Unbundling the Supply Chain for the International Music Industry

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Unbundling the Supply Chain for the International Music Industry

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ABSTRACT

This thesis analyses the international music industry supply chain. The descriptive background presented entails publishing rights, the vertical integration of the historical music industry, the historical position of the artist, and follows the evolution of the digital technology, distributive production, and peer-to-peer file sharing networks in order to build a prescriptive model which addresses the following three research questions.

Given the revolution in technology in the music industry where do the Majors fit? What is the positioning of the artist in the new digital technology? And given the change of position of the Majors and the positioning of the artist what are the descriptive and prescriptive possibilities should the Majors disappear and be replaced by alternative elements in the music industry supply chain?

The present study considers the Music Industry as the trade of prerecorded music in any format and assumes responsibility regarding the results presented up to July 2009. This thesis considers the four Majors as being part of the Music Industry rather than an absolute representation of the industry itself. Also this dissertation's primary concern is the bundling and unbundling of the music industry's supply chain and not the bundling of products within that supply chain.

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LIST OF ABBREVIATIONS

ASCAP	American Society of Composers Authors and Publishers
BMG	Bertelsmann Music Group
BMI	Broadcast Music Inc.
BPI	British Phonographic Industry
CD	Compact Disc
DMCA	Digital Millennium Copyright Act
DRM(S)	Digital Rights Management (Systems)
DVD	Digital Versatile Disc or Digital Video Disc
EMI	Electric and Music Industries Ltd
GDP	Gross Domestic Product
IFPI	International Federation of the Phonographic Industry
IPR	Intellectual Property Rights
LP	Long-Playing Vinyl Gramophone Record
MP3	MPEG-1 Audio Layer 3 File
P2P	Peer to Peer File Sharing Software Program/Website
RIAA	Recording Industry Association of America
SESAC	Society of European Stage Authors and Composers
SNA	Social Network Analysis
SONY	Sony Music Entertainment
UMG	Universal Music Group
WARNER	Warner Music Group
WIPO	World Intellectual Property Organization

1 Introduction

The advent of the Internet and peer-to-peer (P2P) software programs for exchanging music via the Internet is having a significant impact on both the supply chain for music and the dominance of the big record labels also known as the Majors. The physical product, such as a CD, is being replaced by a digital product which can be distributed via the Internet. According to Alexander (1994), new digital distribution technologies threaten to undermine the prevailing structure of the industry by facilitating the free exchange of digital music files between consumers with computers and internet connections[1]. As Leyshon (2001) puts it:

> "Software formats have elicited a conservative, critical response, a discourse founded in the existing social and technological hierarchies of the industry. Meanwhile, on the other hand, software formats have been welcomed by others precisely because they are seen to be a means to dismantle the industry's established hierarchies and power relations. Although in opposition to one another, these two positions at least agree upon one thing: that the rise of software formats such as the MP3 will bring about the end of the music industry as it is currently configured".[2]

No one knows at this stage where this revolution in technology is going to lead the long established music industry, yet three major implications for the music industry can be observed. The first implication is that the physical distribution chain will become less and less important. The second is that the "big four's" stranglehold on the music

[1] Alexander, P J. (1994) *Entry Barriers, Release Behavior, and Multiproduct Firms in the Music Recording Industry*, Review of Industrial Organization, Vol.9, pp.85–98.
[2] Leyshon, A. (2001)*Time-space (and digital) compression : software formats, musical networks, and the reorganization of the music industry*, Environment and Planning A, Vol.33, pp.49-77.

industry is likely to lessen as 1) other players find it easier to enter the market and 2) the rise of music piracy creates a shift in revenue streams forcing the record labels into new directions and new strategic positioning. The third implication views the positioning of the agent responsible for the value-added quality within the music supply chain; namely the artist, which is a key point of this dissertation.

This thesis analyses the international music industry supply chain. The descriptive background presented entails publishing rights, the vertical integration of the historical music industry, the historical position of the artist, and follows the evolution of the digital technology, distributive production, and peer-to-peer file sharing networks in order to build a prescriptive model which addresses the following three research questions.

Given the revolution in technology in the music industry where do the Majors fit? What is the positioning of the artist in the new digital technology? And given the change of position of the Majors and the positioning of the artist what are the descriptive and prescriptive possibilities should the Majors disappear and be replaced by alternate elements in the music industry supply chain?

1.1 The shift of power in the music industry

For the major record labels who dominate the music industry, piracy is a life and death issue. Their profits come from their ability to control the supply chain for music from artist to consumer. If consumers can download for free and pirates can copy CDs and sell them on the street, the day of the major labels is effectively over because they cannot recover the costs of developing and promoting artists and recording their music. However, this need not be the case for the artists themselves; only a very few make any money out of selling records, and even for them 85-90 per cent of the revenue goes to

their record labels. It is now possible for these artists to sell their own music directly through their Web sites and alternate e-commerce platforms such as Amazon.com or CD Baby. Even if the overall revenue from their music dropped by 90 per cent, they would still receive as much money or more than they did under revenue agreements with the majors. However, it is perhaps the music consumer who benefits most from the advent of the Internet. Even if consumers pay for legal downloads through a subscription service, these service appear to be getting increasingly less expensive. If consumers choose to download illegally, they get the music for free. Therefore, it is not just the structure of the music supply chain which is being transformed, but the balance of power in the industry. It can be argued that the major labels are losing some, or even most, of their influence, however the artists also have new alternatives to signing with the major labels, and the consumer appears to have more choice at less cost.[3]

1.2 Research design

In order to address the three research questions previously stated; two sets of literature reviews have been necessary with respect to 1) industry structure and 2) intellectual property rights. Also, in designing this research program, it has been necessary to investigate several different methodological approaches.. First, an empirical approach is utilized to present updated results based on data collection from IFPI (International Federation of the Phonographic Industry).

Secondly, the computational modeling tool known as social network analysis is utilized to build upon previous research on the music industry's supply chain as well as to form novel descriptive and prescriptive models. Finally, scenario planning is combined

[3] Graham, G. Burnes, B. Lewis, G. Langer, J. (2004) *The transformation of the music industry supply chain,* International Journal of Operations & Production Management, Vol. 24, No 11, pp.1087-1103

with social network analysis in order to present alternative models and lead research on the music industry supply chain to a new frontier.

2 Technological change

2.1 Bundling

Managers talk about their key activities as "processes" rather than as "business" because most of them assume that the two activities ought to coexist.[4] Nearly a hundred years of economic theory supports the conventional wisdom that the management of customers, innovation, and infrastructure must be combined within a single company. If those activities were to separate, the interaction and transaction costs required to coordinate them would be excessive, ultimately forcing those companies to do everything themselves in order to avoid such costs.

Hagel and Singer (1999) argue that when a vertically integrated industry goes through a major change such as the one experienced by the music industry with the digitization of music it opens the door to the profitable creation of many new specialized companies. The advantages of the generalist (Majors) –size, reputation, integration- begins to wither. The new advantages–creativity, speed, flexibility- belong to the specialists (Independent labels and the Artist).[5] They explain that *interaction costs* represent the money and time that are expended whenever people and companies exchange goods, services, or ideas.[6] They go on to explain that when the interaction costs

[4] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.
[5] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation,* Harvard Business Review.
[6] The authors believe that the term *interaction costs* is more accurate than the common term *transaction costs*. Transaction costs, as economists have defined them, include the costs related to the formal exchange of goods and services between companies or between companies and customers. Interaction costs include

of performing an activity internally are lower than the costs of performing it externally, a company will tend to incorporate that activity into its own organization rather than contract with an outside party to perform it. All else being equal, a company will organize in whatever way minimizes overall interaction costs.[7]

Interaction costs have been popularly used in the development of a general network theory for social sciences. This approach has been used to illuminate the shaping of networks and the interactions within them. The same set of concepts can be applied to the world of outsourcing to illustrate the overheads associated with adding incremental supplier/vendor relationships to an existing set of dynamics for an organization.

Hagel and Singer (1999) argue that the arrival of the digitization of music dramatically reduced interaction costs in the music industry and that changes in interaction costs can cause entire industries to reorganize rapidly and dramatically. [8] Also, because electronic commerce has such low interaction costs, it is natural for Web-based businesses to concentrate on a single core activity-whether it just being customer relationship management, product innovation, or infrastructure management.

Working from this assumption, large companies have, in recent years, expended substantial energy and resources in reengineering and redesigning their core processes. For many companies, streamlining core processes has yielded impressive gains, saving substantial amounts of money and time, and has provided customers with more valuable products and services.

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not only those costs but also the costs for exchanging ideas and information. They thus cover the full range of costs involved in economic interactions. For more about the implications of falling interaction costs see Patrick Butler et al., "A Revolution in Interaction", The McKinsey Quartetrly, 1997, No.1.

[7] Williamson, O. (1985) *The Economic Institutions of Capitalism*, Free Press, New-York.

[8] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.

Acemoglu, Aghion, Griffith, and Zilibotti (2004) affirm that many experts believe that recent technological developments and globalization are transforming the internal organization of the firm. They present two views which are of interest in the present study. First, they explain that that new technologies, especially information technology, are creating a shift from the old integrated firms towards more delayered organizations and outsourcing. Second, they explain that "it is often maintained that the greater competitive pressures by both globalization and advances in information technology favor smaller firms and more flexible organizations that are more conducive to innovation".[9] However, the economics profession is still far from a consensus on the empirical determinants of vertical integration in general, and about the relationship between technological change and vertical integration in particular.

Acemoglu, Aghion, Griffith, and Zilibotti (2004) argue that "vertical integration in this world does not automatically improve efficiency. Instead, by allocating the residual rights of control to the producer, who has ownership and thus control of the assets if there is a breakup of the relationship, vertical integration increases the bargaining power of the producer, and encourages its investment. However, by the same mechanism, it also reduces the ex post bargaining power and the investment incentives of the supplier. Non-integration, on the other hand, gives greater investment incentives to the supplier. Consequently, vertical integration has both costs an benefits in terms of ex ante investments, and its net benefits depend on whether the producer's or the supplier's investments are more important for the output and success of the joint venture"[10].

[9] Acemoglu, D, Aghion, P, Griffith, R, and Zilibotti, F. (2004) *Vertical Integration and Technology: Theory and Evidence*, Harvard Business School.
[10] Acemoglu, D, Aghion, P, Griffith, R, and Zilibotti, F. (2004*) Vertical Integration and Technology: Theory and Evidence*, Harvard Business School.

Therefore the framework presented by Acemoglu, Aghion, Griffith, and Zilibotti (2004) highlights that backward vertical integration gives greater investment incentives to the producer, while forward vertical integration encourages supplier investment.

Why, then, would the Majors also seek to horizontally integrate if they already own more than 80% of the industry? We have to consider that these large companies are also competing against each other. To do this, they must each find an unconquered niche within the music industry and try to secure it for themselves. They might do this by specializing in one genre of music such as country music or by conquering a new market in a new country. By buying all the labels in a certain genre or by establishing another distribution channel in a rising market, these huge companies can maintain a competitive advantage over their competitors. The record companies are making the profits, and by owning more parts of the supply chain, they can make even more profits by narrowing the costs of production.

According to Acemoglu and al. (2004); the two leading theories of vertical integration are the "Transaction Cost Economics" (TCE) approach of Williamson (1975[11], 1985[12]) and the "Property Right Theory" (PRT) approach of Grossman and Hart (1986)[13] and Hart and Moore (1990)[14]. The TCE approach views vertical integration as a way of circumventing the potential holdup problems, and thus predicts that vertical integration should be more common when there is greater specificity, increasing the costs of holdup.

[11] Williamson, O. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*, Free Press, New York.
[12] Williamson, O. (1985) *The Economic Institutions of Capitalism*, Free Press, New-York.
[13] Groosman, S. and Hart, O. (1986) *The Cost and Benefits of Ownership: A Theory of Vertical and Lateral Integration,* Journal of Political Economy, Vol.94, pp.691-719.
[14] Hart, O. and Moore, J. (1990) *Property Rights and the Nature of the Firm,* Journal of Political Economy, Vol.98, pp.1119-1158.

The Property Right Theory approach, on the other hand, focuses on the role of ownership of assets as a way of allocating residual rights of control, and emphasizes both the costs and the benefits of vertical integration in terms of ex ante investment incentives. Considering a relationship between a supplier (upstream firm) and a producer (downstream) and supposing that only two organizational forms are possible where vertical integration (backward) occurs when the downstream producer buys up the upstream supplier and has residual rights of control, and non-integration (outsourcing) which occurs when the producer and the supplier are different firms.

Over the last two decades the "Transaction Cost Theory" has emerged as a major paradigm in the academic literature. Perhaps the most influential statements about this theory have been made by Williamson (1975[15], 1985[16]) inspiring literature regarding the configuration of organizational form, diversification, vertical integration, foreign direct investment, joint ventures, and business-level activities.

Williamson (1981) explains that:

> "…transaction cost analysis is an interdisciplinary approach to the study of organizations that joins economics, organization theory, and aspects of contract law. It provides a unified interpretation for a disparate set of organizational phenomena".[17]

Transaction cost theory can be considered as the basic theoretical framework that analyzes the relation between the service provider and the customer process; thus, the theory embeds and governs both sides of the process. Therefore, with reference to the efficiency aspect of the service, transaction cost theory not only represents the link

[15] Williamson, O. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*, Free Press, New York.
[16] Williamson, O. (1985) *The Economic Institutions of Capitalism*, Free Press, New-York.
[17] Williamson, O. (1981) *The Economics of Organization: The Transaction Cost Approach*, The American Journal of Sociology, Vol. 87, No.3, pp.548-577.

between those two processes but it also offers an explanation of why they have to be understood as a single comprehensive process entity.[18]

The proposition that the transaction is the basic unit of economic analysis was advanced by John R Commons in 1934[19]. Commons recognized that there were a variety of governance structures with which to mediate the exchange of goods and services between technologically separable entities. He conceived that "assessing the capacities of different structures to harmonize relations between parties and recognizing that new structures arose in the service of harmonizing purposes were central to the study of institutional economics".

However, bundling into a single corporation inevitably forces management to compromise the performance of each process in ways that no amount of reengineering can overcome.[20] This has been the strategy carried out by the Majors in the music industry. Hagel and Singer explain that :"…speed, not scope, drives the economics of product innovation. Once a product innovation business invests the resources necessary to develop a product or service, the faster it moves from the development shop to the market, the more money business makes."[21]

There are other reasons for this vertical integration besides increased market share. These mammoth conglomerates in the music industry known as the Majors have over the the past 100 years created a tightly secured network by purchasing forwards and backwards in the supply chain, buying new labels, manufacturing companies, and distributing companies. Their established distribution systems have become highly

[18] Williamson, O. (1981) *The Economics of Organization: The Transaction Cost Approach*, The American Journal of Sociology, Vol. 87, No.3, pp.548-577.
[19] Commons, J. (1934) *Institutional Economics*, Madison: University of Wisconsin Press.
[20] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.
[21] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.

elaborate and expensive creating a barrier to entry within the industry. No small firms can enter and compete because it is too difficult to get established to compete against the Majors. Therefore, the Majors maintain a competitive advantage by being able to dominate and sometimes even manipulate the industry.

This phenomenon can be explained by the idea of increasing returns in the economy which has its roots in the conventional economics presented by Alfred Marshall in his "Principles of Economics"[22], in which he suggests that firms that get a good start in a market often retain their leading position and shut out other companies. Brian Arthur[23] follows up on this insight and notes that whereas the traditional theory based on diminishing returns applies to resource-based sectors of the economy, increasing returns apply to knowledge-based industries that require large initial investments followed by cheap incremental production once sales start. The author finds this separation as a possible explanation for the fact that the theory of increasing returns has been overlooked in the past: high technology industries are a relatively recent part of the economy, although economists[24] have found the positive-feedback mechanism in areas that did not involve technology since 1950s.

Arthur (1994) builds an analytical process-dependent model that explains the extent to which small events determine the selection of one of the many possible paths of development, emphasizing the theoretical benefits of determining the timing and direction of policies that can lock economies and firms in optimal alternatives or dislodge

[22] Marshall, A. (1890) *Principles of Economics*, First Edition.
[23] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.
[24] Gunnar K. Mydral and Nicholas Kaldor.

locked-in structures.[25] The Arthur, Ermoliev and Kaniovski[26] strong laws are used to build a theoretical model that explains the dynamics of industry location under agglomeration economies, in a framework that assumes that firms benefit from the local presence of other firms, and their succession of choices is influenced by historical accident. On a historical-accident-plus-agglomeration basis, this model investigates the way the agglomeration economies determine a locational pattern and the degree to which history is responsible for this pattern. The authors show that when there is no bound to the economies of agglomeration, the industry will cluster at a single location -New York City in the case of the Music Industry- depending on the accidental sequence of choices, whereas if there is an upper limit, combinations of historical accidents can induce the formation of one dominant cluster at a single location or, on the contrary, locational dispersion.[27] The locational shares are determined by an expected motion effect that derives from locations' relative attractiveness and current agglomeration pull, and also by a perturbation effect that develops from the randomness in entry succession. Both elements become less important as the industry grows, such that the locations' shares settle down as the industry becomes large.[28]

In the case of bounded economies of agglomeration, the monopoly of one location does not occur with probability one, and there is positive probability that locations will share the market. If firms with preferences for different locations arrive evenly in the

[25] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.
[26] Arthur, B. Ermoliev, Y M. and Kaniovski, Y M. (1985) *Strong Laws for a Class of Path Dependent Urn Processes*, in Proceedings of the International Conference on Stochastic Optimization, Kiev, Munich, Springer-Verlag.
[27] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.
[28] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

sequence, there may be more than one location that will dominate if the regions have reached their upper bound before a single site got ahead and shut out others. Arthur proves that in the case of increasing and bounded agglomeration economies, (in the limit) as the industry becomes large, one set of locations from the collection of potentially dominant sets will take 100 percent of the industry with probability one, and each of these sets will have a positive probability of being the monopolizing set. Locations in the monopolizing set share the market as if no agglomeration economies were present. The monopolizing propensity of increasing returns is in this case overcome by even a small degree of heterogeneity. One of the two extreme cases that Arthur mentions is the situation where agglomeration economies are too weak to cause any monopolizing of the industry by subsets of locations (the agglomerations economies cannot overcome the heterogeneity of preferences). Another extreme is the situation where conditions (such as clustered preferences and strong agglomeration economies at the outset) determine the monopoly of a single location even though the economies of agglomeration are bounded.

The author remarks that economies of agglomerations can also cause the separation of an industry, in instances where locations with large numbers of firms cast an “agglomeration shadow” in which settlement does not occur. A location that receives more firms will also increase its agglomeration shadow, shutting out more neighbors and expanding the domain of tastes from which it receives other firms. In the bounded agglomeration case, this means that neighboring locations cannot share an industry, but sufficiently separated regions can. The selection of regions that receive more firms and the ones that are orphaned depends again on historical accident. An interesting conclusion is that concentration of an industry does not necessarily reflect agglomeration

economies; it may just be the result of homogeneity of needs. The existence of agglomeration economies is not enough to determine the monopoly of one location.[29]

The author refines the discussion on the lock-in effects of increasing returns in a chapter that reexamines the allocation and recontracting processes as they occur in economics. In international trade theory, the self-reinforcing mechanisms occur in the establishment of a product's manufacturing in a certain country. In spatial economics, Arthur shows the impact of increasing returns and agglomerations economies on locational patterns. Also, with regard to industrial organization, Arthur supports Katz and Shapiro's work[30] in finding multiple market equilibria determined by network externalities and expectations. Other areas of economics in which self-reinforcing mechanisms take place are neoclassical growth theory[31] (Solow 1956), and aggregate macrodynamics[32] (Heal 1986) with Walrasian dynamics.[33]

The process of industry location is explored by Arthur (1985) through the contrasting of three models that take into account the degree to which history counts. The pure necessity model considers that new firms of different types decide "at birth" for one of N locations, and are not affected by the presence of other firms at any location (the preferences are independent). Chance events (the sequence of firm types entering the industry) are important in the beginning, but are averaged away as the industry becomes large. History has no influence on the outcome, which is dominated by necessity. A

[29] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.
[30] Katz, M. and Shapiro, C. (1985) *Network Externalities, Competition, and Compatibility*, The American Economic Review, Vol.75, Issue 3, pp.424-440.
[31] Solow, R M. (1956) *A Contribution to the Theory of Economic Growth*, The Quarterly Journal of Economics.
[32] Heal, G. (1986) *Macrodynamics and Returns to Scale*, The Economic Journal.
[33] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

second model in which chance events are important assumes spin-offs that stay at the parent's location. Firms are added to locations with probabilities equal to the proportion of firms in each region, thru a Polya process. In this pure chance model, industry location is highly path-dependent, and the proportions which the industry will settle to are unpredictable. The third model of chance and necessity combined under economies of agglomeration presumes that firms gain geographical and also agglomeration benefits. In this case, if a mixture of chance and geographical attractiveness determine the ability of a region to get more firms than others, its position is enhanced. [34]

Let us now consider the positioning of the artist in regard to the big record companies and how their relationship has evolved. A theoretical framework regarding the relationship of these two agents can be explained with the "Principle-Agent Theory". In a principle-agent situation, the agent chooses an action "on behalf of" the principal. The resulting consequence depends on random states of the environment as well as on the agent's action. After observing the consequences, the principal makes a payment to the agent according to a pre-announced reward function, which depends directly only on the observed consequence.[35]

According to Grossman and Hart (1983) this last restriction expresses:

> "the fact that the principal cannot directly observe the agent's action, nor can the principal observe the information on which the agent bases his action. This situation is one of the simplest examples of decentralized decision- making in which the interests of the decision-makers do not coincide. If this action-reward situation occurs only once, I shall call it a short-run principal-agent relationship. The situation can be naturally modeled as a two-move game, in which the principal first announces a reward function to the agent, and then the

[34] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy,* Ann Arbor, University of Michigan Press.
[35] Grossman, S J and Hart, O D. (1983) *An Analysis of the Principal-Agent Problem,* Econometrica, Vol.51, pp.7-45.

agent chooses an action (or decision function if he has prior information about the environment)."[36]

Finally, Radner (1985) explains that the Nash -or perfect Nash- equilibria of such games are typically inefficient, unless the agent is neutral towards risk. In this sense there will typically be another, unrealized reward-decision pair in non-equilibrium form that yields higher executed utilities to both players.[37]

2.2 Unbundling and re-bundling

Under the pressures of dealing with non-standardized copyright laws, global competition, and advancing technology, many industries and the music industry in particular, are already fracturing along the fault lines of customer relationship management, product innovation, and infrastructure management.

The major record companies are in the process of unbundling but are not ready for re-bundling quiet yet. As infomediaries rise to power, many traditional companies will find themselves cut off from their customers. There is a serious threat that new technologies may bring to bear on existing music technologies through the process of substitution, creating a possible shift in power. What causes some representatives of the music industry to worry less about this aspect of globalization is the simple fact that the major conglomerates own pretty much every sector of the entertainment market. If any such changes should occur, they might actually prove more beneficial than harmful to these huge powerhouses.

[36] Grossman, S J and Hart, O D. (1983) *An Analysis of the Principal-Agent Problem,* Econometrica, Vol.51, pp.7-45.

[37] Radner, R. (1985) *Repeated Principal-Agent Games with Discounting*, Econometrica, Vol.53, No. 5, pp.1173-1198.

Lam and Tan present the new distribution channel as a threat to do away with intermediaries in the traditional distribution channel.[38] They add that with this new business model and thanks to the Net's low entry barriers, new entrants in the music industry are outpacing traditional record labels, which have limited experience with new technologies. Also, they explain that as more consumers go online to shop for music, key players in the music industry must reexamine their value proposition to remain relevant.

Lam and Tan also inform us that online retailers may assume some traditional roles of brick-and-mortar retailers. Such online retailers have established a strong presence in the music industry through aggressive promotion and a track record in fulfilling Internet orders at minimal costs, allowing them to adopt a competitive pricing strategy. They insist that the increased visibility of the Net in the music industry may rattle the pole position of record labels.

Also Lam and Tan (2001) explain that record labels are realizing their lack of technological expertise and therefore are striving to form alliances with Internet and media companies to encode music in secure standards so as to battle piracy[39] which is a form of re-bundling.

Indeed, the Majors seem to be re-bundling by creating alliances with new service companies such as P2P service companies, supply chain management companies, digital distribution companies, mobile phone companies, social networking sites, and media and broadcasting companies.[40]

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[38] Lam, C K.M. and Tan, B C.Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, Vol.44, No.8.
[39] Lam, C K.M. and Tan, B C.Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, 44, .No. 8.
[40] See Chapter 6.1 for model, analysis and further discussion.

