gains and negatively related to estimates of costs associated with criminal activity. In particular, and contrary to some popular arguments, the absolute magnitudes of the estimated elasticities of specific crimes with respect to estimates of probability and severity of punishment are not inconsistent with the hypothesis that law-enforcement activity has a deterrent effect on offenders, which is independent of any preventive effect of imprisonment” (p. 560). However, some other researchers have presented evidence that does not corroborate such conclusions.

Many aggregate deterrence studies arrive at estimates that demonstrate that the effects of the certainty and severity components of deterrence theory vary considerably, with the certainty of punishment carrying the greater, and many times the only, weight. For example, Witte’s (1983) review of investigations from the early 1980s concluded that “changes in the probabilities of conviction and imprisonment have a greater effect on crime rates than do changes in expected sentence length...” (p. 320). In their review of the literature Decker and Kohfeld (1990) similarly

concluded that “a large group of studies have shown that measures of certainty are inversely related to the level of offenses. The same relationship for severity has not been found” (p. 3). However, according to Mendes and McDonald (2001), most of these investigations have incorrectly assessed the conclusions of deterrence theory. Specifically, they write that “We find that published empirical studies that fail to find a significant impact of the severity of punishment do not effectively translate the theory...” (p. 606), but that “models that combine the probability of punishment with the severity of punishment to form the expected cost as an interdependent multiplicative element, as the theory specifies, report evidence consistent with deterrence theory expectations” (p. 606). In their review of the literature, these authors conclude when assessed correctly “severity of punishment does indeed represent an important role in implementing that package” (p. 606). Given that these variables have been found to be important determinants of illegitimate activities, it is understandable why researchers have used these concepts in their investigations.

Studies informed by deterrence theory have investigated its relevance to various measures of piracy, including past, current, and future behaviours. Li and Nergadze (2009) investigated music piracy using a sample drawn from undergraduate students at a US university. Their results indicated that certainty of punishment, stigma of label, and agreement with copyright laws were all negatively related to multiple indicators of music piracy, including current frequency of use of file-sharing programs, number of files shared, and likely future downloading. Other variables were less consistent. For example, awareness of copyright laws was positively related to current quantity shared and negatively related to future intentions, but not current frequency of use. Moreover, potentially erroneous errors were made because the dependent variables were ordinal categorical variables, but were treated as continuous variables. Also relying upon a sample drawn from US university students, Chiang and Assane (2007), found that the proportions of music collections acquired through piracy were negatively related to punishment certainty from the RIAA, willingness to pay for legal downloads and positively related to knowledge of antipiracy campaigns. Other investigations have manipulated perceived risk and examined its effects. Levin, Dato-on, and Manolis (2007) conducted two between-subjects, semi-experimental studies to examine intentions to download music among samples recruited from university students in the US. In the first investigation, they found that intentions to download were lower when experimentally-manipulated punishment severity was high, past behaviour was infrequent and subjective norms were low. Moreover, these variables interacted, such that under conditions of low punishment severity, subjective norms play a more meaningful role in deterring illegal downloading intentions among

those who have engaged in high levels of downloading. In their second investigation, they found similar results, where the perceived effect of punishment severity remains when controlling for frequency of past downloading.

In addition to these studies, when deterrence theory has been a supplementary theory, findings indicate that punishment severity and certainty are important factors in individuals' considerations. For example, the deterrent effects of anti-piracy legislation were found to be related to both attitudes and intentions to engage in music piracy in Hong Kong (Kwong and Lee 2002), and among university students in the US (Plowman and Goode 2009). Moreover, evidence indicates that punishment certainty is negatively related to the frequency at which music is download illegally in the US (Wingrove et al. 2011) and to intentions to pirate films and music in the US and the UK (Shanahan and Hyman 2010). Taken together, these results, in addition to those primarily focused on assessing the deterrence framework, indicate that deterrence factors are important predictors of piracy behaviours. However, studies within criminology are not limited to using the deterrence framework and have also used other models and theories to examine piracy, such as Gottfredson and Hirschi's (1990) self-control theory and Akers' (1985; 1979) social learning theory.

### **3.3.2.2. Self-Control Theory**

Among the most cited theories in criminology (Cohn and Farrington 1999), Gottfredson and Hirschi's (1990) self-control theory has also informed a number of investigations, where the research has focused on the influence of self-control on attitudes towards piracy, and piracy intentions and behaviour. In outlining their model, Gottfredson and Hirschi assert that other theories of crime are unnecessarily complex, and contrast their work with deterrence theories that assume individuals weigh up the consequences of their actions. Their theory of crime is based upon the notion that crime is both easily accomplished and provides immediate gratification like other 'deviant' behaviours, such as smoking, excessive drinking, speeding when driving, gambling, and unprotected sex. Thus, the question is not why people engage in crime, but why they do not. Gottfredson and Hirschi's answer is self-control. The concept itself is multi-dimensional and is comprised of various trait elements such as impulsiveness and a willingness to engage in risk taking. Nonetheless, such elements are said to comprise a unitary underlying propensity which leads to crime or deviant behaviour if the opportunity is present.

Gottfredson and Hirschi (1990) argued that individuals who have experienced ineffective or inconsistent parenting early in life are likely to have stable, low levels of self-control, and

individuals with low self-control are likely to commit crime and engage in deviant behaviours. More specifically, the authors assert that the problems emerge due to weak direct controls exerted by parents. Parents who are attached to their children are said to monitor, recognise, and punish wayward behaviour. Thus, their children develop the self-control to resist the easy gratification offered by misbehaviour. Those who do not have attached parents are said to not develop self-control, and thus are more likely to engage in criminal and deviant behaviours. Following from these experiences in childhood, such individuals who do not develop self-control are said to have a relatively time-stable individual difference, which characterises them as impulsive, insensitive, physical (instead of mental), risk-taking, short-sighted, and nonverbal. Such individuals engage in these behaviours because “the dimensions of self-control are, in our view, factors affecting the calculation of the consequences of one’s acts. The impulsive or short-sighted person fails to consider the negative or painful consequences of his acts; the insensitive person has fewer negative consequences to consider; the less intelligent person also has fewer consequences to consider” (Gottfredson and Hirschi 1990, p. 95). Crime, then, is attractive because it provides immediate benefits for individuals with low self-control who do not consider the long-term impact of their behaviour for themselves and others.

Given its simplistic positions, Gottfredson and Hirschi’s (1990) theory has received a lot of criticism, but finds an impressive degree of empirical support. For example, in their meta-analysis Pratt and Cullen (2000) note that others have argued that it not clear whether the concept of low self-control is a distinct propensity or merely a collection of factors that relate to established psychological correlates of criminal behaviour. However, in discussing their results, the two authors note that “the meta-analysis reported here furnishes fairly impressive empirical support for Gottfredson and Hirschi’s theory. First and most noteworthy, their central concept - low self-control - consistently had an effect size that exceeded .20... this effect size would rank self-control as one of the strongest known correlates of crime. This effect size remained even when studies included controls for other theories and for opportunity. Further, the effect size was not significantly affected by whether self-control was measured by an attitudinal or behavioural measure... Taken together, then, these considerations suggest that future research that omits self-control from its empirical analyses risks being misspecified” (pp. 951-952). Given these findings it is understandable that self-control has received attention in the research on digital piracy.

A number of researchers have used Gottfredson and Hirschi’s (1990) self-control theory as the basis for their investigations into digital piracy, relying on either college students (Higgins

2007; Higgins et al. 2008) or high school students (Malin and Fowers 2009) for their samples. These investigations have shown the importance of self-control in determining attitudes towards music and film piracy (Malin and Fowers 2009) and music piracy intentions (Higgins et al. 2008), in addition to associations with pirating peers, past behaviour and Internet experience. However, when examined against actual behaviour, Higgins's (2007) research found that intentions were more strongly related than self-control to the number of pirated software, music and movie titles acquired over successive weeks. Moreover, low self-control was only associated with piracy in week one, but not in any of the subsequent three weeks. In contrast to the general findings reviewed above, these findings provide mixed evidence for the importance of low self-control as an influence on access decisions. Other researchers have used alternative theoretical models from criminology to examine piracy behaviour, and Akers' (1985; 1979) social learning theory has been of particular importance.

### **3.3.2.3. Social Learning Theory**

Akers' (1985; 1979) social learning theory is one of the most prominent theories in criminology (Cohn and Farrington 1999) and it has informed a number investigations examining digital piracy. Based upon the work from other learning theorists such as Sutherland (1947), Bandura (1969), and Skinner (1953), Aker's social learning theory is built upon the notion that criminal and delinquent behaviour is learned from others. Of particular importance to the theory are four key principles of learning: differential associations, definitions, imitation, and differential reinforcement. Thus, in contrast to self-control theory, which suggests that individuals engage in deviant behaviours because they are unable to suppress the impulse to do so, social learning theory suggests that deviant behaviour is the outcome of accumulated learning experiences. Each of these principles is said to help an individual learn to engage in criminal behaviour. Differential associations refer to the direct and indirect interactions with people such as family or friends who engage in deviance or who express normative ideals to otherwise deviant behaviour. Thus, this variable is similar to subjective norms from TPB. Definitions refer to the factors that one learns to associate with criminal or deviant act, leading to beliefs about whether it is appropriate or not, which Akers (2001) described as "one's own attitudes or meanings that one attaches to given behaviour" (p. 195). Thus, this factor is similar to attitudes from TPB and considerations of ethics. Served by the modelling of a behaviour through observation important others, imitation to Aker (2001) involves "the engagement in behaviour after the observation of similar behaviour in others" (p. 196). Finally,

differential reinforcement refers to “the balance of anticipated or actual rewards and punishments that follow or are consequences of behaviour” (Akers 2001, p.195). Thus, this factor is similar to a trade-off between attitudes and perceived risks.

A substantial number of investigations into criminal and deviant behaviour have been informed by social learning theory since its development and subsequent refinement by Aker. Reviews of this research have generally come to favourable conclusions. For example, Cao (2004) concluded that social learning theory has “received empirical support” and that whether “tested alone, or with other criminological theories,” the perspective’s “main arguments are largely supported” (p. 97). Similarly, Warr (2002) noted that the “the evidence for social learning theory is extensive and impressive” (p. 78). Agnew (2001) summarised a review of the theory by noting that “social learning theory has much support” and by calling the perspective a “leading explanation of delinquency (p. 103)”. More recently, in a meta-review of the evidence, Pratt et al. (2009) concluded that “the empirical support for social learning theory stacks up well relative to the other criminological perspectives that have been subjected to meta-analysis” and that “effects of variables specified by social learning theory” tend to have “general effects across variations in methodological approaches taken across studies”, though “the strength of effects for certain predictors of crime/deviance specified by social learning theory varies considerably” (pp. 787-788). In light of such conclusions, it is not surprising that the theory has informed investigations into digital piracy.

Those studies using social learning theory as a framework to investigate digital piracy have typically relied upon samples drawn from populations of US university students, though used different measures of the model’s variables and different dependent variables. In a traditional examination of all the elements of Aker’s theory, Wang, Yang, and Bhattacharjee (2011) investigated past music piracy behaviours, finding that differential associations, definitions, differential reinforcement, and imitation were all related to past music piracy. In a partial test of Aker’s theory, Hinduja and Ingram (2009) sought to identify which sources of learning (i.e., sources of imitation) were related to past music piracy. They found that real-life and online peers, in addition to online media were related to past behaviour, though learning from offline media was not related. In their investigation of film and music piracy intentions, Morris and Higgins (2010) constructed a composite social learning theory measure consisting of measures of differential associations, neutralisations and definitions, which were found to be related to a composite measure of digital piracy intentions. The relatively small number of investigations using Aker’s theory is less



an indication of the quality of the model and more an indication of the prominence of self-control theory, with which social learning theory has been integrated in a number of investigations.

#### **3.3.2.4. Neutralisation Theory**

Like self-control theory and social learning theory, neutralisation theory has also informed a number of investigations into digital piracy. Initially, developed by Sykes and Matza (1957) to account for delinquency, the authors argued that “much delinquency is based on what is essentially an unrecognised extension of defences to crimes, in the form of justifications for deviance that are seen as valid by the delinquent but not by the legal system or society at large” (p. 666). Moreover, holding such views enables the individual to deflect blame for their actions. Thus “disapproval flowing from internalised norms and conforming others in the social environment is neutralised, turned back, or deflected in advance. Social controls that serve to check or inhibit deviant motivational patterns are rendered inoperative, and the individual is freed to engage in delinquency without serious damage to his self image” (pp. 666-667). These rationalisation techniques are relatively self-explanatory and include denial of responsibility, denial of injury, denial of the victim, condemnation of the condemners, and appeal to higher loyalties. Sykes and Matza (1957) argued that “techniques of neutralisation are critical in lessening the effectiveness of social controls and that they lie behind a large share of delinquent behaviour” (p. 669). However, reviews of neutralisation have not been kind to the theory. Fritzsche’s (2005) critical review of neutralisation theory concluded that neutralisation is “only a weak predictor of normcontradictive behaviour”. Others such as Topalli (2005) have criticised the notion that delinquents are aware of conventional values and norms and engage in neutralisation to mitigate the anticipated shame and guilt, suggesting that there are groups who reject the norms of mainstream society altogether.

Despite the conclusions reached by other researchers, a number of studies into digital piracy have drawn upon the theory of neutralisation to inform their investigations, both as the primary theory and also to augment other theoretical models. Those investigations have produced some evidence in support of the theory as an explanation for digital piracy. Using qualitative interviews with a convenience sample in the UK, Harris and Dumas (2009) concluded that those engaging in P2P music piracy employ techniques of neutralisation in order to pre-justify or post-event rationalise their activities. Taking a different approach, Ingram and Hinduja (2008) used a sample drawn from undergraduate students in the US, categorising participants based upon the number of files they had downloaded over the past year. Their findings indicated that none of the neutralisation

techniques significantly differentiated infrequent pirates and from those who did not pirate. However moderately frequent pirates differed from non-pirates in terms of denial of responsibility, denial of injury and appeal of higher loyalties. Moreover, very frequent pirates differed in terms of appeals to higher loyalties. Additionally, peer associations (i.e., differential association) and Internet proficiency were important for differentiating downloading groups from non-downloaders. Taken as a whole, the evidence accumulated from these studies indicates that in the case of digital piracy, individuals do seem to engage in neutralisation if engaging in the act. The findings from these investigations also reflect a trend within criminological research to integrate theories to provide better explanations for deviant behaviour, and this trend is observed in research on digital piracy

### **3.3.2.5. Integrations of Criminological Theories**

Due to the prominence of certain theories within criminology, it is common for investigations to include variables from either self-control theory or social learning theory in empirical investigations. A number of researchers investigating digital piracy have followed this approach and built their investigations on integrations of self-control theory and social learning theory, often adding other variables from other models as well. The investigations of Higgins and colleagues have done so, drawing on samples of US university students to investigate digital piracy. Focusing on film, Higgins, Fell and Wilson (2006) found that low self-control and an aggregate social learning theory measure were both related to film piracy intentions. In their subsequent investigation which examined film piracy, Higgins, Fell, and Wilson (2007) found that associations with movie pirating peers, software piracy attitudes, previous movie piracy, and low self-control were positively related to intentions to pirate. Higgins, Wolfe, and Ricketts (2009) used cluster analysis, finding that high, medium and low groups of pirates differed in terms of social learning theory and self-control theory variables.

Going beyond those investigations that integrate social learning theory and self-control theory, others have supplemented these with insights from Sykes and Matza's (1957) neutralisation theory in investigations based on samples from US university students. Hinduja and Ingram (Hinduja and Ingram 2008) used these theories in examining past music piracy, finding that the social learning theory variables of differential association, differential reinforcement, imitation and definitions were all positively related to multiple measures of past piracy behaviours. Moreover, ethical beliefs, as a proxy measure for neutralisation, were related to all measures, though low self-control only was significantly related to some. Additionally, the control variables of Internet

connection and Internet proficiency were positively related as well. Similarly, Morris and Higgins's (2009) findings for film and music piracy also draw on these theories, looking at both piracy over the past year and future intentions. In their analyses, aggregate neutralisation, differential associations, and participation in the piracy of other products were related to past music and film piracy, and future music piracy intentions. Low self-control was only significant in the case of film piracy intentions. Taken as a whole, the research that integrates self-control theory with social learning theory and neutralisation theory indicates the importance of neutralisations and differential associations. However, low self-control may only be important if other variables are not accounted for. While neutralisation theory has been useful, others have integrated deterrence theory to inform their investigations.

A number of investigations using deterrence theory have also integrated theoretical models in their investigations. Shanahan and Hyman's (2010) investigation into film and music piracy intentions drew on deterrence theory, neutralisation theory and social learning theory. Using population-representative samples from the US and UK, their findings indicated that variables representing neutralisation, such as justifications, variables from deterrence theory, such as punishment severity and certainty, and factors from social learning theory, specifically differential association, were all positively related to piracy intentions for film and music, in addition to a measure of technical abilities. Also using deterrence theory, Wolfe, Higgins, and Marcum (2008) used a sample drawn from a university population and found that guilt, previous music piracy, and low self-control were positively related to music piracy intentions. However, a number of variables were unrelated to intentions, including personal consequences of friends or family finding out, ethical judgements, attitudes toward downloading, and risk of getting a virus, representing a deterrence factor. Similarly, in their investigation integrating deterrence theory with theory on legal compliance, Wingrove, Korpas and Weisz (2011) found that punishment certainty, morality and obligation to obey the law, a measure comprised of both ethics items and compliance items, were related to past download frequency, indicating that less concern for these factors is related to more frequent downloading. Yet not all criminological research into digital piracy has been theoretically motivated. For example, Hinduja and Higgins (2011) published a paper based solely on demographic differences in piracy behaviours in a sample drawn from a public university in the US.

### **3.3.2.6. Summary of Criminological Research**

The investigations informed by theories of criminal behaviour and deviance have primarily drawn on four key theories in their investigations: deterrence theory, self-control theory, social learning theory and neutralisation theory. These investigations have found evidence for the importance of variables from these theories, though the contribution of self-control seems to diminish when other variables are included in explanatory models. A strength of these investigations over those informed by social psychology is that many have examined actual behaviour, adding a degree of validity to their findings. However, the measurement of the variables is not always consistent with the theories used. For example, aggregate measures of neutralisation techniques and social learning variables have been used in a number of investigations without clear explanations as to why, leading the reader to question the researchers' motives for doing so. Moreover, a number of investigations have relied upon the same sample to produce successive studies, such as those by Hinduja and colleagues and those by Higgins and colleagues. These investigations are likely to create an illusion of consistency, which may be more an outcome of the sample used than the strength of the theories. When examining the data, it is apparent that some of the investigators have measured ethical judgement as a proxy for neutralisation, and as indicated in the coverage of this literature, the overlap between the concepts in criminological theories and those from social psychology and other areas is apparent. Specifically, ethical judgements appear occasionally as a variable in the criminological research, yet there is a significant research tradition focused on evaluating and predicting ethical decisions. The next section of this chapter focuses on the research informed by theories of business ethics, which has emerged as its own stream of piracy research.

### **3.3.3. Research Informed by Business Ethics**

Whereas the digital piracy literature from criminology has primarily emphasised the role deterrence factors, low self-control and differential associations in predicting piracy, the business ethics research has sought to examine how an individual's ethical judgements influence his or her intentions to engage in ethically questionable behaviours. This line of research primarily draws upon Hunt and Vitell's (1986) model of ethical reasoning and Jones's (1991) moral intensity theory. In outlining their model, Hunt and Vitell wrote "the model developed here is descriptive rather than prescriptive. It purports to explain the decision-making process for situations involving an ethical problem" (p. 6). Like Ajzen's Theory of Planned Behaviour, Hunt and Vitell's model is an intention framework, where intentions are conceptualised as the likelihood that any particular alternative will

be chosen. Specifically, “the likelihood that an individual will engage in a particular behaviour is a function of the individual's intentions and situational constraints” (p. 11), where “the intention to adopt a particular alternative is a function of ethical judgements and teleological evaluation” (p. 11). Ethical judgements “concerning each alternative are a function of deontological evaluation and teleological evaluation” (p. 11).

The key difference between deontological and teleological evaluations has to do with what type of considerations take precedence (Hunt and Vitell 1986). Deontological evaluations emphasise the behaviour, which is judged according to abstract ethical principles. Such evaluations focus on the ‘inherent rightness’ of the behaviour. In the case of access decisions, a deontological evaluation may judge digital piracy to be unethical based upon the belief that one should not steal another’s intellectual property because theft is wrong in and of itself. Teleological evaluations focus on judging behaviour according to its outcomes, and how good or bad the outcomes of the behaviour are. For example, a teleological evaluation of piracy would emphasise its consequences. One may determine that digital piracy is ethical because, unlike the theft of a physical product, the owner of the film is not deprived of anything when a copy is made of his or her film. He or she does not lose anything, so piracy is judged to be ethical.

Researchers using Hunt and Vitell’s (1986) model as a basis for their research into access decisions for film and music have primarily used the framework to examine intentions to engage in digital piracy. These investigations have found support for some elements of the model. For example, Shang, Chen and Chen (2008), using a sample of Taiwanese high school and university students, found that intentions to engage in P2P music piracy were related to positive ethical judgements of the behaviour, which were related to teleological judgements, such as goodness of consequences, but not deontological judgements, such as consumer rights. In their investigation into music piracy among US university students, Gopal, Sanders, Bhattacharjee, Agrawal, and Wagner (2004) found some support for the model. The authors found that ethical judgements in support of piracy, termed ‘club size’, were positively related to money saved by downloading mp3s, and negatively related to age and general ethical beliefs.

In addition to Hunt and Vitell’s (1986) model, other models of ethical decision making have been used to analyse access decisions for film and music. While Hunt and Vitell’s model places emphasis on the evaluative rules individuals use to make ethical decisions, Jones’s (1991) moral intensity theory proposes that there are a number of characteristics that influence decision making

about ethical issues. Jones's criteria are magnitude of consequences, probability of effect, temporal immediacy, social consensus, and concentration of effect. Such criteria are relatively intuitive and require little explanation, so are not elaborated upon here. Jones's criteria have informed a number of investigations. Moral intensity theory was used by Peslak (2008) to examine film and music piracy in a sample of faculty, staff, and students from a US university and practitioners from the ISWORLD listserv. Intention to illegally copy music was related to magnitude of consequences, social consensus, and concentration of effect. Similarly, intentions to download film were related to magnitude of consequences, with mixed evidence for the remaining moral intensity variables. Also informed by Jones's moral intensity theory, Haines and Haines (2007) investigated piracy intentions using a sample drawn from US university students. In the hypothetical case of making a digital copy of a rented DVD, the authors found that intentions were related to ethical judgement, termed 'moral intent', but not subjective norms, termed 'moral equity', which were both related to the perceived importance of an ethical issue. Similarly, in the case of copying a purchased CD and returning it, intentions were related to ethical judgements and subjective norms, both of which were related to perceived importance of the issue. While these authors have used specific theories of ethical decision making, other researchers have used patchworks of concepts in their investigations.

The investigations that are less theoretically motivated have still revealed the importance of ethical judgements in individuals' access decisions. An investigation by Moore and McMullan (2004) emphasises the perceived difference between digital piracy and perceptions of physical theft. Using a sample of students from a university in the US, they found that just 14 percent of their sample perceived the use of P2P software unethical, while 62 percent found it ethical and the remainder were 24 percent uncertain. Similarly, when compared to shoplifting, only 14 percent said it was ethical, whereas 71 percent said it was not comparable, 15 percent were uncertain. Also focusing on perceptions of US university students, Taylor (2004) found that ethical judgements were related to past music piracy, but participation in a mandatory university ethics course was not. Taking a different approach Levin, Dato-on, and Rhee's (2004) examined how individuals who engaged in music piracy, termed 'downloaders', differed from those who did not. They found that downloaders and non-downloaders differed in terms of ethical concerns stemming from evaluations of record companies and the perceived harm done to the industry. Such findings indicate that ethical evaluations and justifications influence the extent of engagement in piracy. They also found that downloaders had more legitimate CDs in their collection and purchased more CDs in the past month, suggesting that piracy is just one form of consumption. Examining a different form of

piracy, Kwong, Yau, Lee, Sin, and Tse (2003) investigated intentions to purchase pirated CDs in a sample drawn from the general population in Hong Kong. Their findings indicated that piracy intentions were negatively associated with ethical judgements against piracy and its perceived social cost and positively associated with anti-big business attitudes and perceived social benefits. As a whole, these four investigations underscore the importance of ethical judgements as likely influences on individuals' access decisions. The findings also indicate that evaluations of other factors, such as the potential social consequences, and general attitudes also influence decisions. Moreover, all of these investigations have used quantitative, survey-based methods to examine how ethical considerations influence intentions and behaviour. Alternative investigative methods have also been employed and contribute to our understanding.

Taking an alternative approach to examining influence of ethical considerations on digital piracy, Haigh's (2009) qualitative investigation into general digital piracy in the Ukraine was informed by Thompson's (1971) notion of the moral economy, "...a popular consensus as to what were legitimate and what were illegitimate practices...." (p. 79). Based on qualitative research conducted using focus groups and written submissions of computer-literate Ukrainian university students, the author found that individuals justify digital piracy on various ethical grounds, such as personal or national poverty, political sentiment, practical necessity, or religious obligation. Using a sample of university students from the US, Altschuller and Benbunan-Fich (2009) also used qualitative methods to explore ethical justifications of digital piracy. Allocated to groups, participants were required to write short explanations as to why they did or did not agree with the behaviour of an individual in scenarios describing different forms of music piracy. Amongst the group responses, 52 percent said downloading is OK, 67 percent said it is OK if one cannot afford to purchase music, and 83 percent said one should play a burned CD if given it by a friend. Taken together, the findings from qualitative investigations reflect the findings from quantitative studies and underscore the importance of ethical judgements and the factors that influence these judgements.

### **3.3.3.1. Summary of Business Ethics Research**

Relatively few investigations have solely relied on models of ethical decision making to inform their investigations into individuals' access decisions about film and music. Those that have tend to provide support for at least some elements of the models. While the antecedents of ethical judgements seem difficult to predict, evidence indicates that ethical judgements are related to

intentions to engage in digital piracy to access film and music. Although the specific moral intensity variables identified by Jones (1991) are not always supported, it seems apparent that both deontological and teleological evaluations are important for access decisions. Moreover, findings also indicate that ethical judgements are related to actual behaviour, at least when past measures of behaviour are used. Perhaps due to the specificity of ethical decision-making models and their limited explanatory power, many investigators have integrated elements from models of ethical reasoning with models from elsewhere in the social sciences. Variables reflecting ethical considerations have been included in investigations motivated by social psychology and criminology, covered in the previous sections, and also are components of investigations informed by marketing and economics, reviewed in the section below. Moreover, there are some conceptual overlaps between the factors that comprise neutralisation theory and the ethical justifications evaluated in a number of the studies reviewed in this section. Thus, it appears that while ethical judgements are important, they are just one set of considerations that influence intentions to engage in piracy.

### **3.3.4. Research Informed by Marketing and Economics**

In contrast to the research informed by theories of ethical decision-making, which is based upon relatively few models, investigations from marketing and economics perspectives draw on a wider theoretical base. Marketing and economics are distinct disciplines, yet the research in these fields concerning access decisions for film and music has much in common. Unlike the other research streams, much of the marketing and economics research has gone beyond intention frameworks that focus on predicting piracy, and has examined decisions among legal alternatives and piracy. Moreover, the marketing and economics investigations have used similar explanatory variables, emphasising factors such as price and quality, and evaluations of specific titles under consideration. Due to such similarities, the research informed by marketing and economics is treated as a single stream of research in this review. The literature is organised according to the variables used to predict access decisions, and distinguishes between investigations that emphasise product-title factors, product-category factors, and access-mode factors.

#### **3.3.4.1. Product-Title Factors**

A number of researchers have examined how factors that vary from title-to-title influence how film and music are accessed. Such investigations look at access decisions from a consumption



perspective, examining factors including desirability or utility and other considerations such as availability of the title. Ouellet (2007) examined how evaluations of the song or album and the performing artist were related to individuals' access decisions. Using a sample of Canadian university students, it was found that the need to re-experience a piece of music was related to evaluations of the music, but not the artist who performed it. The subsequent decision to access a music title was associated with the need to re-experience it, but not the response to the music or the artist. However, once an individual had decided to access the music, only evaluations of the artist were related to the decision to access it legally rather than via piracy. In a similar investigation using participants from a US university, Bhattacharjee, Gopal, and Sanders (2003) found that price was positively associated with intentions to engage in piracy over legal options. In a follow-up investigation, Gopal, Bhattacharjee and Sanders (2006) examined a process model of decision making where piracy allows for sampling. For known titles when price was not examined, individuals were more likely to choose to purchase a title if it was among their favourites. For unknown titles when utility was not known, the choice to purchase a title was negatively associated with price. Other researchers have investigated how factors that vary from title-to-title influence willingness to pay. In a paper designed to investigate the impact of piracy in terms of sales displacement, Rob and Waldfogel (2006) asked individuals to evaluate various music titles. Respondents indicated that their willingness to pay to replace albums they had legally acquired was 25 to 35 percent higher than those acquired through piracy. This finding was replicated again by Waldfogel (2010), where pirated songs were valued between 22 and 45 percent less than purchased songs. Taken together, such research indicates the importance of likely desirability, price and willingness to pay when it comes to access decisions about specific titles.

While there is evidence that willingness to pay influences access, other research indicates that willingness to pay varies by release date. For example, Gallaway and Kinnear (2001) examined ownership of mp3s and willingness to pay in a sample drawn from US college students. Willingness to pay declined in an L-shaped curve, such that it was highest when a song was first released and only a quarter as much 18 months later. Moreover, those willing to wait to buy mp3s in order to comply with the law were willing to pay more than those who were not. Similar evidence has been found in the case of films by Mann, Ahrens, Benlian and Hess (2008). The researchers examined willingness to pay for titles released to VOD services among a sample of German consumers. They found that that willingness to pay was highest before or with simultaneous cinema release. Moreover, if films were available on VOD before being released to cinema, then perceived utility

and willingness to pay were higher among those who admitted to engaging piracy than those who did not. Such findings indicate that willingness to pay declines following release date and thus that the decision to access legally may be more likely for newly released titles.

Experimental studies also indicate the importance of product-title factors for access decisions. Miyazaki, Rodriguez, and Langenderfer (2009) experimentally manipulated markets to examine how price and availability influence piracy-related attitudes and intentions. In two studies, they found that availability and price affect the perceived disapproval of piracy, such that when a product is not available, individuals are less disapproving than when it is, and also when prices are high rather than low. However, intentions to engage in piracy were not related to legal availability, but were inversely related to price. Taking a different approach to experimental manipulation, others have used combinations of direct and indirect measures in their investigations into how product-title factors affect access decisions. In the first study in a recent paper, Bellemare and Holmberg (2009) evaluated music access decisions using a sample drawn from university students in the US. The likelihood of buying the most popular song on the iTunes chart, 'Right round' by Flo Rida, was negatively related to an individual's last song purchase being very unpopular, which they used as a proxy for song-taste compatibility. Personal income and price were also negatively related, while having received an iTunes gift-card was positively related. Also using proxy measures for some variables, Hennig-Thurau, Henning, and Sattler (2007) examined the legality of film access decisions among a sample of German consumers in the second study in their paper. The likelihood of using a legal access mode was related to likely desirability (i.e., IMDB rating), as well as availability (i.e., number of screens it was shown on) and social factors (i.e., average attendance for the film), in addition to intentions to use that access mode.

Taken together, these investigations reveal that factors that vary from title-to-title, whether evaluated by the participant, experimentally manipulated, or assessed using a proxy measure, are related to access decisions. Price, likely desirability, and availability seem to influence access. More specifically, individuals may pirate because they are unwilling to pay purchase prices or the product is unavailable. Moreover, willingness to pay declines following a title's release. However, the limited range of variables examined makes it difficult to draw conclusions on the relative importance of these factors. While these investigations indicate the importance of individual assessments, another group of studies have examined how individuals' interests and associated consumption behaviours are related to their access decisions.

### 3.3.4.2. Product-Category Factors

Taking a different approach to the studies focusing on specific titles, other researchers have examined how individuals' general interest in a product category influences their behaviour in aggregate. Such investigations often use variables that serve as proxy measures for interest in film and music by looking at their consumption of related goods.

In a series of investigations designed to identify the potential effect of piracy in terms of sales displacement, Rob and Waldfogel (2006) examined acquisition behaviour in a sample drawn from university students in the US. For both popular 'hit' albums released over the prior three years and recently released 'current' albums, being male was negatively related to the total number of albums acquired legally, and self-reported interest in music was positively related. Different effects were found for the influence of illegal downloading on music acquisitions. Downloads of hit albums were not related to the number of hit albums acquired legally, but downloads of current albums were negatively related to the number of current albums bought. These findings for downloading were replicated by Waldfogel (2010) who found that the number of songs purchased was negatively related to number of songs acquired by piracy.

Like the Rob and Waldfogel investigations, Bounie, Bourreau and Waelbroek (2007) examined the factors associated with the number of CDs purchased annually among a sample recruited from a French university. Of the interest variables, spending more than 10 hours listening to music per week, visiting record stores, reading music magazines, going to concerts, playing an instrument and purchasing CDs online were positively related to CDs purchased. Acquiring mp3s via piracy was negatively related if they were acquired online, though positively related if acquired through physical exchanges. Similarly Andersen and Frenz (2010) examined the correlates of music purchases using a sample drawn from the general population in Canada. A number of factors indicating interest were significantly related to the number of CDs purchased annually, such as concerts attended and self-reported interest, in addition to purchases of related entertainment goods, including the number of DVDs and video-games purchased. However, neither the estimated price of albums nor the Log of P2P files downloaded were related. For demographic factors, being female was negatively related to the number of CDs bought. These findings indicate that interest in music and willingness to spend money on other cultural products is associated with aggregate legal access.

The results concerning the influence of level of interest in a product category on consumption are corroborated by findings for film. Rob and Waldfogel (2007) examined film

access decisions among a sample drawn from students at a US university, finding that interest in film was positively related to the likelihood that an individual would see a film in the cinema. Also examining film access decisions, but in aggregate rather than each decision, Bounie, Bourreau and Waelbroeck (2006) investigated the correlates of film consumption among a sample of students and faculty from French universities. In predicting frequency of cinema visits, film piracy was not related, but a number of variables that indicate interest in film were, such as reading film magazines and websites, having a cinema subscription or club membership, in addition to income. For frequency of DVD purchases, interest variables such as theatre subscription and having a DVD player were significantly related. Moreover, frequency of piracy was negatively related if individuals engaged in piracy more than several times per month. Frequency of film rentals was also negatively related to piracy, if the frequency was more than several times per month, and having Internet access, and positively related to having a DVD player and a high income. Like other studies on music, these findings indicate that interest in film and willingness to spend money on other cultural products are associated with aggregate legal access of films.

While the studies described above have focused on legal access, other researchers have looked at how level of interest influences piracy behaviour. Zentner (2006) examined the likelihood of illegally downloading music using a sample with participants from France, Germany, Italy, the Netherlands, Spain, Sweden, and the United Kingdom. Music piracy was positively related to factors that indicated a preference for Internet-facilitated consumption, such as listening to music online, ownership of an mp3 player and CD burner, and having a broadband connection, in addition to other factors such as being male and a student, though negatively related to full time employment. When assessed without the broadband measure, a number of activities indicating Internet engagement were related to piracy, such as having published one's own webpage, reading computer magazines, participation in online auctions, asking for technical support online, in addition to the other variables listed above. In another study, Bonner and O'Higgins (2010) used a convenience sample drawn from the UK and Ireland to investigate how general, self-reported preferences influence aggregate behaviour. Using a simple correlation analysis, they found that the number of pirated music titles possessed by an individual was related to the frequency of desire to find new music, as well as interest in a particular genre, time spent listening to music, enjoyment of listening, and age. Such findings indicate that interest in music is also related to piracy behaviour. Also using correlation analysis, Kinnally, Lacayo, McClung, and Sapolsky (2008) examined the correlates of both legal and illegal access. Aggregated piracy activity for music was related to being

male and perceived economic utility, entertainment, convenience and information seeking motives. In relation to legal access, CD purchasing was positively associated with affinity for music and the information seeking motives for engaging in piracy, and negatively related to economic motives.

When considered together, the findings indicate that one's level of interest in film and music is related to consumption of these products, whether or not this consumption is facilitated by legal access or via piracy. To a certain extent, this research produces expected results: interest spurs consumption. However, it is less clear how general interest in a product category influences access decisions for specific film and music titles, and why some titles are accessed legally while others are accessed via piracy. Taking a different perspective to these studies, another line of research has examined how evaluations of access modes from a consumption perspective influence access.

#### **3.3.4.3. Access-Mode Factors**

The previous research covered in this stream has been grouped according to product-title and product-category factors. Another line of research in this research stream focuses on how evaluations of the access modes influence access decisions from a consumption perspective. This research focuses on predicting either legal or illegal access of film and music.

Chen, Shang and Lin (2008) examined how evaluations of mp3s, the dominant format for digital music, were related to intentions to pirate music. Using a sample drawn from school and university students in Taiwan, they found that the perceived value of mp3s and their social and emotional benefits over CDs, in addition to fashion involvement, were related to intentions to engage in music piracy. Moreover, they found these relationships were stronger for groups with lower moral development, which describes one's ability to engage in ethical reasoning. Focusing on evaluations of the access mode rather than the format, Plouffe (2008) looked at intentions to pirate music in a sample drawn from US university students. The findings indicated that music piracy intentions were positively related to both P2P satisfaction and P2P usage. Moreover, P2P usage was related to early adoption of the technology and P2P experience, while P2P satisfaction was related to convenience and community connectedness, though not perceived assortment. These investigations indicate that individuals' evaluations of common pirated formats and the technologies that facilitate piracy influence access decisions.

