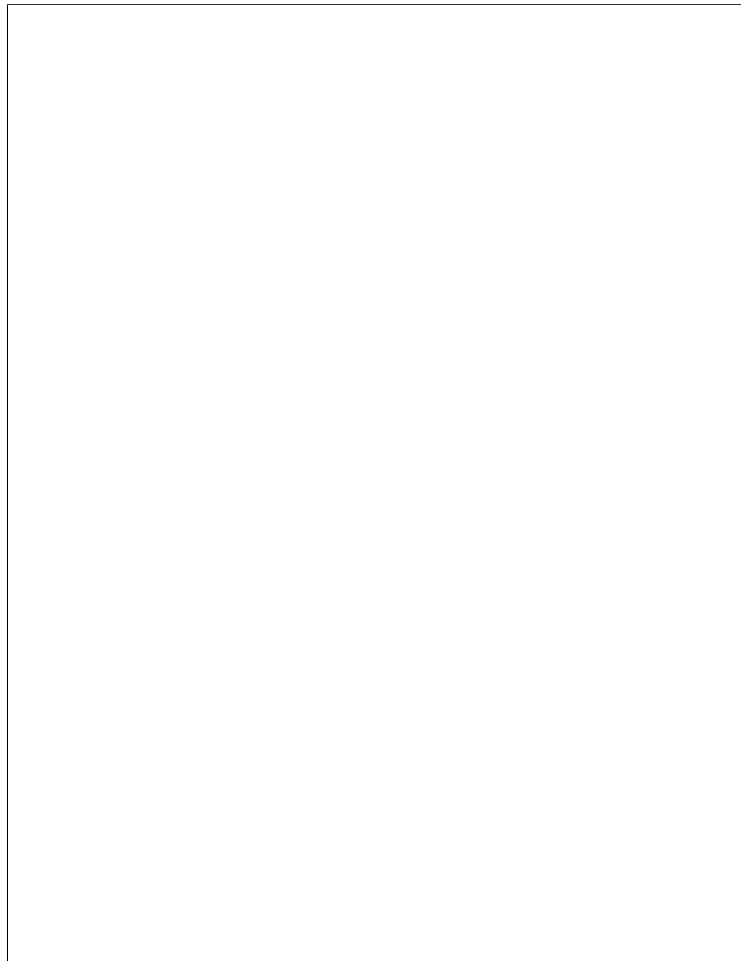


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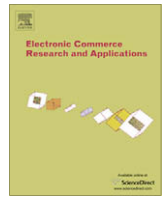
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# Electronic Commerce Research and Applications

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## An artist life cycle model for digital media content: Strategies for the Light Web and the Dark Web

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### ABSTRACT

This paper surveys and categorizes emerging digital media business models. We apply the *customer activity cycle* of Vandermerwe (2000) to the consumption of digital media, taking three phases into account: pre-consumption, consumption and post-consumption. Our analysis of the business models focuses on their social costs and benefits. We derive the parameters as follows: convenience of use, exposure, ease of compliance and administration. We distinguish two polar environments for digital media: the *Dark Web* with content created by the masses, and the *Light Web* with content created by big media. We develop an artist life cycle model in which different business models appear to be optimal at different stages of an artist's career. *Voluntary payment-based models* seem to be ideal for newcomers in the Dark Web, while *digital rights management-based* and *complementary product and service-based models* are the likely choice of established artists in the Light Web. Established artists might change their approach again, using voluntary payment-based or complementary product and service-based models when they retire.

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### 1. Introduction

Ever since the rise of Napster in 1999 the music business has been out of equilibrium, and the industry has been struggling to adjust its conventional business model. Until the emergence of peer-to-peer (P2P) file-sharing networks, the industry has been kept in a delicate balance. On the one hand, technology did not yet provide consumers with the distribution tools for large-scale copying, and thus piracy only caused minor harm to the industry. On the other hand, technological limitations also forced the industry to respect copyright law in its original sense, as exceptions granted to consumers like fair use. Even though the industry had been extremely successful to dilute other aspects of copyright law (e.g., the length of copyright) over the last decades, it did not have the tracking tools at hand to charge for every use of copyrighted material.

This started to change with Napster and its successors. While the actual effect of P2P networks on the music industry is debatable,<sup>1</sup> it unquestionably changed the approach of the industry. When legal actions by the industry did not succeed in reducing the use of alternative distribution channels, technology entered the equation as well on the supply side. The impact of technology on its business was therefore countered by the industry with technology-based business models.

These new models naturally aimed to maximize profits of the rights holders, but they also limited consumer rights more than society intended. Established consumption patterns of the past need to be respected, and a new equilibrium between producer and consumer interests has to be found after the impact of technology, including advanced distribution and tracking tools, on the demand and supply side.

<sup>1</sup> The spectrum ranges from studies that find a beneficial effect of file sharing on music sales to claims that the existence of the music business is threatened by the rise of P2P. The music industry's own studies on the fatal impact of file sharing are well reported. Oberholzer and Strumpf (2007) is probably the most prominent paper that finds a positive effect of P2P use on music sales.