Supporting this argument, Jean-Francois Hennart (1988)[41] explains that multinational enterprises are no longer stuck in their rigid insistence on forming alliances via wholly owned subsidiaries. He argues that the increasing importance taken by domestic and international joint ventures (JVs) has spawned new theoretical and empirical work. Hennart attempts to show that Williamson's transaction costs framework can provide a unifying paradigm which accounts for the common element among these seemingly dissimilar JVs.

Huygens, Baden-Fuller, Vander Bosch, and Volberda (2001) suggest that the "search behavior drives co-evolution through competitive dynamics among new entrants and incumbent firms and manifests itself in the simultaneous emergence of new business models and new organizational forms" (Figure 1). They explain that the exploration of the music industry at the industry level was a matter of "explorative search by innovators and early imitators for distinct capabilities"[42]. Via a multiple-case study they conclude that record companies managed to adopt a "strategic choice perspective"[43] which "enabled them to shake off old habits and routines, and to renew their search for novel capabilities through radical processes of organizational change, eventually resulting in the creation of new organizational forms and business models". They also point out that "interaction patterns among rivals and path dependencies at individual firms can have both a positive and negative impact on the development of new capabilities. Interactive behaviour through acquisitions, joint ventures and strategic alliances among record

[41] Hennart, J-F. (1988) *A Transaction Costs Theory of Equity Joint Ventures*, Strategic Management Journal, Vol.9, pp. 361-374.
[42] Huygens, M, Baden-Fuller, C, Van Den Bosch, F A J, and Volberda, H W. (2001) *Co-evolution of Firm Capabilities and Industry Competition: Investigating the Music Industry, 1877-1997*, Organization Studies, Vol.22/6, pp.971-1011.
[43] Child, J. (1972) *Organizational structure, environment and performance: The role of strategic choice*, Sociology, Vol.6/1, pp.1-22.

companies speeded up the capability development process at these firms"[44]. Finally, they mention that although it was beneficial to the individual firms in their struggle to conform to the new competitive rules, it also pushed the industry into more intense levels of competition.

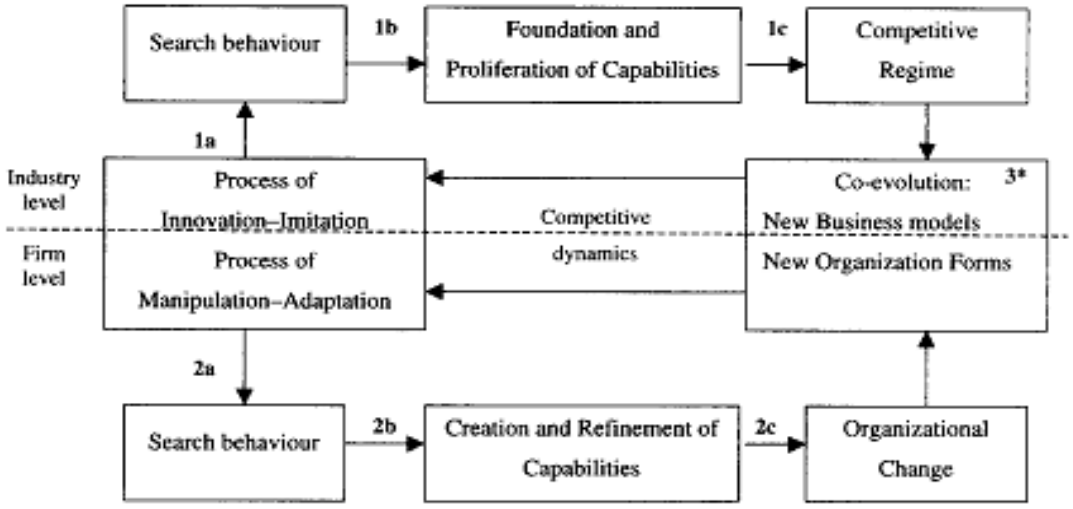

Figure 1. An integrative framework of co-evolution of capabilities and competition.[45]

The music industry is moving from a product-based to a service-based industry, which is pushing the major music companies to change in order to remain competitive.[46] The Firm's ability to reinvent itself and to innovate depends on a range of factors. These factors include financial resources, geographical location, and industry differences.

[44] Huygens, M, Baden-Fuller, C, Van Den Bosch, F A J, and Volberda, H W. (2001) *Co-evolution of Firm Capabilities and Industry Competition: Investigating the Music Industry, 1877-1997*, Organization Studies, Vol.22/6, pp.971-1011.
[45] Huygens, M, Baden-Fuller, C, Van Den Bosch, F A J, and Volberda, H W. (2001) *Co-evolution of Firm Capabilities and Industry Competition: Investigating the Music Industry, 1877-1997*, Organization Studies, Vol.22/6, pp.971-1011.
[46] Kusek, D and Leonhard, G. (2005) *The Future of Music*, Boston, Berklee Press.

Carlson and Stankiewicz (1995) argue that firms have different levels of economic competence, meaning that firms differ in the knowledge they have and how they use it. Further, they define a firm's economic competence as the sum total of its abilities to take advantage of business opportunities[47]. According to Normann (2005), the acquisition of and dependency on knowledge, competence, and capabilities will be essential for firms adapting to a changing music business landscape.[48]

To summarize, Hagel and Singer (1999) argue that "the secret to success in fractured industries is not just to unbundle, but to unbundle and rebundle, creating a new organization.[49] However, they mention that rebundling is a very different process from vertical integration because companies will be focusing on a single activity leading them to achieve horizontal integration.

Also, Hagel and Singer (1999) discuss key changes in the computer industry; in particular, that by conforming to a set of well-documented standards (something which is missing in the music industry, especially when coping with intellectual property rights), companies could, for the first time, easily work together to produce complimentary products and services. According to Hagel and Singer, the consequence of this possibility, would be the formation of tightly coordinated networks of specialized companies which would lead the new firms ultimately to compete effectively against the currently entrenched majors, which are vertically integrated giants .[50]

[47] Carlson, B and Stankiewicz, R. (1991) *On the Nature, Function, and Composition of Technological Systems*, Journal of Evolutionary Economics, Vol.1, No.2.
[48] Normann, H. (2005) *Digital Distribution of Music: The role of networks and knowledge in the Norwegian recorded music industry*, Faculty of social Sciences at the Oslo University, Norway, Globalization, Innovation and Policy.
[49] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.
[50] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.

According to Gulati, Nohria and Zaheer (2000) traditional strategy research has viewed firms as autonomous entities seeking to build resources and stake out market positions that lead to sustainable competitive advantage. An understanding of the consequences of the ubiquitous growth of strategic networks emphasizes that firms are more properly viewed as connected to each other in multiple networks of resource and other flows.[51] These linkages bind them in complex relationships that are simultaneously competitive and cooperative. As several papers in this volume highlight, the rents that accrue to a firms are partly the result of the firm's own unique resource endowments, but are also in part derived from the structure of the network to which the firm belongs

Gulati, Nohria and Zaheer (2000) also show how the overall network structure of an industry can be analyzed by considering such elements as its density, or the extent to which the industry is more or less constrained in its exchange relations with other upstream or downstream industries, and that these measures can be an important complement to traditional models that have focused on concentration or other measures of market power.

Supporting Gulati and al's argument Varian (2001) states that:

> "If the value of a network depends on its size, then interconnection and/or standardization becomes an important strategic decision. However standards are not always anathema to dominant firms. In some cases, the standard can be so compelling that it is worth adopting even from a purely private, profit-maximizing perspective."

From a different perspective, Leyshon (2001) presents the electronic markets as having the potential to fundamentally reconfigure the competitive basis of the industry and the contestability of markets. "Thus, not only do electronic markets have the

[51] Gulati, R, Nohria, N and Zaheer, A. (2000) *Strategic Networks*, Strategic Management Journal., Vol.21, pp.203–215.

potential to break down established market hierarchies through disintermediation, but established firms may well be disadvantaged as markets are reintermediated through electronic channels". Therefore, "established firms tend to have significant sunk costs within physical infrastructures, and it is for this reason that electronic markets offer significant competitive opportunities for new or marginal competitors within existing industries" such as the artist.[52]

Premkumar (2003) says that "a factor that will influence the restructuring of the industry is the power dynamic among artists, record companies, retailers, and customers".[53] Also, he mentions that given the power structure in the industry, it is likely that record companies will influence the future distribution strategy by providing incentives or disincentives for customers to use one channel or another. He argues that the record company-retailer-customer strategy is the least disruptive to the supply chain, with the minimal risk of copyright violations. Premkumar goes on by emphasizing that the success of any digital distribution strategy depends on several important issues: copyright protection, communication infrastructure, and pricing and payment strategies. He assumes that record companies will delay large-scale digital distribution unless they are confident copyright violations risks are significantly reduced. He concludes that the digitization of music has created opportunities to reengineer the supply chain and improve its efficiency.

To support the previous arguments Hal R. Varian proposes a rich framework regarding information technology and consumer behavior, which includes monopolistic

[52] Leyshon, A. (2001) *Time-space (and digital) compression : software formats, musical networks, and the reorganization of the music industry*, Environment and Planning A, Vol.33, pp.49-77.
[53] Premkumar, G.P. (2003) *Alternate Distribution Strategies for Digital Music*, Communication of the ACM, Vol.46.No.9.

production, supply and demand side of economies of scale and strategic positioning. According to Varian (2001) the term "New Economy" refers to:

> "A golden, or at least gilded, age in the late 1990s that was driven by optimism about the financial prospects for in-formation technology (IT). There were three back-to-back investment shocks during this period: telecommunications deregulation in 1996, the "year 2K"problem in 1998-99, and the "dot com" boom in 1999-2000. These events stimulated significant investment in information technology in a number of industries, leading to a very rapid expansion of IT-producing industries."[54]

Varian explains that information technology allows for "fine grained observation and analysis of consumer behavior"[55] which allows for various kinds of marketing strategies that were previously extremely difficult to carry out, at least on a large scale. A seller may offer prices and goods that are "differentiated by individual behavior and/or characteristics".

In addition, Varian supports the idea that many information and technology-related businesses such as the oligopoly in the music industry have a cost structure with large fixed costs and small, or even zero, marginal costs. [56]

Varian goes on to say that:

> "(…) if the biggest firm has the most significant cost advantages, firms will compete intensively to be biggest, and consumers will benefit from that competition. Amazon believed, rightly or wrongly, that scale economies were very important in online retailing, and consumers benefitted from the low prices it charged while it was trying to build market share. Second, it is often possible to overcome cost advantages when the market is growing rapidly. Even though the largest firm may have a cost advantage at any point in time, if the market is growing at 40 percent per year, the tables can be turned very rapidly. Market

[54] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.
[55] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.
[56] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.

share alone is no guarantee of success. Third, information technology has also reduced the minimum efficient scale of operation in many markets."

In summary, according to Varian, although supply side economies of scale may lead to more concentrated industries, this may not be as bad for consumers as is often thought. He also supports the argument that price discipline asserts itself through "four different routes", which are[57]:

1. Competition to acquire monopoly forcing lower prices for consumers.
2. Competition with the installed base of a firm's own output, especially when technological progress is so rapid as to exceed the ability to utilize technology to its fullest.
3. Pressure from complementors providing complementary products to lower prices, and have various ways to exert pressure to accomplish this. This sort of "completition" can be a very powerful force.
4. Inventing around, even when intellectual property rights create apparently strong barriers to entry; competitive firms will attempt to invent around a patent, often creating new products.

Varian's perspective on the traditional view of monopoly is that it creates deadweight loss and producer surplus, as shown in Figure 2. However, perfect price discrimination eliminates the deadweight loss and competition because the monopoly

[57] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.

transfers the resulting monopolistic rents to consumers.[58] Varian indicates that intense price competition would induce online merchants to look for ways to increase customer loyalty. Presumably they would also try to adopt pricing strategies that would reduce the intensity of competition.

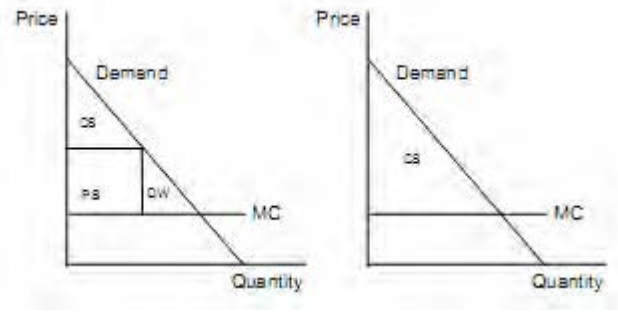

Figure 2. Competition for perfectly price discriminating monopolist.[59]

In parallel with the classic supply side economies of scale discussed previously, Varian also presents "demand side economies of scale". According to him, with supply side economies, average cost decreases with scale, while with demand side economies of scale, average revenue (demand) increases with scale.

[58] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.
[59] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.

2.3 Technology shock

The music industry was one of the first of the cultural industries to develop mass production using new technologies, and it has continued to be in the forefront of technological change.[60] Successive technologies determine the way music is created, produced and delivered to consumers and technological change profoundly affects the economic organization of the industry. Firms in the music recording industry, as well as firms in other culture-based industries such as motion pictures, have traditionally preferred technological stability, but have ultimately benefitted from technological change.

As Alexander (2002) explains, "radio was 'threatened' by television, television by motion pictures, motion pictures by videocassette players, music recording by tape technology and so on". In each of these examples, predictions of the imminent demise of the industry as a result of a new technology were wrong. In most instances, the new technologies displayed strong complementarities within the existing structure.

Hal R. Varian (1999) says that:

> "E-commerce will undoubtedly change the way business is done. But (…) technology changes, economic laws do not. Despite the changes introduced by e-commerce, many of the fundamental principles of competition will still be relevant."[61]

Challenging Varian's statement; Silver (1999) exposes his concern when he explains that what is more worrisome to the music industry is not the advent of MP3 or

[60] Towse, R. (2003) *Assessing the Economic Impacts of Copyrights Reform in the Music Industry*, Department of the Study of Arts and Culture, Erasmus University Rotterdam, the Netherlands, Commissioned by Industry Canada.
[61] Varian, H.R. (1999) *Market Structure in the Network Age*, Prepared for Understanding the Digital Economy conference, Department of Commerce, Washington, DC.

copyright issues but the emergence of a new Internet distribution channel, dictated by consumers:

> "The threat to the music industry is not MP3s, but the arrival of a consumer distribution channel that is not controlled by the music industry" (Jeremy Silver, vice president of New Media, EMI).[62]

The music industry is in a transitional stage. "Emerging technologies have left old business models in disarray" (Goodrich & Rossiter, 2007). The convergence of technologies has allowed independent ("indie") artists to produce their own high quality records leading in recording companies and performers to adapt to new models in order to survive. Theodore Levitt (1983) says that: "A powerful force drives the world towards a converging commonality, and that force is technology"[63].

The advantages of MP3 are particularly significant because of advances in broadband technologies and reduction in storage costs. Increasing availability of broadband access and reducing costs of portable storage devices allow downloading and storing of songs in MP3 in economically attractive formats. Because MP3 is operable across many technology platforms and has no security or copyright features, MP3 is immensely popular.

Lam and Tan (2001) argue that as bandwidth increases and better compression techniques become available, the Internet will be a major channel of music distribution in digital form.[64] They add that this development has important ramifications for the music industry, which will have to reexamine its value propositions in the light of new business

[62] Silver, J. (1999) Interview at the digital distribution and the music industry meeting. www.firstconf.com/digitalmusic
[63] Levitt, T. (1983) *The Globalization of Markets,* Harvard Business Review.
[64] Lam, C K M and Tan, B C Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, Vol.44, No.8.

opportunities. Record companies have a significant influence on the demand chain as well as the supply chain, but in recent years, a significant market share of unaccounted music sales has shifted to P2P music sites.[65]

Alexander (2002)[66] assumes that the sustainability of a P2P sharing system is contingent upon whether users will be willing to share their resources with others, at a cost to themselves. In fact, each peer who acts as a host yields some bandwidth and computing resources to the client, i.e., incurs some cost. Will users be willing to yield some of their scarce resources to support the peer-to-peer network?

Standard public goods theory predicts that all agents will free ride, or, as Mancur Olson (1965) states, "rational, self-interested individuals will not act to achieve their common or group interests"[67]. However, there now exists a significant body of theory and experimental evidence relating to public goods games and experiments, much of which appears to contradict the predictions of standard theory. Of course, while it is plausible that some experiments fail to capture important elements of "real" economic interactions, the substantial diversity and variety of settings and experiments would appear to militate against a systematic bias in the results (Ostrom, 2000)[68].

Cunningham, Alexander, and Adilov (2001)[69] explore peer-to-peer file sharing and construct a non-linear dynamical optimization model consistent with observed facts regarding the Napster Music Community. The model they present is in the spirit of

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[65] Premkumar, G.P. (2003) *Alternate Distribution Strategies for Digital Music*, Communication of the ACM, Vol.46, No.9.
[66] Alexander, P J. (2002*) Peer-to-peer File Sharing: The Case of the Music Recording Industry*, Review of Industrial Organization, Vol.20, pp.151-161.
[67] Olson, M. (1965) *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge, MA, Harvard University Press.
[68] Ostrom, E. (2000) *Collective Action and the Evolution of Social Norms*, Journal of Economic Perspectives, Vol.14, pp.137–158.
[69] Cunningham, B M, Alexander, P J, and Adilov, N. (2001) *The Napster Music Community*, Working paper.

Becker (1976)[70], in that the aggregate population has an initially positive (but not necessarily large) fraction of altruists. The remaining agents may be purely self-interested – in fact, the equilibrium of the model relies on the assumption of self-interest.

Varian (1999) supports that by arguing:

> "There is a network externality when the value of a good depends on the number of other people who use it. Examples are goods like the telephone network, the fax machines network, the email network, or the Internet itself. Generally consumers would like to be connected to as large a network as possible. This implies that if there are several different providers of networks, then it is very advantageous to consumers if they interconnect."[71]

This kind of linked system effect is common in high-technology industries. Often, products that are relatively useless unless they are combined into a system with other products: hardware is useless without software, DVD players are useless without content, and operating systems are useless without applications. These are all examples of complementarity, that is, goods whose value depends on their being used together.[72]

Varian also explains (2001) that:

> "When network effects are present, there are normally multiple equilibria. If no one adopts a network good, then it has no value, so no one wants it. If there are enough adopters, then the good becomes valuable, so more adopt it—making it even more valuable. Hence network effects give rise to positive feedback."

In terms of specifics, Windrum and Birchenhall (2004)[73] offer a rich framework regarding technology replacement. They investigate the conditions under which technological successions occur. Their research draws together two areas of inquiry that

[70] Becker, G. (1976) *Altruism, Egoism, and Genetic Fitness: Economics and Sociobiology*, Journal of Economic Literature, Vol.14, pp.817–826.
[71] Varian, H.R. (1999) *Market Structure in the Network Age*, Prepared for Understanding the Digital Economy conference, Department of Commerce, Washington, DC.
[72] Varian, H.R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.
[73] Windrum, P. and Birchenhall, C. (2004) *Structural change in the presence of network externalities: a co-evolutionary model of technological successions*, MERIT-Infonomics Research Memorandum series.

have, by and large, previously been treated as separate subjects: competition between sequential technologies and network externalities. The interest in sequential technology competitions dates back to Schumpeter's proposition that new technologies are the fuel of long-run economic growth, and increasing welfare.[74] Long-run economic development, he argued, occurs when an economy moves from one technology base to another.

Windrum and Birchenhall argue that in order for a new technology to displace an established dominant technology, a new technology must overcome the network externalities enjoyed by an established (old) technology.

They support that research by arguing that the study of network externalities has tended to consider contemporaneous competitions between rival variants of the same technology (e.g. Arthur, 1989[75]; Katz and Shapiro, 1986[76]; Farrell and Saloner, 1985[77]). A notable exception is David's empirical case study of the QWERTY keyboard (David, 1985)[78].

Arthur (1988)[79], as well as David and Greenstein (1990)[80] list a range of supply and demand side factors that may lock-out a new technology. In addition to pecuniary and non-pecuniary switching costs faced by users, scale economies in production, learning and competence creation costs for firms, and the marketing and advertising costs

[74] Schumpeter JA (1939) *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, McGraw-Hill, New York.
[75] Arthur, B. (1989) *Competing technologies, increasing returns and lock-in by historical events*, Economic Journal, Vol.99, pp.116-131.
[76] Katz, M and Shapiro, C. (1986) *Technology adoption in the presence of network externalities*, Journal of Political Economy, Vol.94, pp.822-841.
[77] Farrell, J and Saloner, G. (1985) *Standardisation, compatibility and innovation*, Rand Journal of Economics, Vol.16, pp.70-83.
[78] David, P A. (1985) *Clio and the economics of QWERTY*, American Economic Review Papers and Proceedings, Vol.75, pp.332-336.
[79] Arthur, B. (1988) *Competing technologies: an overview*, In Dosi G, Freeman C, Nelson R, Silverberg G, and Soete L (ed), Technical Change and Economic Theory, Pinter, London.
[80] David, P A and Greenstein S. (1990) *The economics of compatibility standards: an introduction of recent research*, Economics of Innovation and New Technology, Vol.1, pp.3-41.

of establishing a market for a new technology may be significant. For each of these factors, increasing marginal returns accompanies growing market size and share. Taking these factors into account, the current discussion will consider the conditions under which supply and demand side externalities may be overcome by a later technology.

Brian Arthur[81] presents a compilation of papers analyzing the implications of increasing returns in the economy, and the reinforcement mechanism that strengthen early leading positions of competing technologies, products, and industry locations. Arthur's methodology employs positive feedback as the explanatory mechanism for economic growth, based on a well-defined analytical model that provides a different view than traditional economic theory built on the hypothesis of diminishing returns (which allows for a predictable equilibrium of prices and market shares). The author notes that in some parts of the economy, the stabilizing forces assumed by negative feedbacks are not observable, and that positive feedbacks tend instead, to amplify the effects of relatively small economic swings, and lead to many possible equilibrium positions. Random economic events thus enter a course that is not necessarily the best but in which they may become locked-in. Arthur uses this model to explain how countries and products may get ahead by chance and increase their lead further due to the effects of increasing returns.[82]

Based on a simple model of allocation, Arthur considers competing technologies (generally unsponsored and embodied in physical machinery) for shares of a market of adopters, in a comparison between increasing, decreasing and constant returns to adoption. In the case of heterogeneous adopters, the model takes into account the payoffs

[81] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.
[82] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

of two unsponsored technologies competing for the replacement of an obsolete technology, for two equal categories of agents differing in their preferences (R agents have a natural preference for technology A, and S agents have a preference for technology B). The variants of A and B available for choice change with the numbers n_A and n_B of previous adoptions. From the observer's point of view, the sequence in which agents make their choices is unknown, in that R and S agents have equal likelihood of standing in the nth position, while the return functions are known and the demand for one agent is inelastic. The purpose of this model is to investigate whether fluctuations in the order of choices make a difference in the market share outcome under three differing base assumptions: constant returns, diminishing returns, and increasing returns.

If the agents are homogeneous, they always chose the higher payoff technology in the constant returns situation. The outcome is predictable and flexible for the diminishing returns case. Under increasing returns, if one technology is chosen at the beginning of the process, that technology is reinforced and eventually takes over the market, if the returns rise at the same rate. If the returns increase at different rates, the outcome becomes unpredictable and inflexible (path dependent).

Examples of the increasing-returns locking mechanism are those of numerous technologies that have become locked-in due to user externalities and have denied the development of more efficient ones.[83]

An interesting observation is that the monopoly implied by increasing returns does not take place if there is heterogeneity in consumer preferences. In a non-linear increasing returns process in which agent-types are equally distributed in the queue, each

[83] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

technology may be bid up to its upper bound, without getting a sufficient head start to become locked-in.

Based on underlying increasing returns, Brian Arthur and David Lane build a model that explains the information contagion phenomenon by which products that are largely "sampled" may end up dominating the market due to early information-feedback advantage. If buyers are trying to reduce the uncertainty of a new purchase by obtaining information about the product from previous users, the informational feedback can reinforce market shares. Potential buyers "poll" previous purchasers' experiences and are likely to learn more about products that have been tried extensively. This mechanism links a product's prevalence with its likelihood of future purchase through information contagion. Since the "polling" is restricted to a fraction of the actual purchasers of a product, it can be said that the market is subject to a constriction of information.