Other researchers have examined how evaluations of legal and illegal access modes and their formats influence piracy. Hennig-Thurau, Henning, and Sattler (2007) used a consumer utility perspective to inform their analysis of film access decisions using panel data from German

consumers; a study also published in the paper described in previous section. In the study they examined the factors related to the aggregate number of films obtained illegally over a year. They found that access mode factors associated with piracy were important, such as difficulty (i.e., search costs, file-sharing knowledge), ethical judgements (i.e., moral costs, anti-industry utility) and quality of pirated copies (i.e., degree of substitution, collection utility), in addition to factors associated with legal access (i.e., utility of legitimate copies, transaction costs). Also looking at how evaluations of legal and illegal access modes influence aggregate behaviour, Sandulli (2007) investigated music piracy among P2P users in Spain. Beliefs about price when using P2P services, willingness to pay for legal options and the perceived benefits of P2P use, such as the variety offered, the ability to discover more music, and feelings of community, were all positively related to the proportion of P2P songs illegally downloaded relative to the number of albums purchased legally. Taking a similar approach, informed by multi-attribute theory (e.g., Bettman et al. 1975), which suggests that individuals use multiple criteria to evaluate alternatives, Sirkeci and Magnusdottir (2011) investigated preference for legal access or piracy in a UK sample drawn from online forums and social networking sites. The authors found that preference for piracy over legal access was positively related to the importance of, and satisfaction with, the quality of pirated copies, and negatively related to the importance of variety and legitimacy, and the satisfaction with security when pirating.

Taking a different approach to examining decisions and behaviour, Molteni and Ordanini (2003) used a sample recruited from a university homepage in Italy to identify clusters of illegal downloaders and investigate how these groups differ in their frequency of downloading illegally. The authors created clusters based on factors related to access modes, such as characteristics mp3 sites, P2P formats, and recordings, and factors related to motivations for use, such as search and exploration, entertainment, and file compilation. The five clusters identified were: occasional downloaders, mass listeners, explorers/pioneers, curious listeners, and duplicators. However, the clusters were not effective in differentiating listeners in terms of frequency of downloading, indicating that their categorisation was not effective. Other researchers using categorisations have been more effective. Recent research by Sinha, Machado, and Sellman (2010) categorised university students in the US based upon the intensity with which participants pirated music. Their investigation examined how various factors influenced the likelihood of being a 'high intensity pirate' and willingness to pay for legal downloads. Using a between-subjects design in their first study, they found that digital rights management (DRM) restrictions on personal use did not

increase likelihood of being a high-intensity pirate or willingness to pay for a favourite song, but sharing DRM restrictions did. In a second study, they found that if copies are available from a friend, then the presence of DRM with sharing-restrictions increases likelihood of being a high-intensity pirate and reduces the mean willingness to pay of non-pirates. These findings indicate that restrictions on use and factors such as price and availability are associated with access decisions and willingness to pay.

Other researchers have used experimental methods to examine how access-mode factors influence access decisions. Using a sample drawn from German university students, Quiring, Von Walter, and Atterer (2008) examined the outcome of revenue splitting between record labels and peers sharing the music. Participants were assigned to groups that differed according to how revenue would be split. Although there were no differences between groups when participants had to pay for music, the participants allocated to the 'free download' group downloaded much more. In another experimental study focusing on revenue splitting, Grolleau, Mzoughi, and Sutan (2008) investigated likely piracy in a sample drawn from university students in France. In their between-group experiment, piracy rates were highest when no contribution was made to charity, lowest when a 10 percent contribution was made, while the condition with a 30 percent charity contribution had a medium piracy rate. Such investigations indicate that revenue sharing may impact access decisions if profits are shared with charities.

When considered as a whole, the research focusing on access-mode characteristics indicates that a number of factors are likely to influence access decisions. The evaluation of new formats in terms of their perceived benefits over traditional formats, their perceived quality, and issues associated with DRM technologies appear to influence access decisions. Similarly, the convenience of access modes enabling piracy and their perceived ease of use are also likely to be related to access decisions. Price also emerged as important, whether conceptualised as the perceived economic benefits of piracy or the willingness to pay for legal options that did not place limits on use. Factors related to availability were also important, such as the capacity of illegal access modes to provide variety and enable the discovery of options. However, aside from a few investigations, it is difficult to see how non-consumption evaluations of the various access modes and evaluations of product-title factors come together to influence the legality of individuals' decisions.

#### **3.3.4.4. Summary of Marketing and Economics Research**

Taken together the findings from the marketing- and economics-oriented investigations indicate that product-title factors and access-mode factors influence access decisions. This influence is observed at the aggregate level, in terms of film and music titles accessed per year and the proportion of legally to illegally-accessed titles, as well as at the decision level for specific titles. The evidence for product-category factors seems mixed. Findings indicate that interest in a product category leads to higher consumption, both legally and via piracy. In terms of specific factors, willingness to pay appears to be an important determinant, as well as factors related to evaluations of the content and its availability. Like the other research streams, the marketing- and economics-oriented investigations have relied upon quantitative analyses designed to evaluate deductive hypotheses. A smaller stream of research has taken a different approach, and drawn on theories from disciplines such as sociology and anthropology to investigate access decisions.

#### **3.3.5. Research Informed by Inductive Methods**

In addition to research that relies on quantitative methods, a number of studies have used inductive methodologies and approaches to theory generation to investigate digital piracy, such as ethnographic and grounded-theory approaches. Typically, the findings from these investigations corroborate evidence from the quantitative investigations, indicating the importance of ethical judgements, access and availability, and price and technical ability.

As an investigative philosophy, grounded theory (Glaser and Strauss 1967) has been particularly influential. Singh, Jackson, Waycott, and Beekhuyzen (2006) used a grounded theory approach to investigate “the continuum from downloading to purchase” in a convenience sample drawn from the researchers’ social networks. The authors used a combination of focus group and one-on-one interviews, concluding that the download side of the continuum is dominated by issues of affordability and access, product intangibility, loyalty to artists, and antagonism towards record companies. Conversely, the purchase of music was motivated by a concern for copyright issues and a lack of technological expertise. Also using grounded theory, García-Álvarez, López-Sintas, and Zerva (2009) investigated digital piracy among a sample of students from various countries studying at a Spanish university. The authors identified a number of common justifications for engaging in piracy, which varied according to the public resources of the students’ home countries and their personal resources. Students from countries with abundant public resources justified piracy as borrowing and avoiding being exploited, and stated they would only stop pirating music if



financial penalties were high. Those from places where public resources were scarce justified piracy because they lacked alternatives, and were unlikely to stop pirating music and buying in the informal economy, given that they had no other alternatives for accessing music.

In addition to grounded-theory approaches, a number of researchers have conducted ethnographies. Condry (2004) conducted an ethnography to examine the social dynamics and cultural orientations that guide music consumption in Japan and the US. His analysis, based on interviews with consumers in the US and Japan, and interviews with industry executives in Japan lead him to conclude that there was convergence of attitudes among fans in the US and Japan, but a divergence in corporate and legal responses to declining record sales. Internet piracy is not common in Japan because of music rental stores which people used to obtain legitimate copies of CDs, which they subsequently ripped. Japan also had lenient copyright enforcement, despite having similar laws to the US.

Also using an ethnographic approach, Giesler and Pohlmann (2003) investigated motivations for using Napster, the first major P2P service. Referring to Napster as a “parasitic gifting economy”, the authors identified four key motivations for use. The individualistic utilitarian motivation described those using Napster to access music for free. The instrumental and agonistic motivation described those who opposed the influence and impacts of the contemporary music entertainment regime. The altruistic motivation saw using Napster as participation in a community. The instrumental and altruistic motivation described individuals engaging to positively change the music industry. Inspired by Giesler’s previous work, Cenite, Wang, Peiwen, and Chan’s (2009) examined motivations for downloading and uploading music among people in Singapore between the ages of 16 and 30. Based on their analyses, the authors concluded that respondents reported downloading to avoid long waits for content to arrive in Singapore; to access difficult-to-find and censored content; to sample content, including content outside their usual tastes; and because downloading is convenient and free.

Blythe and Wright (2008) took a somewhat different approach to conduct their qualitative research. Using twelve participants from England, the individuals were asked to play a game of ‘technology scruples’, where they were required to guess the answers of known opponents. In general, their analyses revealed that people rejected the notion that copying music was stealing. These ethical positions were constructed around notions of resistance against the industry, arguments about intangibility, and individuals’ identities as music fans.

### **3.3.5.1. Summary of Inductive Research**

While the inductive stream of research has approached the investigation of digital piracy differently from the other streams, which build on established theories and models, the findings and conclusions about piracy are remarkably similar. Taken as a whole, these findings indicate that considerations related to price, the availability of content, ethical judgements and rationalisations, factors related to skill, perceived risks, and other contextual factors influence access decisions. Such conclusions are similar to those reached by the other streams of research summarised in the previous sections, though few investigations have identified these factors in single investigations. To an extent, the inductive stream of research shows that access decisions for film and music are multifaceted, and involve multiple considerations that do not map neatly onto existing theories from single research disciplines. To this end, a small group of investigations have integrated elements from various models in order to better understand access decisions.

### **3.3.1. Multidisciplinary Research**

In contrast to research that is primarily informed by one discipline, a number of researchers have combined theories from across the social sciences in their investigations into digital piracy. Other researchers coming from quantitative, deductive perspectives have, through implication, acknowledged the limitations of only using variables that derive from one discipline and thus integrated elements from multiple disciplines. Some of their research has been discussed in previous sections, as it fits relatively neatly into the existing streams reviewed. However, there are a number of investigations that, whether by the diversity of the theories that inform the research or the selection of variables in their research models, are difficult to categorise under single streams. This research is reviewed below, beginning with the research that integrates models from two disciplines and moving on to the research that is multidisciplinary.

Much of the multidisciplinary work has incorporated elements from models from criminology with others that are not typically components of such theories. In one such example, Chiou, Cheng, and Huang (2011) investigated music piracy intentions among undergraduate students recruited from Taiwan and the US. In their between-subjects study, levels of punishment certainty were manipulated. The authors found main effects for punishment certainty and nationality. Intentions were lower for individuals in the high risk conditions than the low risk conditions and higher among participants from Taiwan than those from the US. Similarly, in their investigation of whether an individual's most recent song was acquired legally or via piracy,

Bellemare and Holmberg (2009) found that punishment certainty, assessed as the subjective probability of lawsuit, was negatively related, in addition to factors including willingness to pay and ethical judgement, termed 'morality'. However, punishment severity, assessed as the subjective cost of lawsuit was not related.

Other research has used components from theories of criminology to examine how risk variables influence the willingness to pay for legal options. In one study, Sinha and Mandel (2008) used a sample of university students in the US, and found that punishment certainty and being female were positively related to willingness to pay, whereas Machiavellianism and variables indicating interest in music, including private use, concert attendance, and playing a musical instrument were negatively related to willingness to pay. In a second study, between-subject analyses were conducted where punishment certainty was manipulated. The authors found again that punishment certainty was positively associated with willingness to pay, while optimum stimulation level had a negative influence on willingness to pay. The two interacted, such that willingness to pay was significantly different for high optimum stimulation level individuals at high and low risk conditions. However, in a third investigation, they found that punishment certainty did not influence piracy intentions, but functionality of pay websites negatively influenced it. The research of Fetscherin and Lattemann (2007) comes to similar conclusions when integrating risk variables and willingness to pay research. Based on a sample of US university students, they found that belief in the quality of pirated copies and ownership of a sound-system were negatively related to willingness to pay, whereas having a CD burner, age, and level of education were positively related. However gender, having an mp3 player, risk of punishment and getting a virus, and years online were not significant. Moreover, individuals' willingness to pay for legal digital downloads was significantly higher when it was not possible to access a track via piracy. Taken together, these results produce conflicting evidence about the influence of perceived risk on access decisions when punishment-related risks are assessed in relation to factors from marketing.

Other researchers have gone further in their integration of factors from criminology and marketing, extending the scope of their research to also examine how ethical considerations influence access decisions. In an investigation using a sample drawn from the general population in France, Rochelandet and Le Guel (2005) investigated the correlates of the intensity of P2P music and film piracy. In their investigation, they discovered that willingness to pay for film and music as well as ethical evaluations were negatively related to copying intensity, though legal risks were not. Moreover, a number of demographic factors were positively related, including being male, the

proportion of copiers in one's neighbourhood, cultural diversity, while age, higher levels of education were negatively related. Behavioural variables such as time spent online and engagement software copying were also positively related.

Research informed by criminology and ethics, combined with social psychology rather than marketing and economics, has also produced multidisciplinary findings. Using a sample recruited from the general population in the US, Pryor, Dalenberg, McCorkle, Reardon and Wicks (2008) examined the factors associated with the likelihood of individuals' previous music acquisitions being illegal. In their model, punishment certainty and age were negatively related to piracy, while ethical judgements in support of piracy, and favourable subjective norms were positively associated. However, punishment severity and interactions between variables were not related.

Another group of studies has excluded punishment considerations and integrated marketing, ethics and social psychology. Vermeir (2009) examined the extent of engagement in film piracy among a sample of 490 young Belgian adults. In the study, a number of variables were positively related to piracy, including ethical judgements, price perceptions of legal alternatives, effort involved in using legal alternatives and perceived behavioural control, termed 'piracy knowledge'. Similarly, Holm (2003) examined the correlates of the proportion of music, computer games and software that were acquired legally in a sample drawn from Swedish university students. His results showed that the proportion of products pirated was negatively related to willingness to pay for an original when a copy is available free from a friend, but positively related to computer skills, and being male, though not related to ethical judgements, income or age. More recently, Huang (2005) investigated music downloading intensity among university students in Taiwan, finding that music downloading was positively related to perceived behavioural control, termed 'expertise in file-sharing', but negatively related to the perceived social value of engaging in piracy and unrelated to ethical judgements. Taken together, such results provide evidence that indicates that skill factors and price considerations are important, though the influence of ethical considerations is mixed.

In addition to the investigations integrating elements from the three streams of quantitative research covered previously, a number have integrated four, taking elements of models from social psychology, criminology, ethics, and marketing and economics. In the case of music, these mixed investigations have examined intentions to download or purchase pirated music among teenagers in Taiwan (Chiou et al. 2005), university students in the US (Coyle et al. 2009; LaRose and Kim 2007; Lyonski and Durvasula 2008) and reports of past piracy behaviour among university students in the

US (LaRose et al. 2006; Lyonski and Durvasula 2008). For films, the research has examined intentions to purchase pirated films in Taiwan (Chih-Chien 2005). When considered together, this research provides an indication that variables from each of the disciplines are related to piracy when evaluated simultaneously. As expected, support was found for variables directly assessing or associated with elements from TPB. Attitudes and subjective norms were consistently related to piracy when assessed, though the evidence for perceived behavioural control was mixed. In the case of variables from criminology, the evidence indicates punishment certainty, a factor in deterrence models, was related to intentions or past behaviour in all but one of the investigations. Similarly, evidence supports the influence of low self-control, termed ‘deficient self-regulation’, which was related in the two investigations examining it. Ethical considerations were also important. Ethical judgements were related to piracy intentions in all investigations that the variable was measured. In those where it was not, evidence indicates mixed evidence for the importance of moral intensity variables such as perceived magnitude to consequences (e.g., Chiou et al. 2005; Lyonski and Durvasula 2008). In the case of marketing- and economics-related variables, concerns about quality and price were related to intentions and past behaviour, while past purchasing of legal titles was not related.

#### **3.3.1.1. Summary of Multidisciplinary Research**

When evaluated as a whole, the multidisciplinary research indicates that many of the elements that derive from the various research streams influence individuals’ access decisions. Most of the research in this section is consistent with the few investigations that drew on elements from social psychology, criminology, business ethics, and marketing and economics. Factors such as subjective norms or similar variables assessing social considerations are important, in addition to attitudes and perceived behavioural control or similar variables assessing ability. Punishment certainty is relatively consistent predictor of piracy, though the evidence for punishment severity is mixed. Ethical judgements also appear to be important, though the evidence for moral intensity factors is inconsistent. From marketing and economics, factors indicating interest in the product category are related to piracy, in addition to quality concerns, accessibility and price. Yet, aside from a few of the investigations, much of the research does not evaluate factors from across the disciplines, leaving questions about how influential these elements are when assessed simultaneously. Many of the limitations of this small collection of multidisciplinary studies are observed in the research that

fits into the various disciplinary streams. The next section discusses the findings of the collected research and identifies its common limitations.

### **3.3.2. Limitations**

This review began by covering research related to access decisions for film and music, paying particular emphasis to the research on digital piracy. The research was organised by the theories and models that have informed investigations. For the most part, research falls into five relatively distinct streams, informed by social psychology, criminology, business ethics, marketing and economics, and inductive research, in addition to a number of investigations that are multidisciplinary. These streams of research have made important contributions concerning the individual antecedents of individuals' access decisions and behaviour. Research informed by social psychology indicates that Ajzen's TPB can be used to explain intentions to engage in piracy, but also that perceptions of risk and ethical considerations are important too. Contributions from research informed by theories from criminology also indicate that perceived risks influence piracy behaviours, along with self-control and factors from social learning theory. Findings from business ethics research on piracy demonstrate that ethical judgements and certain moral intensity variables including the magnitude of consequences are related to piracy intentions and behaviours. Investigations informed by insights from marketing and economics also contribute to our understanding of individual access decisions, showing that product-title factors and access-mode factors are related to access decisions. Indeed, factors reflecting evaluations of content, availability, price and quality are important variables in determining whether an individual will pirate or purchase a product and the ratio of purchased-to-pirated titles. Those investigations that used inductive methods to investigate piracy, as well as those that drew on multiple disciplines, have largely corroborated the evidence accumulated across the various streams of research and indicate the importance of variables from each of the streams in individuals' access decisions. Despite the contributions made by this research, as a collected body of literature it is limited in three important ways: the research is fragmented, it has largely decontextualised digital piracy, and it has largely disregarded the influence of product-title factors.

The fragmentation of the literature is a result of separate disciplinary streams of piracy research using models that emphasise some variables, but disregard other important influences. For example, much of the research using Ajzen's (1991) TPB, such as d'Astous, Colbert and Montpetit's (2005) research, uses an expanded version to investigate intentions to engage in music

piracy, but disregards important variables like the price and availability of legal alternatives. Each stream has revealed important insights into the antecedents of digital piracy, but also omitted important variables covered in the other streams. Currently, it is difficult to identify which elements from the different streams are the strongest determinants of digital piracy. For example, is it the perceptions of the social pressure to engage in piracy, the likelihood of being punished if caught pirating, or the price of legal alternatives that influences piracy behaviours the most? As discussed previously, a number of investigations have sought integrated approaches and drawn on elements from the four key streams of theoretically informed research (e.g., Chiou et al. 2005; Coyle et al. 2009; LaRose and Kim 2007; LaRose et al. 2006; Lyonski and Durvasula 2008). However, all of these investigations have produced work which does not address the other major limitations, namely decontextualisation and an under-emphasis of product-title factors.

Decontextualisation has occurred as most research has not examined how legal alternatives are evaluated against piracy. A number of authors have acknowledged that piracy is just one of a range of options available to the individual to access a digital product (e.g., Bhattacharjee et al. 2003). Moreover, some investigators have examined the choice between legal and piracy access modes (e.g., Gopal et al. 2006; Hennig-Thurau et al. 2007; Ouellet 2007; Pryor et al. 2008), the general preference for piracy over legal access (Sirkeci and Magnusdottir 2011), and the ratio of pirated content to that acquired legally (e.g., Chiang and Assane 2007; Holm 2003; Sandulli 2007). However, the literature presently lacks an integrative model that accounts for the factors that influence an individual's decision to choose an illegal alternative in favour of legal option. This practice has limited our understanding of digital piracy itself as we still do not have a good understanding of the conditions surrounding why a consumer chooses to pirate a product rather than to access it legally. Knowledge of the factors that predict the use of legal alternatives to digital piracy will help enable business models to be developed which better cater to, and capitalise on, individual preferences. This issue is especially important given the recent rise of relatively inexpensive and free legal alternatives that have entered international markets (e.g., Spotify for music, Netflix streaming for films), providing consumers a variety of legal options that serve as legitimate alternatives to piracy.

Concerning focus, previous research has largely focused on access-mode factors rather than factors that vary from title-to-title. As consumers' exhibit preferences for certain products within a category, such as having favourite artists or actors, product-title factors are expected to influence their access decisions. Previous evidence has shown that consumers are willing to pay more for

products they expect will be better than others within a category (e.g., Lopes and Galletta 2006). By primarily focusing on factors related to the access mode, previous research has disregarded how consumers' evaluations of different products within a category influence their access-mode decisions. Product-title factors are not only limited to evaluations of a title's content, but also relate to factors such as willingness to pay and perceived legal availability. Though some investigations have examined factors that vary from title-to-title (e.g., Bellemare and Holmberg 2009; Gopal et al. 2006; Hennig-Thurau et al. 2007; Mann et al. 2008; Ouellet 2007), these investigations have produced work that does not address the other major limitations. Specifically, there is an under-emphasis of access-mode factors and a lack of integration of the research streams.

Building on the insights provided by the existing body of research, a new model is presented in the next section for examining digital piracy in light of recent market developments. The model draws upon the research outlined above and addresses its key limitations by integrating the various research streams, contextualising piracy by placing the focus on the decision among access modes, and incorporating factors that vary from title-to-title.

### **3.4. Research Model**

The model presented in this section integrates the various streams of research reviewed earlier in the chapter with insights from consumer behaviour. From the research informed by social psychology, the model draws on elements of Ajzen's (1985; 1991) TPB. Reflecting the contribution of research informed by criminology, it draws on elements from Becker's (1968) deterrence theory. To be consistent with business ethics, the model integrates Hunt and Vitell's (1986) model of ethical decision making. Finally, from the marketing and economics stream of research, it includes concepts that reflect concerns about price, quality, availability and desirability. The research model described here forms the basis for the empirical analyses that are presented in the following chapter.

The prevalence of digital piracy and its frequent coverage in mainstream media outlets (e.g., Benner and Vuorela 2012) indicate that most individuals in developed countries know that piracy is an option available to them. Indeed, a number of investigations that look at access behaviour for film and music have noted that many consumers engage in both legal access and piracy to access these products. For example, in their investigation Kinnally et al. (2008) found that participants owned an average of 79 commercially produced CDs and purchased an average of eight CDs in the past year, though had pirated an average of 265 songs in the past year and had an average of 677 songs stored on their computers. Looking at figures differently Waldfogel (2010) found that of the



318 respondents who either bought or pirated songs in their investigation, a third did both, 104 only bought, 77 only pirated music, and 37 neither bought nor stole songs, but had subscription access. Similarly, Sirkeci and Magnusdottir (2011) found that in their sample from the UK that two thirds of respondents admitted to downloading music from unauthorised sources, and that more than two thirds of those who had downloaded illegally also purchased music online, while only twenty percent of respondents had never purchased digital music. Accordingly, many individuals are likely to consider piracy as an option when making decisions about how to access products available digitally. In this way, access decisions for film and music are distinct from decisions about products not available digitally as the latter typically do not involve considerations of illegal options. Consumption decisions about products available digitally are likely to be influenced by a broader variety of factors than regular consumption decisions, and include social, legal, ethical, and consumption considerations.

In the research model, the access decision is influenced both by factors that vary from title-to-title and factors related to the access mode, where digital piracy is one access mode available to individuals. Although a number of authors have acknowledged that piracy is just one of a range of options available to the individual to access digital products (e.g., Bhattacharjee et al. 2003; Gupta et al. 2004; Tan 2002), the research literature lacks a theoretical model that integrates the literature to identify the factors that influence an individual's access-mode decision. Given that digital piracy is a form of consumer behaviour, it is appropriate to use insights from that field of research to inform the development of a new model.

As a field, consumer behaviour asks questions about the “activities people undertake when obtaining, consuming, and disposing of products and services” (Blackwell et al. 2006, p.4), and authors have investigated this area from a variety of perspectives. For example, some conceive of consumption as a process (e.g., Blackwell et al. 2006), and others identify the strategies individuals use when making decisions about which product to buy (e.g. Bettman et al. 1998). However, common to all the approaches are the notions that individuals typically choose one option from an available set and that in doing so their decision is influenced by a variety factors. As noted by Antonides (2008) “since consumer behaviour can be highly complex, theories about different aspects of behaviour are necessary in order to increase explanatory power concerning this behaviour.” (p. 227). The model outlined in this section is not overarching in the sense that it attempts to describe the entire consumption process. However, it draws on theories of different

aspects of behaviour in order to explain why film and music are accessed legally in some instances, but via piracy in others.

In a sense, models of consumer behaviour are similar to those of motivation from social psychology, such as TPB (Ajzen 1991), where an individual's behaviour is also said to be determined by a number of factors. In describing TPB, Ajzen (1991) declared that at “the most basic level of explanation, the theory postulates that behaviour is a function of salient information, or beliefs, relevant to the behaviour... It is these salient beliefs that are considered to be the prevailing determinants of a person's intentions and actions” (p. 189). The model here builds upon this notion, though does not restrict the salient information to the elements of the TPB model, but includes other elements that are likely to be relevant to the decision. Access decisions for products available digitally often include an option where an individual can obtain the product illegally with very few risks. Thus, a model that attempts to capture the range of factors that influence the access decision should be extended beyond those typically found in consumer behaviour research. The model outlined below builds upon TPB and integrates key elements of relevant theories and models to represent the multiple factors that influence an individual's access decision.

### **3.4.1. Theoretical Positioning**

The model differs from those previously offered in the literature because it focuses on decisions about how to access digital products when multiple access modes are available, rather than the intention to use one of them (e.g., use piracy). The model departs from TPB, reframing intentions as decisions with a degree of commitment and representing a choice among alternatives: legal access, piracy, and non-access. The model emphasises the decision, because in contexts with more than two options, looking at the intention to engage in one does not adequately reflect the situation. For example, if the intention to pirate a song is low, we do not know if it is because the individual intends to access it legally or not access it. Moreover, decisions take the place of intentions as individuals typically access digital products quickly after they make a decision to do so. As noted by Ajzen (1985, p. 22) “it may be neither feasible nor of much practical value to measure the intention in close temporal proximity of the behaviour.” However, much of the previous research has used intention frameworks to examine digital piracy. This research is drawn upon to support the theoretical model. Previous findings concerning relationships between piracy intentions and variables in the model are taken as support for the propositions about the access decision.

Table 2: Integration of Theoretical and Empirical Research Findings

Source	Evaluation of outcome	Social influence	Ability	Legal risk	Factors				
					Product risk	Ethics	Price	Availability	Other
<b>Theory of Planned Behaviour</b>	Attitudes	Subjective norms	Perceived behavioural control	Punishment certainty & severity					
<b>Other social factors</b>	Anticipated emotions		Past behaviour Self-efficacy						
<b>Deterrence theory</b>									
<b>Self-control theory</b>									Self-control
<b>Social learning theory</b>	Differential reinforcement	Differential associations	Imitation			Definitions			
<b>Model of Ethical Reasoning</b>						Ethical judgement			
<b>Product-title considerations</b>	Desirability Utility	Community	Experience Difficulty		Quality		Expected price Willingness to pay	Availability	
<b>Access-mode considerations</b>							Economic benefits	Variety	
<b>Demographics</b>									
<b>Factors in model</b>	Desirability	Subjective norms	Perceived behavioural control	Punishment certainty & severity	Quality	Ethical judgement	Price perception	Availability	Discretionary income
<b>Category</b>	Product-title factors	Regulators	Resources	Risks	Risks	Regulators	Product-title factors	Product-title factors	Resources
<b>Origin</b>	Brown (1950) Muthukrishnan & Ramaswami (1999)	Ajzen (1991)	Ajzen (1991)	Becker (1968)	Jacoby & Kaplan (1972)	Hunt & Vitell (1986)	Thaler (1985)		

The access decision for a digital product is influenced both by factors related to the access mode and factors that vary from title-to-title. Table 2, above, identifies the key variables from previous digital piracy research and provides a theoretical rationale for including each factor in the research model. Moreover, the table indicates the source of each factor and demonstrates the conceptual overlaps of existing theories and models. In the interest of parsimony, factors that best reflect individuals' considerations were kept and integrated into the model. According to TPB (Ajzen 1985; 1991), intentions are the primary determinant of behaviour and are influenced by attitudes, subjective norms, and perceived behavioural control. In the model, these three variables are used, but the attitude variable is separated into ethical judgement of the access modes and product desirability. The conceptualisation of ethical judgement comes from Hunt and Vitell's (1986) model of ethical reasoning. The conceptualisation of product desirability is similar to the concepts of attitude towards the product (e.g., Brown 1950) and product evaluation (e.g., Muthukrishnan and Ramaswami 1999). Another factor related to the specific product title is willingness to pay. Thus, price perceptions, derived from Thaler's (1985) mental accounting, are included in the model. Moreover, the perceived legal availability of the product is included. Turning back to access-mode factors, the model incorporates risks associated with access. Core elements of Becker's (1968) economic theory of crime are included, punishment certainty and punishment severity, as they cover potential risks associated with the legality of the access modes. Similarly, quality risk, termed performance risk in Jacoby and Kaplan's (1972) typology of consumer risks, reflects considerations of product quality. Additionally, discretionary income, stemming from considerations beyond access modes and the product title is included in the model.

In the model shown below in figure 9, the factors are grouped into four categories according to how they influence the decision. Some are product-title factors that reflect factors that vary from title-to-title (desirability, price perceptions, availability). The remaining factors reflect considerations related to the access modes. Of the access-mode factors, some are regulators of decisions (subjective norms and ethical judgement), some are perceived risks associated with access modes available (quality, punishment certainty, punishment severity), some are resources that enable the use of an access mode (perceived behavioural control and discretionary income). Importantly, the model assumes that an individual makes informed access decisions, and factors such as self-control and habit are not included in the model as such factors make assumptions about non-control. The remainder of the section elaborates on each category in the model.

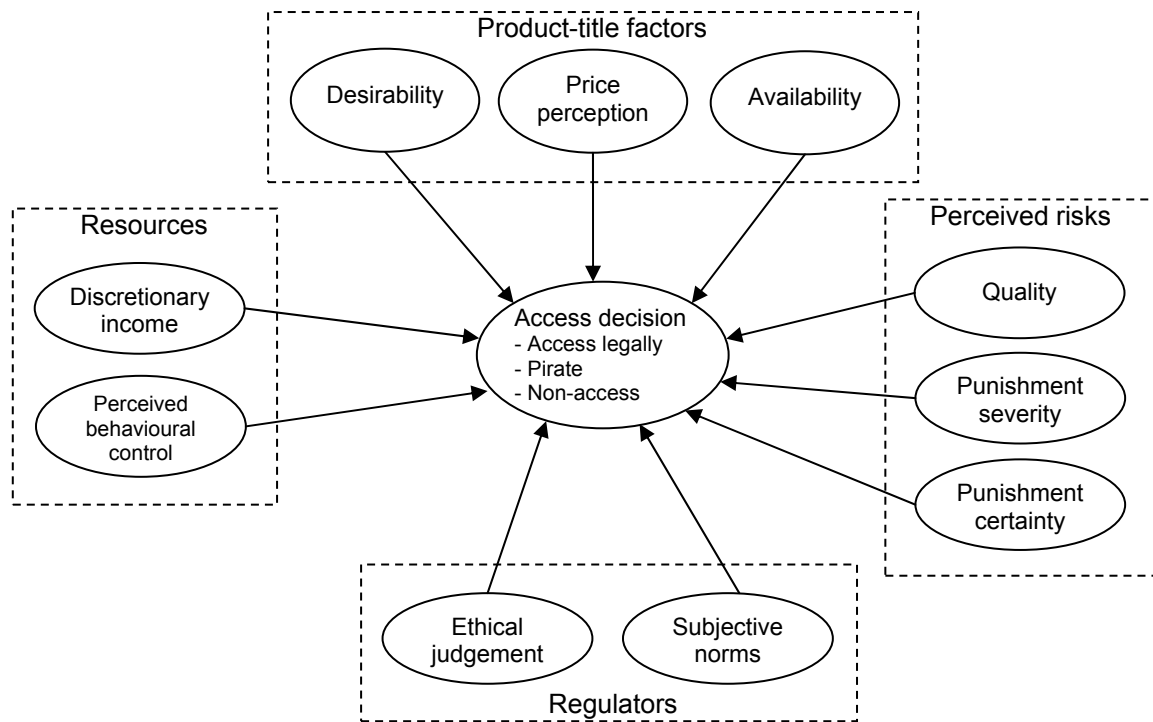


Figure 9. Theoretical Model of Access-Mode Decisions for Film and Music

### 3.4.2. Product-Title Factors

Product desirability is identified as the primary motivation to access a product. Within TPB, attitude towards the behaviour captures an individual's positive or negative evaluation of performing the behaviour (Ajzen 1985). Applying this concept to the model, the personal evaluation of the access behaviour has two parts: one part concerns the product-title being accessed (product desirability) and the other concerns the access mode (ethical judgement). An individual's evaluation of the desirability of a product-title is distinct from his or her judgement of the access modes available to access the product, though both are personal. Thus, here product desirability is similar to the concepts of attitude towards the product (e.g., Brown 1950) and product evaluation (e.g., (Muthukrishnan and Ramaswami 1999)). Of the empirical research reviewed in the previous sections of this chapter, there is evidence that evaluations of product content influence access decisions. Ouellet's study (2007) indicates the importance of desire to re-experience a product influences access decisions. Gopal et al.'s (2006) findings indicate that individuals are more likely to buy music if the artist of the title is among their favourites. Moreover, Hennig-Thurau et al.'s (2007) findings indicate that a film's average IMDB rating is positively associated with the likelihood that

an individual will see it using a legal access mode. In the proposed model product desirability captures the individual's motivation to access a specific film or piece of music. Thus, it is proposed:

*Proposition 1: Product desirability is positively associated with the decision to use a legal access mode.*

Considerations of price play an important role in many models of consumer behaviour, and reference price has been shown to be particularly important. "The concept of a reference price is that it is an internal standard against which observed prices are compared.... individuals make judgements and choices based on the comparison of observed phenomena to an internal reference point" (Kalyanaram and Winer 1995, p. 161). More recently, this concept was introduced in the IS field in relation to mobile service adoption and the choice among available services (Blechar et al. 2006; Constantiou 2009). In this model an emphasis is placed on price perceptions, the positive or negative difference between one's expected price to legally access a title (i.e., reference price) and the maximum one would be willing to pay to access it legally (i.e., reservation price). This conceptualisation of price perceptions is similar to Thaler's concept of transaction utility, which has been an important factor in consumption decisions about other products such as apartments (Bearden and Kaicker 1992), hotel rooms (Jayanti and Ghosh 1996), and fast-moving consumer goods (Kalwani and Yim 1992; Kalwani et al. 1990). Unlike other consumption contexts where individuals are presented with price information when making their access decisions, many access decisions for film and music are made in the absence of such information. It is likely that many individuals make a decision about how to access a film or piece of music without visiting an online or physical store to obtain price information. Nonetheless, individuals are able to rely upon their knowledge of prices to make their decisions, and are not always likely to check to see if their estimations are correct.

While price perceptions, according to the conceptualisation outlined above, have not been investigated in relation to piracy, prices have. Researchers such as Bhattacharjee et al. (2003) and Gopal et al. (2006) found that price increases were positively related to the likelihood an individual will choose to access a product using piracy. Moreover, the price of CDs has been found to be positively related to the proportion of songs illegally downloaded relative to the number of albums purchased legally (Sandulli 2007). Others have found evidence that individuals pirate songs because they are unwilling to pay to acquire them legally (Rob and Waldfogel 2006; Waldfogel 2010) and because piracy is inexpensive (Kinnally et al. 2008). Though these findings are not specifically

related to price perceptions, in cases where willingness to pay is low, a price increase typically moves the price of a product further from what an individual is willing to pay, and thus makes it less likely that an individual will choose to pay for it. Individuals' judgements of whether price perceptions are favourable, when expected prices are below willingness to pay for legal access, or unfavourable, when expected prices exceed willingness to pay, are likely to influence their access decisions. Thus, it is proposed:

*Proposition 2: Favourable price perceptions are positively associated with the decision to use a legal access mode.*

While in most cases an individual is faced with a choice between legal access and piracy, there are often situations when legal options are not available. Due to differences in release dates across countries or instances of unauthorised versions of products appearing online before official release dates, an individual may not be able to legally access a product. Many individuals use piracy to illegally access recent films before they are legally available. Similarly, 'leak night' is an event well-known among music fans that occurs when highly-anticipated albums appear on piracy networks before official release dates (e.g., Baker 2012). Few investigators have directly assessed the influence of legal availability on access decisions. Miyazaki et al. (2009) found that legal availability is not related to access decisions when it comes to physical piracy. However, there is some evidence that when availability is assessed by proxy measures it is related to access decisions. The availability of free-to-air legal alternatives for film has been shown to influence the demand for such films on peer-to-peer networks (Smith and Telang 2009). Findings from Germany indicate the number of cinema screens a film is shown on is positively associated with the likelihood that an individual will choose to see the film in the cinema over piracy (Hennig-Thurau et al. 2007). Other researchers have found that the variety enabled by piracy is related to access decisions (Cenite et al. 2009; Sandulli 2007; Sirkeci and Magnusdottir 2011). Thus, perceived availability is likely to influence access decisions by influencing the access options available. Thus, it is proposed:

*Proposition 3: The perceived availability of legal alternatives is positively associated with the decision to use a legal access mode.*

### **3.4.3. Perceived Risks**

Digital piracy typically involves some degree of risk. Generally, two broad categories of risk can be associated with piracy: that associated with the consumption of the product and that associated with

the access mode. Our knowledge of consumption risk comes from Jacoby and Kaplan (1972), who identified five types of risk: performance, financial, social, psychological and physical. Performance risk, termed quality risk in the model, is especially important as digital products accessed through piracy may be of lower quality than originals and viruses and malware can cause problems with the operating systems of physical devices (Wolfe et al. 2008). The influences of financial, social and psychological risks are also important, though are captured in the model by the contributions of price perceptions, subjective norms, and ethical judgement. Physical risks are not relevant for digital products. Evidence from the empirical research reviewed in the previous sections of this indicates that concerns about quality are important in access decisions, and have been found to be related to the number of films pirated per year (Hennig-Thurau et al. 2007), the preference for piracy over legal access for music (Sirkeci and Magnusdottir 2011) and the willingness to pay for digital music (Fetscherin and Lattemann 2007).