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We survey and categorize the developing business models in the post-Napster music industry according to the degree to which payment and rights are decoupled from the actual distribution of content. We analyze them based on four parameters: convenience of use, potential exposure, ease of compliance and administration. These reflect the social costs and benefits of the business models. Further to the static analysis of content, payment and rights layers, we add two dynamic dimensions to the study. We apply the *customer activity cycle framework* (Vandermerwe 2000) to understand the consumption of digital media. This allows us to take the importance of pre-consumption and post-consumption activities into account, in contrast to a strict focus on the consumption phase itself. Moreover, we distinguish between different stages of an artist's "life": newcomers, established and retired artists. This approach gives us an opportunity to assess the situational advantages and disadvantages of the business models over an artist's life and make recommendations based on that. We therefore suggest an artist life cycle where different business models appear to be optimal at different stages of an artist's career. From this model we derive a set of theoretical propositions. While we focus on the music industry, our work applies more broadly to digital media in general.

The structure is as follows. Section 2 surveys and categorizes the business models. We analyze them in Section 3 and introduce the artist life cycle in Section 4. Section 5 discusses limitations of the approach taken and future research avenues. Section 6 concludes and provides policy implications.

## 2. Categorization

The *role-based business model literature* is important here. It originated with Timmers (1999) and applied this business model framework to several digital media environments (e.g., Jeandupeux and Barria 2001). More recently, Vlachos et al. (2006) conducted a study of the mobile music industry. The role-based business model literature distinguishes among three different layers of analysis in digital media. *Business actors* interact with respect to the *distribution* of content, the *payment* for it and its *rights*. While in the conventional music industry the transfer of these took place at the same time, this need not be the case anymore in the digital age, and the three layers should be treated separately. In fact, this decoupling of payment and rights from the actual distribution of content is a common feature of the alternative business models in the music industry that attempt to tackle the challenges of the digital age.

The range of business models we analyse is not limited to an industry perspective. Instead, we consider the social costs and benefits of the models and take the perspective of all of the main stakeholders, including the producers, artists and consumers. In that sense our scope of potential business models is less restricted than Vlachos et al. (2006) or Vaccaro and Cohn (2003). It is closer to the approach of Buhse (2002) and adopts the perspective of a digital music retailer, which can be an artist, as in Bockstedt et al. (2006).

This section lists the business models that emerged recently and categorizes them based on the degree to which payment and rights are decoupled from the actual distribution of content. Models where payment and rights are still closely linked to distribution in the conventional way are at one end of the spectrum. Strong copy protection in the form of hard *digital rights management* (DRM) is the offline traditional retail model moved online: a directly related payment needs to be made in order to gain access. The relationship among distribution, payment and rights is continuously relaxed along the spectrum. Other models increasingly give up on instant corresponding payment for content plus rights exchange and instead rely on time-shifted and possibly only loosely

quantity-related reward or return. Payment may be fully or partly on a voluntary basis but still related to the content or entirely decoupled from the content distribution when revenue is generated indirectly. Free content in conjunction with a compulsory tax levy is the spectrum's other extreme. Naturally, the borders between the models are not clear-cut; they can overlap.

### 2.1. DRM-based models

Two approaches to DRM-based distribution are worthwhile to distinguish.

*Strong copy protection: Hard DRM regimes* aim for strong and unbreakable copy protection. They intend to monitor and control the exchange of digital content in order to prevent unauthenticated use of content. This regime has to be backed by strong law enforcement that punishes attempts to break the protection. Content rights should be protected by encryption systems. *Spoofing* – the intentional distribution of corrupted files in P2P networks – could be used to fight and disturb any illicit use. Once a hard DRM system has been put in place, quasi-monopolistic pricing of the content becomes possible. This used to be the practice of the major labels over the last decades. The first steps of the media "big five" into online music, including PressPlay and MusicNet in 2002, are good examples.

*Limit pricing:* The focus of *soft DRM regimes* should be to add value to digital content (Fetscherin 2002) and to compete with the secondary market of P2P networks. In fact, copying is tolerated up to a point and not actively prosecuted. *Limit pricing* aims to compete with the piracy copies by charging less than the transaction costs of using free P2P networks.<sup>2</sup> Varian (2003) and Regner (2004) develop models of this kind of strategically low pricing, and the iTunes Music Store can be seen as a precursor for this strategy. Compared to other music services at the time of its opening in April 2003, Apple reduced copy protection significantly, allowing more CD burns and so on, and provided greater value-added support, for example, playlists.

Waiving copy protection altogether has become common practice for the online music business. As of January 2008, all of the big labels agreed to sell their music without any copy protection through various services, for instance Amazon, iTunes or EMusic. We do not further distinguish here among information goods pricing strategies (Shapiro and Varian 1999) within this model. These include *versioning* in terms of file quality or degree of DRM, *bundling* of single songs or albums, and *fixed-fee pricing*, involving pay-as-you-go pricing or subscription models as used by Yahoo! Music, Rhapsody or EMusic. They mostly shift surplus between consumers and producers and do not affect the social benefits that are conferred, the focus of this study.

### 2.2. Voluntary payment-based models

*Super-distribution:* It permits users to consume digital content without restriction, and it also allows them to pass it on to others. Recipients are limited in the use of the content until they obtain a full license to use it. If subsequent consumers decide to purchase a full license, then the consumer who passed on the content benefits from this activity by getting rewarded with a part of the license fee. If the recipient chooses not to pay but redistributes the file anyway, then somebody else will earn the commission from a full license purchase, which would be the original sender. The flexibility of consumers is significantly increased as they may receive, consume and redistribute digital content without caring

<sup>2</sup> In P2P networks, *disutility* may occur because high quality files might be inconvenient to obtain and bear the risk of a virus attack. Even the moral costs of copying illicitly need to be considered.

about any DRM restrictions. They may not pay and hence not earn, or they may choose to pay and then become somewhat officially-licensed redistributors.