The model is based on an agent-oriented sampling, in which prospective buyers sample purchasers without knowing in advance which product each of them bought. It also assumes that purchasers process rationally the information they obtain from previous buyers, assimilating it through a Bayesian update of probability distributions on the relevant performance features. The purchasers eventually choose the product that maximizes the posterior expected probability. The model presumes a pure measurement error, homogeneous agents, constant risk aversion and a bounded stopping rule for terminating the sampling. The authors consider a full constriction model where the information is completely restricted and there is no private information- in this model, the product with the highest prior expected utility will be purchased by all buyers, and knowledge of how agents encode information is enough to predict the outcome of the

allocation process. In the opposite extreme case, where there is full public knowledge, a particular product will dominate the market, and the observation error sequence will impact the outcome. The full public knowledge theorem based on two products establishes that one product achieves strong market domination over the other with probability one, and that each product has a positive probability of dominating the other.[84]

Risk aversion may determine the market domination of one product, as risk averse purchasers value how much they know about a product more than how good they believe it might be. They tend to gather more information on a leading product and hence buy that product. For products with high values of unanticipated effectiveness[85] (the product is better than agents initially believed it to be), market domination is a result of the purchasers' rationality, as their prior under-appreciation is disadvantageous to products that are less well represented, while leading products (that are sampled more) are advantaged by this situation and eventually take over the entire market. Although the model mentioned above is based on constant stopping rules, analytical examples can be found showing market domination of an already leading product under sequential stopping times (agents sample until they acquire "sufficient" information). If the performance of a product is not fixed, but is rather dependent on each purchaser's uses and skills, then the random effects model induces even more history dependence (good or bad news about a product tends to propagate).[86]

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[84] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

[85] Examples of high unanticipated effectiveness generally relate to new products based on recent scientific or technological breakthroughs.

[86] Arthur, B. (1994) *Increasing Returns and Path Dependence in the Economy*, Ann Arbor, University of Michigan Press.

Windrum and Birchenhall (2004) [87]explain that there is a need to clarify the stage of technology development that is being considered, and to distinguish between technological successions and technological substitutions regarding the factors relevant to the diffusion of a new technology.

They also formulate that innovation, is the point at which the invention is actually applied for the first time, whether this be in the form of a product or a process (Mensch, 1979)[88].

Windrum and Birchenhall argue that the first applications of a technology are "invariably crude and inefficient"; not only is their performance usually poor compared to existing "alternative technologies", but the "fixed production costs" are likely to be very high. Therefore, they explain that innovations are not automatically capable of diffusing.

They explain that:

> "Given that the underlying process of innovation –improving the quality/price characteristics a set of old and new technologies – continues after the technological shock has occurred, the best predictor of a post-shock succession occurred is a probability. This highlights an important difference between the 'innovation phase' and 'diffusion phase' of the technology life cycle. A technology may be able to survive in the innovation phase – even if it is initially inferior in many respects to the old technology – provided it shows sufficient 'promise' or 'potential' to a key group of supporters."[89]

[87] Windrum, P and Birchenhall, C. (2004) *Structural change in the presence of network externalities: a co-evolutionary model of technological successions*, MERIT-Infonomics Research Memorandum series.
[88] Mensch G. (1979) *Stalemate in Technology: Innovations Overcome Depressions*, Ballinger, Cambridge.
[89] Windrum, P and Birchenhall, C. (2004) *Structural change in the presence of network externalities: a co-evolutionary model of technological successions*, MERIT-Infonomics Research Memorandum series.

3 Industry structure

3.1 Components

Music is the world's universal form of communication. It affects every person and every culture. The broader music industry is worth over $160 billion worldwide.[90] Global recorded sales alone totaled $18.4 billion in 2008 in trade values, and on retail basis the global recorded music market was worth an estimated $27.8 billion.[91] The United States alone stands for one-third of that global market (RIAA, 2009). [92]

Kozul-Wright and Standbury, (1998)[93] present 16 separate functions involved in the Music Business: singers, musicians, songwriters, producers, audio engineers, publishers, record manufacturers, promoters, and managers, disc jockeys, booking agents, venue operators, merchandise manufacturers, entertainment attorneys, distributors and retailers (Figure 3).

[90] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.
[91] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.
[92] The Recording Industry Association of America. (2009) *Reasearch and Data*, Washington, D.C. www.riaa.com
[93] Kozul-Wright, Z and Standbury, L. (1998) *Becoming a globally competitive player: the case of the music industry in Jamaica*, UNCTAD, No.138.

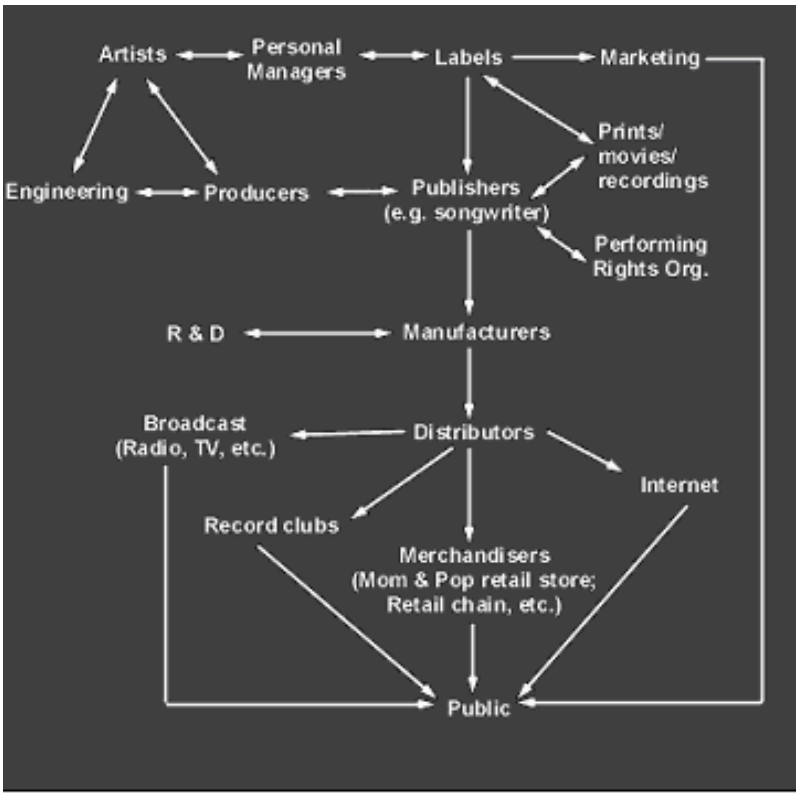


Figure 3. Traditional industry-level supply chain

Most of the services and products in the music industry are provided by the activities mentioned above. Though one often thinks of the music industry as CDs and concerts; three strict service activities can be categorized: creative services (performance of musicians, singers and audio engineers); technical services (recording, sound and lighting for venues and concert venue rentals); and representational services (managers, booking agents, publicist, lawyers and publishers). The service sector enjoys the advantage of freedom of movement throughout the global economy, as service providers are able to render services relatively freely anywhere in the world.[94]

[94] Levitt, T. (1983) *The Globalization of Markets,* Harvard Business Review.

Leyshon (2001) identifies four networks with distinctive organizational and spatial characteristics: networks of creativity, of reproduction, of distribution, and of consumption. Leyshon argues that these four networks are being reshaped as a consequence of the impact of software formats and Internet distribution systems (Figure 4). Furthermore, he argues that the short-term profitability of the Majors is being threatened but that the industry is already "beginning to restabilise around a new technological and regulatory regime designed to protect copyrights in music in software formats".[95]

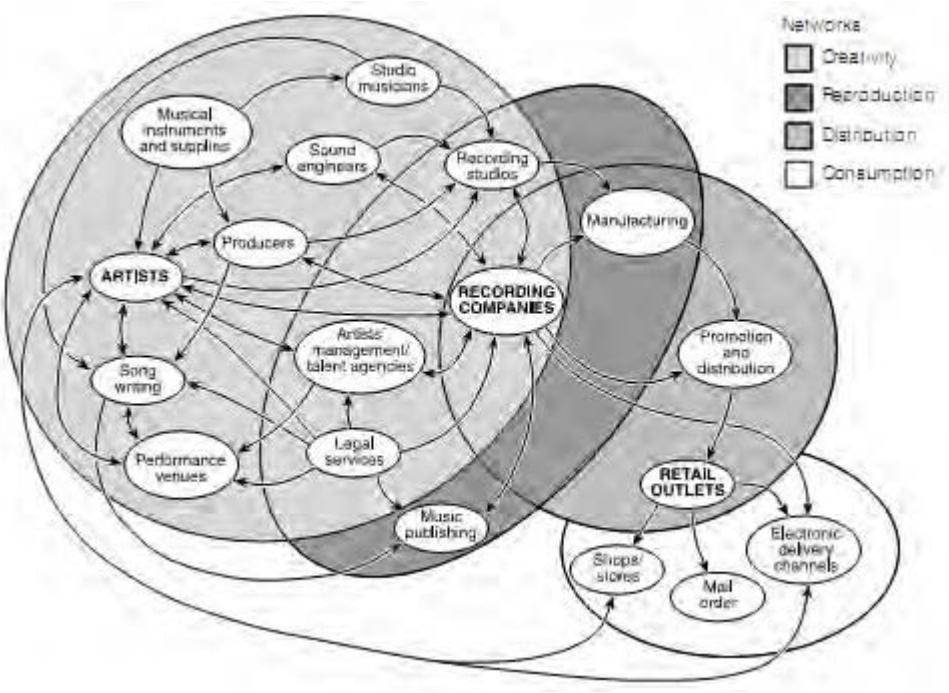


Figure 4. Musical networks[96]

[95] Leyshon, A. (2001*) Time-space (and digital) compression: software formats, musical networks, and the reorganization of the music industry*, Environment and Planning A, Vol.33, pp.49-77.
[96] Leyshon, A. (2001) *Time-space (and digital) compression: software formats, musical networks, and the reorganization of the music industry*, Environment and Planning A, Vol. 33, pp.49-77.

Cvetkovsky (2004)[97] offers a proposition that essentially explores fundamental reorganization through technology. He suggests that the two-tiered traditional model 'Major-Minor-Indie' has expanded to accommodate another approach. Therefore Cvetkovsky identifies three categories of "commodification" which are:

1) The MAJOR music model -which entails EMI, UMG, Sony Music Entertainment, and Warner music Group

2) The INDIE (independent labels) model

3) The MICRO-label model or in my own terms: "the ARTIST-label model".

3.2 Dynamics

The production of music as a saleable product is a relatively recent phenomenon. The market for music began with the organized, corporate sale of sheet music in the nineteenth century, but it really took off in the twentieth century, with the emergence of and the demand for recorded music in the form of vinyl records, cassettes, CDs, etc[98]. Music is now a global business.[99]However, though the physical product itself may have changed, the distribution channels and the division of labor within the industry have remained relatively stable: artists create music, record labels promote and distribute it and the fans consume it.[100]

According to Parikh (1999), it is the ability of the major labels to control the supply chain for music that has prevented artists from independently distributing their

[97] Cvetkovski, T. (2004) *The Political Economy of the Music Industry: Its Rise and Stall*, School of Political Science and International Studies, The University of Queensland, Presented at the Austalasian Political Association Conference, University of Adelaide.
[98] Gillett, C. (1996) *The Sound of the City: The Rise of Rock & Roll*, 3rd ed., Souvenir Press, London.
[99] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.
[100] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.

own material. This explains why the labels collect approximately 85-90 per cent of the profits from music sales.[101] However, the advent of the Internet and the exploding popularity of the illegal downloading of digital music are challenging the traditional supply chain model that relied on the physical distribution of music recordings such as CDs. The global piracy industry is now estimated to be worth about $4.8 billion, with about 4.5 million counterfeit CDs sold each year in the UK alone.[102]

Record making is economically as well as technically a complex process. Not only is it difficult to identify, develop and manage successful artists, the artistic value (and therefore the commercial value) of records depends on their consumers' aesthetic preferences, which are neither stable nor predictable. Just because an artist has sold millions of records in the past does not mean they will in the future. The reverse is also the case.[103]

The emergence of Internet-based network technologies is allowing music industry bodies to operate in a virtual environment and deal with multiple suppliers and customers. However, conducting business over the Internet has introduced a new challenge. As product offers increase there is an increasing need for virtual navigators that provide ways and platforms for parties to find each other. To reach out to the digital consumer, music companies and artists will have to build relationships with these online platforms (Poel and Rutten, 2000).[104] Virtual navigators, i.e. any kind of service that guides organizations and individuals to the information they require, will quickly replace

[101] Parikh, M. (1999) *The music industry in the digital world: waves of changes*, available at: www.ite.poly.edu/htmls/musicwave01.htm
[102] Reece, D. (2004) *An industry poleaxed by power of the Net*, The Independent, 31 March, p. 40.
[103] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103
[104] Poel, M and Rutten, P. (2000) *Impact and perspectives of electronic commerce: the music industry in The Netherlands*, available at; www.oecd.org/pdf/M00027000/M00027095.pdf

the co-ordination role of traditional intermediaries in virtual marketplaces. Results of this include the reduction in the number of physical intermediaries between the artist and the consumer, the outsourcing of activities by the major labels, and the re-organization of functions such as A&R and marketing to increases the flexibility to react rapidly to market changes and new business opportunities.[105] As a means of transforming the supply chain for the purchasing and delivery of products and services, the Internet is becoming, and in some industries has already become, a dominant force (Hardaker and Graham, 2001).[106]

Not so long ago, the music industry was fully vertically integrated. The record companies took on full responsibility for attracting their customers. The industry developed most of its products-artist development, arrangements, producing… and it managed an extensive infrastructure, producing, advertising and manufacturing the records as well as distributing it to warehouses where retailers would be able to pick up inventory for their outlets. Today, the industry is beginning to look very different. Much of the typical recording product is outsourced to specialized studios, printing services, manufacturers and online retailers. The digitization of music has shaken the core processes of the major recording companies and initiated a situation where both old and new processes have to coexist until one/or many new business model(s) can be adopted. It was very frequent for a huge conglomerate company to buy an independent label creating profitability or significant market share.

[105] Graham, G, Burnes, B, Lewis, G, and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.
[106] Hardaker, G and Graham, G. (2001) *Wired Marketing: Energizing Business for e-Commerce*, John Wiley & Sons, Chichester.

Digital music files (mostly in mp3 format) have become widespread on the Internet. File-sharing technologies pioneered by Napster and for a while dominated by Kazaa have become popular among certain online communities and a target for legal prosecution by record companies.[107] Industry representatives largely attribute the recent drop in music sales to a rise in online file-sharing, which, from their point of view, simply reads as piracy of copyrighted material. Recent empirical studies lead to ambiguous results. Some studies show a negative effect of downloads on music sales[108][109], whereas others find a negligible or even slightly positive effect[110][111].

Liebowitz (2005)[112] comes to the conclusion that the overall evidence supports the view that file-sharing has hurt music sales. However, this finding does not invalidate the argument held by Peitz and Waelbroeck (2006) that the music industry may gain from file-sharing, in particular because current P2P networks are not well-designed for sampling purposes.

Advocates of online file-sharing believe that file-sharing should be free and unrestricted. One argument goes that downloaders use the downloaded files for sampling in order to make more informed purchasing decisions. This view is to some extent

[107] Peitz, M and Waelbroeck, P. (2006) *Why the music industry may gain from free downloading-The role of sampling*, International Journal of Industrial Organization, Vol.24, pp.907-913.
[108] Peitz, M and Waelbroeck. (2006) *The effect of Internet piracy on CD sales- cross section evidence*, Review of the Economic Research on Copyright Issues, Vol.1, pp.71-79.
[109] Zentner, A. (2004) *Measuring the Effect of Music Downloads on Music Purchases*, Mimeo, University of Chicago.
[110] Oberholzer, F and Strumpf, K. (2004) *The Effect of File Sharing on Record Sales: An Empirical Analyses*, Mimeo, University of North Carolina, Chapel Hill.
[111] Boorstin, E. (2004) *Music sales in the age of file sharing*, Senior thesis, Princeton University.
[112] Liebowitz, S. (2005) *Pitfalls in measuring the impact of file-sharing*, CESifo Economic Studies, Vol.51, pp.435-473.

supported by survey data.[113] Hence the argument continues, the music industry may actually benefit from file-sharing networks.

Peitz and Waelbroeck (2006) present sampling as important in the market for recorded music because music is an experience good where horizontal product differentiation and taste heterogeneity are important. According to Peitz and Waelbroeck: "Due to sampling, music labels may actually gain from P2P networks and use them to solve a two-sided asymmetric information problem between seller and buyer."

Peitz and Waelbrock (2006) present a multi-product monopoly model in which products are located on a Salop circle and in which consumers regard each original as superior to its copy. Under this model, the property that sampling allows consumers to find a better match to their tastes, tends to lead to higher profits under file-sharing. They conclude that based on their model music labels do not necessarily suffer from downloading on P2P networks. Profits increase for a certain set of parameters because consumer can make more informed purchased decisions because of sampling and are willing to spend for the original although they could consume the download for free.

3.3 Revenue streams and royalties[114]

About 60%-80% of music titles are considered failures that do not recover fixed costs. There is an inherent risk in the music business; that the profits from successful records help compensate for the losses from failures. There is a large fixed cost of about 75% that is carried by record companies versus a relatively small variable

[113] See Peitz, M and Waelbroeck, P. (2005) *An economist's guide to digital music*, CESifo Economic Studies Vol.51, pp.359-428.
[114] For a further discussion of revenue streams regarding music, publishing, and license flows please refer to the Publishing paragraph 4.7.2.

cost of about 25% (Table 1). The pricing strategy plays an important role in the success of digital distribution. Packaged CDs are priced to distribute the risk across many songs. The price per song must be fixed at a level that will not cannibalize the sales of packaged CDs, but will provide sufficient returns to recover the cost of album development, as well as the cost of failures.

Value-added Chain	Pre-Recoupment	Post-Recoupment
Retail price	$15.00	$15.00
Wholesale price	$10.50	$10.50
Less: Manufacturing costs	$2.00	$2.00
Artist and producer royalties	$0.00	$2.00
Mechanical royalties	$0.70	$0.70
Distributor charges	$1.50	$1.50
Record Companies' Gross Margin	**$6.30**	**$4.30**

Table 1. Traditional value added chain up to the retail level

Premkumar (2003) investigates the cost breakdown of digital distribution and suggests potential opportunities to improve efficiency in the supply chain (Table 2).[115] He also presents six digital music distribution strategies (Figure 5). He supports the argument that there are three participants in the digital supply chain, which are the content creators or artists, record companies, and retailers. He also provides the pros and cons for each distribution strategy for the stakeholders: customers, the retailers, the record companies, and the artists.

[115] Premkumar, G.P. (2003) *Alternate Distribution Strategies for Digital Music*, Communication of the ACM, Vol.46, No.9.

	Physical Distribution	Record Co. / Retailer / Customer	Record Co. / Customer	Artist / Customer
Total Cost: $15–$18	100%	100%	100%	100%
Retail Cost: $5.25–$6.5 Margin: $0.8–$1.0 Staff: $1.2–$1.45 Distribution: $1.2–$1.45 Store rent: $2.25–$2.75	35%	30%[a]	10%[b]	10%
Advertising/Marketing: $2–$4	20%	20%	15%[c]	5%[e]
Distribution: $1.2–$1.60	7%			
Manufacturing: $0.75	5%			
Studio: $1	6%	6%	6%	6%
Royalty: $2.	12%	12%	12%	12%
Overhead: $2.	12%	12%	10%[d]	
Record Co. Margin: $0.5–$0.7	4%	4%	4%	
Total	100%	84%	57%	34%

All values are approximate averages to illustrate the break-up of costs. The actual figures may vary from album to album.
[a]Assumes there is some saving in retail store operations; includes cost of kiosks and systems.
[b]Assumes there is no retail operations; includes cost for online Web site operation.
[c]Assumes there is some efficiency in advertising due to 1:1 relationship.
[d]Assumes some saving in overhead due to reduction in record company operations.
[e]Assumes no traditional advertising; includes some independent advertising.

Table 2. Cost breakdown of digital distribution[116]

Finally, Vogel (2001) tells us that featured artists typically get a 10-15% royalty on sales[117] and that the studio fee is paid to non-featured performers but that does not tell us what their earnings are in total, nor what individuals earn. Information periodically appears about superstar earnings but it is also well known from studies of performers'

[116] Premkumar, G P. (2003) *Alternate Distribution Strategies for Digital Music*, Communication of the ACM, Vol.46, No.9.
[117] This is often only on 85% of sales revenue, however. See Vogel (2001) pp.157-170.

earnings that the distribution is very uneven, with the few superstars having very high earnings and the 'average' performer earning modest or even low earnings[118].

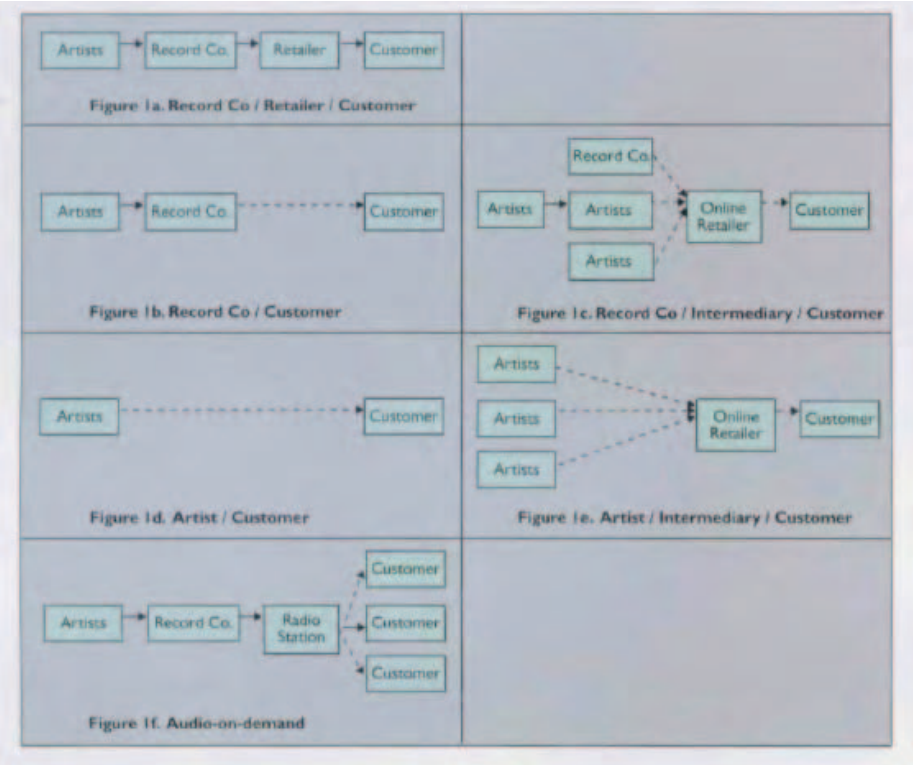


Figure 5. Six digital music distribution strategies [119]

3.4 Production deals

Record companies are not particularly interested in signing new artists. They would rather profit from their current catalog of profitable artists. The large fixed costs endured by record labels drive these companies away from investing in new talent. That

[118] See Towse (2001) and Matsumoto, S. (2000) *Performers in the Digital Era*, pp196-209, in Towse, R. (ed) (2002) *Copyright in the Cultural Industries*, Edwrd Elgar, Cheltenham, UK and Northampton, Mass, USA.
[119] Premkumar, G P. (2003) *Alternate Distribution Strategies for Digital Music*, Communication of the ACM, Vol.46, No.9.

is why “the production agreement is the singular most regressive and anti-artist contract introduced in the music industry during the last two decades”.[120]

Donnely (2004) explains that the most recent production agreement is called “net profits” deal. In this agreement, the artists are told that their band and the record company will “split everything 50/50”.[121] These deals are typically the province of small independent labels; that seem to be growing at warp speed as the “majors” continue to merge themselves out of existence[122].

Donnelly (1999) explains how artists end up giving up the administrative control of their music publishing rights and 25%-50% of their publishing income to a company which is not a true music publisher; up to 50% of their merchandising income to a company that is not a real merchandiser and finally sign up over their recording rights for the next 14 years in return for a retail record royalty of only 3% to 5%. In other words, the artist who is the engine that drives this entire process may actually wind-up receiving only a small percentage of the total royalty points in the deal and 0% of all the money which the record company handed over to the production company in order to acquire the artist's services. It can also be argued that the major labels are losing some, or even most, of their influence, however modern artists have new alternatives to signing with the major labels which is mostly due to advent of the Internet resulting in the empowerment of the artist, and consumers having more choice at less cost.[123]\

[120] Donnelly, B. (1999) *What’s the Deal with Production Deals?* Billboard, Article II, July 31.
[121] Donnely, B. (2004) *Net Profits Deals: The Recording Industry’s New Contract Du Jour*, Entertainment Law Reporter, Vol.25, No.12, May 2004.
[122] Donnely, B. (2004) *Net Profits Deals: The Recording Industry’s New Contract Du Jour*, Entertainment Law Reporter, Vol.25, No.12, May 2004.
[123] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.