Our understanding of how individuals respond to the perceived risk associated with illegal activities comes from criminology. As discussed earlier, Becker's (1968) economic theory of crime posits that criminal activities are inversely related to punishment certainty, an individual's perception of the probability of arrest, and punishment severity, the likely punishment if apprehended. In the case of digital piracy, these risks can also come from companies that seek to identify individuals who pirate digital products and seek compensation for copyright infringement. Evidence that considerations of risk are related to access decisions can be found in the existing literature. Punishment certainty and severity have been found to be related to the proportion of one's music collection acquired through piracy (Chiang and Assane 2007), intentions to download music (Chiou et al. 2011; 2005; Kwong and Lee 2002; Levin et al. 2007; Plowman and Goode 2009), the frequency of downloading music illegally (Wingrove et al. 2011), the legality of one's most recent music acquisition (Bellemare and Holmberg 2009; Pryor et al. 2008) and when measured together to intentions to pirate both film and music in the US and the UK (Shanahan and Hyman 2010). Given this evidence, it is proposed:

*Propositions 4-6: Perceived (4) quality risks and punishment (5) severity and (6) certainty associated with digital piracy are positively associated with the decision to use a legal access mode.*



### 3.4.4. Regulators

In addition to individuals' perceptions of external factors, internal regulators of behaviour are also likely to impact the mode chosen to access digital products, specifically, subjective norms and ethical judgements. Subjective norms are a key component in TPB and represent an individual's perception of the social pressures to perform or not perform the behaviour. Such considerations regulate behaviour by balancing individuals' motivations to do something for personal gain with their motivation to act in accordance with perceived social pressure. When subjective norms are favourable, the behaviour is perceived to be encouraged by others. Social considerations are also important parts of other theories that predict behaviour. In social learning theory differential associations, which reflect relationships with others who engage in deviant behaviour, are said to be a predictor of deviance (Akers 1985; 2001; Akers et al. 1979). Moreover, it has been suggested that individuals engage in piracy because of its perceived social benefits, such as a sense of community (e.g., Giesler and Pohlmann 2003; Sandulli 2007).

The influence of subjective norms has often been examined by researchers in relation to digital piracy and has been found to be related to piracy intentions in investigations into music and digital piracy in general (e.g., Al-Rafee and Cronan 2006; Chiang and Huang 2007; d'Astous et al. 2005; Khang et al. 2012; Kwong and Lee 2002; Morton and Koufteros 2008; Plowman and Goode 2009; Wang et al. 2009; Wang and McClung 2012; Yoon 2011). However, there have also been cases where subjective norms were not related to piracy intentions in samples from the US (Cronan and Al-Rafee 2008). Evidence from criminology also lends support for the notion that social considerations are important, as differential associations have been found to be related to past piracy behaviour (Hinduja and Ingram 2009) and piracy intentions (Higgins et al. 2006; Higgins et al. 2007; Morris and Higgins 2010). Given the accumulation of empirical evidence, it is proposed:

*Proposition 7: Favourable subjective norms about piracy are negatively associated with the decision to use a legal access mode.*

Ethical judgements are also likely to influence access-mode decisions, as individuals are motivated to act in accordance with their ethical beliefs (Hunt and Vitell 2006). As a regulator of behaviour, ethical judgements balance individuals' desires with their notions of what kinds of behaviour are right and wrong. In the research model, ethical judgements replace part of the influence of attitudes towards the behaviour from Ajzen's model, where the remainder is covered by product desirability. Both ethical judgements and attitudes towards the behaviour involve

evaluations based on individual preferences about a particular behaviour, which in this case concern how a product is accessed. In addition to models from business ethics, ethical judgements are also a component of other theories from the social sciences. For example, definitions in social learning theory (Akers 1985; 2001; Akers et al. 1979), which capture beliefs about the appropriateness of behaviour, have a strong ethical dimension and are a predictor of deviant behaviour.

As digital piracy is ethically questionable, a sizeable amount of research examines the influence of ethical judgements. Evidence indicates that ethical judgements or similar variables indicating an evaluation based on ethical criteria are related to intentions to engage in piracy (e.g., Cronan and Al-Rafee 2008; Gopal et al. 2004; Haines and Haines 2007; Khang et al. 2012; Kwong et al. 2003; Shang et al. 2008; Yoon 2011), though there have been cases where such variables were unrelated to access decisions (Huang 2005). There is also evidence that definitions, the concept from social learning theory, are related to access decisions. For example, definitions have been found to be related in the case of past music piracy (Wang et al. 2011). When considered as part of a composite social learning theory measure, definitions have been associated with cross-product digital piracy intentions (Morris and Higgins 2010) and intentions to engage in film piracy (Higgins et al. 2006). Given this accumulated evidence, it is proposed:

*Proposition 8: Ethical judgements in support of piracy are negatively associated with the decision to use a legal access mode.*

### **3.4.5. Resources**

An individual's ability to utilise resources at his or her disposal is also likely to influence access-mode decisions, especially the knowledge and ability necessary to obtain digital products without paying for them. The variable of perceived behavioural control is an important component in TPB (Ajzen, 1985), where the individual's perception of his or her ability to perform a behaviour is an important predictor of his or her intention to engage in it. The concept has been intensively investigated in IS adoption and acceptance studies (e.g., see Venkatesh et al. (2003) for a summary of this research). As certain skills are required to obtain digital products illegally, possession of the necessary skills and abilities is likely to influence access decisions.

There is strong evidence in the empirical literature that perceived behavioural control influences access decisions, both from investigations specifically examining the concept and from others looking at associated variables. Perceived behavioural control has been found to be related to

piracy intentions in the investigations using the TPB framework noted earlier, including those looking at piracy of music and piracy of digital products in general (e.g., Al-Rafee and Cronan 2006; Chiang and Huang 2007; d'Astous et al. 2005; Khang et al. 2012; Kwong and Lee 2002; Morton and Koufteros 2008; Plowman and Goode 2009; Wang et al. 2009; Wang and McClung 2012; Yoon 2011). Other investigations using variables similar to perceived behavioural control have also found these to be related to measures of piracy. For example, computer skills have been found to be related to the proportion of pirated to purchased content possessed (Holm 2003). Similarly, variables indicating engagement with the Internet have been associated with music piracy (Zentner 2006), and file-sharing knowledge has been found to be associated with the number of films acquired via piracy (Hennig-Thurau et al. 2007). Given this evidence, it is proposed:

*Proposition 9: Perceived behavioural control for piracy is negatively associated with the decision to use a legal access mode.*

Additionally, as legal access of products typically involves purchasing them, then an individual's discretionary income will likely influence the mode used to access them. Findings from the existing literature support this notion. There is some evidence that indicates that household income is positively associated with piracy intentions (Coyle et al. 2009; Sinha and Mandel 2008) and piracy behaviours in the US (Madden and Lenhart 2003), though there is also evidence to suggest this association is negative (Bhattacharjee et al. 2003). The issue with the above research is that the authors looked at absolute income, rather than discretionary income, with is arguably more relevant, as digital products are often perceived as discretionary items purchased for entertainment. Thus, it is proposed:

*Proposition 10: Discretionary income is positively associated with the decision to use a legal access mode.*

### **3.4.6. Discussion**

The war against piracy is far from over. Forces on both sides of the digital battlefield continue to compete, utilising new technologies and legal frameworks to gain an advantage. We need a new set of tools to keep up with these developments. Such changes require new methods and techniques, but also the right theoretical lens. In this chapter, I contribute to the latter. Following a review of existing research on film and music access, this chapter describes a model of individuals' access

decisions for film and music in the context of piracy, and in doing so make three contributions to the literature.

First, digital piracy is reframed as one of many access modes available, rather than simply as an illegal form of behaviour. If we are to explain and predict individual decisions, we need to understand the context in which that decision is made and the options that are considered. The model contextualises the access decision as a choice among legal access, piracy, and non-access. It thereby extends existing research focused on predicting piracy behaviour by broadening the scope to examine how a choice is made among available options. Second, previous research on digital piracy has primarily focused on factors related to the illegal access modes and largely disregarded product-title factors. However, not all films and music are equally good. Individuals have favourites and are willing to pay more for these. The model acknowledges that individuals' preferences influence their decisions in a way that the previous literature has not. Moreover, the model accounts for situations when legal access modes are unavailable, such as when films released in one country have yet to be released in another, and when titles 'leak' online before official release dates. Third, by building upon TPB (Ajzen, 1985) and supplementing it with theoretically and empirically relevant elements, the model integrates the fragmented body of existing research. The model provides a foundation for future research to evaluate how the different factors compete to influence individuals' access decisions.

The model presented in this chapter is not a general causal model for predicting individual piracy, but rather one that focuses on the individual's decision of how to access a digital product. Thus there are other factors, such as demographic characteristics (e.g., age, gender, and level of education) that may influence the access decision. However, these characteristics are likely to be indirect influences on the decision, rather than direct. For example, there is evidence to suggest that males engage in piracy more than females (e.g., Gopal and Sanders 1997), though there is also evidence to suggest otherwise (e.g., Al-Rafee and Cronan 2006; Villazon and Dion 2004). However, it is not the individual's gender per se that likely influences this decision, but rather that gender influences other factors that directly influence the decision. While an examination of the indirect influences on the decision is worthwhile, an exploration of these is beyond the scope of the model for the time being.

### **3.5. Chapter Summary**

As a form of consumer behaviour, digital piracy is just one mode available to consumers to access digital products. Digital piracy has been examined from multiple perspectives. Investigations informed by different disciplines comprise relatively distinct streams of research, drawing on theories and models from social psychology, criminology, business ethics, marketing and economics, and inductive methods to provide insights. This chapter summarises each of these research streams, in addition to a smaller number of multidisciplinary papers. Following the review section, a model for explaining and predicting the access of film and music was presented. It draws on existing theoretical and empirical evidence, integrating insights from the various research streams to support its assertions. In the model, the mode used to access a digital product is the outcome of an access decision, where an individual's decision of how to access a product is influenced by a broad variety of factors, including product-title factors, perceived risks of access, internal regulators of behaviour, and resources available.

## 4. Empirical Investigations

### 4.1. Overview

This chapter details the empirical research conducted to evaluate the propositions of the theoretical model outlined in the previous chapter. It reports on three survey-based empirical investigations examining access decisions about film and music in Denmark. The scope of the model expanded over the three investigations to reflect new insights. In addition to validating the research measures, the first investigation used a sample drawn from university students, where a limited version of the model was used to predict likely access decisions. The second and third investigations utilised improved methods based upon findings from the first investigation, but emphasised different qualities of the data collected, specifically ecological validity and sample representativeness. The second investigation used a sample of university students to assess the effectiveness of the full model to predict actual access decisions, taking into account the influence of perceived legal availability. With a focus on ecological validity, the second investigation used a combination of scenario measures and everyday experience methods to collect data. The third investigation strove for representativeness by recruiting a sample from the general population online. It evaluated a further expansion the model to predict likely access decisions, additionally assessing the influence of the control variables of gender, age, product involvement and self-control. A brief discussion of each investigation's findings is presented after the results are reported.

## 4.2. Investigative Rationale

The progression of the investigations followed a deductive research approach consistent with the broader research strategy outlined in earlier chapters. Prior to the collection of quantitative data, focus group sessions were held. A brief summary of the findings of the focus group sessions can be found in the appendix. The data generated from these sessions served to complement a deductive review of the existing theoretical and empirical evidence. Taken together, both the literature review and the focus groups helped ensure the selection and refinement of appropriate self-report survey measures.

As a body of research, the three investigations sought to evaluate the theoretical model by triangulation. Each investigation examined the effectiveness of the model under different conditions and expanded the model by adding variables, though the variables added in the final investigation are controls. Despite the expansion of the model, the same 10 hypotheses, derived from the propositions in the previous chapter, are used across the three investigations. The research hypotheses evaluated in the three investigations are presented below in table 3.

*Table 3: Hypotheses across Investigations*

Number	Hypothesis
H1	Product desirability is positively associated with the decision to use a legal access mode.
H2	Favourable price perceptions are positively associated with the decision to use a legal access mode.
H3	The perceived availability of legal alternatives is positively associated with the decision to use a legal access mode.
H4-6	Perceived (4) quality risks and punishment (5) severity and (6) certainty associated with digital piracy are positively associated with the decision to use a legal access mode.
H7	Favourable subjective norms about piracy are negatively associated with the decision to use a legal access mode.
H8	Ethical judgements in support of piracy are negatively associated with the decision to use a legal access mode.
H9	Perceived behavioural control for piracy is negatively associated with the decision to use a legal access mode.
H10	Discretionary income is positively associated with the decision to use a legal access mode.

The progression of the three empirical investigations in the project served to evaluate the model using different samples and measures, which emphasised different qualities of data, such as validity and representativeness. The first investigation relied upon data collected using paper-based English-language self-report surveys from a sample of university students in Denmark. Participants indicated their general beliefs and data on access decisions were obtained using scenarios, where individuals indicated their likely behaviour for self-listed film and music titles. The first investigation is thus a pilot, which functioned as the first test of the theoretical model and served to validate various measures and to identify potential measurement issues. Data collected from the first investigation formed the basis of a peer-reviewed research paper written with Ioanna Constantiou

and presented at the Pacific Asia Conference on Information Systems in Brisbane, Australia in July 2011 (Veitch and Constantiou 2011a).

The second investigation emphasised the ecological validity of the data, though still relied upon a sample of university students in Denmark. This investigation functioned as the first test of the full theoretical model presented in the previous chapter. Rather than using scenarios, the second investigation used data on actual decisions. It combined in-class paper-based surveys with online diaries, which were both available in Danish and English. The online diaries were used to measure access-mode decisions and elements in the model that vary from title-to-title, namely the product-title factors. As a data collection method, the online diary was more robust as it measured actual behaviour reported by individuals about their film and music access decisions in context. Data collected in the second investigation formed the basis of a peer-reviewed research paper written with Ioanna Constantiou and presented at the European Conference on Information Systems in Barcelona, Spain in June 2012 (Veitch and Constantiou 2012b).

While the prior investigations were limited to samples of university students in Denmark, the final investigation utilised a broader sample recruited with the help of Danish film, music and technology websites. The survey was only available in Danish. The third investigation was designed to complement the second investigation by assessing the model with a sample that is more broadly representative of the Danish market. Thus, it can be said that the market investigation focused on improving the breadth of the sampling, aiming for representativeness over the validity of the access decision. In addition to representativeness, the sample was sufficiently large that it allowed for more variables to be examined. Thus, the model was evaluated while factors indicating interest in the product categories (i.e., involvement) and low self-control were controlled. Data collected in the third investigation formed the basis of a peer-reviewed research paper written with Ioanna Constantiou, which was presented at the International Conference on Information Systems in Orlando, Florida, USA in December 2012 (Veitch and Constantiou 2012a).

The progression of the empirical investigations is depicted below in table 4. Nationality was used as a control variable in the first and second investigations, as the samples were comprised of both Danish and international university students living in Denmark. In the third investigation other control variables were used in the model, as nationality was unlikely to be an issue because the survey was only available in Danish.



*Table 4: Constructs and Measures across Investigations*

Construct	Source of Measure		
	Investigation 1: Pilot	Investigation 2: Diary	Investigation 3: Market
<b><u>Dependent Variable</u></b>			
Access decision	Likely Decision, SD	Actual Decision, SD	Likely Decision, SD
<b><u>Independent Variables</u></b>			
Product desirability	Gierl et al. (2008) Mazzocco et al. (2012)	Campbell & Goodstein (2001)	Campbell & Goodstein (2001)
Price perception	Bearden & Kaicker (1992)	Bearden & Kaicker (1992)	Bearden & Kaicker (1992)
Legal availability		SD	SD
Quality	Liao, Lin & Liu (2010)	Liao, Lin & Liu (2010)	Liao, Lin & Liu (2010)
Punishment severity	Peace et al. (2003)	Morton & Koufteros (2008)	Morton & Koufteros (2008)
Punishment certainty	Peace et al. (2003)	Morton & Koufteros (2008)	Morton & Koufteros (2008)
Subjective norms	Morton & Koufteros (2008)	Morton & Koufteros (2008)	Morton & Koufteros (2008)
Ethical judgement	Miyazaki et al. (2009)	Miyazaki et al. (2009)	Miyazaki et al. (2009)
Perceived behavioural control	Peace et al. (2003)	Peace et al. (2003)	Peace et al. (2003)
Disposable income	SD	SD	SD
Nationality	SD	SD	
Spotify (music)		SD	
Self control			Enzmann et al. (2010)
Involvement			Bower & Landreth (2001).
Age			SD
Gender			SD

Note: SD=Self developed. Blank spaces indicate the construct was not assessed in the regressions analyses.

The remainder of this chapter presents the methods and results for each of the three investigations. The chapter concludes with a brief summary.

### 4.3. Study 1: Pilot Investigation

The first investigation evaluated the theoretical model at an early stage of its development. The investigation relied upon self-report surveys to obtain data. While it provides a test of most elements in the model, the primary purpose of the initial investigation was to validate new and adapted measures of the variables in the model. These measures were subsequently refined for later investigations. When compared with the subsequent investigations, the first study differs in a number of ways. First, it focuses on acquisition decisions, a subset of access decisions. Thus, access options such as seeing a film in the cinema are not evaluated. Second, the dependent variable in the investigation is limited to the choice among legal access, piracy and non-access, and does not differentiate the various forms of legal access. Third, perceived legal availability of the titles was not assessed, as this factor was added to the model subsequent to the first investigation. Fourth,

price perception was evaluated as a general variable, rather than a title-specific variable, as in the second and third investigations. Finally, the survey was conducted in English, whereas the second investigation was conducted in both Danish and English and the third investigation was conducted only in Danish. The model shown below in figure 10 depicts the hypothesised relationships between the factors and individuals' access decisions for film and music. In the model, four broad categories of factors are hypothesised to influence individuals' access decisions: product-title factors, perceived risks of access, regulators of behaviour, and resources.

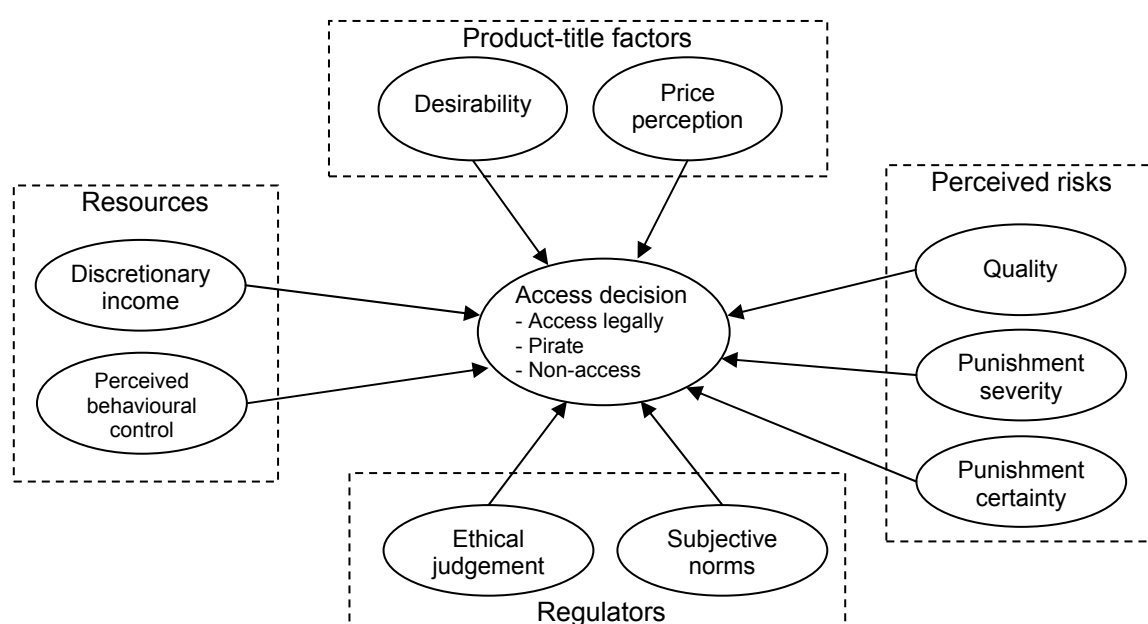


Figure 10. Research Model for Investigation 1

### 4.3.1. Method

To conduct the initial test of the model, data were gathered from students from two Danish universities in October 2010.

#### 4.3.1.1. Sample and Procedure

All data were gathered from participants using an English-language self-report questionnaire. Denmark has very high-levels of English-language comprehension, especially among university students who have gone through a high school education system with a 'mother-tongue + 2' language policy. However, it is possible that limited language abilities of some participants could have created comprehension issues. In order to ensure that the survey materials were understood by respondents, participants were only recruited from English-language courses. Students came from courses representing seven different degree programmes across the bachelor and master's levels.

The participants received the paper-based surveys, which they completed during the breaks of lecture sessions, after an introduction by the researcher. As an incentive to participate, participants received their choice of chocolate bar from a range of four.

The survey contained five sections: four were devoted to a specific type of product, and one section included demographic questions. In addition to sections for film and music, the survey also included questions about software and video games, though the data for these products were not used in this investigation. The survey questionnaire can be obtained from the researcher upon request. The model tested in the investigation supposes that both general beliefs about access modes and evaluations of specific product titles affect access decisions for film and music. Thus, each product section of the survey contained a page of questions related to the evaluation of access-mode factors and another page of product-title questions about a specific title. The access-mode pages of the survey contained questions about generalised beliefs and perceptions (i.e., risks, subjective norms, ethical judgements, perceived behavioural control, and price perceptions). The product-title pages of the survey asked respondents to write the name of a film or music title, and provide responses based upon that title. For the title listed, participants indicated its desirability, how they were likely to acquire it (i.e., their access decision), and in the case of films, whether they preferred to purchase or rent films. As the first investigation was limited to acquisition, the film section of the survey specifically asked participants to only list films that had been released on DVD or Blu-ray.

Participants were advised to skip a section if they would not typically acquire a product within a year. In total, 244 out of 307 surveys were returned by participants, at response rate of approximately 79 percent. Cases with missing values for the independent variables were substituted with the sample mean after outlier cases and cases with missing decision data were removed from the data set. The sample included 179 cases, of which 148 and 115 were complete for films and music, respectively, with an overlap of 84. The mean age of the film sample was 22.03 years ( $SD = 2.96$ ), with 58 males, 79 females, and 11 individuals who did not reveal their gender. By nationality, the sample was comprised of 106 Danes, 31 foreign nationals, and 11 who did not reveal their nationality. In the music sample, the mean age was 21.78 years ( $SD = 2.42$ ), with 45 males, 67 females, and 3 individuals who did not reveal their gender. In terms of nationality, the music sample included 92 Danes, 20 foreign nationals, and 3 individuals who did not reveal their nationality.

Like many other investigations into decisions where digital piracy is an option (e.g., Fetscherin and Lattemann 2007; Gopal et al. 2006; Higgins et al. 2006; Hinduja and Ingram 2008;

Kinnally et al. 2008; Levin et al. 2004; Plouffe 2008; Waldfogel 2010; Wang et al. 2011; Wolfe et al. 2008), this study relied upon a sample of university students. In addition to the source of the data and the employment status of participants, the demographic composition of the sample of the first investigation is different to the Danish population. Specifically, the average age of respondents, the gender composition, and the high proportion of non-Danish participants make it different to that of the general population of Denmark. According to the most recently available statistics, women make up 50.4 percent of Denmark's population, which has an average age of 40.3 years and has approximately 1 percent foreign residents (Danmarks Statistik 2011). Despite the differences between the sample and the Danish population, there are a number of reasons why student samples are appropriate for examining models that explain digital piracy.

While access and convenience are likely the strongest motivations for researchers' use of samples of university students, such samples are beneficial for a number of other reasons. While it is noted that some investigators use student samples to examine types of behaviours in which students are very unlikely to engage, this is not the case when it comes to digital piracy (Wolfe et al. 2008). Plouffe (2008) argues that student samples are appropriate because "from both demographic and experiential perspectives, there is no other segment of the population that is as active in terms of P2P file exchanging behaviour (specifically music) as individuals in their twenties" (p. 1187). While Plouffe is writing from an American perspective, this observation holds for Denmark, where evidence indicates that university-aged individuals are very likely to have engaged in the behaviour. As noted in the opening chapter, recent evidence from Denmark indicates that more than three quarters of people between the ages of 18 and 29 have pirated films or music (Benner and Vuorela 2012). Given their likely familiarity with piracy, university-aged individuals are likely to have engaged in the type of decision making that is under examination in this research and thus make an appropriate sample.

In addition to prevalence, student samples provide insights into how markets may function when all individuals are technologically savvy. Current university-aged students are part of what Prensky (2001) refers to as 'digital natives', a term he uses to describe the generation that are all "native speakers' of the digital language of computers, video games and the Internet" (p. 1) who have "spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age" (p. 1). This generation differs substantially from previous generations, who did not grow up with digital technologies. As members of this generational cohort of digital natives, sampling university

students enables access to this generation. A number of researchers have noted how digital natives are early adopters and heavy users of new digital technologies, and thus provide an insight into behaviour of individuals in the markets of the future (e.g., Hinduja & Higgins, 2011). Thus, while not representative of the current markets, student samples may be representative of future markets.

To the extent that the data are not representative, it is necessary to note a few points about convenience samples. Ferber (1977) argues that student samples are valid for research when two conditions are met. The first condition is that the research is exploratory, which certainly applies to this investigation, which provides the first test of the research model outlined in the previous chapter. Ferber's second condition is that the items measured are relevant to the respondents who answer them. As noted earlier, university-aged individuals are the most frequent pirates of film and music, and thus the questions contained in the survey are likely to be relevant to them. To the extent that sample bias could be a problem in our data, it is worth noting that this research focuses on relationships between variables rather than levels of variables. In such instances, Blair and Zinkhan (2006) observe that "...the measurement of the extent to which the two variables co-vary is likely to be relatively accurate even if sampling is disproportionate at different levels of the variables" (p. 5). Thus, it is possible to remain confident in the sample used for the initial investigation, despite the limitations of the data. Nonetheless, it is important to acknowledge the potential for response biases, which are examined in the section below.

#### 4.3.1.1.1. Potential Response Biases

Although participation in the research was both voluntary and anonymous, the data in the investigation is prone to two types of response bias: non-response bias and dishonest responding. These types of bias are particularly problematic when researching sensitive topics, especially those where the form of behaviour is illegal.

Non-response bias is a potential systematic bias in the data caused by the decision of some individuals to not participate in the research, whose responses, if included, would change the results of the analysis (Rogelberg and Stanton 2007). In order to prevent non-response, a number of Rogelberg and Stanton's response-facilitation recommendations were employed. The survey was designed carefully to make it intuitive to complete, incentives were provided for responding, and the survey length was managed by using measures for the variables with as few items as possible. At a response rate of approximately 78%, most individuals were comfortable enough to participate

in the investigation and it is unlikely that those individuals who chose not to respond would have affected the results of the subsequent analyses.

All studies on digital piracy that use self-report measures face issues of validity. There is the potential that participants will respond dishonestly when completing self-report surveys due to concerns about the consequences of reporting on their own illegal behaviour. However, evidence indicates that self-report measures can be appropriate to assess illegal behaviours. In their review of sociological literature on delinquency, Hindelang, Hirschi, and Weis (1979) concluded that differences between reported crime data and self-report data are “illusory” and comparisons of results using these different measures are often “inappropriate and, in themselves, say little or nothing about the extent of criminal justice system biases or the adequacy of the self-report method” (p. 1012). In a subsequent review of the literature, Huizinga and Elliott (1986) concluded that “self-report measures are among the most promising of our measures of criminal behaviour and are, perhaps, the only measures capable of meeting the needs of both descriptive and etiological research efforts” (p. 324). More recently, Thornberry and Krohn (2000) concluded that “available data indicate that the self-report method is an important and useful way to collect information about criminal behaviour. The scepticism of early critics... has not been realised” (pp. 72-73). Other reviews have provided some caveats to the conclusions of others. In their review Tourangeau and Yan (2007) indicated that misreporting on sensitive topics is largely due to situational factors and motivated by respondents’ desires to avoid embarrassing themselves or avoid repercussions from third parties.

The research methods used in the first investigation were able to address each of the situation factors that are associated with dishonest responding. Participation was anonymous and paper-based, so in the absence of an interviewer, individuals were unlikely to feel embarrassment and thus alter their responses to avoid embarrassment. Moreover, participants were unlikely to be concerned about third party responses as participation was anonymous. Additionally, the survey used hypothetical responses, asking participants what they were likely to do, rather than report actual behaviours, thus lowering risks for participation.

Upon review, while potentially problematic, steps were taken to reduce response biases. In particular, non-response bias appears not to be a significant issue because of the high response rate. Moreover, the steps taken to minimise embarrassment by ensuring anonymity of the participants and

lowering risks of participation by asking hypothetical questions are likely to have reduced any influence of dishonest responding.

#### **4.3.1.2. Measures**

The measures used to assess the variables in the investigation were drawn from previous research where possible. In selecting the measures from an array of candidates care was taken to ensure that the measures corresponded to the conceptual definitions of the factors in the model. Other academics helped review the selected constructs and, when necessary, examined the reworded items to ensure that they were easily understood. To be consistent with the best practice for measurement, some factors were assessed using direct-elicitation measures whereas others were assessed using Likert-measures. The components of price perception were measured using open-ended questions. Participants indicated their access decisions with categorical-response questions. The remaining factors in the model were assessed using measures with seven-point Likert response scales. The response scale for desirability was anchored with ‘Very Low’/‘Very High’. The response scale for the risk variables, subjective norms and perceived behavioural control was anchored ‘Strongly Disagree’/‘Strongly Agree’. Semantic-differential response scales were used for ethical judgement. As indicated previously, a full version of the research survey can be obtained from the researcher upon request.

##### **4.3.1.2.1. *Product Desirability***

Product desirability was assessed using a single-item measure, an approach that has been used frequently in marketing and social psychology research. For example, in marketing studies, single item scales have been used to evaluate the desirability of one product over another (Garbarino and Slonim 2003), various types of hedonic and utilitarian products (Gierl et al. 2008; Mazzocco et al. 2012), and the importance of various product characteristics (Wadhwa et al. 2008; Wolf et al. 2002). The wording of appeal as a measure of evaluations of products has also been used (Campbell and Goodstein 2001; Wadhwa et al. 2008). In addition to studies in marketing, single-item assessments of measures of desirability have been used in psychology to assess life events (David et al. 1997) and traits of potential romantic partners (Ben Hamida et al. 1998).

Both correlations and multiple regressions were used to assess the construct validity of the measure of desirability by examining its relationship with different measures of utility. Construct validity is “concerned with the extent to which a particular measure relates to other measures

consistent with theoretically derived hypotheses concerning the concepts or constructs that are being measured” (Carmines and Zeller 1979, p. 23). Theoretically, the overall desirability of a product should be related both to a person’s hedonic attitudes towards it and his or her utilitarian attitudes. The scales for hedonic and utilitarian attitudes towards a product were drawn from Voss, Spangenberg and Grohmann (2003), which have been used widely. Voss et al.’s article reports on a set of six studies that in total provide considerable support for the unidimensionality, internal reliability, and validity of their hedonic and utilitarian scales. When assessed in this investigation, the internal reliabilities for hedonic attitude (film alpha = .70; music alpha = .76) and utilitarian attitude (film alpha = .88, music alpha = .90) were adequate. In addition to Voss et al.’s measures, two single-item measures assessing emotional and practical appeal of the film and music titles were used to validate the measure of desirability.

The item assessing product desirability was associated with other measures as expected, providing evidence of construct validity. For film, the desirability measure was positively correlated with the single-item measure of emotional appeal ( $r(148)=.47, p<.001$ ) and Voss et al.'s (2003) measure of hedonic attitude ( $r(148)=.32, p<.001$ ). The correlations were less strong for the single-item measure of practical appeal ( $r(148)=.28, p<.001$ ) and Voss et al.'s measure of utilitarian attitude ( $r(148)=.17, p<.001$ ). The results for music were somewhat similar. The desirability measure was positively correlated with both the single-item measure of emotional appeal ( $r(115)=.72, p<.001$ ) and Voss et al.'s measure of hedonic attitude ( $r(115)=.48, p<.001$ ). The desirability measure was also related to the single-item measure of practical appeal ( $r(115)=.31, p<.001$ ) and functional appeal ( $r(115)=.30, p<.001$ ).

Table 5: Multiple Regressions for Film and Music Desirability

Independent variable	Parameter estimates					
	Film desirability			Music desirability		
	B	Std. error	B	B	Std. error	B
Model intercept	2.63***	0.44		1.04*	0.41	
Emotional appeal	0.25***	0.05	0.38	0.58***	0.07	0.61
Hedonic attitude	0.23**	0.07	0.23	0.18*	0.08	0.17
Practical appeal	0.11*	0.06	0.16	0.09	0.06	0.13
Functional attitude	-0.05	0.06	-0.06	0.01	0.07	0.02
R	.54			.75		
Adjusted R <sup>2</sup>	.27			.55		

Note: \* p < .05, \*\* p < .01, \*\*\* p<.001



Two multiple regressions were run to examine the total variance in the desirability item explained by the measures of emotional and practical appeal and hedonic and utilitarian attitudes. The regressions for film ( $F(4,147)=14.45$ ,  $p<.001$ ) and music ( $F(4,114)=35.83$ ,  $p<.001$ ) were significant. The results of the regressions can be seen above in table 5. Overall, the results of the multiple regressions provide evidence of construct validity, though this evidence is less compelling for film desirability than music desirability. This may be because the items on the Voss et al. scale asked individuals to assess characteristics of the products, rather than indicating how appealing it is, and such characteristics are likely to vary across film genres. For example, responses to the ‘Dull’/‘Exciting’ item of the hedonic scale are likely to differ for comedy and action films, even if one feels they are equally desirable. Similarly, the ‘Not thrilling’/‘Thrilling’ and ‘Unenjoyable’/‘Enjoyable’ items may not be appropriate for horror films, which are thrilling, but not necessarily enjoyable, or romantic comedies, which are not thrilling, but enjoyable. Nonetheless, the results of the regressions and the use of similar items in previous research indicate that the single-item measure of desirability is valid for the purpose of the investigation.

#### 4.3.1.2.2. *Price Perception*

Price perception was assessed in a way that is derived from Thaler’s (1980; 1985) mental accounting. Values for price perception were derived from participants’ responses to questions about their expected and reservation prices for film and music. Expected price is an individual’s estimated market price for a legal product, whereas reservation price is the highest price an individual is willing to pay to access the product legally using a specific access mode (Folkes and Wheat 1995). Previous investigations have calculated price perception based on the differences between actual prices for products and an internal reference price held by the individual. For example, in their investigation of perceptions of hotels, Jayanti and Ghosh (1996) assessed transaction utility as “the difference between expected price and actual price paid” (p. 15). Similarly, in their investigation of decisions about rental apartments Bearden and Kaicker (1992) assessed reference price where “[d]ifference scores, in which the individual price is subtracted from the respondents’ price estimates, were computed to represent the price based estimates of acquisition value and transaction value” (p. 631).

This investigation took a similar approach to Jayanti and Ghosh (1996) and Bearden and Kaicker (1992), but used different values based on assumptions about how price influences access decisions for film and music. As noted in the previous chapter, consumers can access film and

music without encountering actual prices. Moreover, aside from occasional discounts, stores like iTunes have relatively stable prices. In such circumstances individuals can rely upon their knowledge of prices to make access decisions, where the influence of price is based upon a comparison of expected and reservation prices. The items used to assess expected and reservation price were taken from previous investigations and modified to suit the context. The items used to assess expected and reservation prices are presented below in tables 6 and 7.