Interoperability of content formats and DRM systems is required to make smooth forwarding of files possible though. This has not been achieved yet, but super-distribution has the clear advantage that it allows consumers to share interesting content. It can be seen as a promising way of implementing viral marketing to enable consumers to benefit from successful recommendations, as well as the original creators.

The question is whether consumers will be interested in making the effort to resell content. Rosenblatt (2004) points out that the concept appeals most for curiosities and rarities as super-distribution for already widely-known content makes limited sense, because its only real value is as a viral marketing instrument. On the other hand, Nysveen et al. (2005) stress the growing need to respond to consumers' expressiveness in digital media which this model achieves.

On super-distribution services like the now-defunct Weedshare ([www.weedshare.com](http://www.weedshare.com)) or PotatoSystem ([www.potatosystem.com](http://www.potatosystem.com)), songs from the site were able to be accessed freely for a number of times. The play count limit might have been three, for instance. For further, access a license would have been acquired. Sharing of the purchased files is encouraged, as customers can earn money from subsequent purchases by their friends.

*Voluntary contributions:* Distribution models with voluntary components have been discussed in the popular literature for some time. Examples include the "Street Performer Protocol" and Stephen King's *The Plant* (Kelsey and Schneier 1999). Takeyama (1994) models the case of shareware in the software industry, and Regner (2004) provides a theoretical model that explains voluntary giving for music. Voluntary contributions can be seen as a contract design that encourages consumers to reciprocate. While purely self-interested individuals would not pay – an instance of *free riding* – consumers with social preferences decide to contribute as free consumption increases their utility. The choice between free riding and contributing has been studied extensively in labor market contexts. The results confirm that a significant number of individuals exhibit social preferences and return kind behavior, such as making music freely available without restrictions on consumption. Also, Regner and Barria (2009) provide empirical proof of significant voluntary payments for music, albeit not in a purely voluntary context. See Camerer (2003) for a survey of social preferences.

The question of the existence of a long-term positive *reciprocity equilibrium* is essential in order to arrive at a sustainable model. Mutual opportunities to reciprocate increase the efficiency of such a contract design (Fehr et al. 1997). Therefore, additional options to reciprocate negatively by punishing free riders or positively by rewarding frequent supporters based on recommendation and reputation systems should increase the rate of voluntary contributors.

The success of such an open contract design in the context of music likely depends on whether designs can be developed that implement mutual opportunities to reciprocate. The integration of a bonus makes the contract even more incomplete and thus leaves more room for reciprocity from both sides. A bonus in the context of the music business could be exclusive access to concerts or backstage and special merchandising for consumers who contributed. The implementation of reputation mechanisms is another feature that could support voluntary contributions. It is also possible to imagine designs that remind consumers to make their voluntary contribution in case they do enjoy the music. The freely available music file expires after a certain time (e.g., a month) or after a certain number of times played after which consumers can decide how much to contribute. They own the file if they do so, while the file disappears if they fail to. They could download

it once again, but the disutility of doing that repeatedly seems to be substantial. This soft enforcement of a contribution is common for shareware software; it has the advantage that a payment decision is postponed to a time when the consumer's valuation of the content is clearer since it has been experienced sufficiently by then.

The sequence of actions could also be altered. It might be reasonable for the rights holder to distribute a preliminary sample of the work, ask for a prepayment, deliver the whole album (if the prepayment was large enough) and encourage voluntary contributions. Various basic tip-jar style versions of voluntary contribution models can be found online. One example is TipJoy ([www.tipjoy.com](http://www.tipjoy.com)).

*Variable pricing:* In a variable pricing scheme, consumers are allowed to pay what they want for music albums as long as the payment is within a given price range. Essentially, a minimum price is charged and consumers are encouraged to pay on top of that.

Regner and Barria (2009) analyse the behavior of customers of an online music label, Magnatune ([www.magnatune.com](http://www.magnatune.com)), where variable pricing is applied with a range of \$5 to \$18 for an album. It takes social preferences into account, and it also considers the importance of free sampling of experience goods. Comprehensive pre-purchase access at Magnatune facilitates music discovery and allows customers to make an informed buying decision, setting it apart from conventional online music stores. We found that an open contract design can encourage people to make voluntary payments. The results of our empirical analysis validate this. The average payment was \$8.20, far more than the minimum of \$5 and even higher than the recommended price of \$8.

### 2.3. Complementary product and service-based models

In this model, the rights holders would generally not charge for their content, and they tolerate copying. Instead, they focus on complements of their content to generate revenue. Thus, consumers pay rights holders or their intermediaries for other complementary products or services, but they can use, download and distribute artistic works as they wish. This approach is also known from open-source software business models like Ubuntu or RedHat Linux. No limits on distribution are therefore put in place. Gayer and Shy (2006) and also Curien et al. (2004) analyze this approach. Krueger (2005) examines concert revenues in particular.

Traditionally, merchandising is a common means to generate income from complementary products. Complementary services that generate revenue are ticket sales for concerts, ring tones for mobile phones and licenses for the use in advertisements, movies or video games. The Grateful Dead, who actually have encouraged free copying of their music, with their substantial concert ticket and merchandising revenue, and Moby, who has been successfully licensing his tracks for advertisements are examples.