3.5 Monopolistic and oligopolistic production

The role of a product innovation business such as the record industry is to conceive attractive new products and services and figure out how best to bring them to market.

In the late 1970s, the computer industry was dominated by powerful, vertically integrated companies with vast scale advantages like IBM, Burroughs, and Digital Equipment. But in the late 1980s, the power of that industry shifted as an army of smaller and highly specialized companies penetrated that market and thrived. [124]

Today, the music industry is following a similar path. On the macro-level, the "industrialization of music" is represented mainly by the majors, the labels (mostly subsidiaries of the majors) and the "indies" (independent labels). The global music industry is currently dominated by four major record companies whose profits have been eaten into by electronic piracy, as music consumers now have the capacity to copy CDs or download MP3s from the internet. The global music business is characterized by intense competition among a small group of large conglomerates whose market share approximates 70% and has remained relatively constant over the years. However, smaller firms and new entrants are affecting the dominance of the major record companies by successfully bypassing the significant entry barriers which have traditionally governed the areas of distribution and marketing by going directly to retail and end-users via the internet. In the music industry it has been overly common that each time an independent label creates profitability or significant market share, a huge conglomerate buys it. However, the oligopoly in the music industry appears to be narrowing.

[124] Hagel III, J and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.

Also, an oligopolistic industry such as the music industry, one in which several large and powerful firms dominate the market, is usually characterized by parallel behavior which may work against the best interests of the consumer, particularly in the area of pricing. [125]

Oligopoly is a common market form. However, oligopolistic competition can give rise to a wide range of different outcomes where in some instances, the firms may employ restrictive trade practices such as collusion, market sharing and so forth, to raise prices and restrict production in much the same way as a monopoly. Where there is a formal agreement for such collusion, this is known as a cartel. The uniform pricing of the songs on Amazon and iTunes could almost be considered as a cartel.

Classical economic theory assumes that a profit-maximizing producer with some market power (either due to oligopoly or monopolistic competition) will set marginal costs equal to marginal revenue. This idea can be envisioned graphically by the intersection of an upward-sloping marginal cost curve and a downward-sloping marginal revenue curve (because the more one sells, the lower the price must be, so the less a producer earns per unit). In classical theory, any change in the marginal cost structure (how much it costs to make each additional unit) or the marginal revenue structure (how much people will pay for each additional unit) will be immediately reflected in a new price and/or quantity sold of the item. This result does not occur if a "kink" exists. Because of this jump, discontinuity in the marginal revenue curve, marginal costs in the music industry may change without necessarily changing marginal price or quantity.

The practical reason behind this process is the idea that in an oligopolistic or monopolistically competitive market, firms will not raise their prices because even a

[125] Knox, R L. (1966) *Competitive Oligopolistic Pricing*, Journal of Marketing, Vol.30, pp.47-51.

small price increase will lose many customers. This is because competitors will generally ignore price increases, with the hope of gaining a larger market share as a result of now having comparatively lower prices. However, even a large price decrease will gain only a few customers because such an action will begin a price war with other firms. The curve is therefore more price-elastic for price increases and less so for price decreases.[126]

Varian's perspective on the traditional view of monopoly is that it creates deadweight loss and producer surplus. However, perfect price discrimination eliminates the deadweight loss and competition for the monopoly, and transfers the resulting monopoly rents to the consumers.[127] Varian indicates that intense price competition would induce online merchants to look for ways to increase customer loyalty. Presumably they will also try to adopt pricing strategies that will reduce the intensity of competition.

Klemperer and Meyer (1989) recognize this phenomenon by noting that:

> "Firms will adapt to exogenous uncertainty by choosing supply functions helps to resolve the indeterminacy of equilibrium in oligopoly models. Under uncertainty, firms have strict preferences over the set of possible strategic variables, because their strategic variable (their supply function) must function well in many possible environments. This rules out almost all of the superabundance of Nash equilibria in supply functions under certainty, because the supply functions in these equilibria are not optimal except at a single point. In addition to determining how a firm's behavior will change in equilibrium with the exogenous demand shock, the chosen supply function also determines how the firm would respond out of equilibrium to a change in a rival's behavior".[128]

[126]Hannaford, S. (2007) Oligopoly Watch, The latest maneuvers of the new oligopolies and what they mean. http://www.oligopolywatch.com

[127] Varian, H.R. (2001*) High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.

[128] Klemperer, P D and Meyer, M A. (1989) *Supply Function Equilibria in Oligopoly under Uncertainty*, Econometrica, Vol.57, No.6, pp.1243-1277.

Finally, an example of how oligopoly controlling more than three-quarters of the music industry is represented in the way that radio programming is bought and sold. Powerful companies pay for the privilege of having Clear Channel or Viacom play their tunes. This used to be known as "payola" but has been more politely renamed "promotional payments". In a fashion similar to the use of slotting fees in retail stores, this "quasi-legal" practice makes the radio oligopolies wealthy and guarantees that only the "Big Four" record companies can have their songs played on the air, pushing the listener who has become a victim to the margins of the Big Four.[129]

3.5.1 The majors

As discussed previously, the global music business is characterized by intense competition among a small group of large conglomerates –the Majors- whose market share approximates 70% and has remained relatively constant over the last past 80 years. The oligopoly known as the Majors is at the time of this study composed of four companies. This is an important detail because there has been an active history of merging within the music industry.[130] The intense merging within the music industry reduced the "big six" which existed -prior to 1999- Warner Music Group, EMI, Sony Music, Polygram N.V, MCA and BMG to the "big five" in 2004, EMI, Sony, Universal-Vivendi, Time Warner and Bertelsman BMG[131] and which were finally reduced to just four companies.

[129] Hannaford, S. (2007) Oligopoly Watch. *Payola!* 09/06/03 http://www.oligopolywatch.com
[130] For a detailed analysis of the mergers and joint ventures within the music industry please refer to chapter 6.
[131] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.

These companies -in order of most to least powerful- are Universal Music Group (UMG), Sony Music Entertainment (Sony Music), Warner Music Group, and Electric and Music Industries Ltd (EMI). The three top companies are headquartered in New York City and are publicly traded (Table 3).

	"Major" Labels in The Music Industry Sector					
	Headquarters Location	**Revenue**	**Parent Conglomerate**	**Founding Date**	**Type**	**CEO**
Warner Music Group	New York	$3.491Billion	None	1929	Public	Edgar Bronfman Jr.
Sony Music Entertainment	New York	$3.9 Billion	Sony Corporation of America	1987	Public	Rolf Schmidt-Holtz
Universal Music Group	New York	$6.14 Billion	Vivendi	1934	Public	Doug Morris
Electric and Music Industries ltd.	London	$2.42 Billion	Terra Firma Capital Partners	1931	Private	Guy Hands

Table 3. The Majors

Overall, the “big four” exhibit a similar company-level supply chain (Figure 6). Each company -with the exception of Warner- is owned by a parent conglomerate. Also, each company owns a music publishing company as well as a large catalog of hundreds of record labels.

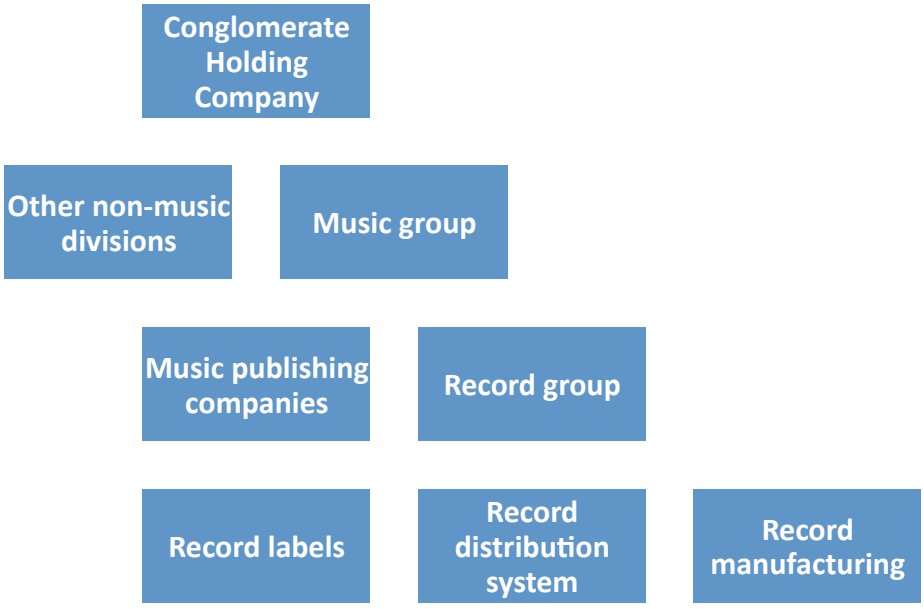


Figure 6. Company-level supply chain

PolyGram was the name from 1972 of the major label recording company started by Philips as a holding company for its music interests in 1945. In 1999, it was sold to Seagrams and merged with MCA Music Entertainment, to form Universal Music Group. Universal Music Group (UMG) is the largest business group and family of record labels in the recording industry. It is the largest of the "big four" record companies by its commanding market share and its multitude of global operations. Universal Music Group is a wholly owned subsidiary of international French media conglomerate Vivendi whose headquarters are in Paris, France. However, the UMG global headquarters are located in New York City. Also, UMG owns a music publisher, Universal Music Publishing Group, which became the world's largest publisher following the acquisition of BMG Music Publishing in May 2007.[132]

[132] Universal Music Group Website. http://new.umusic.com/

Sony BMG Music Entertainment was a global recorded music company, which was a 50–50 joint venture between the Sony Corporation of America and Bertelsmann AG. The venture's successor, the again-active Sony Music Entertainment, is 100% owned by the Sony Corporation of America. Now the company is known as Sony Music Entertainment (or Sony Music) and is the second-largest global recorded music company of the "big four" record companies and is controlled by Sony Corporation of America. Sony music Entertainment also owns Sony Music publishing.

Bertelsmann Music Group, (BMG), was a division of Bertelsmann before its completion of sale of the majority of its assets to Sony Corporation of America on October 1, 2008. It was established in 1987 to combine the music label activities of Bertelsmann. It consisted of the BMG Music Publishing company, the world's third largest music publisher and the world's largest independent music publisher, and the 50% share of the joint venture with Sony Music, Sony BMG Music Entertainment (Sony BMG).

The joint venture with Sony was set up in August 2004. It reduced the Big Five of music companies to the Big Four record labels. At that time, the company had a 21.5% share in the global music market. Sony Music and BMG remained separate in Japan, although BMG Music Japan was wholly owned by Sony BMG.

On March 27, 2006, the New York Times reported that Bertelsmann was looking to raise money by leveraging some of its media assets, and that executives from both companies were in talks about possibly altering the current venture. Bertelsmann sold its 50% share of Sony BMG to Sony Corporation of America for a total of $1.5 billion and the company will be renamed Sony Music Entertainment Inc.

While officially withdrawing from the business of recorded music, Bertelsmann will continue its strong presence in the music industry with the forthcoming BMG branded company, BMG Rights Management, which will specialize in music rights management by representing artists and authors. It will be focused mainly in BMG's European stronghold markets. The basis of the company will be formed through BMG's decision to withhold selected European music catalogs from the former Sony BMG joint venture and the BMG Publishing business.

Also kept separate from the acquisition by Sony Corporation of America was Sony BMG's wholly owned and operated BMG Japan. Sony Music Japan remained independent from the Sony BMG joint venture; therefore BMG and Sony labeling were kept separate in Japan under the venture. During Sony BMG's buyout, BMG Japan was instead picked up by Sony Music Entertainment Japan. It briefly continued to operate as a distinct entity until early 2009, when Japanese operations were shifted to the global Sony Music Entertainment, subsequently leading to BMG Japan's folding.

BMG Music Publishing, which was not part of the Sony BMG merger, was a business of the Bertelsmann Music Group until it was sold to Universal Music Group for €1.63bn. Universal has folded the company into its publishing business Universal Music Publishing Group with Universal Music branding. The company was headquartered at 245 Fifth Avenue, 8th Floor New York, 10016 and had operations in 36 offices in 25 countries.[133]

Warner Music Group (WMG) is the third-largest business group and family of record labels in the recording industry, making it one of the "big four" record companies. The current incarnation of the company was formed in 2004 when it was spun off by

[133] http://www.sonymusic.com

Time Warner, and as a result, Time Warner no longer retains any ownership. Warner Music Group also has a music publishing arm- Warner/Chappell Music.[134]

Finally, the EMI Group (Electric & Musical Industries Ltd.) is a British music company. It is the fourth-largest business group and family of record labels in the recording industry, making it one of the "big four" record companies. EMI Group also has a major publishing arm- EMI Music Publishing- based in New York City. The company was once a constituent of the FTSE 100 Index but is now wholly owned by Terra Firma Capital Partners.[135]

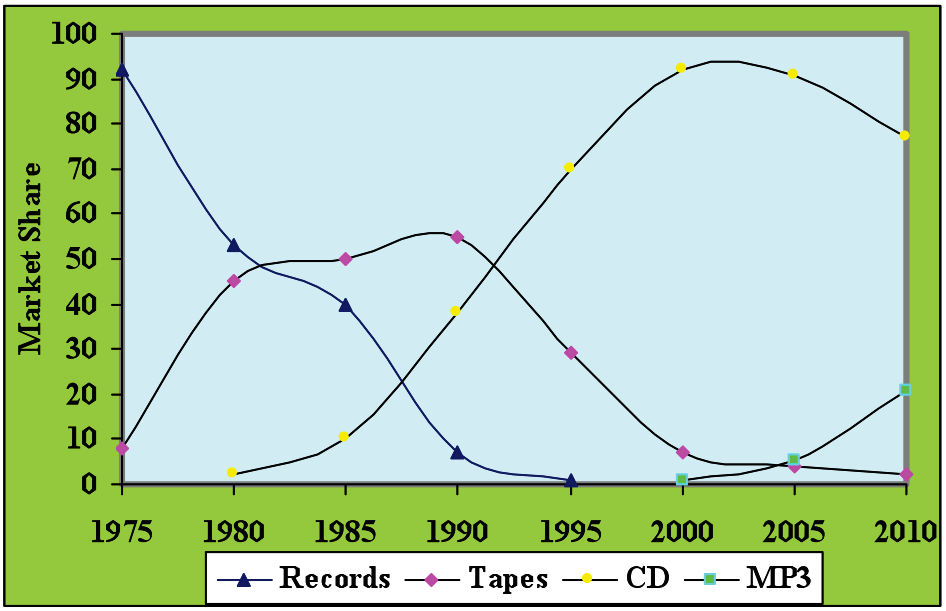
3.6 The acceleration of the product life cycle

The Product Life Cycle Theory was set forth by Vernon (1966)[136]. Vernon intended to address the apparent inadequacy of the comparative advantage framework in explaining trade and foreign investment, and to concentrate on the issues of timing of innovation, effects of economies of scale and, to a lesser extent, the role of uncertainty. Vernon explains the pattern of the production process by identifying the U.S. as a high average income, high unit labor cost location that is most favorable to the introduction of new products. The motivation also resides in the fact that there is a high degree of freedom for changing inputs, which may be necessary in the incipient stages of production, as well as effective communication between the producer and customers, suppliers and competitors. However, as the product matures, the demand increases, while there is also an increase in standardization, which leads to a lower need for flexibility and

[134] http://www.wmg.com
[135] http://www.emi.com
[136] Vernon, R. (1966) *International Investment and International Trade in the Product Cycle*, Quarterly Journal of Economics, Vol.80, No.2, pp.190-207.

higher expectations of economies of scale and long-term commitments. This would, according to Vernon, determine the producer's expansion of manufacturing units in other advanced countries. As the firm aims towards larger economies of scale, a need for low labor costs arises, which may direct the producer to establish facilities in low labor cost locations from which it would export products and product components to the US. Thus, at an advanced stage in the standardization of some products, the less developed countries may offer competitive advantages as production locations.

There are four stages in a product life cycle, introduction, growth maturity and decline. Graph 1 represents the life cycle of the various music-recording formats dominant in the music industry. MP3s are already beyond the introduction stage into the growth maturity phase whereas CDs are in the decline stage.



Graph 1. Logistic substitution of music recording media[137]

The music recording industry is approximately one hundred years old. In its infancy, the industry was dominated by a handful of firms who were responsible for the production of most of the industry's technological advancements[138]. Alexandre (1994) explains how these early innovators fought to establish dominance over the way music would be produced and played. The earliest systems used wax cylinders on which sound waves were transduced and inscribed. This original industry standard was overtaken around 1914 by flat disks, the manufacture of which was less costly per unit than wax cylinders. This change in standard led to increasing but still modest levels of competition

[137] Based on statistical data from the Recording Industry Association of America. *Reasearch and Data.* 2009, Washington, D.C. www.riaa.com

[138] Alexander, P J. (1994) *New Technology and Market Structure: Evidence from the Music Recording Industry*, Journal of Cultural Economics, Vol.18, pp.113–123.

in the industry[139]. Long-playing (LP) record albums are 33⅓ rpm vinyl gramophone records (phonograph records), generally either 10 or 12 inches in diameter. They were first introduced in 1948, and served as a primary release format for recorded music until the compact disc began to significantly displace them by 1988. As of 2006, a renewed interest in vinyl has occurred and the demand for the medium has been on a steady increase yearly in niche markets. The long-playing record is an analog format. The digital recording of sound was only made practical by the technical advances in microprocessors and computing, which occurred in the 1970s and 1980s.

However, real competition in the industry arose in the 1950s with the advent of magnetic tape recording. Magnetic tape was easy to edit (unlike recording technology prior to the development of tape), and the recording devices themselves were relatively inexpensive to purchase. Moreover, the introduction of magnetic tape production technology coincided with the popular introduction of a genre of music generally known as rock-and-roll. During this period, concentration in the industry fell dramatically, and the number of new firms increased rapidly. Re-concentration in the industry resulted from numerous mergers and acquisitions, which, in part, left the network for independent distribution thin[140]. Currently, just four large multi-national firms account for approximately 95% of the (distributor level) sales in the music recording industry.

The Compact Cassette, often referred to as audio cassette, cassette tape, cassette, or simply tape, is a magnetic tape sound recording format. Although originally designed for dictation, improvements in fidelity led the Compact Cassette to supplant reel-to-reel

[139] Alexander, P J. (1994) *New Technology and Market Structure: Evidence from the Music Recording Industry*, Journal of Cultural Economics, Vol.18, pp.113–123.
[140] Black, M and Greer, D. (1987) *Concentration and Non-Price Competition in the Music Recording Industry*, Review of Industrial Organization, Vol.3, pp.13–37.

tape recording in most non-professional applications. Its uses ranged from portable audio to home recording to data storage for early microcomputers. Between the early 1970s and late 1990s, the cassette was one of the two most common formats for prerecorded music, first alongside the LP and later the Compact Disc.

Prior to digital technology, music was produced and distributed using vinyl disk sand magnetically encoded tape. Compact disks, introduced to consumers in the 1980s, were the first element in the industry's shift to digital technology. A compact disk player uses a sequence of 0's and 1's to reproduce sound waves. As a result, many consumers were able to use computers to play compact disks, as well as transfer songs from compact disks for storage and replay on their computers. Still, the files were generally not shared with large numbers of other users, since, as late as 1997, the transfer of three minutes of music required fifty megabytes of hard drive storage space and an enormous amount of time and bandwidth to transfer them across the internet.

A Compact Disc (CD) is an optical disc used to store digital data. It was originally developed to store sound recordings exclusively, but later it also allowed the preservation of other types of data. Audio CDs have been commercially available since October 1982. In 2009, they remain the standard physical storage medium for audio.

Standard CDs have a diameter of 120 mm and can hold up to 80 minutes of uncompressed audio (700 MB of data). The Mini CD has various diameters ranging from 60 to 80 mm; they are sometimes used for CD singles or device drivers, storing up to 24 minutes of audio.

The technology was eventually adapted and expanded to encompass data storage CD-ROM, write-once audio and data storage CD-R, rewritable media CD-RW, Video

Compact Discs (VCD), Super Video Compact Discs (SVCD), PhotoCD, PictureCD, CD-i, and Enhanced CD.

Development of the MP3 file format dramatically changed these storage and bandwidth requirements. MP3, created by engineers at the German company Fraunhofer Gesellshaft, is shorthand for Motion Picture Experts Group-Layer 3. MP3 is an audio compression format that generates near compact disk quality sound at approximately 1/10 to 1/20 the size. For example, while each minute of music on a compact disk requires the equivalent of 10 megabytes of computer storage space, an MP3 format of the same piece could be stored on 1 megabyte or less. Clearly, MP3 technology has made digital file distribution more efficient. This increased efficiency is amplified by the fact that more and more computers are connecting to the internet via cable rather than modem, which significantly improves the speed at which files can be transferred.

MPEG-1 Audio Layer 3, more commonly referred to as MP3, is a patented digital audio encoding format using a form of lossy data compression. It is a common audio format for consumer audio storage, as well as a de facto standard of digital audio compression for the transfer and playback of music on digital audio players. MP3 is an audio-specific format that was designed by the Moving Picture Experts Group as part of its MPEG-1 standard. The group was formed by several teams of engineers at Fraunhofer IIS in Erlangen, Germany, AT&T-Bell Labs in Murray Hill, NJ, USA, Thomson-Brandt, and CCETT as well as others. It was approved as an ISO/IEC standard in 1991.

The use in MP3 of a lossy compression algorithm is designed to greatly reduce the amount of data required to represent the audio recording and still sound like a faithful reproduction of the original uncompressed audio for most listeners. An MP3 file that is

created using the setting of 128 kbit/s will result in a file that is about 1/11th the size of the CD file created from the original audio source. An MP3 file can also be constructed at higher or lower bit rates, with higher or lower resulting quality. The compression works by reducing accuracy of certain parts of sound that are deemed beyond the auditory resolution ability of most people. This method is commonly referred to as perceptual coding. It internally provides a representation of sound within a short-term time/frequency analysis window, by using psychoacoustic models to discard or reduce precision of components less audible to human hearing, and recording the remaining information in an efficient manner. While this has been presented as relatively similar to the principles used by JPEG, an image compression format, in fact this comparison is mistaken, as JPEG uses a built-in vision model that is very widely tuned, as is necessary for images, and MP3 uses a complex, precise masking model that is much more signal dependent, and that is used to guide a noise allocation, rather than bit allocation in order to accomplish the needs of the masking model within the bit rate available.

The transition from analog to digital production and reproduction has had a potentially significant effect on costs within the industry. With digital products the cost of reproducing and distributing perfect copies is functionally zero. Unlike the case where the tape player made production cheaper but did not alter the costs of distribution, digital technology has reduced both reproduction and distribution costs[141].

Finally, over the past decade, digital technologies have permeated the music industry. Music has been encoded in digital form and stored on CDs, laser discs, and digital versatile discs. Such digital technologies have become popular due to their quality

[141] Alexander, P J. (2002) *Peer-to-peer File Sharing: The Case of the Music Recording Industry*, Review of Industrial Organization, Vol.20, pp.151-161.

and portability. In the past, bandwidth restrictions have impeded distribution of digital music over the Internet. However, these restrictions are disappearing due to advances in networking technologies. Consumers are now able to procure and play high-quality music in digital form directly through the Net, accelerating the development of the Net as an infotainment hub.

3.7 Domestic versus international production

3.7.1 Patterns of distribution

The industry is, however, marked by highly uneven patterns of distribution. While the United States still remains the largest location of production as well as the most important market for musical output, this dominance has gradually eroded over the last twenty years. The relative amount of media output produced and consumed in the United States is declining, creating new windows of opportunity for developing countries, especially those with enhanced sound-recording productive capacity.

Sideri (1997)[142] mentions that globalization is:

> "(…) essentially a process driven by economic forces. Its immediate causes are: the spatial reorganisation of production, international trade and the integration of financial markets". It is not therefore uniform across economic space- "the segmentation of the manufacturing process into multiple partial operations which combined with the development of cheap transportation and communication networks, has brought the increasing division of production into separate stages carried out in different locations".

Based on Sideri's view, Buckley and Ghauri (2004)[143] conclude that "the strategies of multinational firms are therefore crucial to the causes and consequences of

[142] Sideri, S. (1997) *Globalisation and regional integration*, European Journal of Development Research, Vol.9, No.1, pp.38-81.

globalisation". In examining the changing location and ownership strategies of multinational enterprises, Buckley and Ghauri have shown that "the increasingly sophisticated decision making of managers of MNEs is slicing the activities of firms more finely and in finding optimum locations for each closely defined activity, they are deepening the international division of labor".