*Table 6: Comparison of Measures for Expected Price*

Source	Item
Bearden & Kaicker (1992)	What is the rent you would EXPECT to pay?
Kalwani & Yim, (1992)	Based on the prices of Brand X over the past 10 weeks, how much do you expect the price of Brand X to be this week (week 11)?
Lichtenstein, Burton & Karson (1991)	What price would you guess this merchant normally charges for this calculator when they are not promoting it?
Folkes & Wheat (1995)	What would you expect to have to pay for it [the product]?
Construct	Item
Film purchase	On average, how much do you think it costs <i>to buy</i> a film on DVD or Blu-ray: (DKK)
Film rental	On average, how much do you think it costs <i>to rent</i> a film on DVD or Blu-ray : (DKK)
Music	How much do you think it costs to buy the following digital products from an online store?
	A song: _____ (DKK)                      An album: _____ DKK)

Price perceptions were calculated by subtracting participants' entries of their expected purchase or rental prices for products (i.e., expected prices) from their indications of what they would be prepared to pay for it (i.e., reservation prices). The calculation of price perception is derived from Thaler's (1980; 1985) formulation of transaction utility and an approach consistent with that of other researchers in their investigations of apartment prices (Bearden and Kaicker 1992), hotel rooms (Jayanti and Ghosh 1996), recycled wood products (Bei and Simpson 1995), fast-moving consumer goods (Kalwani and Yim 1992; Kalwani et al. 1990), and meals, beverages and cinema tickets (Kim et al. 2009). Thaler (1980) states that price differences are evaluated in relative rather than absolute terms. Thus the difference between expected and reservation prices was converted into a percentage indicating the proportion of the expected price that subjects were prepared to pay. A negative value indicates an unfavourable price perception, where an individual is unwilling to pay the expected price of the product. Some authors have noted problems with the reliability of measures based on difference scores (Klein et al. 2009). However, such issues are more common when difference scores are calculated from two variables with multiple-item measures, not when scores are calculated based upon two open-ended questions, as they were in this investigation.

*Table 7: Comparison of Measures for Reservation Price*

Source	Item
Bearden & Kaicker (1992)	What is the MOST you would pay and still consider the apartment worthwhile to rent?
Folkes & Wheat (1995)	Assuming that you wished to purchase this product, what do you think would be the most you would pay for this product?
Chiang & Assane (2007)	If an Internet music service allows you to download any music for a fee, what price (if any) would you be willing to pay per song, on average? Specify an approximate amount (be specific):
Construct	Item
Film purchase	On average, how much is the most you would be willing to pay to buy a film on DVD or Blu-ray: (DKK)
Film rental	On average, how much is the most you would be willing to pay to rent a film on DVD or Blu-ray: (DKK)
Music	What is the most you would be willing to pay for the following digital products from an online store?
	A song: _____ (DKK)                      An album: _____ DKK)

Prices used in the calculation of price perception depended on which cost was most relevant to an individual's decision. These prices were based on the legal modes available to experience film and music. For film, it depended on whether individuals' preferred to rent or purchase. The descriptive statistics for film prices are shown in table 8, below. More individuals preferred to acquire film titles by owning them rather than renting. In both cases, reservation prices were approximately 25 percent below expected prices. As noted earlier, respondents were discouraged from listing films that were yet to be released in the cinema, so price options for the cinema were not evaluated.

*Table 8: Price Statistics for Film*

		Number	Mean	SD	Min	Max
Purchase	Expected price	94	172.71	60.72	20	500
	Reservation price		125.82	79.51	0	500
	Price perception		-25.07%	39.97%	-100.00%	73.00%
Rent	Expected price	52	43.33	11.18	20	80
	Reservation price		31.33	12.61	7	60
	Price perception		-25.98%	28.60%	-75.00%	60.00%
Total	Price perception	148	-25.40%	36.21%	-100.00%	73.00%

The prices used to calculate price perceptions for music depended on whether individuals listed a song or album. At the time of the survey, paid streaming services were not dominant in the market, so price perceptions for streaming were not evaluated. In table 9, below, the descriptive statistics for price variables are presented.

*Table 9: Price Statistics for Music*

		Number	Mean	SD	Min	Max
Song	Expected price	34	9.15	2.52	2	15
	Reservation price		6.09	3.26	0	12
	Price perception		-28.44%	40.55%	-100.00%	33.33%
Album	Expected price	81	105.71	77.51	25	700
	Reservation price		69.11	34.59	0	150
	Price perception		-29.26%	35.40%	-100.00%	66.67%

Total	Price perception	115	-29.02%	36.82%	-100.00%	66.67%
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As can be seen in the table above, reservation prices were approximately 29 percent below expected prices for both songs and albums. Individuals listed albums more often than songs.

Construct validity for price perception was assessed by examining the relationships between the price perception measure and single-item Likert measures of price-related constructs. These items assessed general evaluations of price, willingness to pay, and evaluations of price fairness. The measure for general evaluations of price was adapted from Janiszewski and Lichtenstein's (1999) investigation of price perception. The item asked participants to indicate if their beliefs about prices on a scale anchored with 'Too low'/'Too high'. The item for willingness to pay asked participants to indicate if a price was more than they were willing to pay on a scale anchored with 'Strongly disagree'/'Strongly agree'. The measure for price fairness asked participants to indicate their evaluation of prices on a scale anchored with 'Unfair'/'Fair'. Three multiple regressions were run to examine the total variance in price perceptions explained by the three price measures. The regressions for film purchase ( $F(3,94)=13.97$ ,  $p<.001$ ), film rental ( $F(3,52)=8.25$ ,  $p<.001$ ) and music purchase ( $F(3,114)=11.19$ ,  $p<.001$ ) were all significant. Table 10 shows the relevant statistics.

*Table 10: Multiple Regressions for Film and Music Desirability*

Independent Variable	Parameter estimates								
	Film purchase			Film rental			Music purchase		
	B	Std. Error	B	B	Std. error	B	B	Std. error	B
Model intercept	36.01	30.20		24.40	20.58		43.71*	21.83	
Too low-Too high	5.67	4.58	0.15	1.11	3.29	0.05	-4.18	3.38	-0.13
Cost more than willing to pay	-18.61***	3.33	-0.61	-11.54***	3.04	-0.61	-9.88***	2.63	-0.40
Unfair-Fair	2.30	2.97	0.08	.11	2.39	0.01	-0.38	2.40	-0.01
R	.56			.58			.48		
Adjusted R <sup>2</sup>	.29			.30			.21		

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Overall, the results of the three regression analyses indicate the construct validity of the measure of price perception, where the three other price-related measures account for between 21 to 30 percent of the variance in the price-perception measure. Of the variables in each of the equations, willingness to pay is the only significant predictor. This is likely due to the similarity between the price perception measure and the willingness to pay item. However, the strength of this relationship is likely due to the different methods of assessing the construct, where one measure is Likert-based, and the other measure uses actual numerical values. The other items, indicating general beliefs

about prices and the fairness of prices, are conceptually different enough that the lack of relationships between these variables is not of concern.

In addition to the evidence that supports the validity of the measure, the use of open-ended responses has been used previously in this research area. Direct-elicitation measures of price and willingness to pay have been used frequently in piracy research (e.g., Bellemare and Holmberg 2009; Rob and Waldfogel 2006; Shiller and Waldfogel 2011) and more broadly in marketing research (e.g., Bearden and Kaicker 1992; Folkes and Wheat 1995; Lichtenstein et al. 1991). Nonetheless, it is important to acknowledge that the use of direct-elicitation measures may result in potential response biases. However, participants were aware that their responses were only being used for research purposes and incentives for participation were not conditional on the nature of their responses. Thus, it is unlikely that participants responded strategically and as such the direct-elicitation method can be considered incentive compatible.

#### 4.3.1.2.3. *Quality*

Quality risk was assessed using items from Liao, Lin, and Liu's (2010) investigation of software piracy, which were modified to improve the measure and suit the context. The Liao et al. scale is based upon Tan's (2002) two-item measure of quality risks, which assessed risks of a pirated product not functioning correctly. Liao et al.'s measure extended Tan's measure by adding an item to reflect the potential for illegally-acquired software to damage one's device. Liao et al.'s measure was selected because it met the criteria for content validity, in addition to performing well in Liao's investigation (a composite reliability of .87, indicating internal reliability), and because it had few relatively items. In adapting Liao's et al. measure, additional items were added to acknowledge the risk associated with catching a computer virus. However, only four items were used in the final analysis. In addition to the extra items, the wording of the measures was modified slightly to suit the film and music markets.

#### 4.3.1.2.4. *Punishment Severity and Certainty*

Punishment severity and certainty were assessed using two two-item measures drawn from Peace et al.'s (2003) investigation of software piracy and modified to suit film and music. Peace et al.'s measures have also formed the basis of assessments in investigations into software piracy (Liao et al. 2008) and music piracy (Morton and Koufteros 2008), which had established their reliability and validity. Peace et al.'s measures were selected because they met the criteria for content validity, in

addition to performing well in the initial and subsequent investigations (composite reliabilities of .95 and .92 for punishment severity and certainty, respectively, indicating internal reliability), and because they had few relatively items.

#### 4.3.1.2.5. *Subjective Norms*

Subjective norms were assessed using a three-item measure from Morton and Koufteros's (2008) investigation of music piracy, and modified from the original version of the scale for the film version. In addition to meeting criteria for content validity, the scale performed well in Morton and Koufteros's research and in earlier forms in other research. Their scale was based upon previous scales used in Beck and Ajzen's (1991) research into deviant behaviours, Peace et al.'s (2003) investigation of software piracy, Loch and Conger's (1996) investigation into computer misuse and Fishbein and Ajzen (1975)'s research on TRA. These investigations demonstrated that in earlier iterations the measure met acceptable standards for reliability and validity. Moreover, in their research, the Morton and Koufteros's measure performed adequately with a composite reliability of .94, indicating internal reliability.

#### 4.3.1.2.6. *Ethical Judgement*

Ethical judgement was assessed using a three-item semantic-differential measure taken from Miyazaki et al.'s (2009) investigation into music and DVD piracy. Their initial scale was based upon those used in previous investigations examining Internet-related misbehaviours (Freestone and Mitchell 2004) and workplace misbehaviours (Chung and Monroe 2003; Valentine and Rittenburg 2004). Miyazaki et al.'s initial measure asked individuals to evaluate purchasing pirated products in terms of being 'Ethical'/'Unethical', 'Fair'/'Unfair', and 'Right'/'Wrong'. These three bi-polar anchors capture different elements of ethical judgements, such as overall, teleological and deontological evaluations, all of which influence judgements in Hunt and Vitell's (1986) model. The 'Ethical'/'Unethical' item captures an overall evaluation. The 'Fair'/'Unfair' represents a more teleological evaluation. The 'Right'/'Wrong' captures a deontological dimension of ethicality. In their investigation the scale had a Cronbach's alpha of .88, indicating high levels of internal reliability. When adapted for use in this investigation, the item before the response scale was modified so as to appropriately assess individuals' ethical judgements about film and music piracy.

#### 4.3.1.2.7. *Perceived Behavioural Control*

The measure of perceived behavioural control was taken from Peace et al.'s (2003) investigation. Peace et al.'s initial measure had two items, one of which was anchored with 'Strongly Agree'/'Strongly Disagree', and another which was anchored with 'Easy'/'Difficult'. In order to be consistent with the wording of other items, the 'Easy'/'Difficult' item was reworded to allow for a 'Strongly Agree'/'Strongly Disagree' Likert scale. An important component of perceived behavioural control is having the knowledge, skills and abilities to perform behaviour, so an item from Morton and Koufteros's (2008) measure was taken to supplement the two items from Peace et al. Specifically this item was "If I want to, I have the knowledge and skills to commit online music piracy". Like their measure for social norms, the Morton and Koufteros measure for perceived behavioural control was based upon previous scales by Beck and Ajzen (1991), Peace et al., Loch and Conger (1996), and Fishbein and Ajzen (1975). Adding an item ensured that the items of the measure reflected important elements in the conceptual definition of perceived behavioural control outlined by Ajzen (1991). The measure can be interpreted as an extended version of Peace et al.'s two-item measure or a reduced version of Morton and Koufteros's five-item measure.

#### 4.3.1.2.8. *Acquisition Decision*

The question used to assess the access decision was devised so that it would be appropriate for evaluating the propositions of the research model. The research model is designed to predict access decisions for film and music, in particular the choice among legal access, piracy, and non-access. Using a categorical response format, respondents' acquisition decisions were derived from their answers to the question "How are you likely to acquire the film/song/album?" The response categories were 'Acquire legally', 'Acquire using piracy', 'Not acquire', and 'Other'. Other researchers investigating access decisions have used similar approaches. For example, Gopal et al. (2006) used a categorical response format in their investigation of likely access mode in their process model of music piracy and Pryor et al. (2008) used a categorical response item to assess the legality of respondents' previous music acquisitions.

The measures of access decision were validated using respondents' answers to single-item Likert questions that were used to evaluate their access intentions. Respondents were asked to indicate the likelihood that they would acquire the film or song/album legally, using piracy, or not acquire the product on a seven-point Likert scale anchored 'Very Low'/'Very High'. Five logistic regressions were run to validate the categorical access decision measures using the Likert measures

of intentions to use each of the access modes. The results for film and music acquisition decisions are presented in the tables 10 and 11 below. All of the regressions were significant.

*Table 11: Logistic Regressions for Film Access*

Independent variable	Parameter estimates								
	Legal access			Piracy			Non-access		
	B	Wald	Odds ratio	B	Wald	Odds ratio	B	Wald	Odds ratio
Model intercept	1.10	1.31	3.00	-2.42	2.26	0.09	-2.81	3.51	0.06
Legal access intention likert	0.56***	15.03	1.75	-0.71***	13.22	0.49	-0.22	1.87	0.80
Piracy access intention likert	-0.59***	15.44	0.55	1.08***	20.14	2.95	-0.20	1.55	0.82
Non-access intention likert	-0.31*	4.36	0.74	-0.14	0.66	0.87	0.60***	12.27	1.83
Model	$\chi^2(3,147)=92.21, p<.001$			$\chi^2(3,147)=104.37, p<.001$			$\chi^2(3,143)=25.70, p<.001$		
Cox & Snell $R^2$	.47			.51			.16		
Nagelkerke $R^2$	.62			.72			.29		
Percent Classified	85.03%			91.84%			87.07%		

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

For the analyses, the categorical responses were converted into three binary variables reflecting the decisions to use one form of access or not. Thus, the binary variables for the legal access regressions were coded as '1' for legal access and '0' for a combined category of piracy and non-access. The binary variables for the piracy regressions were coded as '1' for piracy and '0' for the remaining categories. The binary variable for the non-access regression was coded as '1' for non-access and '0' for the remaining categories.

*Table 12: Logistic Regressions for Music Access*

Independent variable	Parameter estimates					
	Legal access			Piracy		
	B	Wald	Odds ratio	B	Wald	Odds ratio
Model Intercept	2.57	2.84	13.08	-2.57	2.84	0.08
Legal access intention likert	0.28	3.45	1.33	-0.28	3.45	0.75
Piracy access intention likert	-0.77***	16.47	0.47	0.77***	16.47	2.15
Non-access intention likert	0.11	0.43	1.12	-0.11	0.43	0.90
Model	$\chi^2(3,115)=71.68, p<.001$			$\chi^2(3,115)=71.68, p<.001$		
Cox & Snell $R^2$	.46			.46		
Nagelkerke $R^2$	.64			.64		
Percent classified	88.70%			88.70%		

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The results of the three logistic regressions for film indicate values in the expected directions. Legal access and piracy are well predicted by the two of the intention measures, though non-access is not especially well predicted. However, the non-access Likert intention item is



positively associated with the likelihood of a non-access response, indicating that there is close alignment between the Likert and categorical measures. For music, there were insufficient 'non-access' responses to analyse decisions of non-access. The results of the two regressions assessing construct validity for legal access and piracy are similar to those for film, and indicate that these decisions are predicted well by the piracy Likert measure of access intention, but not the legal Likert measure. Overall, the findings of the logistic regressions indicate that the measures adequately represent individuals' likely access decisions.

#### **4.3.1.3. Assessing Common Method Variance**

When using survey-based methods, common method variance can occur, so a number of strategies were undertaken to avoid such bias. Common method variance refers to the spurious correlation that arises from using the same method to measure the independent and dependent variables (Lindell and Whitney 2001). Such bias can exaggerate relationships between variables. To prevent common method variance, methodological separation of measurement, a strategy suggested by Craighead, Ketchen Dunn and Hult (2011) was used. Methodological separation of measurement occurs when the independent and dependent variables are measured using different formats. As indicated previously, categorical response measures were used for access decisions, while multi-item Likert measures were used for most of the independent variables. Moreover, contextual shifts were inserted into the questionnaires to make comprehension easier for the reader, but also to avoid bias.

Harman's (1976) one-factor test was used to assess common method variance, where the emergence of a single factor or a general factor that accounts for the majority of the covariance among the variables is indicative of common method variance (Podsakoff et al. 2003). Using SPSS 19, un-rotated principal components factor analysis and principal component analysis with varimax rotation were conducted for all non-categorical items. The results showed that 23.64 percent of the variance was accounted for by the first factor in the film data and 25.39 percent in the music data. The remaining factors comprised 60.37 percent of the variance in the film data and 61.29 percent in the music data. These findings indicate that common method variance was not present in the data. Moreover, all items loaded on their expected factors for their respective measures in the varimax rotation of the component matrix.



*Table 14: Descriptive Statistics for Music - Constructs, Means, Standard Deviations, Cronbach's Alphas and Factor Loadings*

[illegible]

With the exception of punishment certainty, the Cronbach's alphas for each of the measures were above 0.70, indicating acceptable levels of internal reliability. These results can be seen above in tables 13 and 14, which present the descriptive statistics for the non-categorical variables for film and music, respectively. These include the constructs, means, standard deviations, Cronbach's alphas, and factor loadings. Note that for clarity of interpretation, factor loadings lower than .40 are not shown in the tables.

### 4.3.2. Results

Two multinomial logistic regression analyses were conducted to evaluate the model's propositions concerning the access decision for film and music. Multinomial logistic regression enables researchers to predict values of a dependent variable with more than two categories based on continuous and/or categorical independents. The analysis transforms the dependent into a logit variable, the natural log of the odds of the dependent equalling a certain value or not. Using maximum likelihood estimation, multinomial analysis calculates a series of binary comparisons, which indicate the influence of the independent variables on the likelihood that the dependent is one category relative to a reference category.

In the analyses the dependent variables were the access decision for film and music, where access via piracy was the reference category. This allowed for an examination of how the factors in the model influence the likelihood that individuals would use legal access modes over piracy to access a film or music title. Nationality was included in the regression as a control variable, as a substantial proportion of the respondents were not Danish. The continuous variables were mean-centred before running the analysis, where the sample mean for each variable was subtracted from each individual's variable score. Thus, the data in the sample has a mean of zero for each of the continuous variables. This allows for an interpretation of the intercept of the regressions, which is equal to the log-likelihood of the dependent variable when all the independent variables are held at the mean. Nationality was entered into the regressions as a binary variable, where non-Danes were coded as '1', and Danes were coded as '0'.

The regression models for films ( $X^2(20, N = 148) = 67.13, p < .000$ ) and music ( $X^2(10, N = 115) = 42.78, p < .000$ ) predicted 68% of cases to their correct access mode for films, and 81% of cases to their correct access mode for music. The initial findings provide support for some of the model's propositions and indicate that the influence of the different factors varies according to product type. Tables 15 and 16 display the regressions' results for film and music, respectively.

Note that logistic regression calculates changes in the log odds of the category of the dependent variable. It does not calculate changes in the dependent itself as in an ordinary least squares regression. The odds ratio ( $\exp^{(B)}$ ) indicates the influence that a one-unit increase in the independent variable will have on the likelihood of the dependent being one category and not piracy. For example, the findings for quality indicate that a one unit increase from the mean increases the odds that an individual will choose to access a film legally by a factor of 1.62. However, because log-odds are based on one-unit changes from the mean, it is difficult to compare the odds ratios for variables assessed using different scales. Thus, SD-adjusted odds ratios are reported, where the odds are equal to  $\exp^{(B \cdot SD)}$ , or the relative change in odds based upon an increase of one standard deviation from the mean. This enables comparisons to be made for variables that were assessed using different scales.

*Table 15: Multinomial Logistic Regression Models for Film Access Decision*

Independent variable	Likelihood ratio tests	Parameter estimates							
		Access legally				Non-access			
	Chi-square	B	Wald	Odds ratio	SD-adjusted odds ratio	B	Wald	Odds ratio	SD-adjusted odds ratio
Model intercept	33.97***	1.27	15.75***			-0.32	0.56		
Product desirability	6.55*	0.58	6.16*	1.79	1.85	0.45	2.52	1.58	1.62
Price perception	4.67	0.01	3.58	1.01	1.60	0.00	0.02	1.00	1.05
Quality	14.28**	0.62	8.71**	1.85	2.87	0.89	10.18**	2.43	4.57
Punishment severity	0.49	-0.08	0.30	0.93	0.93	0.01	0.01	1.01	1.01
Punishment certainty	0.63	-0.22	0.59	0.81	0.75	-0.10	0.09	0.91	0.88
Subjective norms	4.79	-0.42	4.56*	0.66	0.56	-0.25	1.12	0.78	0.70
Ethical judgement	7.29*	-0.51	6.60*	0.60	0.51	-0.38	2.13	0.69	0.61
Perceived behavioural control	4.35	-0.31	3.04	0.74	0.58	-0.06	0.08	0.94	0.89
Disposable income	0.76	0.00	0.23	1.00	0.90	0.00	0.16	1.00	1.12
Nationality	2.43	-0.79	2.37	0.45	0.70	-0.36	0.3	0.70	0.85
Cox & Snell R <sup>2</sup>	.36								
Nagelkerke R <sup>2</sup>	.43								
Percent Classified	68.24%								

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001. Reference category is access via piracy.

In the final data set for film, 82 individuals indicated that they would access legally, 46 indicated that they would access via piracy, and 20 indicated that they would not access the title they listed. The findings for film indicate that the access decision is influenced by a variety of factors, including product-title factors, perceived risks, and regulators of behaviour. Desirability and quality risks were positively associated with the decision to acquire the product legally, providing support for hypotheses 1 and 4. These findings indicate that the likelihood that an individual will

acquire a film legally increases as he or she perceives the film to be more appealing and believes pirated versions of films to be of lower quality than legal versions. The decision to access legally was negatively associated with subjective norms in favour of piracy and favourable ethical judgements about piracy, providing support for hypotheses 7 and 8. The results for these variables indicate that the likelihood that an individual will acquire a film legally decreases if he or she thinks that others in his or her social circle support piracy and if he or she finds piracy ethical.

Of the remaining factors in the model, price perception was unrelated to access decisions, leaving hypothesis 2 unsupported. Similarly, the risk factors associated with the illegality of piracy, punishment severity and certainty were unrelated to access decisions. Thus, hypotheses 5 and 6 were unsupported. The resource factors of the model were also not significantly associated with access decisions, and thus hypotheses 9 and 10 concerning perceived behavioural control and disposable income were not supported. Taken together, these findings indicate that general price perceptions of the product category, considerations of the severity and certainty of punishment, perceived behavioural control and the level of disposable income do not influence individual decisions about how to access films. Of the control variables, the findings of the regression indicate that nationality is not a significant determinant of individual decisions.

Turning to music, the results of the multiple regression indicate that access decisions are motivated by product-title factors, in addition to factors from the risk and resource categories of the model. As with the results for film, the majority of individuals indicated a preference for legal options, where 75 individual indicated that they would access music legally, while 40 indicated that they would access via piracy. As discussed earlier in this section, there were too few 'non-access' responses to examine this option. The decision to access a song or album legally over piracy was positively related to product price perception and quality risks, providing support for hypotheses 2 and 4. These findings indicate that the likelihood that an individual will acquire a song or album legally increases as he or she is willing to pay a higher proportion of the expected price of the product and believes pirated versions of music to be of lower quality than those accessed legally. Disposable income was also positively related to the decision to access a product legally, but in the opposite direction to what was predicted. This indicates that a one standard deviation increase in monthly discretionary income, in this case 1229.25 DKK, decreases the likelihood that an individual will access a music title legally

Table 16: Multinomial Logistic Regression Model for Music Access Decision

Independent variable	Likelihood ratio tests	Parameter estimates:			
		Access legally			SD-adjusted odds ratio
	Chi-square	B	Wald	Odds ratio	
Model intercept	17.3***	1.14	14.37***		
Product desirability	0.48	0.16	0.48	1.17	1.20
Price perception	4.91*	0.02	4.57*	1.02	1.81
Quality	4.41*	0.43	3.92*	1.54	2.14
Punishment severity	0.29	0.08	0.29	1.09	1.09
Punishment certainty	0.04	-0.06	0.04	0.95	0.92
Subjective norms	3.07	-0.34	2.87	0.71	0.59
Ethical judgement	1.04	-0.23	1.02	0.80	0.74
Perceived behavioural control	0.57	-0.12	0.56	0.88	0.82
Disposable income	4.05*	0.00	3.95*	1.00	0.59
Nationality	3.55	-1.13	3.45	0.32	0.63
Cox & Snell R <sup>2</sup>	.31				
Nagelkerke R <sup>2</sup>	.42				
Percent Classified	80.87				
Note: * p < .05, ** p < .01 *** p<.001					

The remaining factors in the model were not associated with access decisions. Product desirability, punishment severity and certainty, subjective norms, ethical judgement and perceived behavioural control were not associated with legal acquisition, leaving hypotheses 1 and 5-10 unsupported for music decisions. Concerning risks, these findings indicate that neither the severity of punishment if caught engaging in piracy nor the certainty of getting caught influence individual decisions about how to access music. Similarly, regulators of behaviour and perceived behavioural control do not seem to be important. As with the findings for film, nationality was not significantly associated with access decisions, again indicating that differences between Danes and non-Danes were not a factor.

Although there was some overlap in the categories of factors related to access decisions, only quality was related to access decisions for both film and music. Nonetheless, the model performed relatively well in correctly classifying most participants into their decision categories. Moreover, it explained between 31 to 43 percent in the variance in access decisions.

### 4.3.3. Discussion

When the research model was applied to access decisions for films and music, only concerns about quality were consistently found to be associated with the decision to access legally. A review of the SD-adjusted odds ratios for the independent variables in the regressions reveals that quality risks increased the likelihood of legal access more than any other variable. The findings for quality are in line with the consumer behaviour literature, which emphasises the importance of quality in decision making (e.g., Ariely et al. 2003; Bettman et al. 1998; Blackwell et al. 2006; Chang and Wildt 1994). It is also consistent with previous research findings that indicate that quality-related factors are related to the number of films pirated per year (Hennig-Thurau et al. 2007) and the preference for piracy over legal access for music (Sirkeci and Magnusdottir 2011). When considered against existing theory and previous empirical evidence, such findings underscore the importance of quality in access decisions for film and music.

The findings concerning other elements of the model were less consistent. Product-title factors were significantly associated with the decision to use legal access for both products, though these factors varied across products. Desirability was a significant factor in the case of film, but not music. Conversely, price perception was important in the case of music, but not film. The findings concerning the relationships that reached significance are consistent with prior research examining factors related to desirability (e.g., Gopal et al. 2006; Hennig-Thurau et al. 2007; Ouellet 2007) and price (e.g., Bhattacharjee et al. 2003; Gopal et al. 2006; Rob and Waldfogel 2006; Waldfogel 2010). It could be that when factors associated with price and desirability are evaluated simultaneously then these factors compete for the variance that they explain in access decisions.

The results of the analysis were also inconsistent for regulating factors. The likelihood of accessing a film legally was negatively associated with subjective norms and ethical judgements, but not related to access decisions in the case of music. These findings indicate that individuals' decisions about how to access films involve considerations that are broader than purely economic factors and that social and ethical influences are also apparent. The results for film are also consistent with existing theoretical evidence (e.g., Ajzen 1991; Hunt and Vitell 1986; Jones 1991) and empirical findings in the case of piracy (e.g., Cronan and Al-Rafee 2008; Gopal et al. 2004; Haines and Haines 2007; Khang et al. 2012; Kwong et al. 2003; Shang et al. 2008; Wang and McClung 2012; Yoon 2011). However, in the case of music, these factors do not seem to be associated with access decisions.



The remaining elements in the model were either unrelated to access decisions or had relationships in the opposite direction of what was expected. Punishment severity and certainty, risks associated with the illegality of piracy, in addition to perceived behavioural control, were not related to access decisions for either film or music. These findings could reflect the context of the investigation and the characteristics of the sample. In recent years, no individuals in Denmark have been prosecuted for accessing pirated content, so such concerns may not be salient considerations in individuals' access decisions. Moreover, the descriptive statistics of the investigation indicate that, on average, the sample had a high degree of perceived behavioural control. As most of the participants believed they were able to access films and music illegally if they desired to do so, this factor is unlikely to influence their access decisions. Similarly, disposable income was negatively related to access decisions in the case of music, but not film. This finding could stem from the homogeneity of the sample: all were university students studying in Denmark, where domestic students are guaranteed support from the state for their living expenses. Upon review, reasonable explanations can be given for the failure of the hypothesised relationships to reach significance. However, the first investigation had a number of limitations, which may also account for the findings. These limitations are discussed below.

#### **4.3.3.1. Limitations**

The pilot investigation is not without limitations. Some of these issues relate to the measurement of the independent variables. While the choice of measures was informed by prior investigations, the punishment certainty measure in the case of music had a Cronbach's alpha value below .7, indicating poor levels of internal reliability. This may have affected the performance of the variable in the regression. However, given that the variable was not significantly associated with access decisions for film, it seems more likely that the variable was unrelated to access decisions. As with the measure for punishment certainty, the item used to assess desirability could have affected the results by not adequately capturing the construct. Single-item measures are common in marketing research and often perform adequately (Bergkvist and Rossiter 2007), however, the alignment between the concept and measurement here is not ideal. Thus, the survey could have been improved by using alternative measures for the punishment certainty and desirability variables.

The limitations of the first investigation were not limited to independent variables. The item used to assess the access decision, especially in the case of film, was somewhat ambiguous. Despite the information on the front of the survey, 39 of the 148 participants listed films that were showing

in the cinema at the time of the survey. All of these participants indicated that they either preferred to own or rent films and thus it is possible that these individuals had decided that they were subsequently going to access the films by renting or buying copies. However, it is also possible that these individuals intended to see the film in the cinema. If this was the case, then price perceptions may not have been correctly assessed, as expected and reservation prices for seeing a film in the cinema were not measured. In this respect, the survey could have been improved by asking respondents to indicate which of the range of legal options they were most likely to use, rather than just indicate legal access, piracy or non-access. Moreover, price perception was assessed as an access mode-factor, rather than a product-title factor. While general price perceptions for the access mode are likely to influence access decisions, willingness to pay is likely to vary from title-to-title. Thus the survey could have been improved by measuring price perceptions as a product-title factor rather than as an access-mode factor.

Related to title-specific factors, in order to obtain individuals' approximate actual access decisions, the survey requested that participants evaluate a film or music title of their choice. However, in doing so, and without other sources of information available, it is possible that participants only listed highly anticipated titles. This may be why relatively few participants indicated that they would likely not access the music title they listed. While the standard deviation for desirability was only slightly lower than for the other variables, indicating that there was adequate variance in the desirability of the titles listed, it is possible that the access decisions captured in the investigation are not representative of typical access decisions. However, individuals typically do not consider accessing hedonic products that they do not find at least somewhat appealing, so issues about the representativeness of the access decisions are not of great concern. Finally, the survey was conducted in English, and participants may have had issues with comprehension, even though they were recruited from English-language classes.

Despite the limitations identified above, the first study provided evidence that access decisions are multi-faceted. Moreover, it served to validate some of the measures used and identify potential issues with others. The second investigation built on the findings of the first, using an improved measures and methods to assess access decisions in context.

#### **4.4. Study 2: Diary Investigation**

The second study in the project differed from the first in a number of important ways, including the scope of the research model, the use of alternative measures for some variables and a method that

assessed actual rather than likely access decisions. The second investigation evaluated the full research model outlined in the previous chapter, and thus incorporated perceived legal availability as a product-title factor. The model evaluated in the study can be seen below in figure 11.

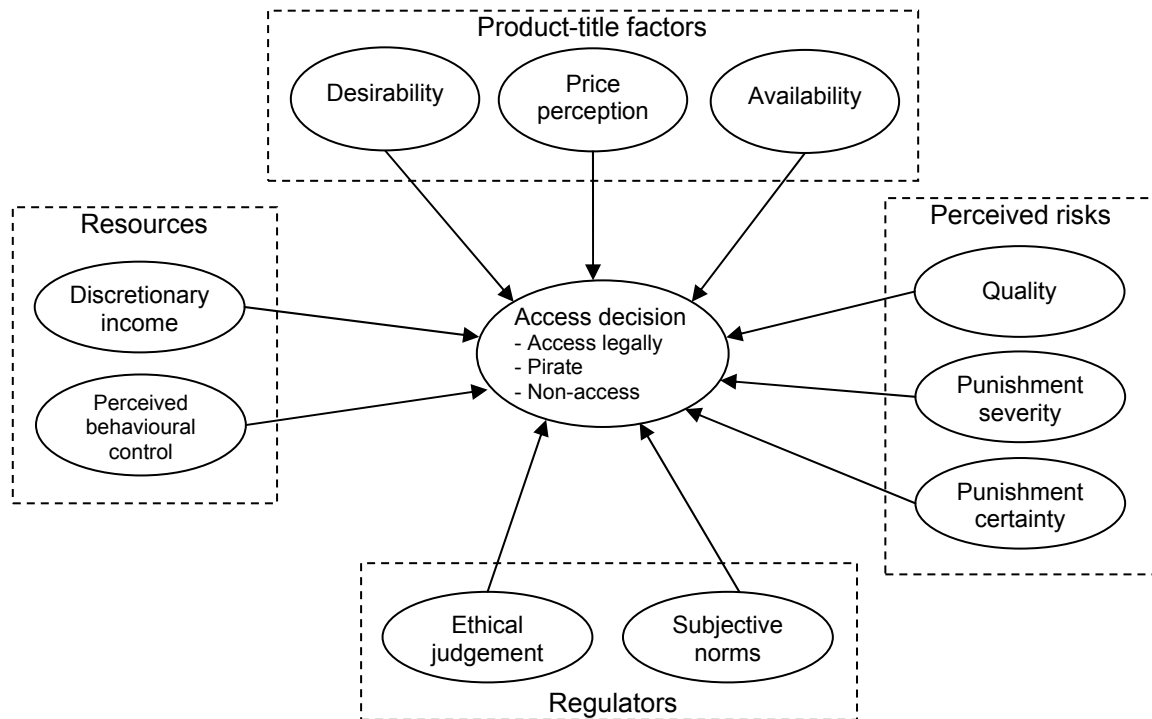


Figure 11. Research Model for Investigation 2

In addition to assessing availability, the second study made a number of methodological changes. The most significant change was the use of online self-report ‘diaries’ to measure access decisions and the product-title factors in the model. The online diaries were conducted over two weeks following the completion of in-class paper-based self-report surveys, which assessed the remaining variables. In contrast to the first study, price perception was evaluated as a product-title factor, rather than as an access-mode factor. The response categories for access decisions were increased and distinguished between different forms of legal and piracy access modes, allowing for a comparison of how the factors in the model vary across legal access alternatives. The other changes included updated measures for desirability and punishment severity and certainty. In the section that follows, more details are given about the method and results of the investigation.

#### 4.4.1. Method

Data were collected during the spring and autumn semesters of 2011 and the spring semester of 2012 using two methods: an initial paper survey and a subsequent online diary. The paper survey

was used to collect data about the access-mode factors, in addition to demographic variables and other variables not used in the investigation. Separate sections of the paper survey were dedicated to film and music, which measured quality and punishment severity and certainty, subjective norms, ethical judgements, and perceived behavioural control. Discretionary income was measured in a section dedicated to demographic variables. A fourth section measured variables that were not used in the investigation. The online diary was used to collect data on product-title factors, specifically desirability, price perception and availability, in addition to the modes used by participants to access specific films and pieces of music.

The online diary is well-suited to collect data about access decisions for a number of reasons. As an ongoing experience method, the online diary was designed to collect “direct, usually immediate reports of everyday experience... within the stream of routine, voluntary activity” (Reis and Gable 2000, p. 194). Participants were encouraged to complete the diaries shortly after each access decision. As data about the access-mode decision were recorded in the context the decision was made, the data have enhanced ecological validity. Thus, the data from the method are likely to be better representations of individuals’ decisions than data gathered by alternative methods such as hypothetical scenarios. The method is also helpful in reducing biases as the data were recorded by participants soon after decisions were made. Unlike other investigations which may ask participants to estimate their aggregate consumption over the past year, the data on individual decisions is unlikely to be influenced by recall biases such as recency bias, salience bias, and state of mind bias (Reis and Gable 2000). Moreover, the mixed-method approach which combines the initial paper survey and the subsequent online diary allows inferences to be made about the causality of the relationships in the model, at least for the directionality of the relationships between the access-mode factors assessed in the paper survey (i.e., the risks, regulators and resources) and the decisions reported using the online diary.

#### **4.4.1.1. Sample and Procedure**

Participants were recruited from undergraduate and graduate university classes at two Danish universities. Participation in the project was anonymous and voluntary. During classes participants were provided information about the study, completed the paper surveys, and were subsequently given a demonstration covering how and when to use the online diaries. When completing the surveys, participants were instructed to write unique personal codes on their paper surveys so that their paper responses could be matched to their entries from the online diaries. The unique personal

codes were designed to be short, easy to understand, unlikely to produce duplicates, and able to maintain the anonymity of the participants, as no contact information was collected. The codes consisted of the first two letters of their mothers' and fathers' names, and the day of the month that they were born. Instructions for creating the unique personal code were also presented on the front page of the online diary, so that participants did not have to remember their codes. After data collection, no two individuals had identical unique personal codes.

Following the in-class instructional sessions, participants completed the diaries for 14 days, recording details about their access decisions for film and music. The two-week duration was judged to be long enough for those with an interest in film or music to have made at least one access decision about the products over this time period. Participants who participated in the study during the spring and autumn semesters of 2011 were asked to record each access decision for film and music over the two week period. However, it proved too difficult to attract individuals to participate, so to reduce the effort involved in participation in the spring 2012, individuals were only asked to record one decision for film and music. The online diary was hosted by a web-based survey service and had conditional sections, such that participants only saw relevant questions when responding. For example, if they indicated on the first page that they were reporting on an access decision for music, then they only saw music questions. Participation in the project was incentivised. Those who completed the initial paper survey received a chocolate bar in class. Participants who also recorded their access decisions using the online diary received a cinema ticket at the end of the survey period and also went into a draw to win an iPad.