Recently, yet another way to generate revenue from complements has been taken up by online services SpiralFrog ([www.spiralfrog.com](http://www.spiralfrog.com)), Qtrax ([www.qtrax.com](http://www.qtrax.com)) and We7 ([www.we7.com](http://www.we7.com)), among others. The first two went live in 2007, and the third one in 2008. These advertisement-based models offer customers to pay with time, instead of paying with money. Customers have to endure advertisements, but can download content for free.

### 2.4. Government regulation

Government regulation instead of market allocation is very common for public goods. In fact, public goods are one of the known reasons why markets fail (Varian 1999). Fisher (2004) proposes ways to regulate the digital media industry. Two options exist to move the allocation of music from the market to a government-regulated system. *Compulsory licensing* involves a flat

fee that is charged to Internet subscribers for unlimited content usage, while *levies* are like taxes on blank digital media, computers or other types of hardware. The generated revenue is used to compensate rights holders who make their content available for free.

In general, blanket licensing or levies are intended to grant fair compensation to rights holders for private copying. The widespread application of DRM has the potential to alter the role of levy schemes since the compensation would be enabled by individual DRM-based licensing contracts.

An advantage of such a scheme is that consumers appreciate mere connectivity more than the actual content (Odlyzko 2008). However, there are several arguments against compulsory licensing and levies (Digital Europe 2007). It is argued that the extension of copyright levies to digital devices and media is harmful to consumers, creators and industry as they increase the price of products such as personal computers, consumer electronics devices and storage media for everybody, not only the music consumers. While a blanket licensing scheme in the case of television viewing makes sense since the household density of television sets is close to 100%, it seems to be less ideal for music consumption, and negative efficiency effects would be the consequence. There would also be significant incentives to tamper with the system that calculates the redistribution of tax revenue to rights holders.

2.5. Summary

Strong copy protection is the conventional offline business model taken online. Payment for the content and the rights to it are closely connected to the actual distribution of content. Rights restrictions are less limiting under limit pricing. Variable pricing offers a price range to choose from and few rights restrictions, for example, free streaming is possible. As a result, payments and rights are more decoupled from distribution. Under super-distribution, consumers may opt not to pay for content; but unless they acquire a full license, their rights are somewhat limited. Voluntary contributions leave the payment decision completely up to customers but in a way that is linked to the content, and no rights management is implemented. For complementary product and services-based models and state regulation there are also no rights restrictions. Payment in these models, however, is totally decoupled from the actual content as revenue is generated from other sources. Table 1 provides an overview of the business models, and Fig. 1 illustrates the decoupling of rights and payment from content distribution for the discussed models.

3. Analysis

According to Faber et al. (2005), balancing requirements for business models in order to create customer value include aspects from the service, technology, organisation and finance domains. We focus on the value-generating service, and the cost-generating financial domains, and derive parameters for our analysis of the business models. Their surplus potential is essentially a function

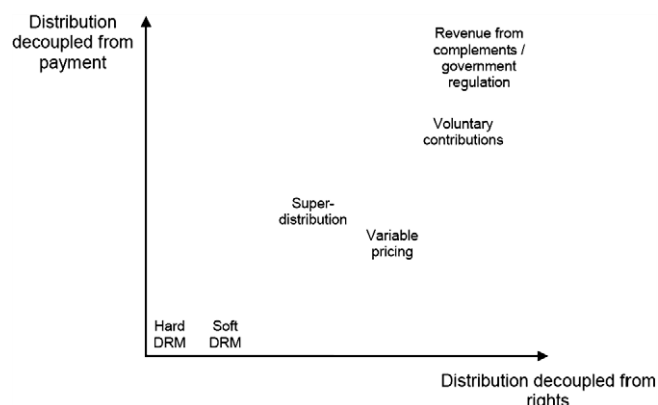


Fig. 1. Decoupling of rights and payment from content distribution.

of these parameters. Since the focus of our analysis is on the social costs and benefits, we do not analyze pricing issues like a subscription service or à la carte offering here. These aspects would only lead to a redistribution between producers and consumers, assuming that profits are sufficient for producers to create and invest in the first place, without affecting overall surplus. We will provide some background on music consumption to help the reader understand better what matters to consumers and creates value, and then we will discuss the parameters that we consider.

3.1. Music consumer activity cycle

To assess music consumption, we apply the customer activity cycle of Vandermerwe (2000) and modify it for digital media consumers. This approach takes the entire consumption cycle – the pre-consumption, consumption, and post-consumption phases – into account with the aim of creating value in each phase. We distinguish between the processes of discovery, listening and organizing (see Fig. 2).

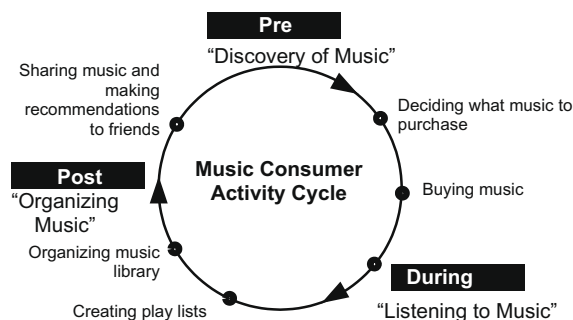


Fig. 2. The customer activity cycle of Vandermerwe (2000). Note: We adapted this figure to make it representative of the music consumer's situation, based on Chorianopoulos et al. (2005).

Table 1 Overview of business models.