Brown, O'Connor, and Cohen (2000) suggest - describing the music scene in Manchester and Sheffield, England - that despite "strong local identification and networks the music industry is the most penetrated by global industry structures". They explain that "local talent can emerge and create local waves; but it is quickly but it is quickly and easily taken up within large scale global business structures". They support the idea that "local music scenes and acts can resonate powerfully with a local area, but a precondition is often a global exposure which has little in common with this local identity"[144].

Most countries seek to diversify the recorded music products that further tend towards globalization. This phenomenon, which can be characterized as worldwide communications is carried almost everywhere there exist the modern possibilities to lighten and enhance work, raise living standards, and to divert and entertain audiences. In what is more that a little bit of a paradox, the same countries that ask the world to recognize and respect their cultures insist on the wholesale transfer to them of modern goods, services, and technologies.

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[143] Buckley, P J and Ghauri, P N. (2004) *Globalisation, Economic Geography and the Strategy of Multinational Enterprises*, Journal of International Business Studies, Vol.35, No.2, pp.81-98.
[144] Brown, A, O'Connor, J. and Cohen, S. (2000*) Local music policies within a global music industry: cultural quarters in Manchester and Sheffield*, Geoforum, Vol.31, pp.437-451.

Western markets such as the United States and Western European Countries are characterized by an insatiable demand for novelty exemplified by the growing demand for the World Music genre. Based on the experiences of the last three decades, it is predicted that significant market opportunities for music from developing countries will not only continue to exist but will grow. However, developing countries have difficulties implementing an efficient production system within the music industry.

"Music has to be positioned, promoted, marketed, critiqued as well as distributed" (Pratt, 2004)[145]. Some of these barriers have been traversed only by getting a recording contract directly with a European or American record company. There are suggestions offered by Pratt but none is immediate and the matter of copyrights is even greater in lower income developing countries than it is in developed countries.

Power and Hallencreutz (2002)[146] present the results of two case studies on two important music production centers: Stockholm (Sweden) and Kingston (Jamaica). They argue that in the music industry it is not purely the quality of the "creative milieux" that matters in obtaining commercial success, but also that success is highly dependent upon "the links between the local production system and the international circuits of capital, distribution, and effective property rights"[147].

[145] Pratt, A. (2004) *The music industry in Senegal: the potential for economic development*, A report prepared for UNCTAD.
[146] Power, D and Hallencreutz, D. (2002) *Profiting from creativity? The music industry in Stockholm, Sweden and Kingston, Jamaica,* Environment and Planning A, Vol.34, pp.1833-1854.
[147] Power, D and Hallencreutz, D. (2002) *Profiting from creativity? The music industry in Stockholm, Sweden and Kingston, Jamaica,* Environment and Planning A, Vol.34, pp.1833-1854.

3.7.2 Distributed versus centralized production

Power and Hallencreutz (2002) note when comparing Stockholm and Kingston, that although Kingston's products have a greater global commercial value to Stockholm, it is Stockholm's "local production system and urban economy that make the bigger profit in real term".[148] The simple lesson to be learnt from these two cases seems to be that higher degrees of firm-level integration into the wider global music industry confer a major competitive advantage to a city's, or a small nation's, music industry and the proportion of profits that return or remain at the center. Unlike Kingston, which has remained outside the global music industry and the effective international copyright regime, Stockholm's music industry has prospered. Power and Hallencreutz suggest that the rapid growth and profitability of such markets and products in recent years are in need of economic development, and for smaller economies producing cultural-intense product innovation with a competitive position and rate of return in these industries should be "examined and supported by both the private and public sectors"[149].

Also, different strategies are adopted by the online retailers. Lam and Tan (2001) explain that to facilitate the delivery of music files, online retailers can place servers at strategic places around the world to serve their consumer bases. For example, servers holding Asian songs can be placed in Asian cities where demands for such songs are high.[150]

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[148] Power, D and Hallencreutz, D. (2002) *Profiting from creativity? The music industry in Stockholm, Sweden and Kingston, Jamaica,* Environment and Planning A, Vol.34, pp.1833-1854.
[149] Power, D and Hallencreutz, D. (2002) *Profiting from creativity? The music industry in Stockholm, Sweden and Kingston, Jamaica,* Environment and Planning A, Vol.34, pp.1833-1854.
[150] Lam, C K M and Tan, B C Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, Vol.44, No.8.

More discussion about centralized and decentralized distribution systems with P2P software are treated in section 4.1.1 on Piracy and Downloads.

3.8 Understanding of the complexity and interconnectedness of the supply chain

3.8.1 Definition

A supply chain is two or more parties linked by a flow of goods, information, and funds.[151] Supply chains can be described as a series of linked suppliers and customers, who can be termed links, actors or players; chains are commonly portrayed as simple linear processes. Within a supply chain, upstream suppliers provide input; the company then adds value to these inputs, before passing them downstream to the next actor, which can be either another company or the end user (Porter, 1985)[152]. Handfield and Nichols (1998) describe the supply chain as all activities associated with the flow and transformation of goods from the raw material stage through to the end user, as well as the related information flows.[153] Information and material flow both up and down the supply chain (Handfield and Nichols, 1998). The introduction of network technology like the Internet has the potential to transform the supply chains of many industries because of the abolition of the trade-off between richness (bandwidth, customization, interactivity) and reach of information (number of people involved in exchanging information) (Evans and Wurster, 1997)[154].

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[151] Wang, C. (2002*) A General Framework of Supply Chain Contract Models*, Annual Meeting Proceedings, Decision Sciences Institute.
[152] Porter, M. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press, New York, NY.
[153] Handfield, R B. and Nichols, E L. (1998) *Introduction to Supply Chain Management*, Prentice-Hall, Englewood Cliffs, NJ.
[154] Evans, P B and Wurster, T S. (1997) *Strategy and the new economics of information*, Harvard

According to Hardaker and Graham (2001) there are four interrelated dimensions involved in the design of supply chains[155]:

- the structure of activities (Figure 7);
- the choice of actors;
- the governance mechanism; and
- the co-ordination structure.

Hardaker and Graham explain that:

> "The supply chain structure is usually determined by a natural sequence of processes inherent in the manufacturing process (Figure). In many industries, activities are serially interdependent, which means that act two can only be performed if act one has been successfully completed (Thompson, 1967)[156]. However, rather than being created through a process of rational planning, the structure of a supply chain emerges over time and is influenced by factors such as chance, habit and communication and co-ordination constraints (Hardaker and Graham, 2001)[157].

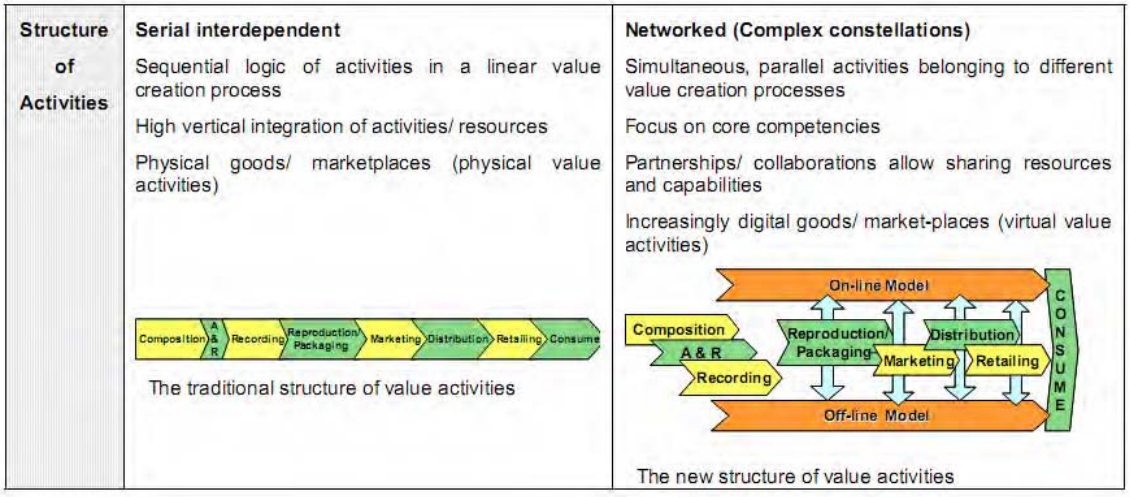

Figure 7. The impact of the Internet on the structure of activities[158]

Business Review, pp.69-82.

[155] Hardaker, G and Graham, G. (2001) *Wired Marketing: Energizing Business for e-Commerce*, John Wiley & Sons, Chichester.

[156] Thompson, J D. (1967*) Organizations in Action*, McGraw-Hill Book Company, New York, NY.

[157] Hardaker, G and Graham, G. (2001) *Wired Marketing: Energizing Business for e-Commerce*, John Wiley & Sons, Chichester.

[158] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004*) The transformation of the music industry supply chain: a major label perspective*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.

3.8.2 The supply chain and the internet

With the explosion of connectivity through the introduction of universal technical standards for communication such as the Internet, extranets and intranets, this trade-off has largely been eliminated, which means everybody can communicate with everybody at almost zero cost, without constraints on the richness of information.[159]Traditionally, significant investment was required to establish a broad distribution system (e.g. a chain of stores), but, as Amazon.com has shown, this is no longer necessary. Consumers can be reached directly, and intermediaries are theoretically no longer required. This can lead to radical changes in business and supply chain structures. Thus business models that have been built on limited access to distribution channels could lose their competitive advantage. Indeed, there is a growing body of work which shows that the Internet is leading companies to develop co-operative and less profit-centered activities which can be encompassed under the broad heading of a supply chain network (Ince, 2000[160]; Lin et al., 1998[161]; Markus et al., 2000[162]). This concept builds on the networking literature and theory undertaken in physical marketplaces, such as the work of Harland (1996)[163] and Gadde and Hakansson (1993)[164].

A supply chain network is a series of processes (also called tiers, states or phases) owned by one or more enterprises in order to promote information-sharing through the

[159] Evans, P B and Wurster, T S. (1997) *Strategy and the new economics of information*, Harvard Business Review, pp.69-82.
[160] Ince, J F. (2000) *VerticalNet is Building B-to-B communities with functionality*, Upside, Vol.12 No.8, p.146.
[161] Lin, F, Tan, G W and Shaw, M J. (1998) *Multi-agent enterprise modelling*, Journal of Organisational Computing and Electronic Commerce, Vol.9, No.1, pp.7-32.
[162] Markus, L M, Manville, B and Agres, C E. (2000) *What makes virtual organisations work? Lessons from the open-source world*, Sloan Management Review, Fall, pp.13-26.
[163] Harland, C M. (1996) *Supply chain management: relationships, chains and networks*, British Journal of Management, Vol.7, March.
[164] Gadde, L.-E and Hakansson, H. (1993) *Professional Purchasing*, Routledge, London.

construction of a "virtual organisation"[165]. In this instance, a "virtual organisation" can be defined as a temporary network of companies that come together quickly to exploit fast-changing opportunities. Examples would include global brokerage and contracting services, payment and banking services, and electronic connections to customers that support activities such as order fulfillment and customer service. As Graham et al. (2002) note, the network theorists appear to be much more concerned with using the Internet to develop sharing communities rather than profit-making organizations. They see the Internet as an opportunity to create communities in which sharing rather than profit-making is the prime rationale for their existence.[166]

Graham et al. (2002) argue that the implications of the rise of the Internet and the emergence of more co-operative, network-based approaches to business have two significant implications for the music industry supply chain. The first implication is that the supply chain will be radically transformed, with many intermediaries disappearing and the power of the major record labels diminishing. The second implication is that rather than purchasing music, consumers may instead choose to share it between them, thus reducing the sales and profits of record companies and artists.[167]

[165] Graham, G, Burnes, B, Lewis, G and Langer, J. (2004) *The transformation of the music industry supply chain*, International Journal of Operations & Production Management, Vol.24, No.11, pp.1087-1103.
[166] Graham, G, Hardaker, G and Burnes, B. (2002) *The peer-to-peer revolution: how the Internet is transforming the supply chain for music*, International Journal of New Product Development and Innovation Management, June/July, pp.115-23.
[167] Graham, G, Hardaker, G and Burnes, B. (2002) *The peer-to-peer revolution: how the Internet is transforming the supply chain for music*, International Journal of New Product Development and Innovation Management, June/July, pp.115-23.

4 Intellectual property rights

4.1 Copyrights

Different types of intellectual property such as literary and artistic creations, inventions, brand names, and so forth, are protected in different ways. Creations in the fields of literature and the arts, such as books, paintings, music, films as well as software, are generally through "copyright or so-called neighboring rights".[168] Copyrights are easily available. The moment someone writes a text, compose music or draws an image, he or she "will have copyright to the result".[169] Creative industries, such as publishing, music, film, software and arts, are a powerful generator of economic growth and employment in both the developed and developing countries.

4.2 Copyrights issues

Towse (2003) tells us that the economic purpose of copyright as an incentive relies upon the need for property rights as a precondition for trade. She argues that information goods intangible in nature and therefore embodying intellectual property cannot be protected solely by contract as they are public goods and thus open to 'third

[168] *Intellectual Property: Source of innovation, creativity, growth and progress*. (2005) International Chamber of Commerce.
[169] *Intellectual Property: Source of innovation, creativity, growth and progress*. (2005) International Chamber of Commerce.

party' free rider use. Without statutory protection, there would be market failure and under-production of information goods and cultural products.[170]

Gervais (2002) explains that:

> "Copyright is at a crossroads: it must adapt to the increasing demand for legitimate online access to protected works, especially music, but also materials used for research and distance education such as scientific books. Otherwise, peer-to-peer technology and other forms of online transmission and exchange may sound the death knell of copyright. The answer will depend in large part on how fast the so-called "content industries" are able to provide business models in tune with the demands of the various user communities. Chances are that copyright will survive. However, the way in which it is used and administered will have to change. The traditional exclusive rights to prohibit use of protected material seem almost impossible to apply in the Internet age. Yet, the copyright "concept" is still the best basis to claim financial compensation and organize markets, two essential tools for creators, publisher and producers".[171]

Although some have attempted to alleviate the concern about the MP3 movement by showing an increase in CD sales from 1999 to 2000; RIAA has attempted to shutdown as many illegal MP3 distribution Web Sites as possible with legal action.[172] For example, the RIAA[173] has undertaken the Secure Digital Music Initiative (SDMI)[174], together with record labels, with the objective of developing secure standards for music files so they can be distributed over the Net without being subjected to piracy abuse.

Lam and Tan (2001) suggest that with the need for widely accepted industry standards, the piracy issue can be alleviated through secure standards, legislation, and

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[170] There is a large literature on this, the classic being Arrow, K. (1962) *Economic welfare and the allocation of resources for invention* in NBER, The Rate and Direction of Incentive Activity, Princeton, NJ, Princeton University Press. See also articles in Towse, R and Holzhaur, R (eds) (2002) Economics of Intellectual Property, Volume 1.

[171] Gervais, D J. (2002) *The Internationalization of Intellectual Property: New Challenges From the Very Old and the Very New*, Fordham Intellectual Property, Media and Entertainment Law Journal.

[172] Lam, C K M and Tan, B C Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, Vol.44, No.8.

[173] The Recording Industry Association of America. (2009) *Reasearch and Data*, Washington, D.C. www.riaa.com

[174] Secure Digital Music Initiative Specifications Version 1; www.sdmi.org.

education.[175] They acknowledge that one way to alleviate the piracy issue is to promote the use of watermarking when encoding digital music. Watermarking is a process of embedding concealed identification and tracking information directly into encoded digital music.[176]

However, oligopolies sensitive to IPRs use copyright laws as a weapon to control mind space on the market and threaten competition, criticism, or even reportage. In the last 30 years, the majors have used their political allies to extend the tenure and scope of copyrights as what was once a means to protect the rights of author-composers and musicians for a limited time has now become the means for multinational companies to guarantee themselves effortless long-term profits. The article "*The Tyranny of Copyrights?*"[177] published in the New York Times Magazines (2004) presents clearly the issue:

> "In 1790, copyright protection lasted for 14 years and could be renewed just once before the work entered the public domain. Between 1821 and 1909, the maximum term was increased from 28 to 53 years. Today, copyright protection for individuals lasts for 70 years after the death of individuals; for corporations, it's 90 years."

The consequence of such an aggressive takeover by the majors is ultimately the lack of work entering the public domain. An emerging phenomenon involved the "big four" to acquire the rights on anything they possibly can.

Media companies are now as focused on accumulating intellectual property as they are in originating new material since selling already produced and successful works

[175] Lam, C K M and Tan, B C Y. (2001) *The Internet is Changing the Music Industry*, Communications of the ACM, Vol.44, No.8.
[176] Lacy, J, Snyder, J H and Maher, D P. (1997) *Music on the internet and the intellectual protection problem*, In Proceedings of the IEEE International Symposium on Industrial Electronics, pp.77-83.
[177] Boynton, R. (2004) *The Tyranny of Copyrights?* The New York Times Magazine. January 25.

requires little overhead and less risk. An emerging situation and strategy in the digital age is something called a "permission culture."

Paul A. David (2000) argues that:

> "Statutory modifications of the intellectual property regime are thus seen by many as essential if the new technical capabilities for electronic network distribution of digitized information are not to be crippled by an obsolescent institutional infrastructure, such as the protection of copyright that has evolved from the grants of monopoly privileges made to printers in the era of Guttenberg. It is both evident and understandable that IPR innovations generally are being directed towards facilitating the continued workings of markets in the age of electronic publishing and distribution of entertainment products (music and video); and towards providing incentives for more private investment in developing convenient means for consumers to access the contents of digital message streams".[178]

4.3 The history of copyrights

The process of internationalizing copyright was fostered in 1886 by the Berne Convention for the protection of literary and artistic works, which has been successively revised and updated. The purpose is to establish minimum standards for authors in all signatory countries and to enable them to obtain the same national treatment. This encourages international trade in goods embodying copyrightable material by protecting authors' rights (Table 4).[179]

[178] David, P A. (2000) *A Tragedy Of The Public Knowledge 'Commons'?* Global Science, Intellectual Property and the Digital Technology Boomerang, Stanford University.
[179] Towse, R. (2003) *Assessing the Economic Impacts of Copyright Reform in the Music Industry*, Commissioned by Industry Canada.

Treaties name	Date	Initiative	Level of Internationalization
Berne Convention	1886	Victor Hugo	Precursor
IFPI	1933	Majors	Organization based in London, UK
Rome Convention	1961	IFPI	International Poor Reception
Geneva Convention	1971	IFPI	International-36 Countries
Athens Agreement	1989	IFPI	International
WIPO Treaties	1996	WIPO	US Law
Digital Millennium Copyright Act	1998	WIPO	US Law

Table 4. Copyrights treaties impacting the music industry

The International Federation of Phonograph Producers (IFPI) was founded in 1933 by a group of international record companies. The goals of the organization were:

> "(…) the defense in the international domain of the interests of the members by preserving their rights, statutory or otherwise, by the promotion of the new legislation to extend such rights or to create them in those countries where they do not already exist and generally by safeguarding the present and future welfare of member by means or representation as a federated body in negotiations with and representations to governments and other interested and representative bodies."[180]

Because of the limited governmental activity to protect the IPRs relating to music, the majors perceived a need to intervene in this domain in order to control the reproduction and performance of their audio software output, which was the main reason for the foundation of the IFPI. The initial desire for such copyright protection was prompted by two developments, namely the growth of the size of the international market for records and innovation by audio hardware companies.[181] In 1961 the IFPI attempted to construct an international convention in order to protect the rights of artists and record

[180] See Article 2 p9 in Allowayt, N. (1983) *Activities and Achievements*, in Jon Borwick (ed), *The First Fifty Years: Celebrating the Fiftieth Anniversary of the IFPI*, IFPI, London, pp.7-13.
[181] Burke, E A. (1996) *How Effective Are International Copyright Conventions in the Music Industry?* Journal of Cultural Economics, Vol.20, pp.51-66.

producers directly, resulting in the 1961 Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations[182] and contained articles protecting the recording of a musical performance, its broadcast, distribution, rental and duplication.

Stephen Stewart (1983), the Director General of the IFPI (1961 to 1979), recalls:

> "In retrospect, I think that the turning point was the struggle to achieve what is known as the Rome Convention (1961), because it was the first time that both phonogram producers and performers were to be given rights on an international level. Record producers needed the two fundamental rights in the field of artistic works: a reproduction right and a performance right. The reproduction right was gained without too much difficulty, although that too was opposed by some national delegations at the diplomatic conference. Over the performance right there was a battle royal as it proved the most fiercely contested issue of the conference. The reason was the notion of a public performance of a work (other than a live performance) was relatively new and the importance of such performances-the audience of live performances is in the hundreds, sometimes thousands, whereas broadcasts may be heard and now seen by millions- was not fully appreciated. There is and never was any sound reason why such performances should not be paid for. The relevant article (Article 12 of the Rome Convention) had to be carried three times by solemn votes in a Sub-committee, the Main committee and eventually the Plenary of the Conference by a two-third majority. It was."[183]

In the light of the poor response to the Rome Convention, the IFPI decided to introduce a new copyright convention that was less rigorous in its demands of national legislature than the Rome Convention. The result was the Geneva Phonograms Convention of October 1971. This convention was more successful in gaining membership and by 1983 thirty-six countries had joined, representing 95 per cent of the

[182] IFPI (1990) *International Conventions and Copyright/Neighboring Rights Legislation*, IFPI, London.
[183] Stewart, S. (1983) *The Years from 1969-1979*, in John Borwick (ed), *The First Fifty Years: Celebrating the Fiftieth Anniversary of the IFPI*, IFPI, London.

world's record production.[184] Solleveld (1983) informs us that the re-orientation of attention from the international to the national level led to a proliferation of IFPI national offices, which became particularly active in the realm of piracy eradication.[185]

Towse (2003) explains that the 1996 WIPO copyright (WCT) and the WIPO Performances and Phonograms Treaties (WPPT) -known collectively as the WIPO Treaties- are the latest in a series of international agreements to establish minimum standards of protection in national copyright laws throughout the world. They are part of the WIPO Digital Agenda also known as WIPO Internet Treaties, which sets out a series of guidelines and goals for WIPO in seeking to develop practical solutions to the challenges raised by the impact of new technologies on IPRs. Put simply, they seek to set standards for protecting copyright and related rights for digital technologies.[186]

In 1998, the Digital Millennium Copyright Act (DMCA)[187] was passed into law to address legality issues in the music industry. The issues covered in DMCA include defining penalties for piracy of original music, setting the context of copyright infringements, and establishing rules for Web-casting technologies.

An important aspect of international trade in intangible rights covered by IP law is that signatories to international conventions are bound to offer equal protection to trading partners who are also signatories. [188]

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[184] Allowayt. N. (1983) *Activities and Achievements*, in Jon Borwick (ed), *The First Fifty Years: Celebrating the Fiftieth Anniversary of the IFPI*, IFPI, London, pp.7-13.
[185] Solleveld, C. (1983) *From Depression to Digital*, in John Borwick (ed), *The First Fifty Years: Celebrating the Fiftieth Anniversary of the IFPI*, IFPI, London.
[186] Towse, R. (2003) *Assessing the Economic Impacts of Copyright Reform in the Music Industry*, Commissioned by Industry Canada.
[187] Paez, M F and Anderman, J M. (1999) *Digital Music and the digital millennium copyright act: Copyright piracy, liability, and licensing*, Working Report, Lowenstein Sandler PC.
[188] British Invisibles. (1995) *Overseas Earnings of the Music Industry*, British Invisibles, London.

Burke's (1996) work highlights that "contrary to common perception, the incidence of low piracy does not appear to stem from specific-orientated audio convention. A priori, the best performer seems to be the Berne Convention." Therefore Burke assesses that copyright conventions were not effective in reducing audio counterfeiting to comparatively low levels. He argues that economic development was found to be the main determinant of low counterfeit levels, which is "a necessary condition for the active recognition of property rights relating to recorded music, by the general public, judiciary and police. Burke concludes that "it is also consistent with a view that pirate audio software, being n inferior good, has a more buoyant market in less developed economies".[189]

The following few paragraphs illustrate how the treaties and acts discussed previously were utilized in legal settlements between the music industry on one side, and Napster and MP3.com on the other.

In UMG Recording, Inc. et al. v. MP3.com, Inc. (United States District Court, Southern District of New York), United States District Court Judge Jed S. Rakoff concluded that "defendant's infringement of plaintiffs' copy rights is clear" (p. 1, 00 Civ. 472). During the case, MP3.com argued that its repository of legally purchased copyrighted material, which it distributed to registered users, was protected by "fair use". However, Judge Rakoff concluded that the "defendant's 'fair use' defense is indefensible and must be denied as a matter of law" (p. 9, 00 Civ. 472).