Like the first investigation, the second used a sample of university students, and thus was not representative of the Danish markets for film and music. However, as noted previously, there are a number of advantages to using student samples, such as convenience and access for the researcher, the likelihood that the sample has experience with the phenomena under investigation (Plouffe 2008; Wolfe et al. 2008), and that the generation of digital natives may provide an insight into behaviour of individuals in the markets of the future (Hinduja and Higgins 2011; Prensky 2001). Moreover, unrepresentative samples are less of an issue when investigations, such as this one, aim to examine the relationships between variables (Blair and Zinkhan 2006).

The reliance on self-report data also raises issues about potential response biases, especially dishonest responding and non-response bias. As noted in the previous section, dishonest responding is unlikely to be a problem if care is taken to ensure that participants are able to avoid potential

embarrassment and repercussions from third parties (Tourangeau and Yan 2007). The anonymity of the participants played an important role in allaying concerns in regards to embarrassment and repercussions. Although demographic characteristics were provided, the participants' responses did not contain any information that could personally identify them and, as stated above, no contact information was collected. All communication with the participants was conducted either directly through the in-class presentations or indirectly through in-class and message-board messages from their course instructors. The decision to not collect contact information from the participants diminished the ability to remind or prompt participants to complete the online diaries. However, it was judged that this sacrifice was necessary to ensure the anonymity of the participants. Non-response bias is a potential issue as a relatively low proportion of those who completed the paper surveys went on to complete the online diaries. However, when compared, there were no significant differences between those who completed the diaries and those who did not in terms of age, gender, perceived risks, regulators, and perceived behavioural control. This indicates that non-response was random rather than due to a conscious decision of some individuals to not respond due to perceived participation risks.

While the response rate of for the initial paper was high, relatively few went on to participate in the diary. Of the 998 paper surveys distributed, 890 were returned by participants, giving a response rate of approximately 89 percent. Of the individuals who completed the paper surveys, 161 (18.09%) also completed the online diaries, of which 141 recorded their film decisions and 133 recorded music decisions. As the final data set included very few 'non-access' responses, these observations were removed. Consequently, non-access decisions could not be evaluated. Cases with missing values for the independent variables were substituted with the sample mean after outlier cases were removed from the data set. Following the removal of outliers and cases with missing decision data, the final sample for film included 127 responses and the sample for music included 117, with an overlap of 57. In the film sample, the mean age of participants was 22.79 years ( $SD = 3.34$ ), and 68 were male (53.50%). By nationality, 106 were Danish (83.50%). In the music sample, the mean age of participants was 22.77 ( $SD = 3.41$ ), where 65 (55.60%) were male and 96 (82.10%) were Danish. The distribution of disposable income for each sample is shown in the table below.

Table 17: Monthly Discretionary Income by Sample

Amount (DKK)	<500	500-999	1,000-1,999	2,000-2,999	3,000-4,999	5,000-7,499	7,500-9,999	10,000-14,999	15,000-19,999	20,000+	Missing	Total
Film sample	9	19	36	26	28	4	1	1	2	0	1	127
Music sample	8	15	37	22	28	2	1	0	1	1	2	117

#### 4.4.1.2. Measures

As indicated by table 4 at the start of the chapter, the majority of the measures from the pilot were used again in the second investigation. These measures had largely been drawn from previous research and adapted to suit the context. Following the limitations of the first investigation, new measures were used for desirability and punishment certainty and severity. These new measures were selected from an array of candidates and care was taken to ensure that the measures corresponded to the conceptual definitions of the factors in the model. Again, other academics aided in reviewing the new measures and examining the reworded items to ensure they were easily understood. After the first sampling period, Spotify, a comprehensive and legal online music-streaming service was introduced to the Danish market. Thus, a categorical variable about the adoption of this service was introduced in the second and third waves of data collection as a control variable. All the variables assessed in the paper survey were measured using a seven-point Likert scale anchored with ‘Strongly disagree’/‘Strongly agree’, except for ethical judgements, which had items with a seven-point semantic differential scale. In another change from the first investigation, Danish-language versions of the survey instruments were made for the Danish participants in the sample, in addition to English-language versions of the surveys for those participants who were not Danish. The Danish versions of the surveys were forward- and back-translated to ensure accuracy, and any differences in translations were reconciled with bilingual academics acting as language experts.

##### 4.4.1.2.1. *Product Desirability*

While the single-item measure of product desirability functioned adequately in the first investigation, another measure of desirability was used for the second investigation. Single-item Likert measures can be problematic for latent variables (Bergkvist and Rossiter 2007), and a multiple-item measure was judged to be a better measure of the construct. Campbell and Goodstein’s (2001) measure of product evaluation was modified to assess product desirability. Conceptually, the items in the measure assess dimensions of desirability, notably the cognitive

evaluation of the product ('Good'/'Bad', 'Favourable'/'Unfavourable') and the emotional response to the content ('Desirable'/'Undesirable', 'Appealing'/'Unappealing'). In their investigation, Campbell and Goodstein's measure had a more-than-adequate level of internal reliability ( $\alpha=.92$  &  $.95$ ).

The approach used by Campbell and Goodstein (2001) to assess individuals' evaluations of products is typical in marketing research, where measures are often comprised of multiple semantic-differential items. A number of researchers have used very similar items to assess product evaluation. For example, Adaval and Monroe (2002) used a measure that used three of the four semantic differential items ('Good'/'Bad', 'Favourable'/'Unfavourable', 'Desirable'/'Undesirable';  $\alpha=.91$ ) in their measure of product evaluations. Others have used very similar items, such as Chao's (2001) three-item measure ('Good'/'Bad', 'Satisfactory'/'Dissatisfactory', 'Favourable'/'Unfavourable';  $\alpha=.97$ ), Guhan-Canli and Batra's (2004) three-item measure (Good'/'Bad', 'Favourable'/'Unfavourable', 'Positive'/'Negative';  $\alpha=.92$ ), and Muthukrishnan and Ramaswami's (1999) three-item measure ('Good'/'Bad', 'Like'/'Dislike', 'Favourable'/'Unfavourable';  $\alpha=.89$ ).

Upon the advice of academics acting as Danish-language experts, three items in the measure were reworded as single 'Strongly disagree'/'Strongly agree' statements as desirable, favourable and appealing were deemed difficult to translate. The 'Favourable'/'Unfavourable' item was rewritten as "Before attempting to [see the film/ stream/acquire the music] today, I thought it would be better than most others available to me". The 'Desirable'/'Undesirable' item was rewritten as "Before attempting to [see the film/stream/acquire the music] today I really wanted to [see/hear] it". The 'Appealing'/'Unappealing' item was rewritten as "Before attempting to [see the film/ stream/acquire the music] today, I thought I would like it".

In their initial investigation Campbell and Goodstein (2001) used the measure to assess individuals' evaluations of products with which they had no prior experience. Decisions about film and music are often made before an individual has seen or heard the title. Thus, the use of the measure in this study is similar to its use in the Campbell and Goodstein investigation.

#### 4.4.1.2.2. *Punishment Severity and Certainty*

Due to the low internal reliability of Peace et al.'s (2003) measure of punishment certainty in the first investigation, alternative measures were sought for the punishment risk measures in the second investigation. Morton and Koufteros's (2008) three-item measures, which were based on Peace et al.'s two-item measures, were selected as replacements. They offered a number of advantages of



over Peace et al.'s measure. The measures included an extra item, providing better coverage of the construct. In addition to their face validity, when examined in the initial investigation by Morton and Koufteros, the measures for punishment severity and certainty had composite reliabilities of .93 and .92, indicating high levels of internal reliability. In the original form, the measures were used to assess the perceived risks associated with music piracy, so the wordings of the items were adapted to adequately assess film.

#### 4.4.1.2.3. *Price Perception*

A different approach for evaluating price perception was used in the second study, where participants provided their expected and reservation prices for the specific titles under consideration, rather than the access modes as in the pilot study. In addition to the specificity of the questions, participants were asked about which cost was most relevant to their decision to ensure that appropriate price variables were used. For film, the reference price depended on which cost was most relevant to the individual's decision: the cost of buying it, renting it, or seeing it in the cinema. For music, it depended on whether the individual listed a song, album or collection, and in the third wave of data collection, whether it was the cost of buying or streaming the music.

While the questions used to assess individuals' expected and reservation prices differed from the first investigation, the calculation of price perception was identical and in a way that is derived from Thaler's (1980; 1985) formulation of transaction utility and consistent with other research (Bearden and Kaicker 1992; Bei and Simpson 1995; Jayanti and Ghosh 1996; Kalwani and Yim 1992; Kalwani et al. 1990; Kim et al. 2009). Again, price perceptions were calculated as the relative difference between expected and reservation prices for a specific legal access mode, where a percentage score indicates the proportion of the expected price that subjects were prepared to pay. A negative value indicates an unfavourable price perception, where an individual is unwilling to pay the expected price for the product. Table 18 below shows the price statistics for film. The price perceptions differ substantially across the various access options. In general, those using the cinema as the relevant legal option have more favourable price perceptions than those whose relevant comparisons are the prices of purchasing and renting titles.

Table 18: Price Statistics for Film

		Number	Mean	SD	Min	Max
Cinema	Expected price	54	83.47	22.37	0	200
	Reservation price		83.69	30.57	0	200
	Price perception		1.20%	28.17%	-76.47%	48.75%
Purchase	Expected price	33	125.03	61.13	0	240
	Reservation price		75.12	49.87	0	200
	Price perception		-27.34%	51.19%	-100.00%	100.00%
Rental	Expected price	40	46.48	29.57	0	200
	Reservation price		32.63	22.62	0	100
	Price perception		-20.66%	50.19%	-100.00%	75.00%
Total	Price perception	127	-13.10%	44.02%	-100.00%	100.00%

Table 19 shows the price statistics for music. Price perceptions based upon the price of buying music were used for the majority of respondents. It is worth noting that only in the third wave of data collection in spring 2012 were individuals able to identify the cost of streaming as their relevant legal option. Thus, most of the individuals in the sample have price perceptions based on the price of purchasing music. Nonetheless, individuals' price perceptions for the purchase options are less favourable than those for the streaming options. This is likely due to the availability of free music streaming services, while free download services are not as common.

Table 19: Descriptive Statistics for Music Price Variables

		Number	Mean	SD	Min	Max
Song purchase	Expected price	57	8.29	3.73	0	10
	Reservation price		6.14	4.56	0	10
	Price perception		-21.43%	39.34%	-100.00%	0.00%
Album purchase	Expected price	45	100.90	50.76	50	200
	Reservation price		61.90	49.31	5	150
	Price perception		-20.11%	74.71%	-96.64%	100.00%
Song stream	Expected price	12	31.50	43.34	0	100
	Reservation price		35.77	52.00	0	150
	Price perception		8.33%	66.00%	-75.00%	200.00%
Album stream	Expected price	3	.00	.00	0	0
	Reservation price		.00	.00	0	0
	Price perception		0.00%	0.00%	0.00%	0.00%
Total	Price perception	117	-17.70%	55.81%	-100.00%	200.00%

#### 4.4.1.2.4. Legal Availability

Unlike the first investigation, perceived legal availability was assessed in the second investigation. Participants were asked to indicate if a legal option was available that would have allowed them to

access the film or music in the way they preferred. The responses available were ‘Yes’, ‘No’, and ‘Don’t know’. In subsequent analyses, the ‘No’ and ‘Don’t know’ responses were combined into a single category, as it is the certainty of the legal availability and its influence on access decisions is most important. As can be seen in table 20, most of the titles were legally available.

*Table 20: Statistics for Legal Availability by Product*

	Yes	No	Don’t know
Film	87	21	19
Music	93	11	13

#### 4.4.1.2.5. *Access Decision*

As noted elsewhere in this section, the access decision was assessed differently in the second investigation. While the first investigation focused on the legality of individuals’ access decisions, the second investigation asked participants to specify both the access mode and its legality. As noted in the previous investigation, other researchers have used categorical responses when examining choices among legal alternatives and piracy. For example, Gopal et al. (2006) used a categorical response format in their investigation of music piracy. Similarly, Pryor et al. (2008) used a categorical measure to assess the legality of respondents’ previous music acquisition. Though they subsequently recoded responses as legal or illegal, Pryor et al. provided participants with a variety of legal and illegal modes to choose from. In their investigation, the legal modes included new or used purchase at a physical store or on the Internet; mail order purchase; and paid Internet download. The illegal methods included unpaid Internet download; copied borrowed music; and music copied by a friend.

Since Pryor’s investigation, streaming has emerged as a popular access mode for film and music, and thus was included as a categorical response option. For film, respondents indicated if they watched a film using one of the following: ‘Watch it in the cinema (legal)’; ‘Buy a copy (legal)’; ‘Rent a copy (legal)’; ‘Stream the film (legal)’; ‘Download a copy (illegal)’; ‘Stream the film (illegal)’; ‘Not see/Not acquire’; and ‘Other’. For the purpose of subsequent analyses, the cinema and purchase options remained separate categories, whereas the legal rent and stream options were combined as in Denmark these two options are equivalent in terms of ownership and price. The piracy options were combined as the referent category for the analyses. Unfortunately, there were insufficient ‘Not see/Not acquire’ responses collected, so these cases were removed from the data set. For music, the response categories were as follows: ‘Buy a copy (legal)’; ‘Stream it

online (legal)'; 'Borrow a copy (legal)'; 'Download a copy (illegal)'; 'Copy from a friend (illegal)'; 'Stream it online (illegal)'; 'Not acquire/Not stream'; and 'Other'. For the subsequent analyses for music, the purchase and stream options remained separate, while the piracy access modes were combined as the reference category. Again, there were too few responses in the remaining categories to analyse those response options.

#### **4.4.1.3. Assessing Common Method Variance**

Methods suggested by Craighead et al. (2011) were used to prevent common method variance. As in the previous study, methodological separation was employed, as different methods were used to assess the independent and dependent variables. As indicated above, categorical response measures were used for access decision, while multi-item Likert measures were used for most of the independent variables. Moreover, contextual shifts were inserted into the questionnaires to make comprehension easier for the reader, but also to avoid bias. In addition to these two techniques, temporal separation was employed, as the dependent variable and many of the independent variables reflecting access-mode factors were not measured contemporaneously.

Harman's (1976) one-factor test was used to assess common method variance, where the emergence of a single factor or a general factor that accounts for the majority of the covariance among the variables is indicative of common method variance (Podsakoff et al. 2003). Using SPSS 19, un-rotated principal components factor analysis and principal component analysis with varimax rotation were conducted for all non-categorical items. The results showed that 24.75 percent of the variance is accounted for by the first factor in the film data and 27.60 percent in the music data. The remaining factors comprise 53.53 percent of the variance in the film data and the 52.61 percent in the music data. These findings indicate that common method variance was not present in the data. Moreover, all items loaded on their expected factors for their respective measures in the varimax rotation of the component matrix. The Cronbach's alphas for each of the measures were above 0.70, indicating acceptable levels of internal reliability.

The descriptive statistics for the non-categorical variables for film and music are shown in tables 21 and 22, respectively. These tables show the measures for each of the variables, their items, means, standard deviations, Cronbach's alphas, and factor loadings. Note that for clarity of interpretation, factor loadings lower than .40 are not shown in the tables.

*Table 21: Descriptive Statistics for Film - Constructs, Means, Standard Deviations, Cronbach's Alphas and Factor Loadings*

[illegible]



#### 4.4.2. Results

For the final data sets access-decision data recorded using the online diary were matched with participants' data from the paper survey. The students who were surveyed in the spring and autumn semesters of 2011, who recorded multiple decisions, had one decision randomly selected for the final data set. Variables were centred before running the analysis. Two multinomial logistic regression analyses were conducted to evaluate model's propositions concerning the access-mode decision. As described in the results section for the previous study, multinomial logistic regression enables researchers to predict values of a dependent variable with more than two categories based on continuous and/or categorical independents. Again, SD-adjusted odds ratios are reported to allow for comparisons of variables that were assessed using different scales. Like the previous investigation, the continuous variables were mean-centred before running the analyses, where the sample mean for each variable was subtracted from each individual's variable score. Thus, the data in the sample has a mean of zero for each of the continuous variables. This allows for an interpretation of the intercept of the regressions, which is equal to the log-likelihood of the dependent variable when all the independent variables are held at the mean. The categorical independent and control variables were treated as binaries. 'Yes' responses for legal availability and being registered with Spotify, as well as having a disposable income above the median, and being non-Danish were coded as '1', with the remaining responses and options coded as '0'.

In the regressions, the dependent variable was the access decision. Access via piracy was used as the reference category as it allows for an examination of how the factors in the model vary across the legal alternatives available to individuals. The regression models for films ( $X^2(33, N = 127) = 105.71, p < .0001$ ) and music ( $X^2(24, N = 117) = 87.62, p < .0001$ ) were both significant and predicted approximately 66% of cases to their correct access mode for films, and 75% of cases to their correct access mode for music. The findings provide support for some of the hypotheses of the model and indicate that product-title factors are significantly associated with access decisions for film and music. Moreover, the results indicate that the influence of the different factors varies according to product type and legal access mode. Tables 23 and 24 display the regression results for film and music, respectively.

In the final data set for film, 36 individuals reported that they chose to see a film in the cinema, 10 individuals decided to purchase a copy of the film, 26 decided to legally rent or stream the title, and 55 individuals decided to pirate a copy. The findings for film are remarkably similar

across all of the legal options available. The decision to use each of the legal access modes is positively related to price perception and legal availability, except in the case of purchase for legal availability. Together, these results provide support for hypotheses 2 and 3. These findings indicate that the probability that an individual will access a film legally increases as if he or she is willing to pay a higher proportion of the expected price for the product and believes that legal versions of the product are available. Looking at the odds ratio for legal availability, the results show that the legal availability of a film in the cinema increases the likelihood it will be seen by approximately 40 times. The results are less striking for the rent/stream option, where legal availability increases the likelihood an individual will see the film legally by a factor of 5.

*Table 23: Multinomial Logistic Regression Models for Film Access Decision*

Independent variable	Likelihood ratio tests	Parameter estimates											
		Cinema				Purchase				Rent/Stream Legally			
		B	Wald	Odds ratio	SD-adjusted Odds ratio	B	Wald	Odds ratio	SD-adjusted odds ratio	B	Wald	Odds ratio	SD-adjusted odds ratio
Model intercept	17.51***	-3.06	7.23**			-3.17	5.41*			-1.66	5.45*		
Product desirability	3.90	0.53	2.41	1.70	1.77	0.81	2.52	2.26	2.40	0.20	0.36	1.22	1.24
Price perception	22.85***	0.04	13.85***	1.04	4.82	0.04	9.43**	1.04	6.19	0.03	11.63***	1.03	4.04
Legal availability	19.74***	3.70	10.21**	40.48	5.62	1.86	1.79	6.42	2.38	1.74	5.63*	5.68	2.25
Quality	5.84	0.45	2.53	1.57	1.82	0.83	3.14	2.28	3.00	0.08	0.08	1.09	1.12
Punishment severity	0.83	0.11	0.23	1.11	1.20	-0.08	0.07	0.92	0.87	-0.05	0.05	0.95	0.92
Punishment certainty	4.90	0.39	1.14	1.48	1.49	-0.27	0.24	0.76	0.76	0.54	2.24	1.71	1.73
Subjective norms	3.88	-0.18	0.48	0.84	0.76	-0.58	2.57	0.56	0.41	-0.37	2.00	0.69	0.57
Ethical judgement	2.28	0.09	0.13	1.10	1.15	-0.37	0.86	0.69	0.57	-0.14	0.34	0.87	0.81
Perceived behavioural control	0.28	0.09	0.18	1.10	1.17	0.10	0.10	1.10	1.18	0.12	0.27	1.12	1.22
Disposable income	1.28	-0.29	0.19	0.75	0.87	-0.79	0.66	0.46	0.67	0.14	0.04	1.15	1.07
Nationality	1.78	-0.30	0.11	0.74	0.89	-1.72	1.37	0.18	0.53	-0.54	0.35	0.59	0.82
Cox & Snell R <sup>2</sup>	.57												
Nagelkerke R <sup>2</sup>	.61												
Percent Classified	66.14%												

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001. Reference category is access via piracy.

The remainder of the variables in the model were not significantly associated with any of the legal access modes for film, so the remaining hypotheses were unsupported. However, based upon the Cox & Snell and Nagelkerke R<sup>2</sup> values, the model accounts for between 57 and 60 percent of the variance in film access decisions.



Turning to music, 21 individuals indicated that they purchased the title they listed, 55 streamed the title, and 41 opted to access it via piracy. The results of the music regression mirrored that conducted for film. Product-title factors were related to the decision to use both of the legal options identified, though the factors differed somewhat between the access options. Price perceptions were positively associated with both the decision to purchase and to stream a piece of music rather than pirating it, providing support for hypothesis 2. This finding indicates that the likelihood that an individual will use a legal access mode increases as he or she is willing to pay a higher proportion of the expected cost of using that legal access mode.

*Table 24: Multinomial Logistic Regression Models for Music Access Decision*

Independent variable	Likelihood ratio tests	Parameter estimates							
		Purchase				Stream Legally			
		Chi-square	B	Wald	Odds ratio	SD-adjusted odds ratio	B	Wald	SD-adjusted odds ratio
Model intercept	7.78*	-1.78	2.94				-2.05	5.28	
Product desirability	7.04*	0.91	4.42*	2.48	2.89		-0.05	0.04	0.96
Price perception	17.44***	0.02	9.65**	1.02	3.88		0.02	11.22***	1.02
Legal availability	17.53***	1.14	1.34	3.12	1.59		3.10	12.27***	22.13
Quality	0.70	0.10	0.09	1.11	1.14		0.22	0.67	1.25
Punishment severity	2.19	0.30	1.61	1.35	1.71		-0.02	0.01	0.98
Punishment certainty	0.98	-0.01	0.00	0.99	0.99		0.3	0.62	1.35
Subjective norms	2.44	-0.38	1.48	0.68	0.55		0.04	0.04	1.04
Ethical judgement	1.95	-0.01	0.00	0.99	0.99		0.23	1.46	1.26
Perceived behavioural control	3.01	-0.11	0.05	0.89	0.89		-0.55	2.18	0.58
Disposable income	4.87	0.34	0.22	1.41	1.19		-0.99	2.71	0.37
Spotify	11.03**	-0.33	0.17	0.72	0.85		1.51	6.28*	4.53
Nationality	0.80	-0.92	0.75	0.40	0.70		-0.27	0.14	0.76
Cox & Snell R <sup>2</sup>	.53								
Nagelkerke R <sup>2</sup>	.60								
Percent Classified	75.21%								

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001. Reference category is access via piracy.

In a different finding from the prior investigation, desirability was positively associated with the decision to purchase a title, though not related to the streaming option. This finding provides partial support for hypothesis 1. Mirroring the findings for films, legal availability was related to legally streaming a product, but not related to purchasing a copy of the music, thus providing partial support for hypothesis 3. This finding indicates that legal availability is an important factor related to whether or not an individual streams a song or album legally. By examining the odds ratios, we can deduce that the legal availability of music on streaming services increases the likelihood that an

individual will stream the music legally by more than a factor of 20. As perhaps expected, being a member of Spotify was positively related to the decision to legally stream a piece of music rather than pirate it, and thus commitment to the service via registration increases the likelihood that an individual will decide to stream music legally by more than a factor of four. As with the results for film, relatively few factors were significantly associated with the decision to access music legally. However, based upon the Cox and Snell and Nagelkerke  $R^2$  values, the model accounts for between 53 and 60 percent of the variance in music access decisions. Thus, while few factors were significantly associated with legal access, these factors have a significant amount of explanatory power.

Taken together, the film and music analyses reveal the importance of the product-title factors from the model in individuals' access decisions. In particular, price perceptions and the perceived availability of preferred legal alternatives were particularly important in determining the legality of how individuals access these products. However, aside from desirability and registration with the streaming service Spotify, no other factors were significantly associated with the use of legal access modes over piracy. These findings indicate that the factors which influence decisions are primarily consumption-related, rather than broader social, ethical and legal considerations.

#### **4.4.3. Discussion**

Building on the results of the first investigation, the second investigation evaluated the theoretical model when it incorporated legal availability and examined individuals' actual access decisions for film and music. The results of the analyses indicate the importance of the product-title factors for individuals' access decisions, while the access-mode factors, specifically risks, regulators, and resources were not important. Of the product-title factors, price perception was positively associated the decision to use legal access modes. This finding demonstrates that more favourable price perceptions increase the likelihood that legal options will be used to access film and music. The findings concerning price perception are also consistent with the previous investigation, where price perceptions were associated with the decision to access music legally, and other previous investigations where price considerations have been associated with the decision to use legal options over piracy (e.g., Bhattacharjee et al. 2003; Gopal et al. 2006; Rob and Waldfogel 2006; Waldfogel 2010).

In addition to price perception, perceived legal availability was positively associated with the decision to use legal options for both products, though not the legal options that involved

purchasing copies. Legal availability was particularly important for decisions about watching a film in the cinema, where the availability of the title increased the likelihood that a legal option would be chosen by a factor of 40. Availability was not assessed in the previous investigation, however, the findings concerning this factor are in line with economic theory and the consumer behaviour literature, which emphasise the importance of availability in decision making (e.g., Thaler 1985). Moreover, the findings are also consistent with previous investigations where variables associated with availability have been found to be related to access decisions (Cenite et al. 2009; Hennig-Thurau et al. 2007; Sandulli 2007; Sirkeci and Magnúsdóttir 2011).

Desirability was another product-title factor that was also related to access decisions, though not as consistently as the other factors. This finding parallels the results for film from the first investigation, where perceived desirability was positively associated with legal access. The result is also consistent with the research by others, which indicates the importance of factors related to desirability in access decisions (e.g., Gopal et al. 2006; Hennig-Thurau et al. 2007; Ouellet 2007). While desirability was related to legal access via purchase for music, being a member of Spotify increased the likelihood that someone would stream a piece of music rather than pirate it. This finding indicates that Spotify does more than just broaden the range of legal options available to an individual, but increases the likelihood that the access will be legal.

While the findings of the investigation indicate the importance of product-title factors, none of the access-mode factors were associated with access decisions. Neither risks, nor regulators, nor resources were related to access decisions. Though the factors representing access-mode considerations failed to reach significance in the analyses, the research models still accounted for more than half of the variance in access decisions. These findings indicate that product-title factors, especially those of price and availability, take precedence in individuals' decisions. However, it is necessary to interpret these findings with caution, as the investigation is not without a number of limitations.

#### **4.4.3.1. Limitations**

One possible explanation for the consistency of the findings for product-title factors could be that they reflect the characteristics of a relatively homogeneous sample. The demographic characteristics reported earlier paint a fairly clear picture: the sample was comprised of young Danish university students with relatively low disposable income by Danish standards. The descriptive statistics, especially those for perceived behavioural control, indicate that on average the sample has the skills

and abilities necessary to engage in piracy. In such circumstances, it is possible to see why considerations related to price, and thus affordability, would take precedence in one's decision making. In addition to characteristics of the sample, the investigation used a relatively small sample given the number of variables in the model. Thus, one could expect the model to perform differently using a different, larger sample.

Despite these limitations, the second investigation demonstrated improvements over the pilot in terms of the completeness of the model and the methods used to evaluate it. The next investigation built upon the limitations that were associated with the sample and drew on a more representative sample to evaluate the theoretical model.

### 4.5. Study 3: Market Investigation

The third investigation of the project differed from the previous two in two key ways: the scope of the model and the sample used. The model evaluated in the third study, depicted below in figure 13, extended the scope of the factors in the model to account for control variables that are theoretically related to the access decision. Due to sample-size limitations, these variables were not included in the previous investigations.

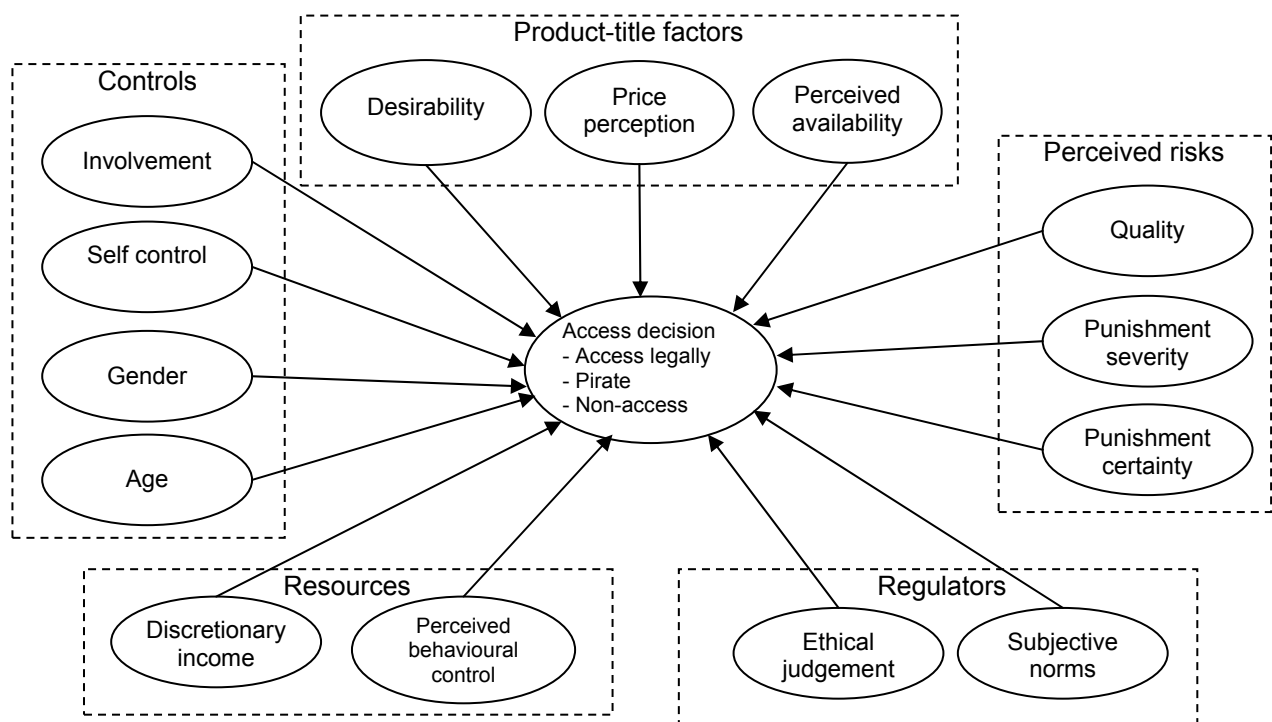


Figure 12. Research Model for Investigation 3

Though the analyses in the first and second investigations also included control variables, these variables were included in order to ensure that the results were not the outcomes of unique characteristics of the samples, namely the nationalities of the participants. The model evaluated in the third investigation includes all of the factors in the model described in the previous chapter, and in addition gender, age, product involvement and self-control are included. The initial model assumes an individual makes an access decision based on an evaluation of multiple factors. However, there is evidence to suggest that other factors influence access decisions, including gender (e.g., Bhattacharjee et al. 2003; Gopal and Sanders 1997), age (Al-Rafee and Cronan 2006), product involvement (Chen et al. 2009) and self control (Higgins 2007; Higgins et al. 2007). Thus, in this study, these variables additional were examined as well.

In addition to modifications to the research model, the third investigation drew on a substantially different sample. Rather than using a sample drawn from university students, the investigation sought a sample more representative of the markets for film and music in Denmark. Participants were recruited with the help of film, music and technology websites in Denmark. To ensure that the data was more representative of the Danish market, only Danish-language surveys were used. The resulting sample had a different composition from the previous two studies reported in this chapter and was also substantially larger. In addition to the changes in scope and sample, the third investigation differed from the diary study in that it relied upon hypothetical scenarios, where participants provided likely access decisions for specific titles rather than their actual access decisions. In the section that follows, more details are given about the method and results of the third investigation.

#### **4.5.1. Method**

Data were collected from Denmark during February and March of 2012 using two separate online surveys: one for film and another for music. As in the previous investigations, the surveys collected data about access-mode factors for film and music as well as a product-title factors and likely access decisions for specific film and music titles. In addition, there were sections for demographic variables and self control. The sections concerning access-mode factors measured quality risks, punishment severity and certainty, subjective norms, ethical judgements, and perceived behavioural control, in addition to product involvement as a control variable. The section for the hypothetical scenario assessed the likely access decision as well as desirability, price perception, and perceived legal availability.

#### 4.5.1.1. Sample and Procedure

Participation in the project was confidential and voluntary. Participants were self-selected with the help of Danish film, music and technology websites, which linked to the online surveys in various ways, including writing articles about the surveys and placing advertisements on their sites during the survey period. In total six websites posted links to the surveys while the administrators of other websites shared links to the survey on their Twitter and Facebook pages. Participation was incentivised; those who completed one of the surveys went into a draw to win an iPad, and received an extra chance if they completed the other. To promote the survey, a short stop-motion advertisement was made and posted on the video-hosting sites YouTube and Vimeo, so that the websites had content to post if they needed an image or a video.

The potential limitations of relying on self-report data have been discussed in connection with the first and second investigations, especially the likelihood of dishonest responding and non-response bias. Dishonest responding is unlikely to be a problem if care is taken to ensure that participants are able to avoid potential embarrassment and repercussions from third parties (Tourangeau and Yan 2007). While the investigation offered anonymity, this anonymity would preclude participants' eligibility for the prize draw. To enter the draw, it was necessary to submit an email address confidentially. Thus, it is possible that individuals may have altered their responses in order to avoid risks and remain eligible for the prize draw. However, in all promotion about the survey, participants were made aware that they would only be asked to respond to hypothetical scenarios and not provide information about actual decisions. This effort is likely to have reduced the perceived risks of participation and encouraged honest responding.

Non-response bias was also a potential issue. By recruiting participants through Danish film and music websites and relying on self-selection, the data may be prone to non-response bias. In order to prevent this issue, a number of response facilitation approaches identified by Rogelberg and Stanton (2007) were used, including publicising the survey, designing it carefully to make navigation intuitive, providing incentives for responding, and managing survey length by using short-item measures. Nonetheless, less than a thousand participants responded to each survey. However, many more would have seen the coverage of the survey across the various websites. Thus a number of individuals decided not to participate in the survey. However, it is unlikely that their participation created a systematic bias in the data. The analyses conducted in the results section of this investigation provide a level of interest analyses by including involvement in film and music as

a control variable in the regressions. Level of interest in a survey topic is one of the best predictors of a respondent's likelihood of completing a survey (Rogelberg and Stanton 2007). As described in the results section, involvement was only significantly related to the non-access decisions, indicating that non-response bias due to level of interest is unlikely. To the extent that non-response bias could be a problem in the data, it is again worth noting that the research focuses on relationships between variables rather than levels of variables. In such instances, Blair and Zinkhan (2006) observe that "...the measurement of the extent to which the two variables co-vary is likely to be relatively accurate even if sampling is disproportionate at different levels of the variables" (p. 5). Thus, despite the limitations of our data, it is unlikely that response biases were a major concern and distorted the results of the analyses.

In total, 717 individuals responded to the film survey and 668 individuals responded to the music survey. Following the removal of incomplete responses, duplicates, and outliers, the sample yielded 519 responses for the film and 469 responses for music. In the final data set, the mean age of participants in each sample was 30.35 years for film (SD=10.75) and 30.36 years for music (SD=11.28). By gender, there were 112 women in the film sample and 114 in the music sample. While the proportions of female respondents are low, such proportions are typical for investigations that recruit participants online for studies on film and music (e.g., Buxman et al. 2005; Nandi and Rochelandet 2008; Regner and Barria 2009). The distributions of disposable income of the samples for film and music are presented in the tables below. By nationality, just 11 participants in the film sample were non-Danes, and just 10 were in the music sample.

*Table 25: Monthly Discretionary Income by Sample*

Amount (DKK)	<500	500-999	1,000-1,999	2,000-2,999	3,000-4,999	5,000-7,499	7,500-9,999	10,000-14,999	15,000-19,999	20,000+	Total
Film sample	38	77	115	97	89	45	29	19	5	5	519
Music sample	30	85	108	77	87	37	28	10	4	3	469

In comparison to the general population of Denmark, the sample is substantially younger and over represents men and foreigners. As noted in the first study, women make up 50.4 percent of Denmark's population, which has an average age of 40.3 years and has approximately 1 percent foreign residents (Danmarks Statistik 2011). Unfortunately, it is not possible to compare monthly discretionary income figures with those of Danmarks Statistik, as their criteria for discretionary income are different to the criteria used in this investigation. Their definition of discretionary income is "total income after the amount left for consumption and savings when direct taxes etc., maintenance payments and interests have been paid" (p. 504). This definition is much broader than

that used in this investigation. Participants were asked: “How much money do you have for own use each month after fixed costs for food, housing, taxes, etc. have been paid?” Thus, the measure used here excludes money for spending on regular expenses, which is part of the definition from Danmarks Statistik.

#### **4.5.1.2. Measures**

The measures used in the third investigation were the same as those used in the second investigation, as indicated by table 4 at the beginning of the chapter. The exception was the measure used to assess of desirability. In the prior investigation, three items from the measure by Campbell and Goodstein (2001) were reworded from semantic-differential items to level-of-agreement items. In the third investigation, the original Campbell and Goodstein items were used as equivalent words for the Danish items were found. In addition, the number of access modes listed as response options for the access decision was increased to allow respondents to indicate their likely access with more specificity. Further to these changes, two additional non-demographic variables were assessed as control variables: product involvement and self control.