Business model	Description	Examples	Distribution decoupled from payments, rights
Hard DRM	Offline business model taken online	Pressplay, MusicNet	Low
Soft DRM	Rights restrictions not enforced, payment necessary	iTunes, Amazon	Low
Super-distribution	Integrated commission system for successful recommendations	PotatoSystem	Medium
Variable pricing	Pay-as-you-want as long as in given price range	Magnatune	Medium
Voluntary contributions	Free content, voluntary payments encouraged	Tipjoy	High
Revenue from complements	Free content, revenue from complementary products or services	Grateful Dead, SpiralFrog	High
Government regulation	Free content, state-governed reward system for artists	Blanket licensing	High

*Pre-consumption: Discovering music.* Traditionally, new music is discovered through many alternative channels, such as radio, friends, magazines, live performances or sampling at music stores. The main characteristic of music discovery is that the subjective value of a music song can only be assessed after it has been listened to a number of times since music is an experience good. Sampling opportunities and the visibility of the content are limited when consumption is conditional on payment and rights exchange. Therefore, a strong focus on immediate monetary compensation to acquire rights obstructs the discovery of new music.

*During consumption: Listening to music.* Consumers now expect to transfer music to their computer, portable devices and car stereos and to share music easily with friends. Portability of content is therefore an important aspect. The music CD is essentially a bundle of music songs. Most CDs are albums that contain about 10 songs. Singles are actually smaller bundles with more than one song on them. On the other hand, MP3s are the currency of digital music on P2P networks. Single song transactions constitute the majority online, and these singles are much more popular online than during the CD era (Liebowitz 2003). The artificially-created bundle has been broken up as consumers appear to prefer picking the songs they actually like most.

*Post-consumption: Organizing music.* Hence, a single song is the unit of digital music. Advanced playing software, like iTunes, allows consumers to mix their songs conveniently, and it becomes easy for them to create their own play lists of favorite songs for different moods and occasions.

Additionally, music software allows consumers to rate the songs in their library. Actively entering preferences might be somewhat cumbersome for one's entire music library. However, sophisticated algorithms can create a preference profile of the library based on the frequency of consumption. Thus, each song is rated passively. Last.fm's ([www.lastfm.com](http://www.lastfm.com)) AudioScrobbler ([www.audioscrobbler.net](http://www.audioscrobbler.net)) is just one example of such a tool.

A music library that reflects the taste of its owner properly can become very useful when the preference profile is entered into a P2P or social-web based network. Matches of similar preferences can be found by comparing the profile to the ones of other peers. Recommendations from peers of highly-rated songs that are unknown to the consumer with a high shared preference value are presented to the consumer. These music organizing services based on recommendation systems seem to be assisting the discovery process for consumers, and lead to new consumption. They include Pandora ([www.pandora.com](http://www.pandora.com)) and Last.fm, examples of online services that use collaborative filtering to provide value-enhancing recommendations to their users. See Neville and Pitt (2004) for a more detailed study of agent-based reputation and recommendation services.

*Summary:* The full activity cycle of customers needs to be considered in order to provide value in all phases. This stresses the importance of the discovery phase and additional synergistic services. Ways to make potential consumers find their content are essential in the digital media business. Of course, an established reputation and subsequently an existing fan base

are the best ways to accomplish this. Value during and after consumption will reach a maximum when use is unrestricted. Hence, only when the established consumption patterns are respected and new ways to add value (e.g., including features to organize the content) are provided, will full revenue potential be reached.

### 3.2. Parameters

Our analysis of the business models takes the value aspects derived from the customer activity cycle into account and considers the cost side as well. The study of social costs and benefits comprises four parameters: convenience of use, potential exposure, ease of compliance and ease of administration.

*Convenience of use* takes the acceptance of any DRM measures by consumers into account. Fair use aspects are considered as, for instance, the portability of files to mobile players or burning CDs. Consumers' willingness-to-pay is reduced if the consumption rights they have become accustomed to are severely limited. A report by the Informed Dialogue about Consumer Acceptability of DRM Solutions (INDICARE) in Europe (Helberger et al. 2004) distinguishes the following major categories of concern so far: fair conditions of use and access to digital content, privacy, interoperability, transparency and various aspects of consumer friendliness.

*Potential exposure* indicates how much benefit is created from positive network externalities. Information goods like music are experience goods. Consumers do not know what they are worth to them until they experience them (Shapiro and Varian 1999). The valuation rather develops until the good has been experienced often enough and the true worth has been established. The literature distinguishes between an *exposure effect* (Liebowitz 1985, 2003) that describes how copies can play the role of informative advertising (improving the buying decision) and an *addiction effect* (Silva and Ramello 2000) that explains how current consumption of copies can lead to future purchases of the same product or artist when listening to the copy has created sufficient pleasure over time. Therefore, the possibility to sample music can be very important to appreciate the actual value of content. High exposure allows plenty of opportunity to sample and, in turn, can increase consumption.

*Ease of compliance* measures the challenges of the model's implementation. This encompasses the costs involved in setting up and maintaining the technological system and the legal protection that enforces the business model. Finally, we consider the *ease of administration*. More centralized solutions might mean more bureaucratic costs, while decentralized options usually align incentives with actions. A market solution should provide better results than state regulation – as long as the market inefficiencies do not outweigh the administrative transaction costs. In that sense regulation might only be a last resort option, if all market solutions fail.

A detailed analysis of the business models with respect to the four parameters follows. Table 2 summarizes our analysis and discussion.