In the Napster.com case, United States District Judge Marilyn Hall Patel refused a motion by Napster.com to dismiss the lawsuit against them, ruling that Napster.com was

[189] Burke, E A. (1996) *How Effective Are International Copyright Conventions in the Music Industry?* Journal of Cultural Economics, Vol.20, pp.51-66.

not entitled to "safe harbor" status as provided in the Digital Millennium Copyright Act (DMCA) of 1998 (Section 512 (a)).[190]

The safe harbor provisions of the DMCA were established to protect Internet service providers from liability and court-issued injunctions regardless of their knowledge, in the case that users of the service committed illegal actions. Judge Patel subsequently issued a preliminary injunction against Napster.com, ordering them to stop distributing copyrighted materials.[191]

The RIAA asked the court to enjoin Napster.com because "Napster is causing irreparable harm to plaintiffs and the entire music industry".[192]

In their motion, the RIAA presented a study conducted by the Field Research Corporation that suggested that the use of Napster displaces compact disk sales.

According to Lee Rainie, Director of the Pew Internet Project, technologies like Napster are "a huge threat to the music industry and a harbinger of the trouble the internet will pose to other entertainment forms like the movies".[193]

Finally, U.S. District Court Judge Jed S. Rakoff, in establishing damages in the MP3.com case noted that:

> "The size and scope of defendant's copyright infringement was very large and the potential for harm was similarly large. But on the other hand, plaintiffs have made not any attempt at this trial to prove actual damages they may have suffered. The court views the absence of any proof of actual damages as a mitigating factor favorable to the defendant".[194]

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[190] Harris, R. (2000) *Napster Set Back in Copyright Lawsuit by Music Industry*, Associated Press, www.digitalmass.com, 5/09/00.
[191] *Judge Orders Napster to Halt Online Music Distribution*, www.cnn.com; 7/26/00.
[192] *Napster Faces Injunction*, Reuters, www.cnnfn.com, 6/13/00.
[193] *Survey: 13 Million Americans Have Downloaded Music for Free*, www.cnn.com, 6/9/00.
[194] *Napster Isn't Affecting CD Sales*, Reuters, www.zdnet.com, 8/28/00.

4.4 Piracy and black markets

4.4.1 Piracy and unauthorized downloading

The IFPI makes a clear distinction between illegal sales of pirated CDs and downloading of music via P2P files and other means. According to IFPI (2009)[195]:

> "Unlawful downloading and swapping of music online is not the only cause of the unfulfilled potential of the digital music revolution-but it is a major one. Illegal music services pose unfair competition to legitimate start-ups. In some cases they make millions of dollars from selling online advertising and bundled software on the back of unauthorized content distribution".

IFPI (2009) points out that CD sales dropped by 34% globally in trade revenues to record companies between 1999 and 2008. According to IFPI this coincides with the key period of growth in usage of P2P. International data on piracy are used to calculate lost revenue to sound recording makers by obtaining the number of units sold multiplied by local pirate CD prices and in this way calculate that in 2002 piracy cost the industry US$ 4.3 billion[196]. There is not such an estimate available that has been made for the access to MP3 files and downloads. According to Towse (2003):

> "There are several reasons why the latter are difficult to calculate: whereas the pirate CD market is highly organized and visible, downloads are difficult to measure and so far are only estimated from figures of use of illegal sites, such as KaZaa and Grokster, and from surveys; these figures, however, are ambiguous about the effect on the market since some users sample music and later purchase legal CDs and others, for example, children, would not otherwise purchase music they had to pay for. We can expect that information will eventually improve so that more accurate figures can be used to demonstrate the negative impact on sales but that requires economic calculations that have not yet been done."[197]

[195] IFPI (2009) *Recording Industry in Numbers 2009*. The Definitive Source of Global Music Market Information, published by IFPI.
[196] IFPI (2002) *Music Piracy Report*.
[197] Towse, R. (2003) *Assesing the Economic Impacts of Copyright Reform in the Music Industry*, Commissioned by Industry Canada.

Alexander (2002) says that decentralized systems that do not rely on a centralized server are worrisome to the majors.[198] He explains that the architecture of distribution systems such as MP3.com and Napster.com are "structured around a series of centralized servers that direct electronic traffic and rout requests for files". In the case of MP3.com, the servers hold and also distribute the files. On the other hand, Napster presents a list of sites where a file is hosted, and the choice of site is left to the client. In contrast, Alexandre argues that newer distribution systems, such as Gnutella -and its clones- and Freenet are decentralized, and do not make use of a central server.

Thus, Alexandre supports that the type of legal remedies currently utilized by the firms in the music recording industry against Napster and MP3.com is much less effective on a cost basis against Gnutella or Freenet users:

> "Each individual computer that has the Gnutella or Freenet software installed on it becomes a server via a continuous series of pure peer-to-peer connections. So, for example, if one machine has the required software and internet connection, it can connect with another machine, which itself is connected to another machine, and so on. This decentralized one-to-one or pure peer-to-peer structure is precisely what makes these systems a threat to firms in the music recording industry. The lack of centralized servers means that there are few, if any, reasonable targets for litigation. Moreover, tracing the users of the Gnutella system is difficult. While users are only pseudo-anonymous on the system and hence can conceivably be traced, the general use of dynamic rather than static IP addresses means that every time a user logs on the system they are assigned a new address, thus rendering traces less useful. Perhaps more importantly, Freenet users are simply impossible to trace, which precludes detection and the potential for subsequent litigation".[199]

[198] Alexander, P J. (2002). *Peer-to-peer File Sharing: The Case of the Music Recording Industry,* Review of Industrial Organization, Vol.20, pp.151-161.
[199] Alexander, P J. (2002) *Peer-to-peer File Sharing: The Case of the Music Recording Industry*, Review of Industrial Organization, Vol.20, pp.151-161.

4.4.2 Black markets

The increased customer power derived through the use of illegal P2P music sites was temporarily reduced by the legal actions taken by record companies to shut down P2P sites, but many new P2P sites have sprung up, reducing the impact of RIAA's actions. The term piracy is generally used to describe the deliberate infringement of a copyright on a commercial scale. Compact disc piracy became a global problem in the 1990's because the technology of duplicating CDs developed rapidly, making CDs a quicker, easier, and cheaper product to duplicate than most other forms of sound recording. Let us keep in mind that CD sales still accounts nowadays for about 80% of overall prerecorded music sales. The pirates or counterfeits are shipped around the world through complicated distribution channels for sales, making the place of origin difficult to determine. The sales of these pirates not only infringe upon the rights of the artist involved, but also create unfair competition at every level of the industry supply chain.

As of 1998, pirate sales made up 33% of global music sales. [200] The industry estimate loses of about $5 billion every year due to piracy worldwide. This assessment is common in the music industry and accounts only for the physical product.

An estimated six out of every 10 CDs sold in Mexico are believed to be bootlegs, pummeling Mexico's long-established local music industry. Sales in 2003 plunged to US $347 million, down 25% from 2002, recording industry employment has fallen by nearly half since 2000, and the government is losing more than US $100 million annually in tax revenue.[201]

[200] IFPI. 2000.
[201] Los Angeles Times

In Pakistan, piracy levels in cable television, music and software are over 90%, draining more than US $1 billion in tax revenue.[202]

4.5 DRM

David (2000) explains that it is obvious that in publishing industries, as in the recording industry, experimentation with new business models has been induced by the new, digital technology-based created economic conditions of negligible transmission and copying costs. He also supports that:

> "Typical of the transformed business strategies has been the provision of nominally priced or freely distributed data and applications programs, coupled with the offer of related (upgraded, enhanced and more up-to-date) information goods and services on a fee-for-service basis. New computer-based methods of encryption, and copy-protection, along with digital monitoring techniques (e.g., embedded "watermarks") that can be deployed by the distributor to thwart unauthorized reproduction of digitized material, are also being deployed; in some instances to reinforce old business models based upon copyright protection, but cases as a means of implementing a two-part pricing strategy for marketing information goods that does not depend upon the protections of copyright laws".[203]

The majors, under the "umbrella" of the IFPI and national organizations such as BPI in the UK and the RIAA in the USA, responded vigorously to the digital threat by demanding levies on the sale of blank software. They also lobbied for a mechanism, known as Serial Copy Management System (SCMS), to be mandatory component in all

[202] *Intellectual Property: Source of innovation, creativity, growth and progress*. (2005) International Chamber of Commerce.
[203] David, P A. (2000) *A Tragedy Of The Public Knowledge 'Commons'?* Global Science, Intellectual Property and the Digital Technology Boomerang, Stanford University.

studio hardware.[204] This system scrambles digital readings, generating nonsensical digital recordings. It therefore restricts home-taping to a traditional analogue method.[205]

A major breakthrough in achieving this objective occurred in June 1989 with a "Memorandum of Agreement" between hardware and software producers and became known as the Athens Agreement.[206] The agreement states that:

> "The European companies acknowledge that they accept the principal of royalties and will not oppose efforts by the Recording Industry to secure legislation to implement such royalties. The Japanese companies acknowledge that the Recording Industry (and particularly the Japan Phonograph Record Association) places extreme importance on the issue of royalties as remuneration for copying that is permitted to continue following the adoption of any technical standards. The Parties agree that the adoption of technical standards shall not be relied upon by the Parties as a basis for supporting or opposing royalties".[207]

This development evolved further on the 11th of July 1991 in the USA when the RIAA, the Electronic Industries Association (EIA) and the National Music Publisher Association (NMPA) agreed to lobby the US Congress for a levy on blank software and the mandatory installation of SCMS in all audio hardware equipment.[208]

According to Fetcherin and Schmid (2003) electronic commerce with digital content over open networks like the Internet provides opportunities as well as risks for content providers. So far, most content providers from the media and entertainment industry have not been profitable in charging consumers for their products[209] nor have they been successful in creating technology frameworks required to, on the one hand, compensate content providers and on the other hand, protect against piracy. However, the

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[204] IFPI (1991) *Anti-Piracy News*, IFPI for the Record 9(3), June/July, London.
[205] Burke, E A. (1996) *How Effective Are International Copyright Conventions in the Music Industry?* Journal of Cultural Economics, Vol.20, pp.51-66.
[206] IFPI (1991) *IFPI 1991 Review: The Challenge of the Nineties*, IFPI, London.
[207] IFPI (1991) *IFPI 1991 Review: The Challenge of the Nineties*, IFPI, London.
[208] IFPI (1991) *New Deal on Digital Technology*, IFPI Pres Information, July 12, 1991.
[209] Fetscherin, M and Schmid, M. (2003) *Comparing the Usage of Digital Rights Management Systems in the Music, Film, and Print Industry*, IECE'03, October 1-3, Pittsburgh, PA.

recent emergence of Digital Rights Management Systems (DRMS) seemed to help provide content providers with an instrument to fight piracy and sell their digital content.

The Association of American Publishers[210] defines DRM as "the technologies, tools and processes that protect intellectual property during digital content commerce". The role of a DRMS is to protect and manage intellectual property ownership as content travels through the value chain from the content creators to consumers and even from consumers to consumers (C2C). Fetcherin and Schmid (2003) identified seven core protection technologies for a DRMS (Table 5):

- Encryption
- Passwords
- Watermarking
- Digital signature
- Digital fingerprinting
- Copy detection systems
- Payment systems

[210] Association of American Publishers, A. (2000) Digital Rights Management for Ebooks: Publisher Requirements.

Pro DRMS	Contra DRMS
• Gives content providers the necessary technology to protect IP • Enable new business models (e.g., superdistribution – OASIS case) • User pay only for the effective use of the content (e.g., pay-per-use) • Hamper the distribution of digital content • Enables to control access and usage of digital content • Assures the authenticity and integrity of the digital content • DRMS automates and reduces the complexity of „rights" management in the digital environment	• Restrict faire use (e.g., track monitor) • DRMS are conceptual simple but practical very complex • No standards • Poor inoperabilities • Not user friendly or restricts the lawful sers • Risk of data and privacy infringement • Restricts innovation, research, and free speech • Piracy has always existed. Furthermore, in some cases, pirate copies are of benefit

Table 5. Pros and cons of DRMS usage[211]

Fetcherin and Schmid (2003) argue that there are commonly nine different file format used by the music industry for downloading and streaming (download: wma, mpeg, wav, mp3, real audio, tek, liquid media; streaming: wma, real audio, mpeg, mp3, quicktime, flash). They state that for downloading wma is used the most frequently, whereas in streaming mp3 and real audio are the most common formats.

There are three types of pricing systems used for downloading and streaming which are pay-per-use, monthly subscription, and yearly subscription. Pay-per-use is the most commonly used price system, both for downloading and streaming. It is also common for the music industry to use pay-per-use and subscription simultaneously.

[211] Fetscherin, M and Schmid, M. (2003) *Comparing the Usage of Digital Rights Management Systems in the Music, Film, and Print Industry*, IECE'03, October 1-3, Pittsburgh, PA.

According to Fetcherin and Schmid (2003) the most commonly used protection technologies are password, encryption and payment system. Record labels that do not use a payment system either finance their online offer through paid membership in their offline organization or they have outsourced the payment process.

Also the creation of a password enabled content providers to collect marketing information via Internet transaction, which is a key strategy. Predominantly private information is provided during the registration process allowing the identification of the consumer and the collection of valuable information to create user profiles for the company.

Regarding encryption, the main goals are the access control and the protection against piracy. Encryption assures the customer that only who has the corresponding right (key) can access the content. After the download/stream of encrypted content is over, it is not possible to make it accessible for third parties. The principal goal of a payment system is to increase revenues.

Fetcherin and Schmid (2003) conclude that content providers in the music industry that use encryption believe in the success of DRMS, while the non-encryption-users do not.

Fetcherin and Schmid (2003) find that there is a relationship between the number of various protection technologies used to protect digital content and the level of satisfaction of the content providers. The authors also found that it cost the music industry about five times more to implement a DRMS than the implementation of a DRMS in the print industry.

Fetcherin and Schmid (2003) also found that to attract and keep consumers, the music industry mainly offers:

- Guarantee of quality (authenticity, no viruses, no Trojans horses).
- Additional content (e.g., pictures, texts).
- Customer support.
- Education to the consumer. When buying legal digital content, the consumer has the certainty of helping an artist and not harming him.
- Superior usability of the user interface (benefit is limited, peer-to-per networks are easy to handle as well).

However, some would argue that there is not much additional customer value offered except legality. Finally, content providers such as iTunes and Amazon have recently started offering DRM free downloads.[212]

4.6 Collecting societies and publishing

4.6.1 Collecting societies

Towse (2003) explains that copyright collecting societies are:

> "Membership collectives that administer specific rights accorded to authors and publishers under copyright law, which they do by licensing rights to users and distributing the revenues to their members. They usually do this by issuing a blanket license for the repertoire of all the works of their members, which allows the user unlimited use of the whole repertoire assigned to (or licensed by) the collecting society for the duration of the license. Collecting societies world wide, form a network of cross-national agreements for licensing each others' members' works and thus form an international mutual network that vastly reduces costs of international copyright transactions. Collecting societies therefore pool

[212] For an in depth discussion on this topic please refer to Chapter 6.2.

> transaction costs for rights owners that would otherwise be prohibitively expensive for individuals to exercise and reduce costs for licensees, who would otherwise have to trace and contract with a multitude of rights owners worldwide". [213]

But though the license is across the board, revenues are distributed to individual members in accordance with the use made of their works on a 'pay-per-use' basis. The database of the collecting society enables it to provide the service to its members and it is the main reason why a collecting society is a natural monopoly.

Collecting societies are set up in somewhat different ways in different countries. For example, in European countries and Japan, collecting societies are set up by a state grant of monopoly and rates for both the license tariffs and the administrative charge may be determined by the government.[214]

4.6.2 Publishing

Towse (2003) informs us how music was one of the first of the cultural industries to be afforded protection through copyright law. In the early years of the 20th century, music publishers and composers were granted mechanical rights in the so-called mechanical reproduction of music, at first by means of piano rolls and later through sound recording. Composers' synchronization rights enable them to control the use of their music on TV and in film and video (Figure). With the spread of radio ownership, the public performance of music lead to copyright legislation that enabled composers and

[213] The Monopolies and Mergers Commission in the UK (now known as the Competition Authority) has accepted the natural monopoly of collecting societies for particular rights. In the USA, as is well known, ASCAP and BMI compete (see Caves, chapter 19). The German collecting society GEMA has also been subject to anti monopoly enquiry. For governance of collecting societies, see Kretschmer (2002).
[214] Towse, R. (2003) *Assessing the Economic Impacts of Copyright Reform in the Music Industry*, Commissioned by Industry Canada.

publishers to collect remuneration for the public performance of music from broadcasting and this right was later extended to sound recording makers.[215]

Performing rights are the right to perform music in public. It is part of copyright law and demands payment to the music's composer/lyricist and publisher with the royalties generally split 50/50 between the two. In simple terms a public performance means that a musician or group who is not the copyright holder is performing a piece of music live. Performances are considered "public" if they take place in a public place and the audience is outside of a normal circle of friends and family, including concerts, nightclubs, restaurants and so forth. Public performance also includes broadcast and cable television, radio, and any other transmitted performance of a live song trough any other media. Permission to publicly perform a song must be obtained directly from an artist or artist's representative.

In the United States, broadcasters can pay for their use of music by either obtaining the permission/license directly from the music's copyright owner who usually is the publisher or by obtaining a license from ASCAP and BMI to use all of the music in their repertories. ASCAP and BMI along with the much smaller SESAC are the three performing rights societies in the United States. Once these collecting societies receive payment from the broadcasters they are responsible for compensating the music authors and publisher (Figure 8). Nearly every professional composer, songwriter, lyricist and publisher is a member of a performing rights society and the income received from them is a major source of their income.

[215] Towse, R. (2003) *Assessing the Economic Impacts of Copyright Reform in the Music Industry,* Commissioned by Industry Canada.

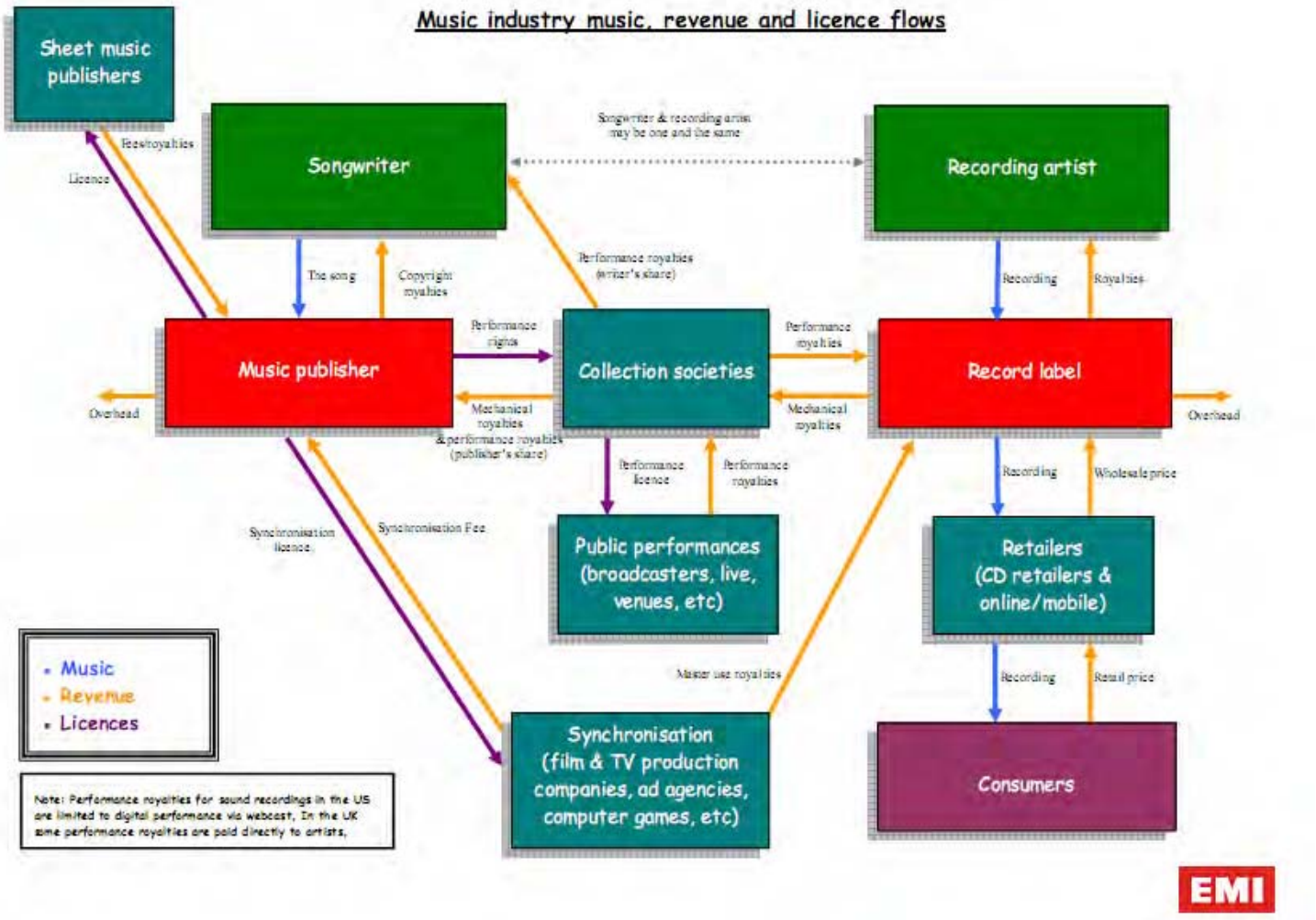

Figure 8. Music, revenue, and licenses flows[216]

David (2000) argues that "quite evidently the rapid advances made during the past decade in electronic and optical telecommunications, and other components of

[216] http://www.emi.com

digital network technologies, are having some profoundly unsettling effects upon the industrial organization and competitive structure of conventional publishing businesses".

According to David, the disruptive impacts of these technical developments upon pre-existing business interests and established institutions are a familiar feature of the ways in which technological innovation, in the form of new processes and products, drives economic growth. Joseph Schumpeter (1913) described it as "creative destruction" – much to the shock of the academic economics establishment in the Vienna of his early career. Not surprisingly, then, some "IPR reform" initiatives have essentially been defensive responses to the disruption of the industrial status quo ante, seeking to protect existing streams of economic rent from new sources of competition; whereas other efforts have aimed to adapt the institutional and legal frameworks in ways that would create profitable applications of new technologies for competitive purposes".[217]

Keith C. Hauprich and Bob Donnelly (2000) discuss the repositioning of music labels and related issues from the publisher's perspective as well as the artist attorney's perspective.[218] They tell us that new entrants are getting into music publishing every day "ranging from private-equity funds to record companies because publishing is perceived as being more insulated against the changing marketplace due to its diverse streams of revenue".[219]

A new phenomenon occuring is labels and publishers becoming "music companies" as opposed to two separate entities with different roles. Record labels are

[217] David, P.A. (2000) *A Tragedy Of The Public Knowledge 'Commons'?* Global Science, Intellectual Property and the Digital Technology Boomerang, Stanford University.
[218] Hauprich is Vice President, Business & Legal Affairs for Cherry Lane Music Publishing Co. Inc. New York attorney Donnelly is a partner with the law firm of Lommen, Abdo, Cole, King & Stageberg P.A., with whom he recently merged his practice after serving as a sole practitioner specializing in music matters for 30 years.
[219] Hauprich, K and Donnelly, B. (2000) *Digital Age Shifts, Roles of Labels, Music Publishers*, Entertainment Law & Finance.

grasping at sources of revenue from their recording artists through "360-degree" or "multiple-rights" agreements that allow labels to share in artist touring, merchandise and product-endorsement revenues, and, at times, music-publishing revenues.

For music publishers, as new channels of distribution have arisen and technology has allowed for the creation of less-expensive, high-quality recordings, the stranglehold of records labels has considerably weakened. Publishers now find themselves willing to develop and promote artists. Clearly this isn't a novel concept. However, it's cheaper to put an artist in a studio while the ever-expanding channels of distribution allow publishers to get right to music users. Given these factors, the frequency with which music publishers attempt to break new artists has increased.

However, publishers earn the same amount of mechanical income if a song is sold as a single or if it's sold as one track on an album. Therefore, according to Hauprich and Donnelly seems that music publishers are actually better off with the new digital-sales model, which emphasizes singles sales, because they are not forced to suffer the loss of those mechanical-royalty monies, which would not be paid by a record company if the album exceeded its 10 to 12 song "cap rate".

Finally, Donnelly (2000) expresses his concern:

> "As music publishers start to diversify and perform traditional record-company functions, there is a danger that they could lose their favored status among the artist community. In fact, music publishers have traditionally been the artists' greatest advocate when it comes to preventing record companies from encroaching into this area. As publishers start to become investors in an artist's record career, I can't help but worry that this fire-wall will start to be eroded when it is no longer in the best interests of the publisher to prevent cross-collateralization."[220]

[220] Hauprich, K and Donnelly, B. (2000*) Digital Age Shifts, Roles of Labels, Music Publishers*, Entertainment Law & Finance.