As with the previous two studies, the new measures were selected from an array of candidates and care was taken to ensure that the measures corresponded to the conceptual definitions of the factors in the model. Other academics aided in reviewing the new measures and examining the items to ensure they were easily understood. The Danish-language survey instruments were forward- and back-translated to ensure translation accuracy, and any differences in translations were reconciled with bilingual academics acting as language experts. All the variables assessed in the access-mode and self-control sections were measured using seven-point Likert scales anchored with ‘Strongly disagree’/‘Strongly agree’, except for ethical judgements and involvement, which had items with a seven-point semantic-differential scale. Cronbach’s alphas for these measures were all above 0.70, indicating acceptable levels of internal reliability.

The scenario section contained measures that assessed the product-title factors in the model and the likely access decision. A hypothetical scenario was used to collect data on the access decision as it involved less risk for the participants than reporting actual decisions (Bateman et al. 2002). Additionally, the surveys were completed online and had conditional sections, so that individuals only saw questions relevant to them. For many individuals who access films and music using their computers or other electronic devices, they completed the scenarios in the same context in which they are likely to make access decisions. The similarity between the decision context and



the survey context gives the data a degree of ecological validity that is not seen when participants complete surveys in laboratory settings. Moreover, as participants listed specific film and music titles they had considered accessing, the data are likely to reflect actual decisions. An additional benefit of using hypothetical scenarios is that they are unlikely to be influenced by recall biases (Bateman et al. 2002).

#### 4.5.1.2.1. *Involvement*

Involvement was assessed as a control variable as variables indicating level of interest have been found to influence access intentions and behaviour (e.g., Chen et al. 2009). While involvement has been conceptualised in many different ways, including personal, situational and physical dimensions of involvement, it is Zaichkowsky's (1985) definition of the construct that has come to be most closely associated with the concept. In the development of the Personal Involvement Inventory, Zaichkowsky defined the concept as "a person's perceived relevance of the object based on inherent needs, values, and interests" (p. 342), which may be applied to advertisements, products, or purchase decisions. As a concept, involvement provides an account for why individuals engage in deep, rational decision making for some consumption decisions, which are deemed to be high involvement, but make other decisions quickly without evaluating much information, deemed to be low-involvement decisions.

The measure for the involvement used in the third investigation was taken from Bower and Landreth's (2001) investigation. The construct performed adequately in their investigation ( $\alpha=.90$ ), and also reflected the dimensions of the construct that were important. Bower and Landreth's measure is taken from McQuarrie and Munson's (1991) measure of involvement. In the measure, McQuarrie and Munson advocate that involvement has two dimensions: interest and importance. The Bower and Landreth measure omits just one item from McQuarrie and Munson's measure for the importance dimension. Similar to problems with measures of hedonic utility, those items on the interest dimensions could possibly be confused with evaluations of content of films and music, and thus be difficult for respondents to answer, such as the item anchored with 'Unexciting'/'Exciting'. The four item measure used in the third investigation is anchored with semantic differential items, and was based on the product category of films and music. The anchors were 'Unimportant'/'Important', 'Irrelevant'/'Relevant', 'Of no concern'/'of concern to me', and 'Doesn't matter'/'Matters to me'. A number of other investigators have used shortened versions of the scale, for example, Coyle and Thorson's (2001) four-item measure of involvement for products

( $\alpha=.82$ ) and websites ( $\alpha=.92$ ), Lord, Lee and Sauer's (1994) five item measure for radio content ( $\alpha=.80$ ), and Mathwick and Rigdon's (2004) six item measure ( $\alpha=.88$ ). Given the accumulated evidence and similar studies, Bower and Landreth's measure is likely to function adequately as a measure for involvement.

#### 4.5.1.2.2. *Self Control*

As previous research has indicated that low self-control is associated with music and film piracy (e.g., Higgins 2007; Higgins et al. 2007), self control was measured to assess the potential influence of this variable on access decisions for film and music. As discussed in the previous chapter, Gottfredson and Hirschi (1990) asserted that individuals engage in deviant behaviours because they do not have sufficient self control to overcome the temptation to engage in acts that provide instant gratification, such as smoking, excessive drinking, speeding when driving, gambling, and unprotected sex. The concept of self control is multi-dimensional and comprised of various trait elements such as impulsiveness and a willingness to engage in risk taking. However, such elements are said to comprise a unitary underlying propensity. Moreover, low self-control will only result in crime or deviant behaviour if the opportunity is present.

To assess self control, the measure was taken from the Second International Self-Report Delinquency Study (IRSD-2), a collaborative international investigation that examines delinquency across various countries. The scale in the IRSD-2 is a reduced version of Grasmick, Tittle, Bursik and Arneklev's (1993) measure of self control, which has been used frequently in piracy research in its full version (e.g., Higgins 2007; Higgins et al. 2007; Higgins et al. 2008; Higgins et al. 2009). There is evidence to indicate that the scale performs just as well in reduced forms (Tittle et al. 2003). The reduced form of the English-language measure was designed by the committee responsible for designing the questionnaire (Junger-Tas et al. 2010), and the Danish translation of the measure comes from the Danish component of the IRSD-2 (Sorensen and Gabrielsen 2010). The twelve-item measure has four three-item subscales, assessing the different components of self control: temperament, egoism, need for excitement, and spontaneity. While the items loaded on their respective subscales in the factor analysis, the measure is assessed as a whole, to be consistent with those investigations identified above. Given the accumulated evidence, the Junger-Tas et al. measure is likely to function adequately as a measure for self control.

#### 4.5.1.2.3. *Price Perceptions*

Following the second investigation, price perceptions were assessed similarly in the third investigation, where participants provided their expected and reservation prices for the specific titles under consideration, rather than the product categories as in the pilot study.

*Table 26: Descriptive Statistics for Film Prices*

		Number	Mean	SD	Min	Max
Cinema	Expected price	204	86.95	27.46	25	350
	Reservation price		83.96	43.79	0	450
	Price perception		-1.69%	39.07%	-100.00%	140.00%
Purchase	Expected price	166	152.76	101.89	0	1000
	Reservation price		110.66	79.68	0	500
	Price perception		-14.22%	50.49%	-100.00%	100.00%
Rental	Expected price	149	38.33	33.33	0	350
	Reservation price		28.33	20.18	0	169
	Price perception		-8.22%	54.75%	-100.00%	150.00%
Total	Price perception	519	-7.55%	47.92%	-100.00%	150.00%

Again, price perceptions were calculated as the relative difference between expected and reservation prices, where a percentage score indicates the proportion of the expected price that subjects were prepared to pay. A negative value indicates an unfavourable price perception, where an individual is unwilling to pay the expected price for the product. Tables 26 and 27 present the price statistics for film and music.

*Table 27: Descriptive Statistics for Music Prices*

		Number	Mean	SD	Min	Max
Song Purchase	Expected price	38	12.53	12.24	0	50
	Reservation price		13.58	17.03	0	80
	Price perception		16.07%	57.36%	-87.50%	150.00%
Album Purchase	Expected price	300	118.76	50.36	0	500
	Reservation price		120.70	85.39	0	1000
	Price perception		6.78%	51.00%	-100.00%	200.00%
Song Stream	Expected price	30	42.97	60.66	0	250
	Reservation price		34.57	44.52	0	150
	Price perception		6.55%	60.46%	-100.00%	100.00%
Album Stream	Expected price	91	54.05	53.62	0	200
	Reservation price		66.47	57.05	0	300
	Price perception		27.63%	53.94%	-100.00%	233.33%
Total	Price perception	459	11.11%	52.95%	-100.00%	233.33%

As with the second investigation, expected and reservation prices were very similar for the cinema option. However, there was a greater disparity between expected and reservation prices for

the purchases and rental access modes. Evaluations of music prices were much different to those of the previous investigation, and indicated that on average individuals were willing to pay more than the expected prices for film and music.

#### 4.5.1.2.4. Access Decision

The access decision was assessed similarly to the second investigation, though additional response options were added. Participants were asked to list a specific film or music title they wanted to see or hear and indicate which of a range of legal and illegal categorical options they thought they would use to access it. For film, options were added for borrow legally and copy illegally from a friend, which were not included in the list of options in the second investigation. Thus, for film, respondents indicated how they were likely to see the film by indicating one of the following: ‘See it in the cinema (legal)’; ‘Buy it (legal)’; ‘Rent it (legal)’; ‘Borrow it (legal)’; ‘Stream it (legal)’; ‘Download it (illegal)’; ‘Stream it (illegal)’; ‘Copy from a friend (illegal)’; ‘Not see/acquire’, or ‘Other’. For the purpose of subsequent analyses, the cinema, purchase and non-access options remained distinct, and three categories were combined as rent/borrow/stream as in Denmark these options are equivalent in terms of ownership and price. The piracy access modes were also all combined, as the focus of the analyses is to differentiate between legal forms of access, not different forms of piracy. For music, the response options were similar to the first investigation. Respondents indicated how they were likely to access the music by indicating one of the following: ‘Buy it (legal)’; ‘Stream it online (legal)’; ‘Borrow it (legal)’; ‘Download it (illegal)’; ‘Copy from a friend (illegal)’; ‘Stream it (illegal)’; ‘Not acquire/stream’, or ‘Other’. For subsequent analyses, all of the legal categories remained distinct, while the responses for the illegal options were combined into a single category termed piracy.

#### 4.5.1.2.5. Legal Availability

Perceived legal availability was again assessed in the third investigation, but the question was assessed slightly differently. In the second investigation, participants were asked if a legal option was available that would have allowed them to access the film or music in the way they preferred. However, in the third investigation, the preferred-mode component of the question was dropped, and respondents were simply asked if the product was legally available. Response options were ‘Yes’, ‘No’, and ‘Don’t know’. In subsequent analyses, the ‘No’ and ‘Don’t know’ responses were combined into a single category, as the certainty of legal availability and its influence on access decisions is of most importance. As can be seen in table 28, most of the titles were legally available.

*Table 28: Statistics for Legal Availability by Product*

	<b>Yes</b>	<b>No</b>	<b>Don't know</b>
Film	348	112	59
Music	403	17	49

#### **4.5.1.3. Assessing Common Method Variance**

A number of methods suggested by Craighead et al. (2011) were used to avoid common method variance. As in the first and second studies, methodological separation was employed, as different methods were used to assess the independent and dependent variables. As indicated above, categorical response measures were used for the access decision, while multi-item Likert measures were used for most of the independent variables. Moreover, contextual shifts were inserted into the questionnaires to make comprehension easier for the participants, but also to avoid bias.

Harman's (1976) one-factor test was used to assess common method variance, where the emergence of a single factor or a general factor that accounts for the majority of the covariance among the variables is indicative of common method variance (Podsakoff et al. 2003). Using SPSS 19, un-rotated principal components factor analysis and principal component analysis with varimax rotation were conducted for all non-categorical items. The results showed that 15.92 percent of the variance is accounted for by the first factor in the film data and 15.55 percent in the music data. The remaining factors comprise 62.73 percent of the variance in the film data and the 64.24 percent in the music data. These findings indicate that common method variance was not present in the data. Moreover, all items loaded on their expected factors for their respective measures in the varimax rotation of the component matrix. The Cronbach's alphas for each of the measures were above 0.70, indicating acceptable levels of internal reliability.

The descriptive statistics for the non-categorical variables for film and music are shown in tables 29 and 30, respectively. These tables show the measures for each of the variables, their items, means, standard deviations, Cronbach's alphas, and factor loadings. Note that for clarity of interpretation, factor loadings lower than .40 are not shown in the tables.

Table 29: Descriptive Statistics for Film - Constructs, Means, Standard Deviations, Cronbach's Alphas and Factor Loadings

Measures and Sources	Mean	SD	Alpha	Factor loadings													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Product desirability</b>	5.71	.89	.87														
Based upon what I know, I think that the film will be: Bad-Good					.82												
Based upon what I know, I think that the film will be: Not Tempting-Tempting					.85												
Based upon what I know, I think that the film will be: Unappealing-Appealing					.85												
Based upon what I know, I: Do not want to see it-Want to see it					.83												
<b>Price perception</b>	-7.55	47.92	NA														.94
<b>Quality</b>	2.47	1.16	.76														
Illegally streamed or downloaded films will damage my computer system or device										.82							
Illegally streamed or downloaded films will fail to play correctly										.81							
If I streamed or downloaded films illegally, I would probably catch a computer virus										.80							
Illegally streamed or downloaded films are of lower quality than originals										.50							
<b>Punishment severity</b>	4.18	1.75	.95														
If I was caught streaming or downloading films illegally, I think the punishment would be high						.94											
If I was caught streaming or downloading films illegally, I would be severely punished						.94											
If I was caught streaming or downloading films illegally, I think the punishment would be serious						.91											
<b>Punishment certainty</b>	2.07	1.13	.83														
If I streamed or downloaded films illegally, the probability I would be caught is high												.79					
If I streamed or downloaded films illegally, I would likely be caught												.84					
If I streamed or downloaded films illegally, I would probably be punished												.78					
<b>Subjective norms</b>	4.62	1.54	.92														
If I streamed or downloaded films illegally, most people who are important to me would approve							.88										
If I streamed or downloaded films illegally, most people who are important to me would think it was OK							.89										
If I streamed or downloaded films illegally, most people who are important to me would think it was a good idea							.85										
<b>Ethical judgement</b>	3.35	1.60	.91														
In my opinion, streaming or downloading films illegally is: Unethical-Ethical									.89								
In my opinion, streaming or downloading films illegally is: Unfair-Fair									.85								
In my opinion, streaming or downloading films illegally is: Wrong-Right									.89								

Age	30.35	10.75	NA	.89
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[illegible]

#### 4.5.2. Results

Two multinomial logistic regression analyses were conducted to evaluate the model's propositions concerning the access-mode decision. Like the analyses in the first and second investigations, the continuous variables were mean-centred before running the analyses to allow for an interpretation of the intercept of the regressions. The categorical independent and control variables were treated as binaries. Having a disposable income above the median and being female were coded as '1', with the remaining responses and options coded as '0'.

The dependent variable was the decision to access the product using piracy or not. Piracy was again used as the reference category in the regression as it allowed for an examination of how factors in the model vary across the legal alternatives available to individuals. The regression models for films ( $X^2(56, N = 519) = 342.07, p < .0001$ ) and music ( $X^2(56, N = 469) = 258.29, p < .0001$ ) were both significant and predicted 57% of cases to their correct access mode for films, and 61% of cases to their correct access mode for music. Moreover, the factors in the models account for between 48% to 52% of the variance in access decisions for film, and 42% to 46% of the variance for music. The results of the analyses provide support for many of the factors of the model and indicate that the influence of different factors varies somewhat according to product type and legal access mode. Tables 31 and 32 display the regressions' results for film and music, respectively.

In the final data set for film, 114 individuals reported that were likely to see a film in the cinema, 79 indicated that they would purchase a copy, 70 indicated they would legally rent, stream or borrow the title, 239 indicated they would pirate a copy, while 17 indicated they would not access the title. In the analysis for film, factors from each of the categories in the model were related to access decisions, such that product-title factors, risks, regulators, and resources were associated with access decisions. Concerning product-title factors, both price perceptions and legal availability were positively related to the use of each of the legal access modes, while product desirability was positively associated with the cinema and purchase options. These results provide support for hypotheses 2 and 3 and partial support for hypothesis 1. For product-title factors, the results indicated that the probability that an individual will access a film legally increases if he or she is willing to pay a higher proportion of the expected price for the product, believes that it is legally available, and perceives it to be desirable. Like the findings for price perception and availability, perceived behavioural control was consistently associated with each of the legal access

modes, though the direction of this association was negative rather than positive. This finding provides support for hypothesis 9 and indicates that the likelihood that an individual will access a film legally decreases as he or she becomes more confident in his or her ability to successfully engage in piracy.

The results concerning the remaining elements of the model were less consistent. The regulator elements of the model were related to each of the legal access modes, though inconsistently. Providing partial support for hypothesis 7, subjective norms in favour of piracy were negatively related to the cinema and rent/borrow/stream options, but not significantly related to the purchase option. Similarly, ethical judgements in support of piracy were negatively related to the purchase and rent/borrow/stream options, but not significantly related to the decision to watch a film in the cinema, providing partial support for hypothesis 8. Together, these findings indicate that for some of the access options, the likelihood of using a legal access mode decreases as subjective norms and ethical judgements become more favourable for piracy. Examining the differences between these regulators, considerations of the ethics of accessing a film via piracy are associated with decisions to use access modes that enable an individual to see a film at home, but not when the decision involves the option of seeing the film in public. Contrarily, the considerations of others are associated with public consumption of films, but only some of the forms of private consumption. Of the risk elements in the model, only quality was associated with legal access. Beliefs that pirated versions of films are of low quality increase the likelihood that an individual would choose to access a film by seeing it in the cinema or buying it, but are not related to access by renting, borrowing or streaming it. This finding provides partial support for hypothesis 4.

Other elements in the model did not reach levels of statistical significance. Punishment severity, certainty and disposable income were not significantly related to any of the legal access options. These findings indicate that neither assessments of risks associated with the legal implications of engaging in piracy nor the amount of money one had remaining each month were related to access decisions. Thus, when a large sample is used, punishment factors do not appear to be salient considerations in individuals' access decisions. Of the control variables, age was positively related to the decision to use each of the legal access modes over piracy. This finding indicates that the likelihood of using a legal access mode increases with age. Self control was found to be negatively related to the decision to watch a film in the cinema. Gender and product involvement were not related to decision to use any of the legal access modes, though involvement was negatively related to non-access.



Table 32: Multinomial Logistic Regression Models for Music Access Decision

	Likelihood ratio tests					Parameter Estimates											
	Purchase					Stream				Borrow				Non-access			
Independent variable	Chi-square	B	Wald	Odds ratio	SD adjusted odds ratio	B	Wald	Odds ratio	SD adjusted odds ratio	B	Wald	Odds ratio	SD adjusted odds ratio	B	Wald	Odds ratio	SD adjusted odds ratio
Model intercept	68.67***	0.07	0.03			-1.17	4.73*			-22.98	626.71***			-4.35	12.79***		
Product desirability	8.19	0.55	7.54**	1.73	1.51	0.27	1.63	1.31	1.22	0.08	0.02	1.08	1.06	0.11	0.05	1.12	1.09
Price perception	42.82***	0.02	23.78***	1.02	2.27	0.02	29.3***	1.02	2.62	0.01	0.94	1.01	1.51	0.00	0.16	1.00	0.85
Legal availability	17.23**	0.85	4.61*	2.35	1.35	1.61	9.45**	5.01	1.75	19.21	0.00	0.00	0.00	0.45	0.25	1.57	1.17
Quality	8.85	0.14	0.87	1.16	1.19	-0.15	0.72	0.86	0.84	0.08	0.06	1.08	1.10	-0.85	2.82	0.43	0.37
Punishment severity	15.27**	-0.05	0.36	0.95	0.91	-0.24	5.55*	0.79	0.67	0.39	2.59	1.48	1.93	0.40	3.23	1.49	1.95
Punishment certainty	7.60	-0.04	0.06	0.96	0.96	0.24	1.59	1.27	1.28	-0.37	0.95	0.69	0.68	-0.80	2.32	0.45	0.43
Subjective norms	14.39**	-0.31	9.23**	0.73	0.61	-0.10	0.84	0.90	0.85	-0.25	0.92	0.78	0.67	0.27	0.93	1.31	1.53
Ethical judgement	15.53**	-0.29	9.32**	0.75	0.62	-0.22	4.56*	0.80	0.69	0.11	0.21	1.12	1.20	-0.61	5.84*	0.54	0.36
Perceived behavioural control	19.65***	-0.65	10.54**	0.52	0.42	-0.42	3.74	0.66	0.57	-0.99	12.10***	0.37	0.26	-0.87	6.71**	0.42	0.31
Disposable income	4.61	0.39	1.65	1.48	2.04	0.09	0.08	1.09	1.18	1.43	3.15	4.17	13.64	0.35	0.22	1.42	1.89
Self control	4.39	-0.11	0.43	0.90	0.91	0.01	0	1.01	1.01	-0.84	2.98	0.43	0.48	0.25	0.36	1.29	1.25
Involvement	9.35	0.07	0.21	1.07	1.07	-0.25	2.34	0.78	0.78	0.10	0.07	1.11	1.11	-0.64	4.01*	0.53	0.53
Age	5.88	0.03	4.53*	1.03	1.45	0.02	1.21	1.02	1.23	0.03	0.54	1.03	1.35	0.06	2.22	1.06	1.86
Gender	12.68*	0.44	1.37	1.55	1.21	0.13	0.1	1.14	1.06	2.18	7.5**	8.83	2.55	2.01	5.35	7.50	2.38
Cox & Snell R <sup>2</sup>	.42																
Nagelkerke R <sup>2</sup>	.46																
Percent Classified	60.55%																
Note: * p < .05, ** p<.01, *** p<.001. Reference category is access via piracy.																	

The analysis for music was based on the responses of 469 individuals. In the final data set, 225 individuals indicated that they would purchase the album or song they listed, 102 indicated they would stream it, 11 indicated they would borrow it, 120 would pirate it, and 11 would not access it. Although the results were less consistent than the findings for film, product-title factors as well as factors from the regulators and resources categories of the model were associated with some legal access modes as expected. Reflecting the results for film, price perception and legal availability were positively associated with the decision to purchase music and stream it legally, though not related to the decision to borrow the product. These findings provide partial support for hypotheses 2 and 3 and indicate that the likelihood that an individual will use a legal mode to access music increases as he or she is willing to pay a higher proportion of the expected cost of using that mode and when he or she believes a legal option is available to access it. Although not related to the streaming option, product desirability was positively associated with the decision to purchase music over using piracy. Like with film, this finding indicates that the likelihood that an individual will purchase a product increases relative to its desirability.

In addition to product-title factors, other parts of the model were supported by the analysis. As a regulator of behaviour, ethical judgements in favour of piracy were negatively associated with access decisions for both commercial legal access modes, in addition to non-access. This finding is consistent with hypothesis 8, and indicates again that the likelihoods of legal access by purchasing and by streaming, in addition to non-access, increase as ethical judgements in favour of piracy strengthen. As for the other regulator, subjective norms was only associated with access via purchase, providing some support for hypothesis 7. From the resources category, perceived behavioural control was negatively associated with the likelihoods of accessing music by purchasing it and borrowing it, as well as non-access. The findings concerning the relationships for access provide some support for hypothesis 9 and indicate that ability is important an factor in individuals' decisions and that those more able to access music illegally are less likely to purchase or borrow it in favour of piracy.

Other variables in the model were less consistent across legal commercial access modes for music. Punishment severity was negatively related to the decision to stream music legally, providing evidence against hypothesis 5. The finding indicates that the likelihood of streaming music legally decreases as an individual's perceived punishments for engaging in piracy increase. The remaining variables in the model were not significantly related to any of the legal access modes for music. Thus, hypotheses concerning quality (4), punishment certainty (6) and disposable income

(10) were not supported in the case of music. These findings indicate that concerns about the quality of pirated music, the likelihood of being caught, and level of disposable income are not related to access decisions for music and thus not salient considerations for most individuals. Of the control variables, age was positively related to the decision to purchase music, but the results for self control, involvement, and gender were not significant for the commercial access options. However, involvement again was negatively associated with the non-access option, indicating that those interested in music are more likely to access music via piracy than not access it. The finding for gender indicates that being female increases the likelihood that one will borrow a title rather than access it via piracy. These findings indicate that the likelihood of buying music increases with the age, but purchasing is not related to self control, involvement or the gender of the individual.

When the results of the regressions for film and music are considered together, the factors associated with access decisions were similar but not identical. Product-title factors, especially price perceptions and availability, were associated with the decision to use legal access for both products. In contrast to the other investigations, other elements in the model also contributed to access decisions with some consistency, indicating the benefit of a larger and more diverse sample. Factors such as subjective norms, ethical judgements and perceived behavioural control were relatively consistent across the various access modes. The next section discusses the theoretical implications of the findings.

### **4.5.3. Discussion**

The third investigation evaluated the research model while controlling for the influence of other variables that previous research had shown to influence access decisions for film and music. The investigation used a substantially larger sample to evaluate the model than the previous investigations in the project, recruiting a sample from the general population rather than relying upon university students. The results of the study indicate that multiple factors influence the likelihood that an individual will choose a legal access mode over piracy, and that these factors represent different considerations. Such findings demonstrate the value of an integrative model that draws on disparate research streams.

Mirroring the results of the first and second investigations, product-title factors, specifically, price perception and perceived legal availability were positively associated with the decision to use all of the legal commercial options for film and music. These findings are in line with economic

theory and the consumer behaviour literature, which emphasise the importance of price and perceived availability in decision making (e.g., Antonides 2008; Thaler 1985). Moreover the findings are consistent with other investigations where price considerations and factors related to availability have been associated with the decision to use legal options over piracy (e.g., Bhattacharjee et al. 2003; Cenite et al. 2009; Gopal et al. 2006; Hennig-Thurau et al. 2007; Rob and Waldfogel 2006; Sandulli 2007; Sirkeci and Magnusdottir 2011; Waldfogel 2010).

Desirability was another product-title factor related to access decisions, though not as consistently as the other factors. Desirability was associated with the decision to purchase a title for both film and music, indicating that such decisions are in part motivated by evaluations of content and how much an individual is likely to enjoy seeing or listening to it over repeat occasions, and to some extent independent of considerations of price. Moreover, desirability was positively related to the decision to use the cinema option for film. This may reflect the availability of films, which can only be seen in the cinema for certain durations following their release. Thus individuals appear increasingly likely to pay to see a film as soon as it is released if they believe they will really like it. Findings concerning desirability parallel the results for film from the first investigation, where perceived desirability was positively associated with legal access, and the second investigation, where it was related to the decision to purchase music. The results are also consistent with the research by others, which indicates the importance of factors related to desirability in access decisions for music (e.g., Gopal et al. 2006; Hennig-Thurau et al. 2007; Ouellet 2007).

Access-mode factors were also found to influence access decisions, though these factors were less consistent across legal access options. Regulators of behaviour, subjective norms and ethical judgements, were associated with many of the access modes for film and music. These results are consistent with previous findings indicating the importance of these considerations for film and music (e.g., Al-Rafee and Cronan 2006; d'Astous et al. 2005) and support the notion that they are general considerations. Similarly, perceived behavioural control was negatively related to many of the legal commercial access options, indicating that ability is an important factor in individuals' decisions and that those who are unable to access films and music via piracy may opt to purchase or borrow titles in favour of piracy.

The remaining elements of the model varied considerably across product types and access options, demonstrating the value of a model that contextualises access decision as a choice among legal and illegal options. The model enables us to better understand how the factors that influence



access decisions vary across legal access modes. For example, concerns about quality were significant predictors of the decision to see a film in the cinema and the decision to purchase a copy of it, but were not important for music. These results may reflect differences between the two products: low-quality music files have been available online for more than ten years and it is possible that file quality is not an important consideration when it comes to music. Conversely, quality and resolution are important selling-points for films and the rise of Blu-ray as a format reflects this.

In addition to elements of the theoretical research model outlined in the previous chapter, the analyses examined a number of control variables. These variables were factors identified as possible influences on access decisions, specifically: age, gender, product involvement, and self control. Of these, age was positively related to the decision to use all commercial legal access modes for film and the decision to purchase music. This finding indicates generational differences influence access decisions beyond the variables in the model and is in concert with recent findings from Danish surveys (Benner and Vuorela 2012) and previous research (e.g., Al-Rafee and Cronan 2006). Gender was not related to commercial access decisions, a finding which is similar to those of some researchers (e.g., Al-Rafee & Cronan, 2006; Villazon & Dion, 2004) but in contrast with others who have had contrary findings (e.g., Bhattacharjee et al. 2003; Gopal et al. 1997). Similarly, self control was only related to the decision to see a film in the cinema, indicating that it does not have much influence over access decisions and that such decisions are not as impulsive as other researchers suggest (e.g., Higgins 2007).

#### **4.5.3.1. Limitations**

Though the third investigation used a reasonable sample size recruited from the general population, any conclusions drawn from this study should come with some reservations, as there was a degree of homogeneity in the sample: it was largely male and several key variables were highly skewed. Moreover, the recruitment of participants through interest websites may have biased the sample towards legal access for both film and music. Overall price perceptions were also much more favourable in the third investigation than in the first and second. This could be an artefact of the differences between the student and general population samples, as the participants in the first and second investigation are likely to have been more price sensitive than those in the third. Despite these limitations, the second investigation demonstrated improvements over the pilot in terms of the

completeness of the model and the methods used to evaluate it and over the second investigation in terms of the access modes considered and the sample used to evaluate decisions.

## 4.6. Chapter Summary

This chapter detailed the empirical research conducted to evaluate the propositions of the theoretical research model outlined in the previous chapter. It reported on three survey-based empirical investigations that examined access decisions about film and music in Denmark. The scope of the model expanded over the course of the three investigations to reflect developments in the research model. The model is built on the notion that an individual is faced with a choice of accessing a product legally or via piracy and that this choice is influenced by a variety of factors. It addresses the previously identified limitations of the existing body of research literature, specifically its fragmentation, decontextualisation of piracy, and emphasis on access-mode over product-title factors. Thus, the model contributes to the literature by introducing a new perspective on individuals' access decisions and reflecting the complexity of the various considerations.

The first study used a sample drawn from university students and served to assess an early version of the theoretical model and validate the research measures used. Although the investigation had a number of limitations, it provided some evidence in support of the model. The second investigation used a sample of university students to assess the effectiveness of the full theoretical model, taking into account the influence of perceived legal availability. Focused on ecological validity, it relied upon everyday experience methods to collect data on individuals' actual access decisions. The findings from the second investigation emphasised the importance of price perceptions and legal availability in access decisions, and desirability to a lesser degree. The third investigation used a sample of the general population and evaluated the performance of model while controlling for the influence of gender, age, product involvement and self-control. The findings provided the most support for the contention that access decisions involve multifaceted considerations of both product-title and access-mode factors. These considerations appear to vary according to product type and access mode.

The empirical findings presented in this chapter highlight new aspects of individual decisions not well addressed in the research literature but also emphasise the importance of traditional economic factors. Another contribution of the model concerns the influence of product-title factors, in addition to generalised beliefs about access modes, and the results underscore their importance for access decisions about film and music.

## 5. Discussion

### 5.1. Overview

This chapter provides a discussion and interpretation of the empirical findings presented in the previous chapter. The results of these investigations and their implications are considered in light of existing research. After summarising the contributions of the research, the key findings from the three investigations are outlined. Particular emphasis is placed on discussing the product-title factors of price perception, perceived legal availability, and desirability, with less attention given to the access-mode factors in the model, which include the regulators of behaviours, resources, and perceived risks. Subsequently, the key limitations of the project are outlined and recommendations are given for how these could be addressed in future research. The chapter concludes with a discussion of the practical implications for the film and music industries and the regulation of digital piracy in Denmark.

## 5.2. Introduction

In outlining the Theory of Planned Behaviour (TPB) Ajzen (1991) wrote that “explaining human behaviour in all its complexity is a difficult task” (p. 179). This task becomes increasingly difficult as society becomes more complex and a wider array of behaviours are permitted and enabled. Western societies began to greatly expand the scope of individual liberties in the mid-twentieth century and this trend has continued into the twenty-first century. However, a corollary of these opportunities is the requirement to choose. If an array of options is set out for us, then we are required to select one ourselves. Mirroring the extension of what is socially permitted, individuals now have an ever-expanding array of consumer goods to choose from, and this expansion of choice makes predicting consumption decisions all the more difficult. These changes have come both from the developments in cross-border trade and ever-more innovative companies. Changes in trade are reflected on the shelves of supermarkets, which are increasingly stocked with products from abroad. In addition to increased choice within product categories, new products are frequently introduced by consumer-focused companies that compete for our money and interest in existing products. Personal computers, video-games and mobile telephones were relatively niche products in the 1980s, but are mainstream consumer items today. These physical devices are now platforms for new digital products.

Products such as computers and mobile telephones are not only new product categories in and of themselves, but they also serve as platforms for new types of products, and thus hosts for further product developments. Recently, tablet devices like the iPad by Apple have created demand for the physical products themselves but also for the digital products that reside on such devices. The influence of this change is profound: more than 30 billion mobile applications for Apple’s iPhone smart-phones and iPad tablets have been downloaded from their App Store (Ingraham 2012). In addition to creating new product categories, these new devices are now replacing existing product formats. The decline of physical formats such as the CD has been observed for years in the music industry, and this trend continues in the markets for other content products. E-readers like those of Amazon’s Kindle series, designed to enable us to read digital books, are increasingly popular internationally. In the US, e-books first accounted for more than half of online retailer Amazon’s book sales in April 2011 (Miller and Bosman 2011), and the majority of all adult fiction titles sold in the US by the end of that year (Bosman 2012). Such developments reflect both the

complexity of today's markets for consumer goods and our willingness to embrace new modes of consumption as they emerge.

Markets for goods are never stable, especially for content and information products. As markets change and develop, new perspectives are often required to shed light on how these markets operate given the new developments. The markets for film and music today reflect the complexity that arises when new formats for existing products emerge and disrupt the business models of the firms in those industries. The growth of Internet and the rise of networks that facilitate the free but illegal consumption and distribution of information goods has been particularly challenging for the film and music industries. The range of modes available to access and consume content has never been broader. In addition to having a diverse array of titles within product categories, we have an ever expanding array of product categories and modes in which to access these products. These developments make the prediction of individuals' decisions particularly difficult, especially decisions about how individuals access content.

This research project examines individuals' decisions during a time of transition. The project focuses on access decisions for recorded films and music, information products that emerged during the analogue era, at a time when digital products and modes of consumption have become mainstream. Access decisions during this period are indicative of how individuals will make decisions for information products in the future, when physical formats will be scarcer and the ability to access information products via digital piracy will be possible. Much of the IS research on access decisions for film and music has focused on predicting one mode of access, either looking at the antecedents of purchase or the antecedents of piracy. Few investigations have examined the factors that contribute to the decision to purchase something rather than access it via digital piracy. While access decisions have been examined from multiple perspectives, few investigations have integrated these perspectives. Moreover, research has primarily focused on factors associated with access modes rather than product-title factors that vary from title-to-title. This project focused on addressing these limitations. What follows is a discussion of how the research contributes to the IS research literature by addressing these limitations.

### **5.3. Contribution**

The goal of this research was to identify why film and music titles are accessed legally in some instances and via piracy in others. It also sought to identify the factors that influence access decisions. In order to achieve these goals existing research was examined and built upon. The

project integrated various streams of research on digital piracy, including but not limited to IS research, examining individual access decisions to also account for product-title factors that vary from title-to-title, and reframing piracy as one set of options in the choice among legal and illegal access modes.

While informed by Ajzen's (1985; 1991) TPB, this research departs from his theory by broadening the scope of salient considerations that influence decisions, while narrowing the phenomenon of interest. In doing so, this research makes a number of contributions to the IS research literature on individual decision making. Ajzen observed that there is a broad spectrum of approaches to explaining behaviour, "from concern with physiological processes at one extreme to concentration on social institutions at the other" (p. 179). Like other social and personality psychologists, he chose to "focus on an intermediate level, the fully functioning individual whose processing of available information mediates the effects of biological and environmental factors on behaviour" (p. 179). While Ajzen theorised about individuals' performance of goal-directed behaviours with social implications, this research project examines a specific type of goal-directed behaviour, enabled by developments in IT, with broader considerations. In particular, this project examined individual decisions about how to access film and music, and sought to discover why films and music are accessed legally in some instances but via digital piracy in others. In seeking to answer its research questions, this project contributes to the empirical and theoretical research literature in IS in three ways: contextualising digital piracy as one access mode, by integrating a fragmented empirical body of research, by incorporating product-title factors that vary from title-to-title in addition to evaluations of access-mode factors, and by being the first investigation to examine such decisions in a Danish context.

In reframing piracy as just one access option available to individuals seeking to access film and music the investigation contextualises digital piracy in a way that better reflects individuals' actual access decisions. If we are to explain and predict individuals' decisions when it comes to accessing film and music, and access decisions for digital products more generally, we need to understand what options are being compared and how variables influence the decision to use one mode over another. This project thereby extends existing IS research focused on predicting piracy by examining how a choice is made among available options. Some investigators have also examined the choice among legal and piracy access modes (e.g., Gopal et al. 2006; Hennig-Thurau et al. 2007; Ouellet 2007; Pryor et al. 2008), but not integrated multiple streams of previous research in their investigations. Table 33, below, compares the variance explained by the theoretical

model in the empirical investigations of this project to prior investigations examining access-mode decisions. As can be seen, the model in this investigation explains more variance in the access decision than any used in the prior research. The second and third investigations presented in this project distinguish between various legal alternatives and demonstrate how the factors that influence access modes vary across these legal alternatives. Such findings emphasise the second key contribution to the research, which is its integration of relatively distinct research streams.

*Table 33: Comparison of Variance Explained in Access Decision*

Investigation	Product	Cox & Snell R <sup>2</sup>	Nagelkerke R <sup>2</sup>	Percent classified
<b>This project</b>				
Study 1	Film	0.36	0.43	68.24%
	Music	0.31	0.42	80.87%
Study 2	Film	0.57	0.61	66.14%
	Music	0.53	0.60	75.21%
Study 3	Film	0.48	0.52	56.65%
	Music	0.42	0.46	60.55%
<b>Prior research</b>				
Gopal et al. 2006	Music			
Hennig-Thurau et al. 2007	Film		0.22	
Ouellet 2007	Music	0.12	0.16	64.50%
Pryor et al. 2008	Music		0.17	76.60%
Note: A missing value indicates that the statistic was not reported in prior research.				