**Table 2**  
Overview of business models and parameters.

Business model	Parameters			
	Convenience of use	Exposure	Ease of compliance	Ease of administration
Hard DRM	Low	Low	Low	High
Soft DRM	Medium	Medium	Medium	High
Variable pricing	High	High	High	High
Super-distribution	High	High	Medium	High
Voluntary contributions	High	High	High	High
Revenue from complements	High	High	High	High
Government regulation	High	High	Low	Low

*Convenience of use:* By default, the strong copy protection of hard DRM systems is what most interferes with established music consumption rights. Portability might be limited due to a lack of interoperability. Also, the number of CD burns might be capped. Possibly the music files are only offered as a rental and they vanish when the consumer quits the service.<sup>3</sup> Soft DRM concepts like limit pricing are already much less restrictive. Nevertheless, all common DRM systems of today seem to restrict consumers significantly, as explained in a recent survey (Electronic Frontier Foundation 2005). In the variable pricing model, consumers are essentially free to do what they want with the music files they acquire. Also, the remaining alternatives do not put any restrictions on the use of music and therefore are rated at the maximum.

*Exposure:* Naturally, the restrictions on copying cause DRM systems to rank the lowest with respect to the exposure they allow, as the attempt to eliminate illicit copying also decreases the sampling opportunities of consumers. Variable pricing provides comprehensive pre-purchase access to content, and this free streaming gives potential consumers an opportunity to make a well-informed buying decision. Super-distribution models that implement reputation aspects provide possibly the best exposure effect. They integrate and encourage recommendations and receive the highest rating. Pure voluntary contribution models do not restrict free access to streaming, but do allow downloads. However, this difference might be negligible. The other models provide a similarly high exposure effect as distribution is not restricted.

*Ease of compliance:* The technological and legal costs of making consumers comply with a watertight DRM system can be immense. The design of a supposedly secure platform, the monitoring and tracking of potential abuse as well as the legal prosecution to punish all have to be taken into account. An estimation of the costs to put in place a watertight DRM system can be found in Eckersley (2003). Strong copy protection is ranked highest in this category. A prerequisite for super-distribution is the ability to trace the flow of content in order to reward distributing customers accordingly. Hence, the technological effort seems fairly substantial. Interoperability between various file systems is required too, and this may be very difficult to achieve. In fact, compatibility problems with media player software are cited as the reason for Weedshare's shutdown. Voluntary contributions, variable pricing or complementary products and services-based models do not require any significant technologies and they are ranked highest in terms of ease of compliance. Finally, government regulation models rely on a diligent way to track consumption and need to have sophisticated compensation schemes to distribute the tax revenue justly. Such systems would be significantly more complex than the media ratings for television that are used to price advertisements. While sample sizes of only 1000 users deliver meaningful results for the television programs, the consumption of music is much more heterogeneous and requires more data to be representative and reliable. Thus, the ease of compliance of government regulation models is rated fairly low.

*Ease of administration:* By default, government regulation scores lowest due to its centralized nature. It means more bureaucratic costs compared to the other models, since efficient, fair and tamper-proof taxation and distribution systems have to be set up.

All of the other models are market-driven. No centralized authority is necessary and therefore they are rated "high".

#### 4. The artist life cycle

Within the realm of digital media it appears that, more and more, there are two main scenarios occurring in two polar online environments that are intrinsically connected. These online domains require alternative yet complementary approaches. On the one hand, there is content creation for the masses by big media with the aim of trading content under the traditional business model of payment closely connected to delivery, and legal consumption to only occur conditional on payment. In this scenario, rights holders are looking to utilize centralized network technologies that provide them with a high degree of control over their rights. Because invalid or unauthorized actions are not possible in this system, we refer to it as the *Light Web*.

There also is a *Dark Web* in which content is created by the masses for the masses, and P2P networks are utilized for content super-distribution. Barriers to enter the Dark Web with people's own creative content has become negligible, owing to new technologies in music and other audio recording, and so it is very easy to put one's own creative works onto the Dark Web.<sup>4</sup> Many users are doing just that with the content they created out of their intrinsic motivation and the joy of artistic expression. It is not so easy to be found in the vast Dark Web though, but this may not be the driving motivation of many Dark Web content creators anyway. To be discovered by the masses requires more, but intelligent reputation- and recommendation-based content search tools that link the post-consumption phase to the pre-consumption phase can assist matching content to end-users who value it highly.

With these observations in mind, our model of an artist life cycle begins in the Dark Web, where content is created by the masses for the masses. Business or profit motivations are not the main driving force for content creation there. Content by people who simply enjoy creative activity and by people who were rejected from the media business will be found there. The access of others to the vast pool of content is free and unrestricted. Nevertheless, social networking sites that aggregate content, and reputation and recommendation systems that filter content, assist newcomers to distribute their content effectively.<sup>5</sup> With increasing success and popularity, Dark Web artists might consider switching to the Light Web, attracted by its bigger revenue potential.<sup>6</sup> While a Dark Web turned Light Web artist is usually backed by a conventional record label, the artist might also consider remaining independent, and distributing content online. With or without the help of a label, the Light Web artist will have to be sufficiently famous, with an established fan base to which content is sold. The established artist and the artist's label will benefit from the high level of content protection provided by the Light Web environment. This guarantees constant revenue streams as long as the artist remains popular. Restricted exposure through distribution limits and higher prices than Dark

<sup>4</sup> See Bockstedt et al. (2006), Hughes and Lang (2006), and Hughes et al. (2007), for accounts of how technology increased the options for unknown artists. Different strategies for new and established artists are not a new phenomenon. However, IT creates new opportunities for newcomers and amplifies the interplay between the Dark Web and the Light Web, which emphasizes the artist life cycle.