4.7 New business models for a new era

When the first legitimate online retailers entered the marked, the major record companies where somewhat reluctant to license their music to these services. However, with the rapid growth of illegal file sharing, record companies realized that they had to offer file sharers an alternative to illegal downloading in order to limit the damage file sharing was causing. This led to an increasing willingness amongst the record companies to license content to online music services.

The first legal service selling music online was eMusic, launched in the US in 1998. This was followed by Wippit (UK) in 2000 and Pressplay, MusicNet and OD2 in 2001. Many smaller, independent companies did license content to these services.

However, these Companies failed to acquire content from the major record companies with many of the most popular artists and consequently did not attract massive appeal in the consumer market. It was only with the introduction of the iTunes Music Store (iTMS) in the US in 2003 that the online music market started to gain some momentum. Soon after, other major companies such as Yahoo, Microsoft, Napster, Real, and Sony launched online music services, creating a multitude of different types of music services available to the consumers.

However, most of these were at first only available in the US, and only in the larger European countries (UK, Germany, and France) soon after. I will touch upon the development of the Norwegian online music market in later chapters.

According to Norman (2005) presents the two dominant models for the online distribution of music:

> "The most dominant business model for online distribution of music is the single track download model, often referred to as the à la carte download model. This

> model is used by market leading iTunes Music Store and other major players such as Microsoft's MSN Music and Sony's Connect service. The single track download is also the model that most resembles the traditional physical retail model, where the consumer purchases a product gaining a sense of ownership, similar to the experience of purchasing a CD. A second dominant business model is the subscription model. The most common variant of this model allows customers unlimited access to a large catalogue of music for a monthly fee. Users will then either be able to download or stream music. The nature of this model is significantly different to other models previously discussed as users do not claim ownership of any music. Subscription users are actually renting rather than owning music, and this business model represents a significant watershed in the nature of music distribution and consumer behaviour. Big players in the online distribution business favouring this model are Napster and Rhapsody. There are also several examples of companies giving the customer the option of either purchasing tracks out right, or subscribing to a music service".[221]

Other related models currently emerging are streaming audio and video services, and portable subscription services, which enable the consumer to rent a large catalogue of music and play it on portable devices.

New players in the online music value chain are hardware manufacturers, Internet service providers (ISPs), content portals, and mobile operators. Hardware manufacturers are not new to the music industry, but they are arguably the most active in the online music business. ISPs and content portals are new to the music value chain, offering various types of music services. Finally, with wireless technology, music is now also distributed across mobile networks, facilitated by mobile operators.[222]

Norman (2005) expresses that "in an attempt to become triple play providers (voice, broadband, and TV/content), ISPs increasingly offer interesting content to their

[221] Normann, H. (2005) *Digital Distribution of Music: The role of networks and knowledge in the Norwegian recorded music industry*, Faculty of social Sciences at the Oslo University, Norway, Globalization, Innovation and Policy.
[222] Normann, H. (2005) *Digital Distribution of Music: The role of networks and knowledge in the Norwegian recorded music industry*, Faculty of social Sciences at the Oslo University, Norway, Globalization, Innovation and Policy.

customers". One example of this type of service is offered by UK based Playlouder MSP.[223]

This leads to a general change in the business paradigms from "owning" to "sharing" (content) – from product to service (Kusek and Leonhard 2005). As control over access to music becomes more important in favor of control over ownership of music, the actors in the recorded music business will be forced to adapt to this change (Kusek and Leonhard, 2005)[224].

Entities like record labels that rely on one form of distribution and high-profit margins such as from CDs will have to re-think their business model or disappear. Unlike labels, music publishers aren't beholden to the sale of prerecorded music and are better suited to handle the changing ways in which consumers choose to get their music.

According to Varian, we will likely see more and more possibilities for customization of both information and physical products. Amazon was accused of charging different prices to different customers depending on their behavior (Rosencrance, 2000)[225], but they claimed that this was simply market experimentation. However, the ease with which one can conduct marketing experiments on the Internet is itself notable. Varian presumes that companies will find it much easier to fine-tune pricing in Internet-based commerce, eliminating the so-called "menu costs" from the pricing decision. Brynjolfsson and Smith (1999) found that Internet retailers revise their

[223] Normann, H. (2005) *Digital Distribution of Music: The role of networks and knowledge in the Norwegian recorded music industry*, Faculty of social Sciences at the Oslo University, Norway, Globalization, Innovation and Policy,
[224] Kusek, D and Leonhard, G. (2005) *The Future of Music*, Boston: Berklee Press.
[225] Rosencrance, L. (2000) *Amazon charging di erent prices on some DVDs*. Comptuerworld, September 05 2000. http://www.computerworld.com/cwi/story/0,1199,NAV47_STO49569,00.html.

prices much more often than conventional retailers, and that prices are adjusted in much finer increments.[226]

Varian explains that the theory of monopoly first-degree price discrimination is fairly simple: "firms will charge the highest price they can to each consumer, thereby capturing all the consumer surplus. However, it is clear that this is an extreme case. Online sellers face competition from each other and from offline sellers, so adding competition to this model is important".

Ulph and Vulkan (2000, 2001) have examined the theory of first-degree price and product differentiation in a competitive environment. In their model, consumers differ with respect to their most desired products, and firms choose where to locate in product space and how much to charge each consumer. They find that there are two significant effects: the enhanced surplus extraction effect and the intensified competition effect.[227][228]

Varian also says that second-degree price discrimination refers to "a situation where everyone faces the same menu of prices for a set of products. It is also known as "product line pricing," "market segmentation," or "versioning." The idea is that sellers use their knowledge of the distribution of consumer tastes to design a product line that appeals to different market segments". This form of price discrimination is, of course, widely used. We don't normally think of musical tracks and CDs as being sold in product lines but, upon reflection, it can be seen that this is a common practice.[229]

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[226] Brynjolfsson, E and Smith, M. (1999) *Frictionless commerce? A comparison of Internet and conventional retailers*, Management Science, Vol.46, No.4. http://ebusiness.mit.edu/erik/.
[227] Ulph, D and Vulkan, N. (2000) *Electronic commerce and competitive first-degree price discrimination*, Technical report, University College, London. http://www.ecn.bris.ac.uk/www/ecnv/welcome.htm.
[228] Ulph, D and Vulkan, N. (2000) *Electronic commerce and competitive first-degree price discrimination*, Technical report, University College, London. http://www.ecn.bris.ac.uk/www/ecnv/welcome.htm.
[229] Varian, H R. (2001) *High-Technologies Industries and Market Structures*, Prepared for Federal Reserve Bank of St. Louis, Jackson Hole Symposium.

According to IFPI (2009)[230] music companies and their partners have introduced a variety of new legitimate services to supplement traditional business models and adapt to new forms of consumer demand. These include music access services, fully-interoperable download stores, and advertising-supported offerings. At the same time, music companies are working to develop new revenue streams, ranging from creating value in the music experience, be it through games or merchandizing products, to brand partnerships and improved broadcast and public performance rights.

Examples of 'music access' models launched in 2008 and early 2009 include Nokia's Comes With Music available in the UK, Italy, Sweden, Singapore, and Australia; Sony Ericsson's PlayNow service launched in Sweden as well as a service launched by local telecom TeliaSonera; Denmark's TDC PLAY; Vodafone Spain's unlimited music service; a music service from Finnish ISP DNA and a number of such partnerships in France with ISPs and mobile operators including Neuf Cegetel, Orange and SFR.[231]

Also IFPI (2009) believes that the consumer choice in the traditional à-la-carte sector is improving. Many services now offer their music catalogues free of digital rights management (DRM), allowing for interoperability between devices. Also early 2009 marked the introduction of variable pricing in the download market. On iTunes, while many songs are still sold at 99 cents, some new releases cost $1.29 and many older catalogue songs now sell for 69 cents. Amazon and other online retailers are also offering tracks at different prices.

[230] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.
[231] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.

Devices like the iPhone are also helping drive mobile music consumption. While the iPhone is still a niche device, accounting for around 2% of UK mobile users, iPhone users are much more likely to consume music.[232]

IFPI (2009) supports that music companies are working hard to monetize the rapidly growing area of social networks. In this case, a free-to-user experience business model predominates. Spending by advertisers has tilted towards online platforms in the last few years, with the Internet now accounting for 10.3% of global advertising spend or $49.9 billion.[233]

Increasingly, music platforms on social networks link the unlimited streaming discovery environment with purchase opportunities. By integrating the 'free' streaming experience with opportunities for consumers to buy and permanently own tracks, music companies can open up additional revenue streams.

Also, in 2008 music videos remained one of the top video categories online, evidenced by the most-watched videos on YouTube. Over half of the top 30 most-watched videos on YouTube are licensed music videos from such as Avril Lavigne, Chris Brown and so forth.

Finally, in April 2009 Universal Music Group and Google partnered to create a new music video service called Vevo, a central repository for all of UMG's visual content such as music videos, interviews and concert footage. YouTube will provide the technology behind the service, and will be the first online streaming video service to

[232] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.
[233] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.

syndicate the content. Negotiations to bring catalogues of other labels into the service are ongoing. The service is due to launch towards the end of 2009. [234]

[234] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.

5 Methodology and data

5.1 Data

In order to introduce a statistical representation and the decline of physical sales as regard to digital sales and performance rights revenues; a data set of 47 countries from the year 2004 to 2008 is gathered (Appendix). The countries presented are the 47 most powerful producers and exporters of prerecorded music.

The trends showed in the analysis and model exposition represent the global recorded music sales in US $ billions, and music sales broken down by sectors and/or geographical areas in percentages. The different sectors are physical sales, digital sales, and performance rights revenues. The various geographical areas include North America (including the US and Canada), Europe, Asia (including Japan), and Latin America. In addition, two additional groupings are showing on the one hand the music sales for the top 20 higher performing countries and on the other hand the remaining 27 countries.

The IFPI data used in the present dissertation was compiled by Francesca Jacobson and Laura Childs for IFPI. I formatted this compilation into the table presented the Appendix and processed the data into fractions to represent the trends into percentages.

All of the data compiled and analyzed for growth and trends is based on trade value or wholesale value which refers to the record companies' revenue, net of discounts,

returns and taxes. Promotional goods and non-music related products are excluded from the present data.

Reported physical sales include CD sales ordered via the Internet (e.g. Amazon). Figures are provided by the record companies in the respective markets to the local IFPI body. IFPI applies a 'coverage factor' to the figures to account for non-reporting companies, therefore representing 100% of the market.

Digital sales refer to sales via online, mobile channels, and via subscriptions. Income from ad-supported services, mono/polyphonic ringtone income and bundled subscriptions were included in the digital sales figures in 2008. IFPI has revised 2007 digital sales for the major markets to include these new digital categories and in order to reflect true year-on-year digital growth. However, the years 2004, 2005, and 2006 have not been adjusted to include new digital categories. Online sales include single track and album downloads, music video downloads, streams, bundles and kiosk sales. Mobile music sales include master ringtones, single track downloads to mobile, ringback tones, music videos downloads to mobile, streams, mono/polyphonic ringtone income, embedded music on mile phones (pre-loaded), mobile bundles, greetings and dedications income. Subscription revenues include online, mobile and bundled subscriptions.

Performance rights revenues represent the monies received by record companies from music licensing companies for licenses granted to third parties for the use of sounds recordings and music videos in broadcasting (radio and TV), public performance (nightclubs, bars, restaurants, hotels) and certain Internet uses.

Performance rights revenues refer to distributions to record companies and it excludes non-allocated distributions and non-recurring distributions such as settlement

amounts. Distributions for the current year refer to monies collected by music licensing companies in the previous year (e.g. distributions for 2008 refer to monies collected in 2007). Figures are provided by the respective companies to IFPI. Also figures are subject to rounding, which may affect overall totals and percentages. Finally, IFPI figures may differ from local industry groups' reports due to different methodologies.[235]

Besides the inconsistencies of methodologies used by different local industry groups, the most important issue with the data is that there is no Internet sales value and corresponding percentages of global trade revenues. Therefore there is no break down between physical sales of CDs, DVDs, LPs, tapes which occur in stores or online. The second drawback is that many independent musicians whose sales occur online and who have not declared themselves as independent label orate affiliated with a record company which is not associated with any of the IFPI offices are not being represented in this data.

5.2 Social network analysis [236]

Social network analysis (SNA) is a methodological tool that belongs to the science of complexity. Mitchell Waldrop (1992) argues that complexity is:

> "(…) a subject that is still so new and wide-ranging that nobody knows quite how to define it, or even where its boundaries lie. But then, that is the whole point. If the field seems poorly defined at the moment, it is because complexity research is trying to grapple with questions that defy all conventional categories".[237]

Social network analysis suggests new methods for coping with evolving technologies and the evolving complexity of a dynamic competitive landscape. In the

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[236] All Social Network Analysis representations have been created using the SNA open source software ORA designed by Kathleen M. Carley Copyrights 2001-2009 Center for Computational Analysis of Social and Organizational Systems (CASOS), School of Computer Science, Carnegie Mellon University.
[237] Waldrop, M M. (1992) *Complexity: The Emerging Science at the Edge of Order and Chaos*, Simon & Schuster, New York.

social sciences, social network analysis has become a powerful methodological tool alongside statistics. Networks concepts have been defined, tested, and applied in research traditions throughout the social sciences, ranging from anthropology and sociology to business administration and history.[238]

Social network analysis focuses on ties among, for example, people, groups of people, organizations, and countries. These ties combine to form networks, which are then analyzed. Social network analysts assume that interpersonal ties matter, as do ties among organizations and countries, because they transmit behavior, attitudes, information, or goods.[239] Therefore, social network analysis offers the methodology to analyze social relations as it tells us how to conceptualize social networks and how to analyze them. The main goal of social network analysis is detecting and interpreting patterns of social ties among actors.

The basis of social network visualization was laid by researchers who called themselves sociometrists. Their leader, J.L. Moreno, founded a social science called sociometry[240], which studies interpersonal relations. Society, they argued, is not an aggregate of individuals and their characteristics, as statisticians assume, but a structure of interpersonal ties. Therefore, the individual is not the basic social unit. The social atom consists of an individual and his or her social, economic, or cultural ties. Social atoms are linked into groups, and, ultimately, society consists of interrelated groups.

[238] Nooy, W, Mrvar, A and Batagelj, V. (2005) *Exploratory Social Network Analysis with Pajek*, Cambridge University Press.
[239] Nooy, W, Mrvar, A and Batagelj, V. (2005) *Exploratory Social Network Analysis with Pajek*, Cambridge University Press.
[240] Nooy, W, Mrvar, A and Batagelj, V. (2005) *Exploratory Social Network Analysis with Pajek*, Cambridge University Press.

Eight different SNAs are presented in the following chapter. SNA is an extension of graph theory. A graph is a set of vertices (also called points or nodes) and a set of lines where each line connects two vertices, therefore representing the structure of a network.

A vertex is the smallest unit in a network and represents an actor (record company, artist…) and is usually represented by a number.

A line which is a tie between two vertices in a network represents the social relation between those two vertices. That line may be directed or undirected. The SNAs presented below are all directed graphs where a directed line is also named an arc.

Formally, an arc is an ordered pair of vertices in which the first vertex is the sender and the second is the receiver (e.g. revenue flows). A network consists of a graph and additional information on the vertices or the lines of the graph. In the SNAs presented in he following chapter, the name of the nodes represent the additional information on the vertices. The lines of my networks have all equal value (meaning a value of one) and have no preferential choice regarding which node to go to first. Line values usually indicate the strength of a relation. Again, the lines in my SNAs have all equal strength of relation.

Next, some of the most important definitions of measures regarding the statistical analysis of a network are explained.

First of all, cohesion implies that a social network contains many ties and as more ties between agents yield to a tighter structure and therefore more cohesiveness. In SNA this notion is captured that the density measure. The density is the number of lines in a network, expressed as a proportion of the maximum possible number of lines. A network

in which all pairs of vertices are linked by two arcs, one in each direction is considered to be a network with maximum density or a complete network.

According to Nooy, Mrvar and Batagelj (2005)[241] network density is not very useful because it depends on the size of the network:

> "Density is inversely related to network size: the larger the social network, the lower the density because the number of possible lines increases rapidly with the number of vertices, whereas the number of ties which each agent can maintain is limited".

They argue that it is better to look at the number of ties in which each vertex is involved. This is called the degree of a vertex. They explain that a higher degree of vertices yields a denser network, because vertices entertain more ties. Therefore, the average degree of all vertices can be used to measure the structural cohesiveness of a network. According to Nooy, Mrvar and Batagelj, this is a better measure of overall cohesion than density because it does not depend on network size, so average degree can be compared between networks of different sizes. Also the in degree of a vertex is the number of arcs it receives and the out degree is the number of arcs it sends.

However, besides the useful analysis of the degree of various vertices, I believe that density measures are relevant in the present study because most of the networks presented are relatively of a comparable size.

Most social networks contain people or organizations that are central. Because of their position, they have better access to information and better opportunities to spread information. This is known as the ego-centered approach to centrality. Viewed from a socio-centered perspective, the network as a whole is more or less centralized. Centrality

[241] Nooy, W, Mrvar, A and Batagelj, V. (2005) *Exploratory Social Network Analysis with Pajek*, Cambridge University Press.

refers to the position of individual vertices within the network, whereas centralization characterizes an entire network.

Nooy, Mrvar and Batagelj tell us that:

> "A network is highly centralized if there is a clear boundary between the center and the periphery. In a highly centralized network, information spreads easily but the center is indispensable for the transmission of information".

For example, the larger the number of sources accessible to a person, the easier it is to obtain information. The importance of a vertex to the circulation of information is captured by the concept of betweenness centrality. High betweenness centrality indicates that a person is an important intermediary in the communication network. Information chains are represented by geodesics (the shortest path between two vertices) and the betweenness centrality (the variation in the degrees of vertices divided by the maximum degree variation which is possible in a network of the same size) of a vertex is simply the proportion of geodesics between pairs of other vertices that include the vertex.

The centralization of a network is higher if it contains very central vertices as well as very peripheral vertices. Network centralization can be computed from the centrality scores of the vertices within the network where more variation in centrality scores means a more centralized network.

5.3 Scenario planning

Chermack, Lynham, and Ruona (2001) tell us that:

> "Uncertainty has become an important factor for business leaders and planners to consider. In such a rapidly changing business environment, the ability to adapt quickly to major changes can mean the difference between a thriving business and bankruptcy. These changes are often external to the organization, and coping with them has forced managers and executives to adopt a systems view of business. With global complexities and changes likely to continue on the current path of

> growth, the future of the global business environment will require an even more thorough ability to examine the forces of change and anticipate possible solutions to potential problems. A well known method for coping with future changes in organizations has been strategic planning".[242]

According to Cummings and Worley (2001), because organizations are open systems, they must strive to achieve the best possible fit with the external environment.[243] As Schoemaker (1995) said: "scenario planning is a disciplined method for imagining possible futures that companies have applied to a great range of issues".[244]

Scenario planning has proven to be an effective tool for identifying critical future uncertainties and investigating "blind spots" in the organizational structure. It is in large part an adaptation and generalization of classic methods used by military intelligence.

According to Schoemaker (1995):

> "Scenarios are more than just the output of a complex simulation model. Instead they attempt to interpret such output by identifying patterns and clusters among the millions of possible outcomes a computer simulation might generate. They often include elements that were not or cannot be formally modeled, such as new regulations, value shifts, or innovations. Hence, scenarios go beyond objective analyses to include subjective interpretations".[245]

Scenario planning may involve aspects of complex systems thinking, specifically the recognition that many factors may combine in complex ways to create sometime surprising futures. Schoemaker (1995) explains that scenario planning tries to compensate for "underprediction and overprediction of change" as regard to decision making. He also supports that scenario planning helps expand the range of possibilities

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[242] Chermack, T J, Lynham, S A and Ruona, W E A. (2001) *A Review of Scenario Planning Literature*, Future Research Quarterly.
[243] Cummings, T G and Worley, C G. (2001) *Organization Development and Change*, (6th ed.) Cincinnati, South-Western College Publishing.
[244] Schoemaker, P JH. (1995) *Scenario Planning: A Tool for Strategic Thinking*, Sloan Management Review, pp.25-40.
[245] Schoemaker, P JH. (1995) *Scenario Planning: A Tool for Strategic Thinking*, Sloan Management Review, pp.25-40.

we can see, while avoiding to drift into “unbridled science fiction” by diving our knowledge into three distinct areas which are:

1. elements we know we know
2. elements we know that we don’t know
3. elements that fit into the area of uncertainty (elements that we don’t know that we don’t know)

Systems thinking used in conjunction with scenario planning, leads to plausible scenario story lines because the causal relationship between factors can be demonstrated. In these cases when scenario planning is integrated with a systems thinking approach to scenario development, it is sometimes referred to as structural dynamics.

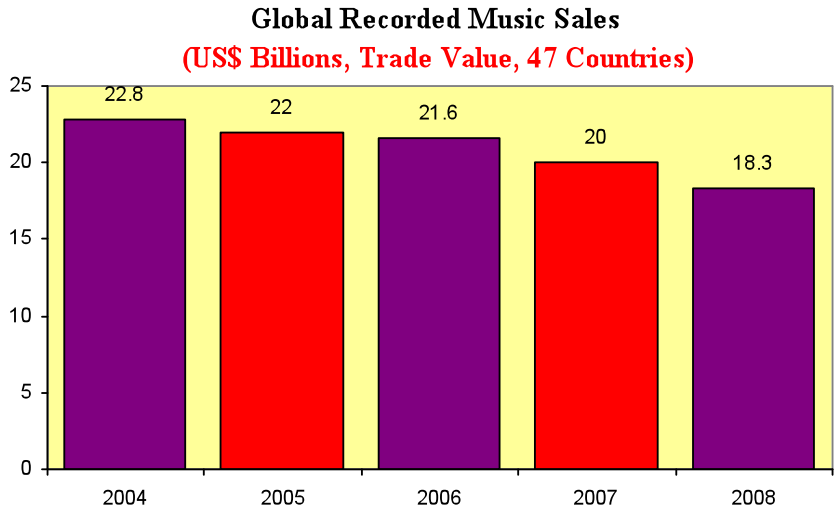
Schoemaker (1995) identifies ten steps for constructing scenario planning:

1. Definition of the scope
2. Identification of the different Stakeholders
3. Identification of the basic trends
4. Identification of the basic uncertainties
5. Construction of the initial scenario theme
6. Checking for consistency and plausibility
7. Developing learning scenarios
8. Identification of research needs
9. Developing a quantitative model
10. Evolving towards decision scenarios

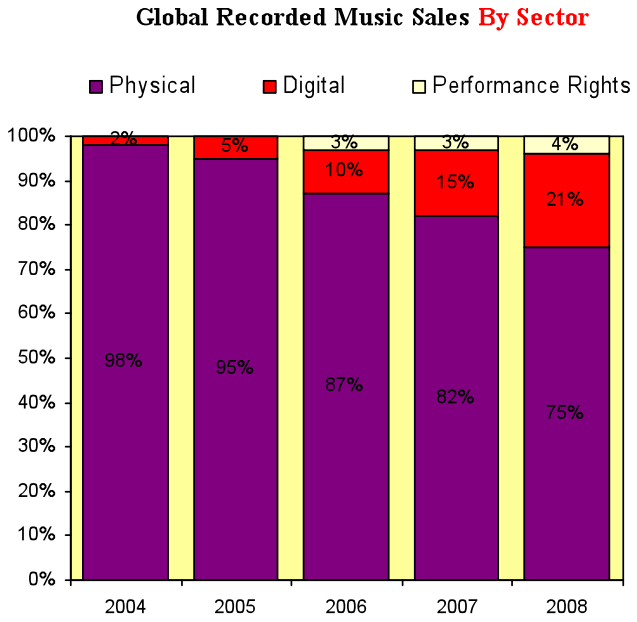
In the present dissertation I attempt to combine social network analysis and scenario planning to construct a fresh representation of the flows of information and revenues within the supply chain for the music industry in a future where 1) the majors are nonexistent and 2) where black markets act as a substitute to the majors.