By integrating previous theoretical and empirical research, the research consolidates previous research findings in an attempt to identify which considerations are most prominent in individuals' decisions. In outlining the TPB, Ajzen (1991) argued that as "behaviour is a function of salient information, or beliefs, relevant to the behaviour... It is these salient beliefs that are considered to be the prevailing determinants of a person's intentions and actions" (p. 189). In Ajzen's model, these salient beliefs are represented by three key variables: attitudes, subjective norms and perceived behavioural control. These three variables may be the primary determinants of intentions in social contexts. But in other contexts, especially contexts enabled by IT, it is likely that other variables are salient considerations and are relevant to the behaviour.

The considerations that could influence access decisions are reflected in the broad scope of the theoretical literature that has informed previous empirical investigations into digital piracy, both in IS and elsewhere. For this reason, the research reviewed in the project was not limited to that published within IS, but also included research from across the social sciences. This project investigated a theoretical model that integrated evidence from the various research streams

examining digital piracy. Other researchers have taken a similar approach (e.g., Chiou et al. 2005; Coyle et al. 2009; LaRose and Kim 2007; LaRose et al. 2006; Lyonski and Durvasula 2008). Yet such research focused on predicting either legal access or piracy, rather than examining what determines whether individuals will use one rather than the other. Aside from elements derived from criminological theories that were not associated with access decisions, the findings from this project demonstrate the importance of elements from theories from social psychology, business ethics, and marketing and economics. For IS research, such findings encourage us to consider concepts and constructs from other disciplines when investigating behaviour enabled by IT. These findings generally support the notion that access decisions for film and music are multi-faceted and involve considerations of factors related both to the title under consideration and the various modes available to access it. Indeed, product-title factors were especially important and were consistently predictive of the decision to use legal access modes over piracy.

Previous research on digital piracy, especially that within IS, has largely disregarded how individuals' product-title evaluations influence their access decisions. However, not all products available digitally are perceived equally as good. We have favourites which we find more desirable and for which we are willing to pay more. The research focused on access decisions for specific titles rather than general preferences and intentions to use one access mode or another, and in doing so integrated product-title considerations which vary from title-to-title. The model acknowledges consumer preferences for specific titles and how these preferences influence decision making in a way that had not been covered by the previous literature. Though some investigations have examined the influence of product-title factors (e.g., Bellemare and Holmberg 2009; Gopal et al. 2006; Hennig-Thurau et al. 2007; Mann et al. 2008; Ouellet 2007), these investigations have produced work that does not address the other major limitations. Specifically, the lack of integration of the research streams. The findings from the empirical research reported here underscore the importance of product-title factors in determining the legality of individuals' access. These findings indicate that price perceptions, perceived legal availability and desirability have prominence in access decisions. The contribution of perceived legal availability is especially important in the Danish context, where differences in international release dates mean that films are often not legally available domestically, but can be obtained online via digital piracy. The consistent and strong influence of perceived legal availability on access decisions in the second and third investigations indicates that this variable should be included in future research efforts. Moreover, the findings for availability indicate that the challenges for the film and music industry do not stem from a lack of



legal technological alternatives to digital piracy. Rather it appears that firms are not effectively utilising existing technologies to provide adequate alternatives to piracy and capitalise on the demand for film and music.

To the best of my knowledge, this is the first academic investigation of access decisions for film and music in Denmark. Thus, it provides new insights into the Danish context. More broadly, the research provides evidence of how consumers may make decisions in countries where release dates are not aligned to those of the US. This factor is important because of the cultural hegemony of the US, especially with respect to films and music, which makes up a substantial proportion of international markets for these products. The highest grossing films and music artists are typically from the US or are artists from other countries based in the US. Thus, the examination of how access decisions are made for products consumed outside the US is important. Moreover, the research provides insights into a market that is relatively sophisticated in terms of broadband penetration and the proficiency of consumers in using the Internet. These characteristics of the market allow for the findings to be generalised to other similar countries and may provide an insight into how other markets may function in the future.

While the section above provides an overview of the general contributions of the study, the next section examines the key findings of the three investigations and discusses them in relation to the previous theoretical and empirical literature.

## **5.4. Key Findings**

The empirical investigations of this project were conducted to evaluate whether empirical data supported the theoretical model's propositions. The model built upon the existing empirical literature from IS and other disciplines to explain individuals' access decisions for film and music. In the model, the decision to access a film or music title legally or via digital piracy is influenced both by product-title factors and access-mode factors. Based on previous research, the factors are grouped into four categories according to how they influence access decisions. Some are product-title factors (desirability, price perceptions, availability), while the remaining factors are access-mode factors that influence decisions in different ways. Of the access-mode factors, some are regulators of decisions based upon judgements of access modes (subjective norms and ethical judgement), some are perceived risks associated with access modes available (quality, punishment certainty, and punishment severity), some are resources that enable the use of an access mode (perceived behavioural control and discretionary income).

The model was evaluated over three successive investigations, each focused on different aspects of data quality, such as ecological validity and sample representativeness. A summary of the performance of the model across the three investigations can be seen in table 34, below. The first study used a university-student sample where participants reported their likely access decisions. This study served to assess an early version of the research model and validate the research measures used. The second study focused on ecological validity and used a university-student sample to assess the effectiveness of an expanded version of the model to predict actual access decisions. The ecological validity of the second investigation stemmed from the use of online diaries with which participants recorded data on factors related to their actual access decisions. The third investigation used a sample of the general population and evaluated the performance of the model when age, gender, self control and product involvement were controlled for. Access decisions were assessed differently across the three investigations. The first investigation asked participants to identify the legality of the access mode they used, where the decision was outlined as a choice among legal, digital piracy, and non-access options. The second and third investigations asked individuals to identify both the legality and the specific mode used to access the title. Taken together, the results of the investigations showed that factors from each of the categories in the model were related to the decision to access legally over digital piracy, indicating the value of an integrative model that draws on disparate empirical and theoretical research streams. The following section reviews the various elements of the model against the evidence from the research

#### **5.4.1. Product-Title Factors**

Of all of categories in the model, the contribution of product-title factors was the most consistent across the three empirical studies. Price perception, legal availability and desirability were important elements in access decisions in each of the three investigations. These findings highlight the importance of factors that vary from title-to-title in individuals' access decisions for film and music, in addition to factors associated with access modes. Of these factors, price perception was the most important.

##### **5.4.1.1. Price perception**

Assessed as the relative difference between expected and reservation prices, price perception was an important factor in each investigation for access decisions for music and in the diary and market investigations for film.

Table 34: Summary of Results across Empirical Investigations

Construct	Study 1: Pilot		Study 2: Diary		Study 3: Market		Overall	
	Film	Music	Film	Music	Film	Music	Film	Music
	Access decision	Likely decision	Actual decision		Likely decision		Decision	
Model factors								
Product desirability	Supported	Not Supported	Not Supported	Partially supported	Partially supported	Partially supported	Moderate evidence	Moderate evidence
Price perception	Not supported	Supported	Supported	Supported	Supported	Partially supported	Strong evidence	Strong evidence
Legal availability			Partially supported	Supported	Supported	Partially supported	Strong evidence	Strong evidence
Quality	Supported	Supported	Not Supported	Not Supported	Partially supported	Not supported	Moderate evidence	Weak evidence
Punishment severity	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	No evidence	No evidence
Punishment certainty	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	No evidence	No evidence
Subjective norms	Supported	Not Supported	Not Supported	Not Supported	Partially supported	Partially supported	Moderate evidence	Weak evidence
Ethical judgement	Supported	Not Supported	Not Supported	Not Supported	Partially supported	Partially supported	Moderate evidence	Moderate evidence
Perceived behavioural control	Not supported	Not supported	Not supported	Not supported	Supported	Partially supported	Moderate evidence	Moderate evidence
Disposable income	Not supported	Supported	Not supported	Not supported	Not supported	Not supported	No evidence	Weak evidence
Control variables								
Nationality	Unrelated	Unrelated	Unrelated	Unrelated			No evidence	No evidence
Spotify (music)				Related 1/2				Strong evidence
Self control					Related 1/4	Unrelated	Weak evidence	No evidence
Involvement					Related 1/4	Related 1/4	Weak evidence	Weak evidence
Age					Related 3/4	Related 1/4	Strong evidence	Weak evidence
Gender					Unrelated	Related 1/4	No evidence	Weak evidence
Variance explained	36-43%	31-42%	57-61%	53-60%	48-52%	43-46%	50%	46%
Percent classified	68%	81%	66%	75%	57%	61%	64%	72%
Note: Blank spaces indicate the relationship between the variable and the decision was not evaluated.								

For access decisions about films, price perception was related to legal access in the second and third investigations, where it was positively associated with the decision to use each of the legal access modes over digital piracy, specifically, the cinema, purchase, and rent/borrow/stream options. These findings indicate that a proportional increase in what one is willing to pay for a product increases the likelihood that he or she will access it legally. A one standard-deviation increase in price perception increased the likelihood of legal access by a factor of four to six in the diary investigation, and by a factor of two in the third investigation. Price perceptions were unrelated to the decision to use a legal access mode in the first investigation. However, in the first investigation price perceptions were assessed as an access-mode factor. Participants provided average expected and reservation prices for access-modes, which may have affected the results. Nonetheless, the consistency of these findings concerning price perception when assessed as a product-title factor provides strong evidence for their importance in individuals' access decisions.

Reflecting the results for film, the findings from the three investigations demonstrate that price perceptions are also important when individuals make decisions about how to access music. The findings for price perception were similar across the different samples and methods of assessment, where a proportional increase in willingness to pay to access a song or album increased the likelihood that it would be legally. In the first investigation, price perceptions were positively associated with the likelihood of accessing legally. Similarly, in the second and third investigations when participants revealed the access mode that they had chosen and its legality, price perception was positively associated with the decision to access a product by buying it and streaming it rather than access it via piracy. Across the three studies, a one standard deviation increase in price perception increased the likelihood of an individual using a legal access mode by a factor of two to four.

Taken together, the results for both film and music provide strong evidence for the notion that price perception is an important factor in individuals' decisions to use a legal mode to access a product. The results were consistent across multiple conditions: whether the categories used to indicate the legality of access were general or specific; whether the respondents were reporting on likely access decisions or actual behaviours; and whether decisions were assessed using samples drawn from students at universities or from the general population. While price perceptions are an important factor associated with legal commercial access, the results are less clear when evaluating non-access. Price perceptions were not related to non-access in the investigations where sufficient data was collected to evaluate decisions about non-access. To a certain extent, such findings are not

surprising. Piracy and non-access are to some extent equivalent as a firm does not benefit from selling the title and the individual does not pay for it. It is likely that piracy serves as an alternative to non-access, which is why price perceptions do not influence the likelihood that an individual will decide to not access a product rather than access it via piracy. A different analysis would need to be undertaken to evaluate whether or not price perceptions influence individuals' decisions to not access a film rather than accessing it legally.

When evaluated as a body of findings, the results concerning the relationship between price perception and the decision to use a legal access mode, both in film and music, are consistent with hypotheses, theoretical evidence, and the empirical evidence found in previous literature. Broadly, these findings indicate that price plays an important role in individuals' access decisions for these products and that such decisions are at least in part decisions that involve consumption-related considerations. Theoretically, the results of the investigation concerning price perception are consistent with many models of consumer behaviour, where price is a component of nearly every major model (Antonides 2008). Reference price has been shown to be particularly important (Thaler 1985). Thaler's mental accounting states that consumption decisions are influenced in part by the difference between reference and actual prices. Such differences are evaluated in relative rather than absolute terms and influence individuals' decisions to engage in consumption. The research presented here, informed by Thaler's (1985) mental accounting, provides an explanation for the influence of price when decision making occurs in the absence of price encounters. Price perception was assessed as the difference between expected and reservation prices, and was shown to be associated with individuals' decisions. Thus, this research provides evidence that relative differences between prices also influence behaviour in cases where individuals may not be exposed to actual prices.

In addition to conforming to the theoretical evidence, findings from the three empirical investigations concerning price perception are also consistent with existing empirical findings about access decisions for film and music. However, two key points need to be identified before comparing the findings of this investigation to the existing empirical evidence. First, one of the key contributions of this body of research is the contextualisation of the access decision, comparing piracy to legal alternatives. Few investigations have examined individuals' decisions in the same way. Thus, as much of the previous research has used intention frameworks to examine digital piracy, previous findings concerning relationships between piracy intentions and variables in the model are taken as support for the propositions about the access decision. Second, while previous

investigations have not examined the influence of price in the manner used in this project, their findings concerning the relationship between access decisions and price-related variables are largely consistent with those presented here.

In the case of film, relatively few investigations have examined price-related factors but those that have had similar findings to this project. Vermeir (2009) found that the price perceptions for legal films were positively related to the extent of engagement in film piracy among a sample of young Belgians. Similarly, Chih-Chien (2005) found that intentions to purchase pirated films were positively related to the cost benefits of piracy over using legal alternatives. The lack of comparable findings for film is largely due to the relatively low number of investigations examining film access, which is somewhat different to investigations into music decisions.

Many investigations have examined the relationship between considerations of price and decisions in the case of music and their findings are for the most part in concert with this research. Intentions to download music have been found to be positively related to the price of legal music in a sample drawn from students at a university in Australia (Plowman and Goode 2009). In addition to intentions, price has been found to be associated with the decision to buy music in a sample drawn from students at an American university (Gopal et al. 2006). Also in the US, in a sample drawn from university students, respondents' willingness to pay to replace albums they had bought or received as presents was approximately 25 to 35 percent higher than those they had acquired through piracy (Rob and Waldfogel 2006), indicating that willingness to pay influences access decisions. In an experiment about downloading behaviour using a sample drawn from a German university, those who were not required to pay for music downloaded significantly more than those who had to pay (Quiring et al. 2008). Moreover, price is also important for the proportion of one's music collection. Using a sample of P2P users in Spain, Sandulli (2007) found that beliefs about price when using P2P services and willingness to pay for legal options were related to the proportion of songs downloaded illegally relative to the number of albums purchased legally. Holm (2003), using a sample recruited from university students in Sweden, found that the proportion of music, computer games and software that an individual had acquired via piracy was negatively related to willingness to pay for an original when a copy is available free from a friend. However, there are also cases where price-related factors have not been associated with music access. For example, one investigation in the US found that piracy intentions were not related to perceived economic factors or beliefs that the industry engaged in overcharging (Coyle et al. 2009).

Nonetheless, despite the differences in the assessment of price-related and decision-related variables, the findings from this research project are largely consistent with previous investigations.

#### **5.4.1.2. Legal Availability**

Like the findings for price-perception, perceived legal availability was associated with the likelihood of using most legal access modes for film and music. These results are consistent with expectations and in line with the model. While not assessed in the first investigation, results for film from the second and third investigations demonstrated that the perceived legal availability of a title increased the likelihood that individuals opted to see a film in the cinema and use the rent/stream options. Moreover, in the third investigation, perceived legal availability was also related to the decision to see a film by purchasing it. A lack of relationship for purchasing in the second investigation is likely due to the relatively low number of observations for the category and a corresponding lack of statistical power.

Although the relationships between availability and the access modes are in the same direction in both investigations, those relationships were much stronger in the second investigation. In the second investigation perceived legal availability increased the likelihood that a film would be seen in the cinema by a factor of 40, though only increased the likelihood by a factor of five in the third investigation. Though stronger in the second investigation than the third, the comparable odds ratios for rent/stream access are nowhere near as different. The differences in effect sizes for cinema could stem from differences in methodology. In the second investigation participants recorded details of their actual decisions for current films, whereas in the third investigation participants provided likely decisions, and possibly decisions about unreleased films. Another explanation stems from the wording of the question. The second investigation asked about availability in a preferred access mode, whereas the third investigation merely assessed legal availability in any mode. Thus, availability in the second investigation may represent a preference for a legal access mode as well as a measure of availability, which likely accounts for this strength, and as such may represent an outcome of bias in the data.

Despite the differences in effect size, the consistency of findings for availability demonstrate that individuals are much more likely to opt to use a legal access mode if it is available. Interestingly, in the third investigation, when an increased sample size allowed for non-access decisions to be evaluated, non-access was not related to legal availability. This finding indicates that

when films are not available, individuals are not more likely to abstain from access, indicating that in such cases, piracy serves as an alternative to legal consumption of the product.

The findings for music concerning perceived legal availability, to a large extent, reflect those for film. Perceived legal availability was not assessed in the first investigation, but in the second and third investigations it was found to be positively associated with the decision to stream legally, as well as the decision to purchase in the third investigation. Again, the non-finding for purchase in the second investigation could be the result of a relatively small sample size, and thus an issue of statistical power. Mirroring the results for film, the relative influence of availability was much stronger in the second investigation than in the third. Legal availability increased the likelihood of access by streaming by a factor of 22 in the second investigation, but only by a factor of five in the third investigation. As with the results for film, this difference is likely due to methodological differences, especially with respect to the wording of the availability question in the survey. Despite these differences, the findings indicate that individuals are much more likely to use a legal access mode if the product is available legally. Interestingly, the findings from the third investigation, where again larger samples permitted the ‘borrow’ and ‘non-access’ options to be evaluated for music, show that these options are not related to legal availability. It is easy to account for the finding for borrow, as individuals are not able to access music by borrowing a copy of it unless it has been legally released. The findings for ‘non-access’ reflect those for film: when music is not legally available, individuals are no more likely to pirate it than not access it, indicating that in such cases, digital piracy serves as an alternative to legal consumption of the product.

When considered together, the findings concerning perceived legal availability are consistent with both existing theoretical and empirical evidence. A number of authors in the consumer behaviour literature have suggested that the removal of an option from a choice set increases the likelihood that the other options will be chosen as a substitute (e.g., Bettman et al. 1998). Intuitively, this makes sense. If our favoured brand of coffee or milk is unavailable in the supermarket, we are often likely to buy a close substitute instead. Findings in relation to access decisions for film and music suggest that in cases where a legal option is not available, individuals are just as likely to use digital piracy to access a title as they are to not access it. Thus, when choice sets are constrained, digital piracy is a substitute.

Empirically, the findings from the investigations presented above are similar to those of previous and related empirical research. For example, evidence from Hong Kong and Singapore



indicates that the availability of pirated copies influences intentions to engage in software piracy (Moore and Dhillon 2000; Moore and Dhaliwal 2004). Similarly, there is evidence to suggest that the availability of free-to-air legal alternatives for film influences the demand for such films on P2P networks (Smith and Telang 2009). Findings from Germany indicate the number of cinema screens a film is shown on is positively associated with the likelihood that an individual will choose to see the film in the cinema over piracy (Hennig-Thurau et al. 2007). Other researchers have found that the individuals engage in piracy because it offers variety and thus enables access to titles that may not be legally available (Cenite et al. 2009; Sandulli 2007; Sirkeci and Magnúsdóttir 2011).

Combined, the findings of this project and those of previous empirical studies indicate the importance of perceived legal availability in individuals' access decisions for film and music. Such findings may be a product of the Danish setting of this project. Aside from blockbuster films, such as major superhero films and big-budget titles like *Avatar*, foreign films are often released much later in Denmark than in other countries, especially for mid-budget titles from the US. However the Danish music market is similar to others elsewhere, in that titles are often available online as leaks before they are available legally. Given that availability is an important factor in individuals' access decisions, the findings presented here demonstrate that this factor should play a prominent role in researchers' investigations regarding piracy.

#### **5.4.1.3. Desirability**

Findings concerning desirability were more varied than for the other title-related factors. In line with the hypotheses, desirability was associated with some forms of legal access, indicating that it influences the decision to access legally over piracy some instances. In the case of film, desirability was positively associated with the decision to access legally in the first investigation, as well as positively related to the decision to see a film in the cinema and by purchasing a copy in the third investigation, though not associated with any access mode in the second investigation. The results for music are similar to those of film, in that they provide evidence that desirability is associated with the decision to use some legal access modes. Desirability was positively associated with purchasing music rather than pirating it in the second and third investigations. However, desirability was not associated with the decision to access using any of the potentially free legal access modes, such as streaming legally or borrowing music. In this regard, these findings indicate that when sufficient sample sizes are used, the perceived desirability of a film title or a piece of music is positively associated with the decision to use the more expensive access modes. The desirability of

a title contributes additional explanatory power for purchase decisions that is not accounted for by price perception alone. That different results are observed for different forms of legal access indicates the value of distinguishing between these modes in research. It is possible that non-results for streaming in the case of music indicate that this serves as a means to sample products when an individual is uncertain of how much he or she will like it. Similarly, the low-cost renting option for film is probably used by individuals who judge a film to be ‘not good enough’ to see in a cinema.

Though the results for desirability were inconsistent across the legal access modes, the significant relationships are consistent with some previous theoretical and empirical evidence. Previous authors have written that individuals’ evaluations of music should not be “reduced to price at the point of purchase” (Condry 2004, p. 349), and the findings from this investigation reveal that the desirability of products at times can influence decisions in addition to the influence of price perceptions. Within this project, product desirability is similar to the concepts of attitude towards the product (e.g., Brown 1950) and product evaluation (e.g., Muthukrishnan and Ramaswami 1999), which have been found to be related to consumption decisions.

With respect to evidence concerning piracy, the findings from this investigation are largely consistent with Ouellet’s (2007) investigation which found that the desire to re-experience a music title was positively related to decision to access it. However, his findings also showed that subsequent to this decision, only positive evaluations of the title’s performer(s) were related to the purchase of that piece of music rather than acquiring it using piracy. The findings from this project indicate that the evaluation of the title is still important in the access decision. The findings are also similar to Gopal et al.’s (2006) finding that individuals are more likely to buy music if titles are among their favourites, and Hennig-Thurau et al.’s (2007) findings that a film’s IMDB rating is positively associated with the likelihood that an individual will see it using a legal access mode. Taken together, findings from the investigation indicate that in circumstances where individuals find a title desirable, then they are willing to pay to obtain a copy of the title to experience it repeatedly.

#### **5.4.1.4. Summarising Findings for Product-Title Factors**

The findings from the empirical investigations conducted in this project indicate that factors that vary from title-to-title play a substantial role in individuals’ access decisions for film and music. Price perceptions, availability and desirability were related to access decisions in each of the investigations and, of the elements in the model, were the most consistent predictors of the legality

of individuals' access decisions. As noted previously, such factors have largely been absent in investigations of digital piracy. In the three investigations of this project, product title-factors were often the only predictors of access decisions. The inclusion of these factors is likely why the theoretical model in this project explained more of the variance in access decisions than the models used in previous research. Thus, a clear contribution of this research to the IS literature is the identification of these factors and the demonstration of their importance in access decisions.

In addition to the identification of which product-title factors influence access decisions, the findings demonstrate the value of examining specific decisions rather than behaviour in aggregate. Much of the research that has examined access behaviour in aggregate has produced findings that indicate that factors associated with legal consumption are also associated with digital piracy consumption. For example, factors indicating interest in music have been found to be related to the number of albums acquired legally (Andersen and Frenz 2010; Bounie et al. 2007; Kinnally et al. 2008; Rob and Waldfogel 2006). Similarly, variables indicating interest in film have been found to be related to the number of films accessed legally (Bounie et al. 2006; Rob and Waldfogel 2007). However, similar variables have also been found to be related to digital piracy (Bonner and O'Higgins 2010; Zentner 2006).

The picture provided by prior research indicates that access and thus consumption, whether facilitated by legal access or digital piracy, is motivated by interest in the product category. Moreover, there is evidence that many individuals engage in both legal access and piracy (e.g., Kinnally et al. 2008; Sirkeci and Magnusdottir 2011; Waldfogel 2010). So if many individuals are likely to access film and music both legally and via digital piracy, what differentiates these decisions? Such questions can only be answered by examining behaviour at the decision level. The evidence from this research project indicates that individuals are willing to use a legal mode to access a specific title because they are willing to pay more of the expected price of the product, because the product is legally available, and because they find it desirable. These findings indicate that there is limited value in trying to explain piracy by only looking at access-mode factors and interest in a product. Product-title factors, which vary from title-to-title, are important.

Within the IS field, factors that reflect considerations price and availability are not often used to explain individuals' decisions or behaviour. For example, neither of the dominant models predicting the adoption and use of technology, Davis's (1989) Technology Acceptance Model and Venkatesh, Morris, Davis and Davis's (2003) Unified Theory of Acceptance and Use of

Technology, include considerations of price. This is likely because such models were designed for the organisational environment and focused on the use of these products by employees. In such cases, price considerations are unlikely to be a factor when employees decide whether or not to use company software. However, these models have increasingly been used to explain and predict the adoption and use of technology by consumers (e.g., Porter and Donthu 2006; van der Heijden 2004; Yu et al. 2005). The research findings from this project indicate that price perceptions and availability are important in individuals' use of technology to gain access to film and music. If an individual is unwilling to pay the expected price for a title, or it is unavailable legally, the chances that he or she will use technologies to pirate the title increase substantially. Though there are some models in which price considerations are included (Brown and Venkatesh 2005), such models typically frame adoption as a choice between adoption or non-adoption. However, individuals today can choose from an array of products that often provide equivalent functionality. Thus, the decision to adopt or not is increasingly looking like a choice among options, all of which represent a form of adoption. As discussed in previous chapters, intention frameworks are not well suited to contexts where decisions involve the consideration of alternatives.

This project examined individuals' decisions about how to access film and music using new and existing technologies, focusing on the choice among options, where technologies enable legal and illegal access to products. Product-title factors were important determinants of individuals' decisions to use technologies that facilitate piracy. If the IS field is to continue examining decisions about the use of technology for personal consumption it would benefit from including factors such as price and availability, in addition to reframing adoption as a choice among technologies. However, product-title factors were not the only important influences. The following section discusses the findings for the remaining factors in the model, especially factors related to evaluations of access modes.

#### **5.4.2. Regulators**

Of the access mode factors, those categorised as regulators of behaviour in the model were most consistently associated with access decisions. Though not related to access decisions in the second investigation, subjective norms and ethical judgements were related to legal access in the first investigation and the decision to use a number of the legal access modes in the third investigation. These findings indicate that when sample sizes are sufficiently large, factors that act as regulators of behaviour with respect to the use of access modes are related to access decisions for film and music.

#### **5.4.2.1. Subjective Norms**

Subjective norms, which represent the perceived social pressure to perform or not to perform a behaviour, were related to access decisions for both film and music, though the evidence for music was much weaker. In each of the investigations, subjective norms concerning digital piracy were assessed, such that individuals provided an indication of the perceived social pressure to engage in digital piracy. The strength of the relationship between subjective norms and behaviour is indicative of how important an individual feels it is to act according to the views of significant others, such as friends and family. Subjective norms act as a regulator of behaviour as an individual's personal motivation to engage in behaviour is weighed against his or her motivation to comply with the expectations of others.

The results for the relationships between subjective norms and access decisions differ remarkably across products. For access decisions about films, subjective norms were negatively related to the decision to use legal access in the first investigation. In the third investigation subjective norms were negatively related to the decision to access a film by seeing in the cinema, by renting, streaming or borrowing it, and non-access, but not related to the decision to purchase. In the case of music, subjective norms were only related to access decisions in the third investigation, where they were negatively related to the decision to access music by buying it. Together these findings provide evidence that the likelihood of using some modes of legal access decreases as subjective norms concerning digital piracy become more favourable.

The findings concerning subjective norms are largely consistent with Ajzen's TPB, which suggests that intentions to engage in behaviour are determined in part by subjective norms. If intentions are interpreted as decisions with a degree of commitment, then the decision to use a legal access mode is negatively related to the perceived social pressure to engage in digital piracy. The findings are also consistent with previous investigations that have found relationships between subjective norms and digital piracy of music and digital products (e.g., Al-Rafee and Cronan 2006; Chiang and Huang 2007; d'Astous et al. 2005; Khang et al. 2012; Kwong and Lee 2002; Morton and Koufteros 2008; Plowman and Goode 2009; Wang et al. 2009; Wang and McClung 2012; Yoon 2011). While many investigations have found evidence for the influence of the relationship between subjective norms and digital piracy, these investigations examined intentions to engage in digital piracy, rather than the decision between digital piracy and legal access. The findings seem to

indicate that when it comes to access decisions, subjective norms are a salient factor in some decisions, but not in others.

#### **5.4.2.2. Ethical Judgements**

Similar to the findings for subjective norms, those concerning the relationships between ethical judgement and access decisions varied across the legal access modes. In the case of film, ethical judgements were related to the decision to access a film legally in the first investigation. In the third investigation ethical judgements were related to the decision to access film by purchasing as well as by renting, borrowing or streaming a copy, though unrelated to the decision to watch a film in the cinema. Access decisions for music differed somewhat from those for films, where ethical judgements were unrelated to legal access in the first and second investigations, but were negatively related to the decisions to access music by purchasing a copy and by streaming it. Together the findings across the products indicate that the likelihood of using some modes of legal access decreases as ethical judgements concerning digital piracy become more favourable.

The findings that access decisions are related to ethical judgements are consistent with theoretical models of ethical decision making, such as those outlined by Hunt and Vitell (1986) and Jones (1991), that suggest that behaviour is determined by ethical judgements via intentions. Past empirical evidence is also consistent with the findings of this project, in that ethical judgements or similar variables indicating an evaluation based on ethical criteria are related to intentions to engage in digital piracy (e.g., Cronan and Al-Rafee 2008; Gopal et al. 2004; Haines and Haines 2007; Khang et al. 2012; Kwong et al. 2003; Shang et al. 2008; Yoon 2011). This research extends these findings to demonstrate that ethical judgements in favour in digital piracy are related to decisions to use some forms of legal access as alternatives to digital piracy. Despite these findings, the evidence for the influence of ethical judgements on access decisions, like that of subjective norms, is rather mixed.

When considered together, there is moderate support for the notion that the factors categorised as regulators of behaviour in the model are associated with access decisions. This evidence is stronger for film than for music. Aside from the second investigation where neither subjective norms nor ethical judgements were related to access decisions, at least one of the regulators was associated with the legal commercial access modes in third investigation. The results from the third investigation, where sample sizes allayed concerns about a potential lack of statistical power, indicate that there is some evidence that the regulators compete for variance. In only two

cases were both ethical judgements and subjective norms associated with the decision to use an access mode. It appears that consumption occasion may offer some explanation. In the case of film, ethical judgements were associated with the decision to purchase; a consumption occasion which is likely to be individual and private. Subjective norms were associated with the decision to see a film in the cinema; a consumption occasion which is likely to be social and public. Both variables were related to the rent/borrow/stream decision, which could be either individual or social. Conversely, the results for music indicate that ethical judgements are much more important than subjective norms in determining access decisions, as subjective norms were associated with one decision to use one of the access modes and ethical judgements were associated with three of the four.

### **5.4.3. Resources and Risks**

Though the regulator factors in the model were moderately supported by the results of the three investigations, the findings concerning the resources and risk factors had much less support. The section below discusses these findings, paying particular attention to perceived behavioural control and quality.

#### **5.4.3.1. Perceived behavioural control**

Beliefs about the ability to perform a behaviour are an important determinant of intentions in Ajzen's (1991) TPB, though were only significantly associated with access decisions in the third investigation. For film, perceived behavioural control was negatively associated with each of the access options: cinema; purchase; and rent/borrow/stream. Similarly, the analysis of access decisions for music indicated that perceived behavioural control was negatively associated with the decision to purchase and borrow a title, as well as non-access, though was unrelated to streaming. Together, these findings indicate that individuals' beliefs in their ability to engage in digital piracy reduce the likelihood that they will use a legal access mode to access film and music.

Reasonable explanations can be given for the lack of relationships between perceived behavioural control and access decisions in some instances. The absence of relationships in the first and second investigations is likely due to the homogeneity of the sample, which were somewhat different from the samples used in third investigation. The first and second investigations relied upon samples of university students, with mean ages in the early 20s. Evidence from Denmark indicates that younger individuals are more likely to have engaged in digital piracy (Benner and Vuorela 2012) and thus have the skills to do so. Moreover, as digital natives, digital piracy is

perceived as relatively easy. Such characteristics contrast with the much older samples of the third investigation which had average ages of around 30. Moreover, the third investigation had a larger sample, and thus is likely to achieve more statistical power.

However, perceived behavioural control was not related to all access modes in the third investigation. The lack of relationship between perceived behavioural control and the decision to access music by streaming may stem from the level of sophistication needed to use web-based technologies. Both legal streaming and access via digital piracy require an individual to have a base level of competency with digital technology. Thus, while much easier than access via digital piracy, the perceived barriers to use may inhibit some individuals from using streaming services to access music. Perceived behavioural control for digital piracy may be indicative of a broader digital competency which is required to use streaming services, and thus is unlikely to be predictive of access decisions between legal streaming and access via digital piracy.

Despite the lack of relationship between perceived behavioural control and access decisions in the first and second investigation, one can conclude with some confidence that access decisions for film and music are associated with perceived behavioural control. This conclusion is consistent with Ajzen's theory, and also prior research on digital piracy. Perceived behavioural control has been found to be related to intentions to pirate music and other digital products (e.g., Al-Rafee and Cronan 2006; Chiang and Huang 2007; d'Astous et al. 2005; Khang et al. 2012; Kwong and Lee 2002; Morton and Koufteros 2008; Plowman and Goode 2009; Wang et al. 2009; Wang and McClung 2012; Yoon 2011). Other investigations using variables associated with perceived behavioural control have also found these to be related to measures of digital piracy. For example, computer skills have been found to be related to the proportion of pirated to purchased content possessed (Holm 2003). Similarly, variables indicating engagement with the Internet have been associated with music digital piracy (Zentner 2006), and file-sharing knowledge has been found to be associated with the number of films acquired via digital piracy (Hennig-Thurau et al. 2007).

#### **5.4.3.2. Quality**

Of the perceived risks included in the model, quality risk was associated with the decision to access products using some of the legal access modes. Quality concerns were related to legal access for both music and film in the first investigation, and the cinema and purchase options for film in the third investigation. However, concerns about product quality were unrelated to access decisions for film or music in the second investigation and for music in the third investigation. Taken together,



the findings indicate that quality concerns are more important in access decisions for film than for music, and in the case of film, only important for more expensive access options.

As noted earlier, the different findings for film and music may reflect differences between the two products: low-quality music files have been available online for more than ten years and it is possible that file quality is not an important consideration when it comes to music. Conversely, quality and resolution are important selling-points for films. The findings for film are consistent with previous research that indicates that quality is related to the number of films pirated per year (Hennig-Thurau et al. 2007). However, the findings for music are inconsistent with the findings that quality is related to the preference for digital piracy over legal access for music (Sirkeci and Magnúsdóttir 2011) and the willingness to pay for digital music (Fetscherin and Lattemann 2007).

#### **5.4.3.3. Remaining Factors**

While the findings from the three investigations provided strong or moderate support for some elements of the model, there was only some support for discretionary income and no support at all for the influence of punishment risks. The lack of evidence supporting the influence of discretionary income may be due to the measurement of the variable. Assessed as a categorical variable in the second and third investigations, the variable was median-split and entered into the regressions as a binary variable, and this may have affected the results. There is evidence that dichotomising variables reduces the likelihood of finding significant relationships between constructs (Irwin and McClelland 2003). Thus, discretionary income may have emerged as a factor significantly associated with legal access modes if it had been treated differently. However, if entered into the regression equations as a series of binary categorical variables, it would have added nine independent variables and reduced the statistical power of the regressions, potentially suppressing the influence of other factors. In addition to potential measurement issues, the finding could also be due to high levels of disposable income in Denmark. The products evaluated in this investigation are not especially expensive, and thus discretionary income may not influence access decisions for products which most people can afford, at least occasionally.

Contextual factors are also likely to explain why punishment risks were not associated with access decisions, which were largely unexpected. Neither punishment certainty nor severity were related to access decisions for film and music in any of the investigations, with the exception of punishment severity in the third investigation, which was negatively associated with the decision to stream music. The unexpected finding for streaming music indicates that the likelihood of using a

legal access mode decreases as the perceived severity of punishment for engaging in digital piracy increases. Overall, the findings indicate that punishment risks are not salient considerations in individuals' access decisions for film and music in Denmark. This finding is contrary to Becker's (1968) theory of crime and Ehrlich's (1973) deterrence theory and a number of research findings (Bellemare and Holmberg 2009; Chiang and Assane 2007; Chiou et al. 2011; 2005; Kwong and Lee 2002; Levin et al. 2007; Plowman and Goode 2009; Pryor et al. 2008; Shanahan and Hyman 2010; Wingrove et al. 2011). However, it is consistent with meta-analysis research that indicates that enforcement efforts are often unrelated to criminal behaviour (Pratt and Cullen 2005).

The lack of relationship between punishment risks and access decisions is likely due to the context, though there are other plausible explanations too. Unlike other countries in Europe, Denmark has relatively lax policies for copyright enforcement for film and music titles. In recent years neither the state nor collecting agencies have targeted individuals who illegally access film and music online. This is quite different to countries such as France, that have so-called 'three-strikes' legislation for copyright enforcement, where the state fines individuals and bans them from using the Internet if they are caught engaging in digital piracy three times (Sandoval 2012). Instead, the Danish Ministry for Culture has sought an alternative approach which aims to prevent the illegal distribution of copyright materials by blocking access to websites that distribute content online and dissuading illegal access by educating individuals and encouraging the use of legal alternatives (Renkema 2012a). Moreover, rights organisations in Denmark like KODA, which administers Danish and international copyrights for music creators and publishers (The Council of Europe/ERICarts, 2012), have not sought to target individuals engaging in digital piracy. This decision differs from the approaches of copyright holders in Germany, the US and the UK. For example, the German rights organisation GEMA has collaborated with lawyers to target individuals engaging in P2P piracy and demanded the individuals pay for engaging digital piracy or risk being taken to court (Renkema 2012c). In the absence of risks of punishment, it is likely that such considerations are not salient in individuals' access decisions for film and music in Denmark.