<sup>5</sup> MySpace, Imem and Facebook are prominent web-based social networks that provide music tools. As of March 2008, these social music sites gained a significant proportion of streaming music compared to conventional music sites like Yahoo! (Patrinquin 2008). Like P2P web-based social networks can be regarded as *Dark Web intermediaries*.

<sup>6</sup> Recently, two artists jumped from obscurity to stardom and even to the top of the billboard charts when they signed a label contract. The German children's song, "Schnappi," spread through the P2P networks by word of mouth and radio disc jockey play. It was already being played everywhere when it reached the top of the commercial charts. The English band, "Arctic Monkeys," distributed free CDs after their concerts and on their web site. When a label signed them, they were already a big hit and subsequently also reached the top spot of the charts, which never happened before without the help of a label (Economist 2005).

<sup>3</sup> This is the case with the revamped Napster service. See [www.theregister.co.uk/2005/02/04/napster\\_go\\_away](http://www.theregister.co.uk/2005/02/04/napster_go_away).

Web content may make artists change their approach again though. Once they have benefited enough from the financial success available to them via the Light Web, they may prefer to give up some control and choose more exposure again, by going back to their roots, and entertaining the largest possible audience.

The two scenarios – the Dark Web and the Light Web – coexist and attract different types of rights holders. As a result, the artist's choice of a business model highly depends on the artist life cycle. It seems reasonable for *newcomers* to concentrate on voluntary payment-based models, including super-distribution, voluntary contributions, and variable pricing. They are suitable for the Dark Web since they provide a basic revenue source for rights holders, often the artists themselves by and large, and the post-consumption phase reputation and recommendation systems that we have discussed will tend to improve the chances that the artist can find the right audience.

DRM-based or complementary product and services-based models appear to be most profitable for *established artists* in the Light Web. Reduced exposure due to the copy restrictions on content is less significant to them since they will already have an established reputation and fan base to sell to. Voluntary payment-based models become an option again for established artists who are financially well off. These *retired artists* may be more driven by their motivation as artists and appreciate increasing the utility of their fan base and maximizing their audience as a whole, as they are already financially secure. An example of a rich and famous retired artist who has chosen a voluntary contributions design is George Michael (BBC News 2004). Another example is Radiohead. The band offered their seventh album online for free and encouraged voluntary payments, apparently very successfully ([en.wikipedia.org/wiki/Radiohead](http://en.wikipedia.org/wiki/Radiohead)). Complementary product and services-based models also will remain attractive in this retired artists phase.

## 5. Summary, limitations and future research

We now summarize the core aspects of the model we have proposed, point out its limitations and suggest future research directions. As illustrated in Fig. 3, in the artist life cycle newcomer artists generally emerge in the Dark Web and voluntary payment-based models appear to suit them best.<sup>7</sup> The Light Web and its more guaranteed revenue streams attract artists with an established reputation. DRM-based models dominate this highly commercialized environment, but also complementary products and services-based models are an option for established artists. Complements-based models rely on the popularity of artists, and they remain interesting for retired artists, who are financially secure, and may be more driven by the desire to maximize their audience reach. Voluntary payment-based models once again become a useful option in this phase.

We have demonstrated that voluntary payment-based models are relevant for artists at the beginning and the end of the artist cycle. Since they are not very well established, it is not too clear what the determining factors for the success of such a model will be for them. In the case of variable pricing, a price recommendation is given which may serve to provide a social norm. Further research should provide more insight about how the effectiveness of this instrument can be improved, for instance, by an optional name and payment reporting.

While it is rather evident that the small *economic distance* between artists and consumers is one aspect that will make voluntary payment-based models work for the newcomers, this does

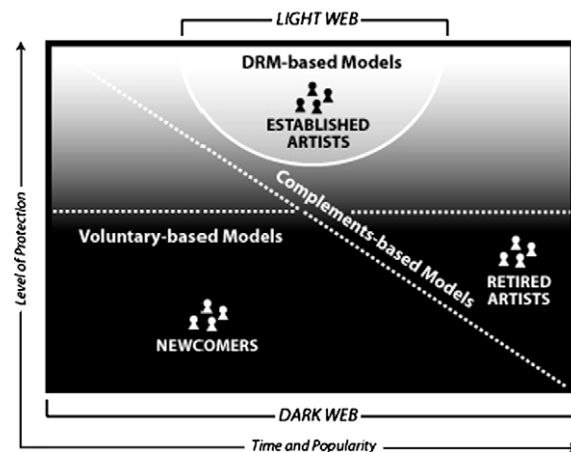


Fig. 3. The artist life cycle.

not apply to established and wealthy artists. They are economically distant from their fans. The *social distance* – the extent consumers can identify themselves with the artist – may be the more relevant indicator for established artists in determining the success of voluntary payment-based models. This would explain the optional character of the retired artists stage as some artists like Radiohead and George Michael might benefit, but not all.

The analysis of the business models is another aspect that deserves additional attention in further research. The four current parameters are useful to study the social costs and benefits of the models. This allowed us to distinguish the pros and cons of the models across the artist stages that we identified. However, more of the criteria that Faber et al. (2005) discuss could be used. Also, a more marketing-oriented approach could be taken using the “eight P’s” of the services marketing mix as a parameter set, as done in Vaccaro and Cohn (2003).<sup>8</sup> Finally, Table 2’s suggested model rankings for each parameter are not too detailed, as their purpose is merely to highlight the differences between the models. They are based on our own judgement and should be empirically verified in future studies.