The findings concerning punishment severity and certainty indicate that individuals' access decisions are likely not thought of as criminal behaviours, and when other potential influences on decisions are included, punishment considerations are not associated with individuals' access decisions. However, the research model did not include elements from other theories of criminal behaviour, which are prominent in criminology research. Nonetheless, the likely variance of factors from Akers's (1985; 2001; 1979) social learning theory were accounted for by elements from other

models, notably subjective norms and ethical judgements. Moreover, low self-control, considered to be a stable individual difference, was not included in the model, but rather added in the third investigation as a control variable. The section below summarises the findings concerning self control and other elements evaluated as control variables.

#### **5.4.4. Controls**

Although the three investigations primarily served to evaluate the theoretical model, the influences of other variables on access decisions were also examined, and some of these control variables were significantly associated with some forms of legal access. The first and second investigations drew on samples of university students, some of whom were international students studying in Denmark, and thus the nationality of respondents was controlled for. However, nationality was not associated with access decisions, indicating that the origin of the students in the sample did not influence their access decisions and that they were likely making decisions based upon their considerations relative to the Danish market. The second investigation drew on samples over three successive semesters, and after the first sample period, Spotify, a major music streaming service, entered the Danish market. As such, registration with the service was entered into the regression equation, and was significantly associated with the decision to access music by streaming it legally. This finding indicates that Spotify does more than just broaden the range of legal options available to an individual.

The problems associated with the characteristics of the sample and the data collection window of the first and second investigations were not prevalent in the third investigation, and a large sample size allowed for other factors to be controlled for when testing the model. Of these factors, age was positively associated with the likelihood of using each of the legal access modes for film and the likelihood of choosing to access music by purchasing it. These findings indicate that age is an important contributor to access decisions, independent of the other factors in the model. The finding that age is related to access is consistent with a number of findings that age is negatively related to attitudes towards digital piracy (Al-Rafee and Cronan 2006), intentions to engage in digital piracy (Coyle et al. 2009; Kwong et al. 2003), various measures of digital piracy (Bonner and O'Higgins 2010; Rochelandet and Le Guel 2005; Sandulli 2007), and positively related to willingness to pay for music (Fetscherin and Lattemann 2007) and the decision to purchase a title rather than pirate it digitally (Gopal et al. 2006; Wang et al. 2009). However, there have been a number of investigations where age was not related to access factors (Andersen and Frenz 2010;

Higgins et al. 2007; Hinduja and Higgins 2011; Holm 2003; Pryor et al. 2008). Nonetheless, in light of the evidence accumulated in previous investigations, age should be controlled for in future research efforts.

In addition to factors associated with the sample, other variables reflecting theoretical elements not integrated into the model were also controlled for in the third investigation. Low self-control has been found to be related to digital piracy in previous research, however the findings here indicates that when other factors are accounted for, it is only related to the decision to access film in the cinema, where low self-control reduces the likelihood that an individual will choose to access a title by seeing it in the cinema rather than using digital piracy. Such findings contrast with previous research based on Gottfredson and Hirschi's (1990) self-control theory, which find that low self-control is associated with digital piracy (Higgins et al. 2006; Higgins et al. 2008; Malin and Fowers 2009). When considered with the findings concerning punishment risks, the results of this project indicate that individuals in Denmark do not make decisions about access based upon considerations of the consequences of breaking the law, nor are their decisions the result of stable individual differences that are typically associated with criminal and deviant behaviours. Such findings indicate the limited value of concepts from criminology in explaining digital piracy within the Danish context. Product involvement was also assessed as a control variable in the third investigation, where it was found to be negatively associated with the likelihood of non-access for both film and music. This finding indicates that increases in interest in the film and music are associated with an increased likelihood of access via digital piracy relative to non-access.

## **5.5. Limitations and Future Research**

While this project has attempted to produce high quality research and followed recommended practices where possible, there are nonetheless limitations with the research which provide a point of departure for future research efforts. It is necessary to acknowledge that the reliance on samples from Denmark is a limitation of the investigations. As discussed in the opening chapter, the Danish market is characterised by a high median income, pervasive high-speed Internet access, and relatively low prosecution risks for individuals engaging in piracy. Moreover, much of the market, at least for films, is captured by foreign films, especially those from the US which often are not released in Denmark at the same time as they are released elsewhere. Thus, it is likely that the model would perform differently in markets with high prosecution risks, where individuals face

high prosecution risks when engaging in piracy, where incomes are not as high, and where release dates are better aligned with the US.

Some of the limitations of the project have been addressed previously in the chapter detailing the empirical investigations. In conducting any investigation, there are likely to be issues stemming from the methods used to evaluate the theoretical model. Many of the limitations that have been discussed in previous sections are methodological and concerned issues such as non-response bias, the potential for dishonest responding, sample size and representativeness, and broader issues concerning generalisability. While these are important issues, they have been adequately addressed in previous sections, and thus will not receive more attention here. However, there are some methodological limitations remaining. The methodological limitations are discussed in this section along with theoretical limitations that have more to do with the conceptualisation of the model than the method used to evaluate it. The section below begins with a discussion of the methodological limitations before moving to the theoretical limitations. In outlining the limitations of the research, recommendations are provided for how each limitation could be addressed in future research.

### **5.5.1. Methodological Issues**

One potential limitation of the model is that it characterises some factors as general considerations of an access mode, though such factors may in fact vary from title-to-title and thus be product-title factors. When evaluating the model, some factors were characterised and measured as beliefs that reflected general considerations about using legal access modes or digital piracy to access products. Specifically, all of the factors characterised as regulators, risks, and resources were assessed as general factors. However, some of these factors may vary from title-to-title. For example, issues such as quality, subjective norms, and ethical judgements may vary according to the date of release or stage of release of a film, the origin or status of the artists, or other such factors. As parodied below in figure 13, if an individual accesses a film illegally while it is still in cinemas in US, it is likely to be a copy that has been illegally recorded in a cinema with a hand-held camera and thus of much lower quality. However, as films are released to streaming services, DVD and Blu-ray, then higher quality copies become available on various websites and P2P networks. The parody does not reflect the Danish context quite so well, as titles in the cinema are often available in reasonable quality on digital piracy networks due to delayed release dates in Denmark.



*Figure 13. If You Download A Movie That is in the Theatre, You're Gonna Have a Bad Time (Source: Reddit user OneCannabis 2012)*

Like evaluations of quality, factors characterised as regulators in the model, subjective norms and ethical judgements, are also likely to vary from title-to-title. Personal experience indicates that using digital piracy to access songs of small independent artists is judged differently to pirating major hits. The same goes for film, where downloading blockbusters is often not seen as 'bad form'. Given such variance, future research would likely benefit from evaluating these characteristics for specific titles, rather than assessing them as general beliefs related to the use of legal and illegal modes. Indeed, the difference in measurement could account for why none of the access-mode factors were associated with access decisions in the second investigation. People may think in general terms when completing the hypothetical scenarios, but in actual decisions such considerations may be much more salient.

Like the possibility that some of the factors in the model vary from title-to-title, it is likely that factors characterised as considerations of one form of access are actually relevant to both legal access and access via digital piracy. In order to limit the number of items on the survey, some factors were only assessed in relation to one access mode. Price perceptions and availability were only assessed relative to legal access, whereas the regulators, risks and resources were only assessed in relation to access via digital piracy. However, it is possible that individuals consider the factors in

the model with respect to both legal access and access via digital piracy. For example, there are many services that facilitate access via digital piracy that rely on individuals to pay. Many file-hosting sites have premium options that allow individuals to download without placing limits on download speeds or frequency. Similarly, Usenet, which often requires individuals to pay for a subscription, is apparently become more popular venue for sharing links to pirated films and music (Brignull 2012). Moreover, while legal availability was assessed in the investigation, availability on digital piracy networks was not. Individuals may incorporate the likelihood of finding titles via digital piracy into their access decisions. Evidence from Oberholzer-Gee and Strumpf (2007) indicates that downloads in the US are related to factors that affect the availability of files on illegal networks. For example Germany provides approximately a sixth of America's P2P connections for music. Indeed, Oberholzer-Gee and Strumpf have found evidence that German school holidays, a band being on the German music charts, and misspellings of names by German sharers influence US P2P activity.

There is also some likelihood that factors evaluated as concerns relevant to access via digital piracy may be relevant to legal access. For example, individuals may judge using legal access modes unethical. There is evidence that major artists such as Lady Gaga receive very little each time a song is streamed on services like Spotify (Handgraaf 2012), which may lead a number of individuals to judge that the service is unethical. Similarly, considerations of quality were only assessed in the investigations with reference to access via digital piracy. However, quality differs considerably across the various legal access modes, so concerns about quality are not only likely to differ between piracy and legal access, but also among legal access modes.

Given that the factors in the model may likely be applicable to both access via digital piracy and legal access, future research might benefit from asking individuals to indicate which of the access modes is closer to their preferences with respect to each of the factors in the model. The consideration of multiple access modes indicates that individuals do not just choose between digital piracy and legal access, but also among various forms of access. This has been investigated previously in research assessing how additional access options influence consumption. For example, researchers have examined the influence of the pervasiveness of TV and radio on the film and music industries (Liebowitz 2004), the choice between print and e-Books (Kannan et al. 2009), and individuals' rent or purchase decisions for film (Knox and Eliashberg 2009). If future research was going to extend beyond general considerations of legal access and access via digital piracy, it could list various legal and illegal access options and ask individuals to rank each option according

to which best suits their preferences, and then examine the influence of rankings on access decisions.

One issue that arose in the research is that few access-mode factors were related to access decisions, especially in the second investigation, which may have been the outcome of only looking at one access decision for each individual. The diary investigation sought to obtain data on multiple access decisions for film and music in the first and second waves of data collection. However, the majority of participants recorded only one or two access decisions over the two-week duration and accordingly it was not possible to analyse the data as such. Thus, a potential lack of explanatory power may come from only evaluating one access decision per participant, which may not be representative of their typical behaviour. In such instances, Ajzen (1991), suggests that a “proposed remedy for the poor predictive validity of attitudes and traits is the aggregation of specific behaviours across occasions, situations, and forms of action... with the result that the aggregate represents a more valid measure of the underlying behavioural disposition than any single behaviour” (pp. 180-181). Thus, future research would likely benefit from obtaining multiple access decisions for each participant. This again could be accomplished using the diaries and perhaps using a longer sample frame.

### **5.5.2. Theoretical Issues**

While the methodological limitations of the research are an outcome of how the theoretical model was evaluated in the empirical research, the theoretical limitations of project largely stem from assumptions that informed how the model was developed. While the elements in the model are able to account for nearly twice as much variance in individuals’ access decisions as previous models, just under half of the variance in access decisions remained unexplained. The theoretical model evaluated over the three empirical investigations is largely based upon intention models, and supplemented with elements from other theories used in previous research, but in its development a number of assumptions were made about how it should be evaluated. The limitations of the model reflect the assumptions that underlie its development. Such limitations include the assumption of rationality, the lack of feedback loops and interaction effects, and the scope of the model.

The theoretical model that was assessed over the three empirical investigations is a decision-making model that assumes that individuals make rational decisions based upon the consideration of multiple factors. This assumption is similar to the theories and models that informed the model, such as Ajzen’s (1991) TPB, Hunt and Vitell (1986)’s model of ethical decision-making, Becker’s



(1968) theory of crime and Ehrlich's (1973) deterrence theory. Yet there is much evidence to indicate that many decisions are not made rationally. While many elements of the model contributed to access decisions when low self-control was included in the regressions of the third investigation, non-rational influences beyond impulsiveness may influence access decisions. For example, variables such as past behaviour, habits, and anticipated positive and negative emotions have been used in prior research (e.g., LaRose et al. 2006; Nandedkar and Midha 2012; Taylor et al. 2009), and may have accounted for some of the variance. Future research could broaden the model to capture the influence of such factors. Alternatively, asking individuals to reveal their behaviour may have primed them to consider factors that they may not have ordinarily, such that they were more likely to respond in a way that was consistent with their responses. Further research could collect data differently, perhaps by obtaining information about their behaviour automatically through digital activity logs, rather than relying on self-report methods.

Related to the assumption of rationality, the model assumes that individuals make access decisions in a uniform manner, weighing each factor. In evaluating the model, the strength of the relationship between one of the factors of the model and the access decision is meant to indicate the importance of that factor for individuals' decisions. Thus, the model helps identify which factors of the model are the most important based upon the strength of the relationship. By evaluating access decisions in this way, it is possible to assess the research question of the project and thus why some films and music titles are accessed legally while others are accessed via piracy. The research indicates that a combination of product-title factors (price perceptions, availability, desirability), and access-mode factors (subjective norms, ethical judgements, perceived behavioural control) influence individuals' decisions. Thus, the model is useful for identifying which factors are important. By building upon intention frameworks, the model supposes that individuals engage in an additive decision making, where multiple factors are weighed up and an individual chooses the option which, on aggregate, best fits his or her preferences.

While the model identifies the likely factors that most individuals consider when making access decisions and the relative influence of those factors on access decisions, the model and the research in this project do not describe the process that individuals undertake when making access decisions. It is possible that individuals make trade-offs over the most important features, rather than using an additive method. There is evidence that individuals make decisions differently and, especially in contexts where multiple considerations are salient, individuals may opt to reduce the cognitive load when engaging in such decisions. For example, Bettman, Luce and Payne (1998)

argue that consumers' preferences are not stable and are constructed in contexts requiring consumption decisions. Moreover, they suggest that individuals use a variety of strategies in order to reduce cognitive load.

Like the intention models upon which this project's theoretical model are based, the model presented here assumes a weighted adding strategy, where an individual assesses the importance of each attribute and assigns a subjective value to each possible attribute level. Other strategies include the lexicographic strategy, where "the alternative with the best value on the most important attribute" is selected (Bettman et al. 1998). The satisficing strategy (Simon 1955) occurs when alternatives are considered sequentially, and the first option which meets the cut-off criteria across all attributes is selected. Another strategy is elimination by aspects (Tversky 1969), where options that do not meet the minimum cut-offs for the attributes are discarded until one option remains. Other strategies include the confirming dimensions strategy (Russo and Doshier 1983), feature count strategy (Alba and Marmorstein 1987), and various combination strategies. Future research would benefit by identifying if and when such strategies are used when access decisions for film and music are undertaken.

Fruitful future research could also seek to identify the influence of feedback loops. As developed, the model assumes that access decisions occur in close temporal proximity to behaviour, and thus intentions are not examined, and decisions are judged to function as a form of behaviour. Thus, the model makes an assumption that if an individual decides to access a film via piracy, he or she is likely to do so. When the model was used to evaluate likely access decisions using a sufficient sample, as in the third investigation, many of the factors in the model were associated with access decisions. However, when the model was used to evaluate actual access decisions of the participants in the second investigations, then only product-title factors were related to access decisions. This may reflect that access decisions are a dynamic process, where individuals attempt access and then update their decisions in light of new information about availability and price. Moreover, if it is possible to differentiate decisions and behaviour, then perceived behavioural control is likely to have a direct effect on behaviours, as it does in the TPB.

In the interest of parsimony, the theoretical model only included factors that were likely to have direct effects on access decisions in order to accommodate the likely influences of elements from the various streams of existing research. However, it is likely that at least some of the factors of the model interact to produce different effects. Within marketing, variables such as price and

quality are known to be traded-off against each other. However, there are a number of other likely interaction effects. It is possible that decisions are influenced by the interaction between availability and desire. For example, a number of writers in mainstream media outlets have written about ‘leak night’ (e.g., Baker 2012), when soon-to-be-released albums become available online before being officially released. In such instances, the perceived desirability of the title may override the other considerations, and given the lack of legal availability an individual may access the title via piracy. A number of other interactions are possible. For example, it is likely that price perception and availability influence access decisions, as evidence indicates that individuals are willing to pay more to stream films before they are available in the cinema (e.g., Mann et al. 2008). Similarly, as indicated above by the image in figure 13, individuals may be less likely to access via piracy if the perceived quality is poor. The potential for other interactions between the factors in the model is quite likely. This research investigation was focused on integrating the elements from previously distinct theoretical streams, and with so many direct effects examined, it was judged better to not add multiple interaction variables to the model. However, the model would benefit from being extended in this way.

In addition to expanding the model by examining interactions between various factors, it is possible that additional variables could be added to the model to explain more of the variance in access decisions. For example, in the interest of parsimony, attitudes towards digital piracy were distinguished as ethical judgements and product desirability. However, it is conceivable that attitudes towards digital piracy are conceptually different from ethical evaluations of digital piracy and thus the absence of attitudes in the model may account for unexplained variance in access decisions. Moreover, there may be considerations that are specific to certain access modes that would account for more variance in decisions. For example, those contemplating whether to see a film in the cinema or pirate it are likely to have different considerations than those comparing piracy to purchase or rental options. Going to the cinema is often perceived as an event and social activity, whereas purchasing titles enables repeat viewings. These considerations are not factored into the model as it is. Similarly, the stream and purchase options for music are likely to be informed by individual preferences for one mode or the other. Future research may benefit from identifying such considerations and seeing how much additional variance is explained by mode-specific factors. However, part of the model’s value is that it is broad and could be applied to decisions about other hedonic goods available digitally, such as video games and books. Perhaps a

more useful extension of the model would be to examine the antecedents of the various product-title and access-mode factors in the model.

Despite the limitations in the research model it was still relatively successful in explaining individuals' access decisions. That the model explained more variance than previous investigations indicates the benefits of using an integrated model to examine access decisions, especially in applied or practical fields such as IS. With such positive results in mind, the next section discusses some of the practical implications of the research, with respect to industry and government.

## **5.6. Implications for Practice**

The research described in this paper has implications for state regulators and the film and music industries, in Denmark in particular, but in Europe more broadly. The findings indicate that legal availability and favourable price perceptions motivate people to choose a legal access mode.

### **5.6.1. Availability**

While not assessed in the first investigation, the findings from the second and third investigations indicate the importance of perceived legal availability in determining individuals' decisions. This is particularly important for firms releasing films in Denmark. Danish firms are potentially missing the opportunity to generate more revenues by not making international titles legally available to the Danish market soon after they are released elsewhere. Evidence from Rob and Waldfogel (2007) indicates sales displacement is nearly 100 percent if the first viewing of a film is facilitated by piracy, and 20 percent for the second viewing. Given that legal availability is such an important influence on access decisions, the film industry would benefit from accelerating the process for introducing newly-released features to foreign markets.

The importance of availability was not only an issue for films being released in the cinema, but for other access modes as well. Even though legitimate VOD services launched in Denmark are able to out-perform digital piracy in terms of convenience and ease of use, such services often have very limited selections. As indicated below in figure 14 from Anna Stiffler's webcomic *Chaos Life*, lack of availability is a key reason motivating individuals to use digital piracy. Moreover, individuals often perceive this issue to be the outcome of pressure from film studios to limit the availability of titles on VOD services. Rather than restricting availability, firms would likely to benefit from utilising the variety of avenues available to distribute their films, and using these avenues to differentiate their product offerings. Bonus features, which are often a selling point for

films released on DVDs and Blu-ray, could be restricted as features for individuals who purchase titles to own, while the original title is released to streaming services.

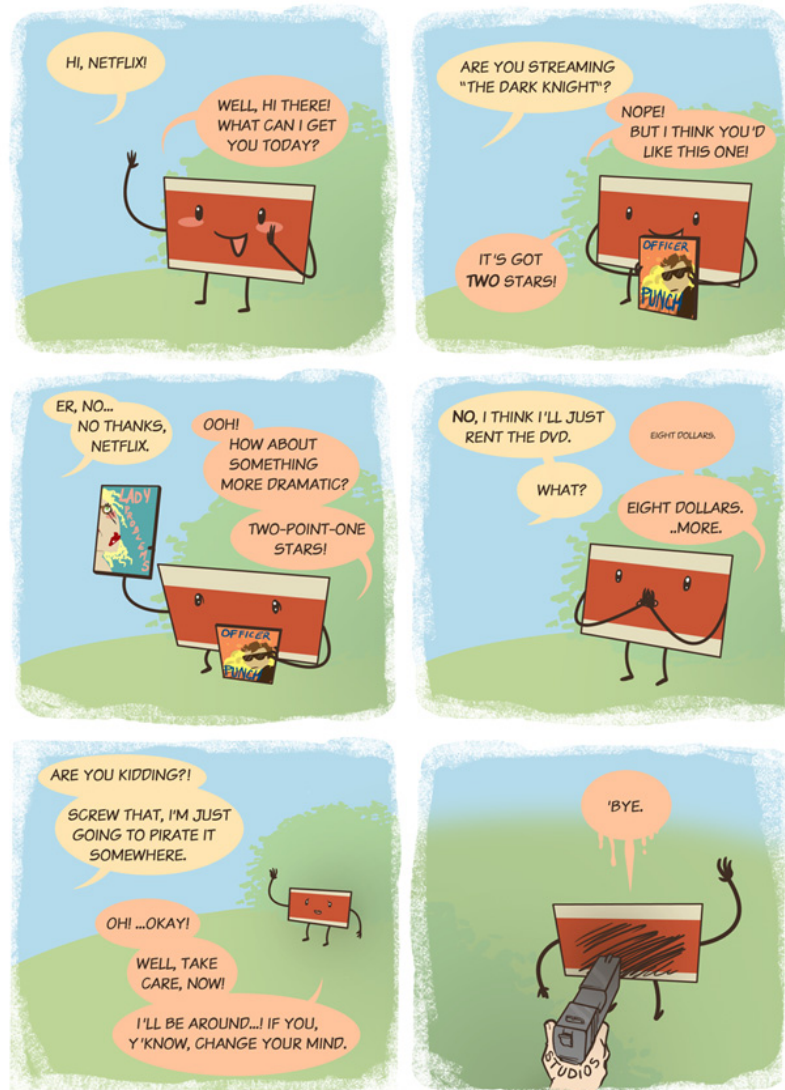


Figure 14. Chaos Life Comic 'Everybody's Got Problems [Netflix]' (Source:Stiffler 2011)

Similarly, the music industry would likely benefit from quickly making legal versions of their products available on streaming services such as Spotify to capitalise on the surge in demand that often occurs around the release date. Firms releasing music also face the challenges of 'leaks', where albums are available online before official release dates, due to the time taken to produce physical copies of the releases. Thus, firms should take into account the benefits of making digital copies available legally before physical versions are released. Physical releases are now often 'bundled' with download vouchers, enabling individuals who buy LPs access to digital versions as well. In such cases, it could be prudent for firms to provide such individuals with access to the digital version while the LP is being pressed to dissuade individuals from engaging in digital piracy.

### 5.6.2. Price

Findings concerning price perceptions underscore the importance of price in individuals' access decisions for film and music. The challenge for firms selling digital film and music content is that, unlike other consumption contexts where consumers are presented with price information when making their access decisions, many access decisions for film and music are made in the absence of such information. If an individual believes that the price for a title is higher than he or she is willing to pay, then he or she may pirate the product, even if a retailer offers it at a price which is at or below the individual's reservation price. Those who choose legal access are likely to encounter price information when choosing legal access. In these contexts, the actual price may be more important than the expected price. However, in a general sense, the initial decision about access is likely to be made based upon expected prices.

There is evidence that individuals who do not have much knowledge of prices for a product category, and thus relevant reference prices, are likely to be influenced by information presented to them and anchor their judgement of subsequent price information based upon early information. Ariely, Loewenstein and Prelec (2003) call this phenomenon coherent arbitrariness. Individuals who are given higher comparison prices for products are willing to pay more than those who are presented with lower comparison prices, even when they know that the comparison information is completely arbitrary. They suggest that people anchor to these reference prices and keep them, even in the presence of new information. Similarly, Dodonova and Khoroshilov (2004) found that individuals are willing to pay more for an item on an auction website with a high 'buy now' price than others who are presented with the same item with a low 'buy now' price. In light of this evidence firms could try to adjust the expected prices for film and music by advertising on sites using price. Amazon's 'deal of the day' and 'deal of the week' promotions are a good example of the effectiveness of this, where albums sold as mp3s are temporarily sold at a reduced price. Another option could be to derive rents from products indirectly: the music industry had demonstrated this with a willingness to engage in licensing music to advertisements. However, new technologies offer new avenues that better allow firms to derive rents from their content products. For example, advertising on streaming services could be designed so that individuals are exposed to messages that promote merchandise or concert tickets for the musical artists they stream.

### **5.6.3. Regulators**

In addition to price and availability, regulators of behaviour such as subjective norms and ethical judgements that are favourable to digital piracy are negatively related to decisions to use legal access modes. While previous campaigns to influence individuals' perceptions in this regard have not been so effective and easily parodied, perhaps new initiatives are worthwhile. Such efforts may be difficult, given that some genres of music celebrate wealth and are often cited as evidence that musicians are not in need of support. For example, in a recent song with Kanye West, the rapper Shawn Carter, better known as Jay-Z, raps "What's 50 grand to a motherfucker like me? Can you please remind me?" (Carter and West 2011). Moreover the finding that age is positively related to legal access indicates that firms should focus their efforts on younger individuals and try to persuade them to use legal access modes.

### **5.6.4. Regulation**

One key finding of the project is that punishment risks were unrelated to access decisions in each of the investigations. This indicates that the state may have some role to play in regulating the market to provide disincentives for those who wish to engage in piracy. However, such moves should be made carefully. Recently a number of countries such as France and New Zealand have introduced graduated-response legislation to target individuals who are engaging in digital piracy. These pieces of legislation outline a path to deter individuals from engaging in piracy, where individuals who are caught engaging three times over a two-year period can face fines up to DKK 65,000 and potentially lose the right to use the Internet for a year. However, neither of these pieces of legislation has been particularly effective. While rates of piracy have said to have decreased in both countries, they have yet to impact the sales for films and music. Moreover, such systems for regulating the market have come at significant costs to the state in France, where the state is responsible for identifying copyright infringers and firms in New Zealand, where copyright owners must co-operate with Internet service providers to identify pirates. However, it may be too soon to evaluate the impact of such legislation and perhaps more time is required.

Piracy has been said to represent a failure of the market to capitalise on the many individuals who have a low willingness to pay, but whose combined consumption would be quite significant (Towse 2005). Likewise, society's treatment of piracy reflects a low willingness to convict individuals whose crimes are relatively minor, but in are likely to represent significant lost sales and thus in aggregate represent lost paid consumption. Moreover, the costs of prosecuting individuals

who pirate films and music are often likely to exceed the costs of their crimes in terms of lost sales. In the early 2000s, the RIAA and MPAA took actions in the US to prosecute individuals for engaging in piracy, seeking economies of prosecution by seeking hefty fines for some individuals for their relatively minor transgressions of the law. This approach was completely unsuccessful in reducing piracy rates over the long term, both in the US and internationally. It created a backlash against the industries that came to be seen more as robber barons exploiting individuals than owners of intellectual property seeking to obtain compensation for breach of copyright. Moreover, rather than seeking to innovate and provide music services, these companies lobbied governments, seeking legislative solutions to would maintain the status quo.

The Danish market is well served by companies who have utilised technologies to deliver films and music to the Danish market over the Internet, such as Netflix and Spotify. The problem, especially for the Danish film market, is that even though there are multiple platforms to distribute content online, copyright owners are unwilling to distribute their films using these services. Unfortunately, protecting the film and music industries by increasing punishments for copyright infringement is likely to provide an incentive for firms to use the innovative solutions that can effectively compete with piracy. When Danish films are already generously supported by the state and continue to perform well both locally and internationally, it does not seem fruitful to protect the industry by prosecuting individuals for engaging in piracy for individual use.

The Danish government's approach to managing digital piracy has been relatively more sensible than the US. Recently the Ministry for Culture announced that the state would to aim to educate individuals engaging in digital piracy and block access to websites distributing copyrighted material. The potential problem of an approach that blocks potentially offending websites is that does not address piracy facilitated by P2P networks. Moreover, individuals in Denmark will still be able to use virtual private network (VPN) connection services to get around restrictions placed on domestic users. Thus, the Ministry for Culture's aim to block websites that distribute content illegally may only prevent individuals who are less technologically savvy from accessing pirated content online, and thus be ineffective at preventing piracy among 'digital natives'. Moreover, an approach to blocking websites would need adequate checks and balances to ensure that sites with some infringing material have the opportunity to remove the material uploaded by users before the websites are blocked by the authorities. For example, one could envisage an outcome where YouTube may be blocked because pirated content was uploaded to the site before it was able to be



taken down. Given that the state's new policy is early in development, it remains to be seen how effective the approach will be.

## **5.7. Chapter Summary**

This chapter provided an interpretation of the empirical findings presented in the previous chapter, which detailed the three empirical investigations. The research makes three key contributions to the existing research on digital piracy within IS. First, it integrates disparate research streams into a consolidated model that incorporates elements from existing theories. Second, it reframes the dependent variable to focus on decisions among legal access modes and those enabling digital piracy, rather than focusing on intentions to engage in digital piracy. Third, it incorporates product-title factors into the model which have largely been absent from previous research. The results of the investigations provide support for factors in the model, especially the product-title factors of price perception, perceived availability, and desirability. Relatively less support was found for other elements of the model. Overall, the model explains more variance in access decisions than previous investigations. The research has a number of limitations, some of which relate to the research methods employed and others that derive from the conceptualisation of the model. Nonetheless, a number of conclusions can be drawn from the research to inform future research and practice.

## 6. Conclusion

The emergence of new technologies often creates challenges for industries whose business models hinge on older technologies. The halcyon days when the film and music industries could control the reproduction and distribution of the products they create have long since past. With the rise of the Internet, a new digital context emerged for which these industries were largely unprepared. This project was partially motivated by the difficulties faced by the film and music industries. It aimed to reveal why films and music are accessed legally in some instances, but via piracy in others. Prior research in IS and other disciplines had drawn on theories and models from across the social sciences to explain and predict digital piracy, drawing on insights from social psychology, criminology, business ethics, marketing, economics, and inductive methods. This research project took a deductive approach to integrating the existing empirical evidence, and built a theoretical model based on the notions that an individual is faced with a choice of accessing titles legally or via piracy and that this choice is influenced by a variety of factors.

Three empirical investigations were conducted to evaluate the propositions of the theoretical model, drawing on samples of university students and consumers in Denmark. It appears that individuals make access decisions based upon what it is they want to watch or listen to and what they think about the options that will allow them to watch or listen to it. Findings from the investigations indicate that product-title factors, which vary from title-to-title, are the most consistent predictors of access decisions. However, access-mode factors, which reflect evaluations of factors associated with using digital piracy to access films and music, are influential too. More specifically, product-title factors, namely price perceptions, legal availability, and desirability, are particularly important influences on access decisions, in addition to access-mode factors such as subjective norms, ethical judgements, perceived behavioural control and quality risks. The research contributes to the IS research on digital piracy by reframing piracy as just one access option and emphasising the importance of product-title factors in individuals' decisions to use legal access modes rather than piracy. Furthermore, as the research model explained more variance in access decisions than other models previously offered in the literature, it demonstrates the value of using an integrated theoretical model in IS research, when a variety of potential explanations are offered for behaviour.

The past decade has seen firms within the film and music industries slowly realign their business models to adjust to an increasingly digital world. This realignment has been slow, painful, and reluctant. Today individuals desire to access and consume films and music digitally, though industries often restrict legal access to their products. However, individuals are not restricted to legal access. A wide array of access modes are available that facilitate access to film and music via digital piracy. The evidence accumulated in this research project indicates that firms would benefit from utilising the technologies that facilitate legal digital access to film and music to make their products legally available to individuals.

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## 8. Appendix: Focus Groups

Prior to the collection of any quantitative empirical data, two English-language focus group sessions were conducted in June 2010.

### 8.1. Interview Schedule Development and Questions

The sessions were planned, conducted and analysed in accordance with Berg's (2007) guidelines for focus groups. An initial question set was developed based upon the theoretical elements of the model. The set was then reduced by identifying the essential questions which formed the central focus of the investigation. These questions were geared toward eliciting specific information about how the participants accessed film and music, in addition to video games and software. The wording of the questions in the reduced question set was revised following feedback from two researchers experienced in conducting qualitative research. Subsequently an interview schedule was developed, whereby questions that were easy to answer were asked first, followed by those that required more reflection. The interview schedule was further refined following a brief pilot session with two PhD students, where the participants subsequently gave feedback on which questions were difficult to answer and needed rephrasing.

The final interview schedule used in the focus group sessions began with an opening question which encouraged participants to introduce themselves and share what they were most looking forward to about the summer. This question was designed to develop rapport between the interviewer and the participants and release tension at the beginning of the session. The schedule then progressed to questions concerning modes used to gain access to music and films. Following this, the questions asked individuals to identify what motivated them to get various types of digital products. The final questions in the schedule asked participants about the various factors that they might consider when copying products or downloading or streaming film and music, in addition to other products available digitally. Such factors included the appeal of products, ethical considerations, the opinions of others, the legality of engaging in piracy, income, risks associated with engaging in piracy, time and convenience, the necessary skills and abilities, and quality concerns.

## 8.2. Sample and Procedure

The focus group participants were students from a Danish university and each knew the researcher prior to the sessions. The first group of participants were all members of a second year class in an English-language bachelor programme and knew each other to varying degrees before the session. The second group was comprised of three students from the same class as the first group, in addition to two graduate students. The sessions were conducted in English to match the language capabilities of the researcher with those of the various participants, who were all competent English speakers. Despite their international backgrounds, all participants were residents of Denmark and had been for at least two years, so had sufficient experience to be somewhat representative of the Danish context. Table 35 (below) describes the participants.

*Table 35: Focus Group Participants*

<b>Focus Group 1</b>	<b>Focus Group 2</b>
21 years old, Danish, Female	26 years old, Danish, Male
21 years old, Norwegian, Female	27 years old, Danish, Male
21 years old, Danish, Female	26 years old, Faroese, Male
23 years old, Danish, Female	35 years old, Israeli, Male
27 years old, English, Male	23 years old, French, Male

At the beginning of the sessions, participants were reminded that the purpose of the sessions was to collect data for a PhD research project and that their contributions to the investigations would remain confidential. The scope of the sessions was clearly outlined as limited to questions about products that were available digitally (i.e., films and music, in addition to software, video games, etc.), how the participants accessed such products, and various factors that influence how these products were accessed. The focus group sessions were semi-structured, following the progression of questions in the interview schedule but departing from it when further elaboration was necessary and when the discussion of the participants was judged to be revealing about their access decisions.

## 8.3. Analysis and Discussion

Both sessions had an open and collegial atmosphere in which all of the participants were willing to share their opinions and disclose information about their access decisions and consumption behaviours. The participants' discussion in the first session became heated as they discussed their ethical beliefs, but for the most part the discussion progressed cordially.

Participants varied considerably in the extent to which they accessed digital products via piracy, and used a number of means to do so, including streaming and downloading content and obtaining these products via friends. There was also variance in how products were accessed, with most participants reporting streaming songs and television programs online, but also downloading them using BitTorrent. One individual did not download or stream anything illegally as far as she knew, but obtained files from friends.

Concerning elements in the model, product desirability was primarily cited as the motivation for acquiring or streaming music, film, TV programmes, and video games, whereas anticipated utility was often cited as the reason for downloading software, books and documents. Price was frequently cited as a factor that influenced access decisions. The discussion indicated that participants would pay for legal alternatives more frequently if prices were lower, especially for music recordings. Others suggested that the ability to pirate enabled them to sample the products, which they then bought later. All felt that prices were too high for digital products. A lot of the participants talked of the trade-off between price and quality, in that one could obtain a higher quality product if he or she was willing to pay for it. However, another one of the participants said that this was not necessarily true. For example, he noted how he could download Blu-ray versions of Avatar illegally.

The quality of the digital products was stated to be important to some individuals, but not to others. Often, availability, quality preferences, and desire were traded-off against each other, such that if an individual really wanted to watch a film or a movie, then they would try to find it quickly, and would settle for poor quality. However, if the desire to see the film was not so strong, then they would be prepared to wait for it to come available. At one point it was noted that if quality was important, and one waited for the DVD versions of films to become available so that the films he downloaded would be of reasonable quality. However, for some products quality was deemed to be important. Avatar was cited as a film that was more of an experience, and worth paying for, whereas other films and television programs were not.

Risks associated with the illegal nature of engaging in piracy were often referred to throughout the session as a factor that influenced access decisions. For example, many of the participants stated that they often disregarded risk if they strongly desired a product. Most respondents identified punishment, viruses and computer safety as important risks that they considered, though one member of the group stated that she worried most about invasions of piracy.

Ethical judgements were identified as important factors for some individuals, but not for others. Some saw piracy as bad, but still engaged in it. Some saw piracy as justifiable, and engaged in it. Some saw piracy as bad and did not engage in it. Similarly the opinions of others were not always cited as important, but social considerations were a factor for some of the individuals, especially for those individuals still living at home. Similarly, experience was seen as an important factor, with many group members not believing that skill was necessarily an important factor in influencing access decisions, but that the accumulated experience and knowledge from previous searches were utilised when trying to find a new product without paying for it.

## **8.4. Conclusion**

All participants acquired digital products, but varied in the methods they used and how frequently they obtained them. All seemed knowledgeable about piracy, and competent enough to obtain what they wished. Consensus indicated that individuals considered many factors of the model, though the salience of such factors varied within the group.