## 6. Conclusion

Ever since the emergence of P2P file-sharing networks, the digital media business has been out of equilibrium and looking for ways to stop the large-scale copying. The use of technology – especially DRM systems – has been one of its answers, but only the right balance between extracting the value of creative content by their owners and respecting the position of consumers will be sustainable in the market. Digital media companies and rights holders have to come to terms with the fact that absolute control over every piece of content is not desirable. Instead, consumers’ acceptance of DRM is also essential for the economic success of business models based on DRM.

We surveyed the emerging online music business models and categorized them into DRM-based, voluntary payment-based, complementary products and services-based and government regulation models. We apply the customer activity cycle framework of Vandermerwe (2000) to the consumption of digital media (including discovering, listening and organizing) and considered the full cycle of pre-consumption, consumption and post-consumption phases in our analysis. In the pre-consumption phase, the informational role of copies has to be taken into account. Music, but also digital media in general, is an experience good, and facilitating

<sup>7</sup> A notable exception is the British television series, Pop Idol, where participants compete for a record contract on a major label. It was franchised to numerous other countries around the world.

<sup>8</sup> The “eight P’s” of services marketing are pricing, promotion, product, placement, personalization, participation, peer-to-peer, and predictive marketing.

music discovery can be essential. The digital consumption experience also needs to respect the established usage patterns of media consumers. Interoperability with existing online music formats and with the respective portable music devices is a significant aspect here. Furthermore, post-consumption phase services can increase the customer experience, and reputation and recommendation-based tools can lead to subsequent music discovery and a new consumption cycle.

The parameters that we discussed in our analysis are convenience of use, exposure, ease of compliance and administration. We have taken these value drivers from the customer activity cycle into account and also considered the cost side. The models at each end of the spectrum we have presented come with significant drawbacks. Hard DRM regimes are costly to maintain and they overly restrict consumer rights. Government regulation of the industry would create significant administrative and fairness issues. Nevertheless, they are the safest choices from an industry perspective as they provide the best guarantee for revenues. Models from the middle of the spectrum – the voluntary payment-based and complementary product and service-based models – still need to be proven. They need to show that they can provide sustainable business solutions. Only then will their described advantages with respect to exposure and convenience of use be options of choice in a highly commercial environment.

Moreover, we have shown that the question of the appropriate business model is not static. Across the artist life cycle over time, artists might very well change their choices. While exposure appears to be essential when newcomers start off, guaranteed revenues and stronger content protection will likely dominate the decision of more established artists. It is possible, however, that artists will come full circle when their financial wealth has been secured, and they may once again try to achieve the largest possible audience. Voluntary payment-based models, by the same token, are likely to appeal to newcomers and amateurs in the Dark Web. Meanwhile, DRM-based and complementary product and service-based models are likely to be chosen by established artists in the Light Web.

The emergence of content created by the masses and its importance as digital media have been important aspects of this research.<sup>9</sup> Barriers to the creation of music, for instance, have fallen significantly owing to easy-to-use recording software. We focused on developments in the music industry, yet the trends that we observed apply to other kinds of digital media as well. Podcasting and blogs are two of the most prominent tools that characterize the emerging culture of creating content by the masses for the masses. In this latter case, the focus is journalistic content. Meanwhile, the entry barriers for movies have fallen sharply too, as smaller video producers have successfully turned to the Internet for distribution (Hansell 2005).

Although much of this Dark Web content is not – and is not meant to be – commercial, its growth has to be taken seriously since business models and DRM approaches that might fit the Light Web well appear to not apply very well to the Dark Web environment. The diversity of sales in digital media is increasing too.<sup>10</sup>

<sup>9</sup> This development is illustrated in two influential articles. The *long tail* (Anderson 2004) describes how online services benefit from their inventory advantage compared to offline retailers, and how they succeed in guiding customers down the long tail from mainstream to diverse content. The *Web 2.0 concept* (O'Reilly 2005) describes a new breed of online services that drive the Internet, how their content creation is by the masses or assisted by the wisdom of the masses.

<sup>10</sup> Brynjolfsson et al. (2003) find that obscure book titles make up a surprising 40% of sales at Amazon.com. Also, the online music service Rhapsody streams more from below its top 10,000 selections than from its top 40, whereas traditionally the majority of CD sales come from the top 40. Moreover, the top artists do not dominate the charts recently as they once used to in the traditional music industry (Gopal et al. 2006). An erosion of the *superstar effect* due to the impact of online channels is evident (Regner 2009).

Hence, the Dark Web must be regarded as a fertile ground where artists can develop and where the best ones will be filtered out by peer-based reputation and recommendation systems. Sufficient success will probably lead them to switch from the Dark Web to the Light Web and, consequently, to a change of the business model. But the Dark Web also provides plenty of worthwhile niches for less well-known artists due to its content search tools.

It follows that there will not be a single answer to the question of what is the future business model for digital media. As we have tried to explain, the answer depends mostly on the position of the artist in the artist life cycle. Content creation by the masses requires a different approach, a focus on exposure and convenience of use, than content creation by big media. The latter's goal is to maximize control over rights, while still keeping convenience of use in mind. Therefore, only open and interoperable DRM systems promise to be successful in this bipolar world of digital media, as a successful DRM system ideally caters to both the Dark Web and the Light Web, and their business models.

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