6 Model exposition and analysis

6.1 First implication: Physical distribution becomes less and less important

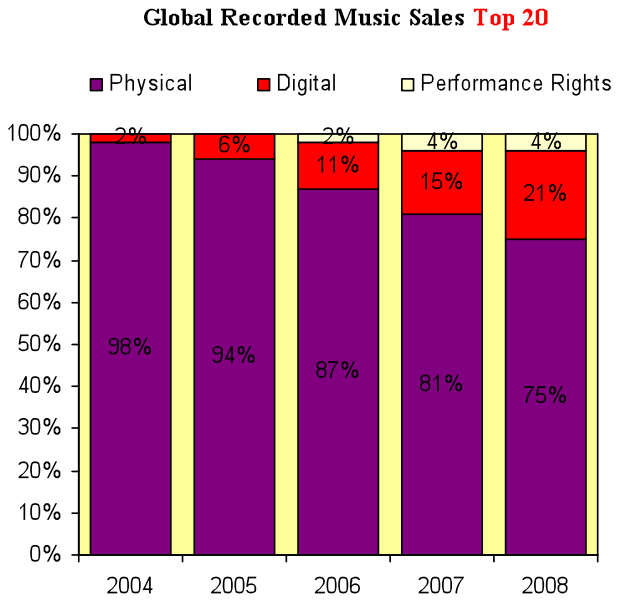


Graph 2. Global recorded music sales



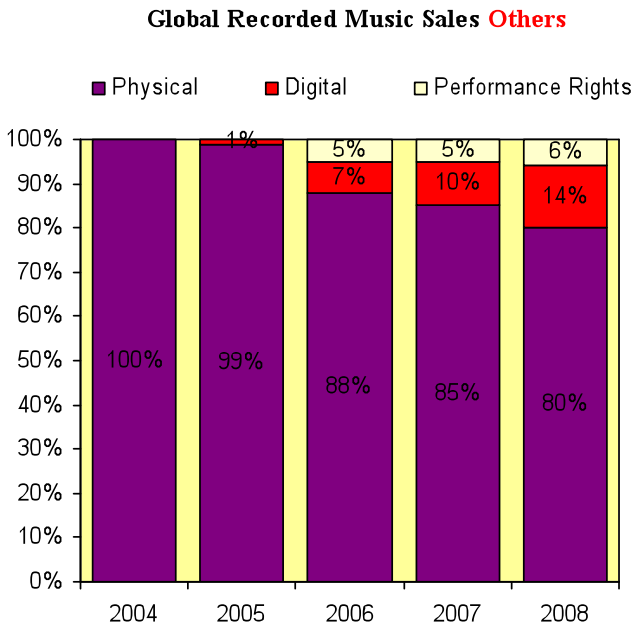
Graph 3. Global music sales by sector

The figures (graph 2 & 3) above represent mostly the decline in sales from the majors. Most independent artists and record companies that are not affiliated with any IFPI offices are not part of this representation. It also seems that the decline in global recorded music sales is highly correlated with the decline in physical sales.



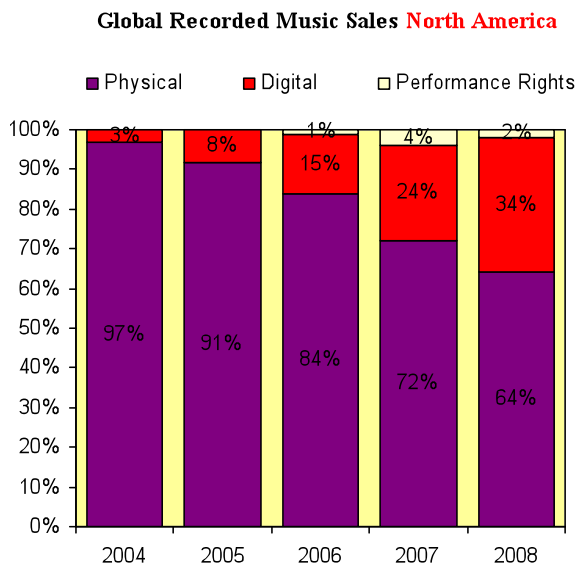
Graph 4. Top 20 countries global music sales by sector

The patterns of distribution in various geographical regions are quite uneven. The top 20 figure seems to be perfectly aligned with the global music sales and the Asian market figures (Graph 8). It presents the top 20 countries (United States, Japan, UK, Germany, France, Canada, Australia, Italy, Spain, Netherlands, Brazil, Russia, Switzerland, Belgium Austria, Mexico, Sweden, South Korea, India, and Denmark) as the driving force behind the global music industry (Graph 4). Also of importance is that, as of 2008, a third of the sales were divided between digital and performance rights. Note that, regarding the proportion of physical to digital sales; the North American (US and Canada) market is a year ahead the Top 20 figure and two years ahead of the European and Latin American regions. We can assume that the rest of the world will be following the trend set by the US (Graph 6).



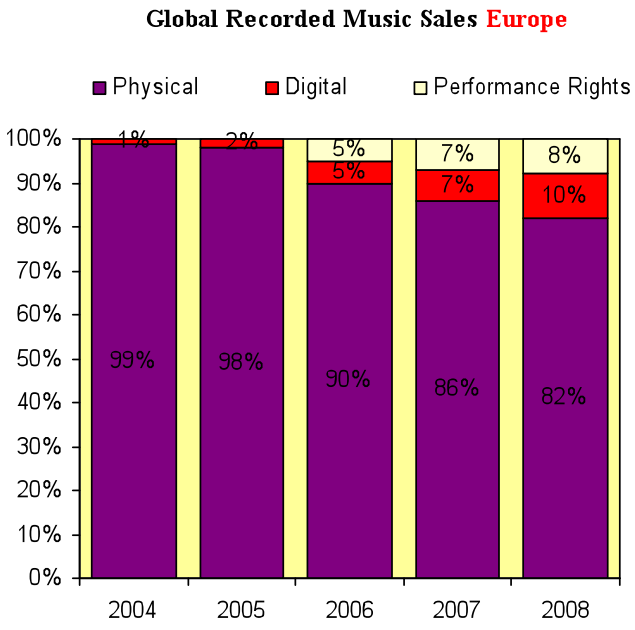
Graph 5. Other 27 countries global music sales by sector

However the North American market seems to be behind regarding performance rights. This could be due to the fact that radio broadcasting, TV stations, and other media in the United States and Canada keep on recycling old tunes which belong to bundled catalogs owned by the majors which are not successful and motivated selling new releases (Graph 6). Also it is common in the United States that the media companies (Radios stations, TV stations…) are also owned by conglomerates similarly to the music industry, which allows them to control media space and bundle the purchase of performance rights. It is rare when we can hear something new of the radio and TV series also seem to recycle old musical material.



Graph 6. North American countries (US and Canada) global music sales by sector

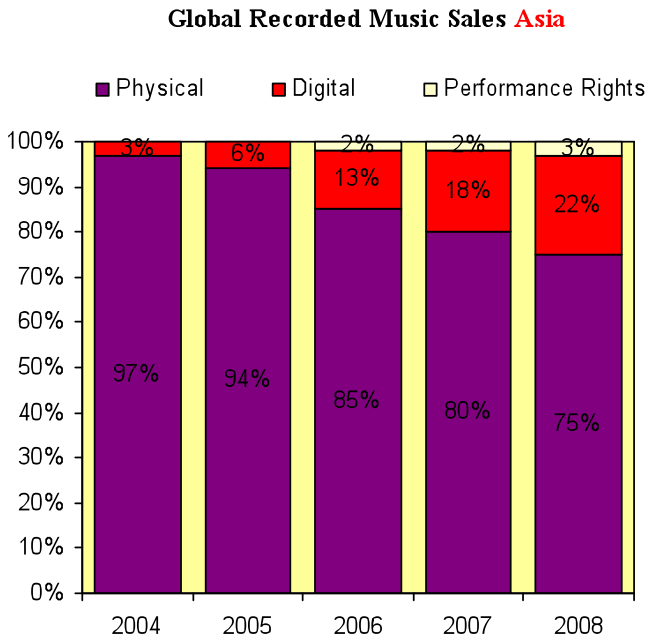
Interestingly the other 27 countries represented in the data (Norway, South Africa, Poland, Finland, China, Turkey, Portugal, Thailand, Argentina, New Zealand, Taiwan, Greece, Hong Kong, Indonesia, Czech Republic, Hungary, Colombia, Malaysia, Singapore, Venezuela, Chile, Philippines, Croatia, Ecuador, Peru, Slovakia, and Uruguay) are closely aligned with the European (Graph 7) and Latin American (Graph 9) regions which are huge consumers and producers of music (Graph 5). In these two regions physical sales are still thriving and performance rights are quiet successful. The performance rights revenues can be associated with the popularity of night clubs, the variety of musical materials on the radio, and the large consumption and demand for local musical artists in the indigenous language.



Graph 7. European countries global music sales by sector

According to IFPI recorded music sales in physical formats continued to fall in 2008 because of the continued impact of illegal downloading on CD sales, particularly affecting younger consumers purchasing habits; the shrinking shelf space for recorded music in physical stores leading to limited purchases locations for CD buyers; difficult economic conditions, with many shop closures taking place during 2008; increasing competition from other entertainment products; partial shift towards legal online purchasing, among younger consumer; worsening economic environment particularly impacting sales during Christmas 2008; the increasing ubiquity of music, leading to

digital consumption without purchase; and the continued impact of physical piracy in many markets.[246]



Graph 8. Asian countries global music sales by sector

[246] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.

Graph 9. Latin American countries global music sales by sector

Finally, it is important to comprehend that prerecorded music physical sales and retail -or in-stores- sales are pretty much one and the same. Unfortunately, because the data is failing to provide a break down between physical sales sold online and physical sales sold in stores, this data is not entirely accurate. The decline in physical sales proves that the traditional supply chain in the music industry is failing. The music industry's profits are still very much rooted in the traditional supply chain's model and the ability to control this supply chain is therefore quickly fading away forcing the majors into new strategic positioning.

6.2 Second implication: The "majors" are pressured into a new strategic positioning

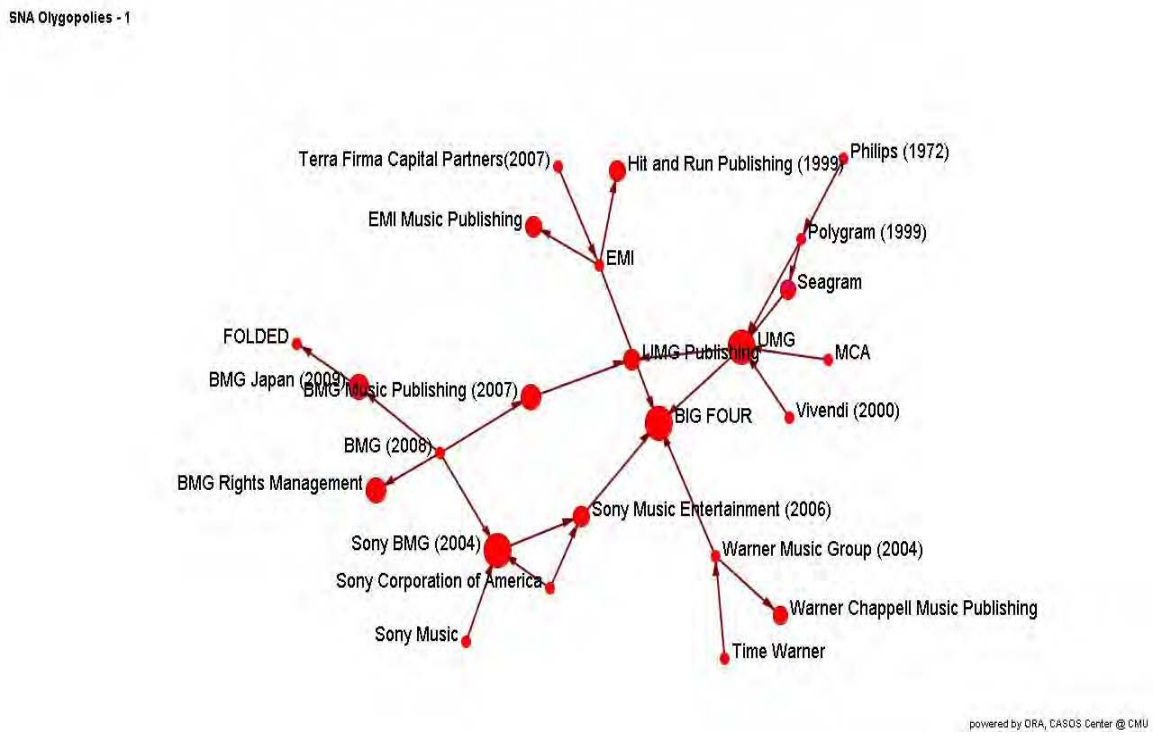


Figure 9. SNA of the "big fours'" mergers history

Measures	Network
Number of Nodes	24
Number of Links	26
Density	0.047
Centrality-Betweenness	0.0181

Table 6. SNA measures for the "big fours'" mergers history

The social network analysis above presents the intense mergers history of the majors over the past 40 years (Figure 9). This is as far as I know the first representation of this complex phenomenon available in the literature. The SNA is not comprehensive, as it does not include all of the hundreds of record labels owned by each major. However, it is revealing as it represents each company's unique history and merger strategy. In the

case of UMG which became the number one major; Vivendi's strategy was to purchase three of the most powerful labels –MCA (former major), Seagram and Polygram (former major)- as well the BMG publishing group. Each company acquired a music publishing company but note how the BMG publishing company crossed over to become the number one publishing company "UMG publishing".

EMI and Warner on the other hand, had a very different experience. EMI was purchase by the conglomerate Terra Firma Capital Partners as of 2007 and became the only privately owned major whereas Warner experienced the opposite process as it was divested by the conglomerate Time Warner in 2004, which does not hold any ownership anymore. They lie in opposite side of the social network and seem to be a mirror representation of each other.

Finally, Sony seemed to have had a more complicated history as its joint venture with BMG in 2004 resulted in Sony acquiring 100% of it ownership over BMG as of 2008. However, Sony made a strategic mistake letting BMG publishing go to UMG. Sony would have probably been the number one major if not for that incident. However Sony and UMG seem to have a particular relationship as seen in the following SNA.

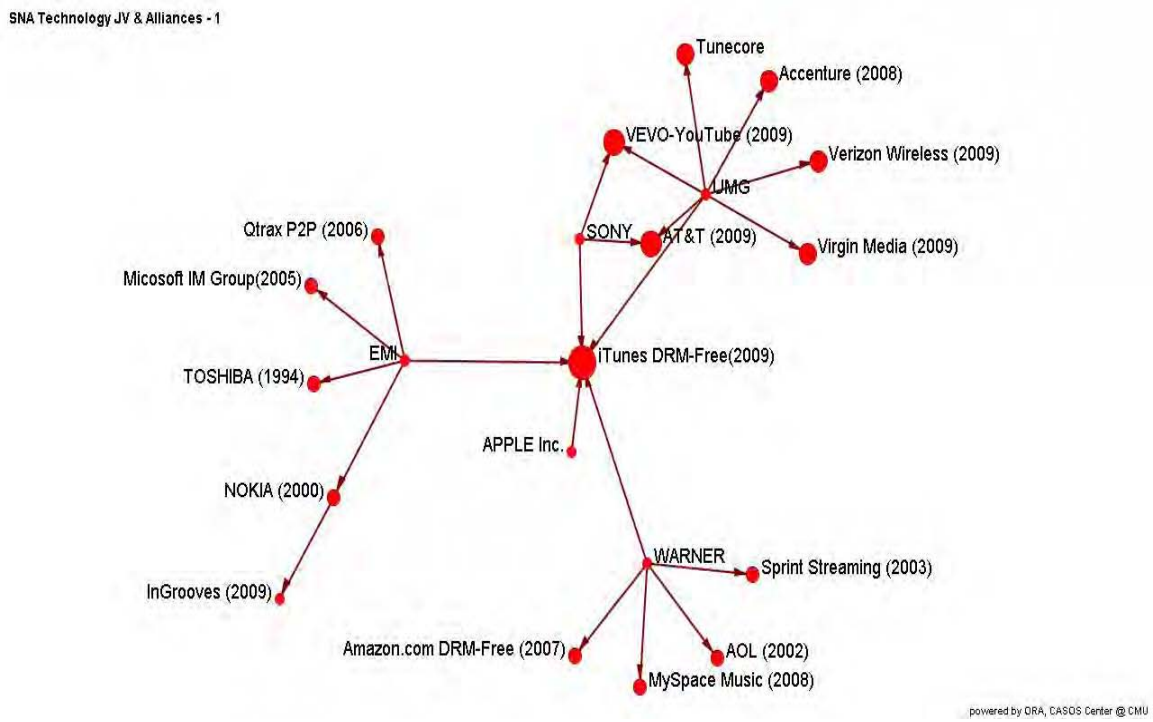


Figure 10. SNA of the "big fours'" technology JVs and alliances

Measures	Network
Number of Nodes	21
Number of Links	22
Density	0.052
Centrality-Betweenness	0.0026

Table 7. SNA measures technology JVs and alliances

The next step and second SNA prepared for this dissertation depicts the "big fours'" technology joint ventures and alliances with "new service companies" (Figure 10). It shows how the majors are creating alliances with new service companies such as P2P service companies (Qtrax), supply chain management companies (Accenture, Microsoft IM Group), digital distribution companies (iTunes, Amazon.com, Tunecore), mobile phone companies (Verizon Wireless, Sprint, Nokia, AT&T), social networking sites (Myspace), and media and broadcasting companies (YouTube, AOL).

The key information in this SNA is the emergence of the most central node - iTunes. As of January 2009, the software-based online digital media store operated by Apple Inc, accounted for 70% of worldwide online digital music sales and making the service the largest legal music retailer.[247] The "big four" cannot do without iTunes. It has become a necessity and the worse fear for the majors because it owns the leading technology for pushing online digital music sales. Note how all of the other "new service companies" are peripheral and act in isolation in comparison to iTunes. This also shows the dominance and the quasi monopolistic position of iTunes as well as the high level of competition and the lack of collaboration between the other technology companies. The low density (0.052) and centralization (0.0026) measures support the fact that there is no cooperation between iTunes and the other technology companies (Table 7).

Will iTunes become one of the new majors? That is the key question. As artists now have the ability to sell their songs directly on iTunes bypassing record companies it would not be far fetched to suggest that iTunes could replace the majors. If iTunes would acquire and run a major publishing company, the majors would be placed in a very difficult position, as they would have no reason to exist anymore. Leyshon (2001) argues that a secure digitally distributed future "would be seen in some quarters of the music industry as a highly effective measure to neutralize the power of the retailers".[248]

Another interesting emerging alliance is the collaboration between Sony and UMG on one end, and YouTube and Google on the other, to create an online streaming video service company -Vevo. Would the number one and number two majors attempt to

[247] *iTunes Store Top Music Retailer in the US*. http://www.apple.com/pr/library/2008/04/03itunes.html
[248] Leyshon, A. (2001) *Time-space (and digital) compression: software formats, musical networks, and the reorganization of the music industry*, Environment and Planning A, Vol.33, pp.49-77.

find a safe house within Vevo to survive the dominance of iTunes in the area of the online digital market.

EMI and Warner have adopted similar strategies forming alliances with similar companies and compete against each other.

In summary, EMI and Warner have opted to compete with a similar strategy against each other whereas UMG and Sony chose a more collaborative strategy.

Finally, an important detail available in the SNA above is the fact that both Amazon.com (2007) and iTunes (2009) have recently been offering their digital products DRM-free. There has not been any scholarly literature on this topic as of the time of the writing of this dissertation. It is an area of great interest for the future of the music industry and is an open door for further research.

6.3 Third implication and base scenario: The centrality of the supply chain revolves around the artist.

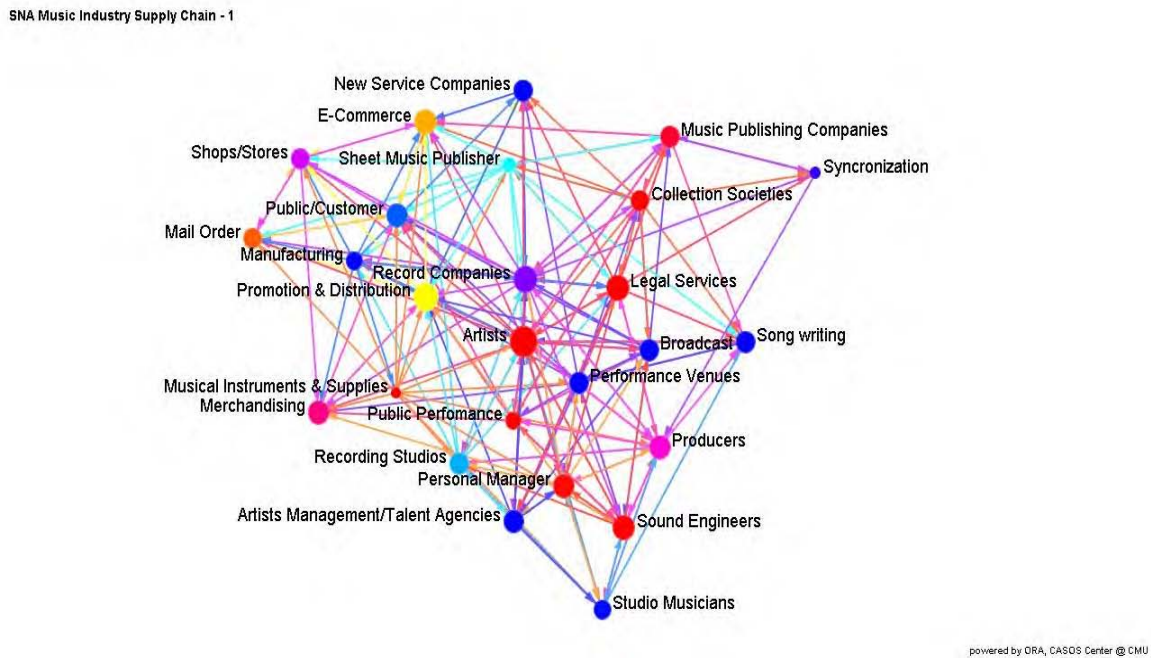


Figure 11. SNA music industry supply chain (information flows)

Important Vertices	Network	Artist	Record Companies	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	26	1	1	1	1	1
Number of Links	206	24	20	16	15	9
Density	0.3169	NA	NA	NA	NA	NA
Centralization Measures						
Total Degree	0.48	0.76	0.62	0.34	0.44	0.3
Indegree	0.3776	0.68	0.52	0.52	0.4	0.28
Outdegree	0.544	0.84	0.72	0.16	0.48	0.32
Centrality-Betweenness	0.2244	0.1654	0.264	0.1521	0.057	0.0243
Centrality-Closeness	0.7316	0.8621	0.7813	0.3521	0.641	0.5814

Table 8. SNA measures (information flows)

In general the music industry's supply chain has evolved drastically in the past 25 years from a traditional model to an online model but to be more adequate the music industry's supply chain has been recently in an early stage of rebundling. It is a little bit more complex than purely an online value chain. As discussed previously, physical product sales are rapidly declining while record companies try to reposition themselves forming alliances with new service companies. Therefore, the supply chain for the music industry is somewhat in a transitional stage forming a hybrid value chain. In this hybrid supply chain, the positioning of every agent involved in the music industry has been shaken.

Therefore, in this part of my analysis, building on the works of Leyshon (2001), Premkumar (2003) and Graham, Burnes, Lewis and Langer (2004), I created two distinct sets of social network representations of the music industry's supply chain's information flows and revenue flows. Those SNAs offer a detailed visualization of where the agents

involved in the music industry are positioned in the supply chain under different conditions. By combining scenario planning and social network analysis, I have simulated a total of six SNAs for the supply chain's information flows and revenue flows combined. The first two SNA representations in this section are my base scenario or in other words the actual virtual representation of what the music industry's supply chain looks like. The remaining four SNAs are an alternate virtual representation of what the music industry's supply chain could become under various conditions.

I am also offering analytical measures for the networks as a whole as well as for five individual nodes (artist, record companies, promotion and distribution, legal services and publishing companies).

Figure 11 reveals where every agent involved in the music industry is positioned in today's supply chain. The overall density of the network is quiet high (0.3169) telling us that the network is cohesive and that every agent is closely intertwined which is also explained by a very high centrality-closeness measure (0.7316) (Table 8).

However, the key information exposed by this SNA is the artist as being the most central and most important agent in the supply chain. Without the artist there would not be a music industry. It has the larger amount of links (24) as well as a high centralization total degree[249] measure (0.76). Therefore, the artist carries a high level of cohesiveness with the other agents within the supply chain.

Record companies (20 links, 0.62 centralization total degree) and legal services entertainment lawyers (15 links, 0.44 centralization total degree) are also central to the social network and key players transmitting information throughout the supply chain.

[249] The total degree represents the average between indegree and outdegree.

Finally, promotion and distribution companies (16 links, 0.34 centralization total degree) and music publishing companies (9 links, 0.3 centralization total degree) have also important functions within the supply chain keeping the information flowing within the network and supporting the artist and the record companies.

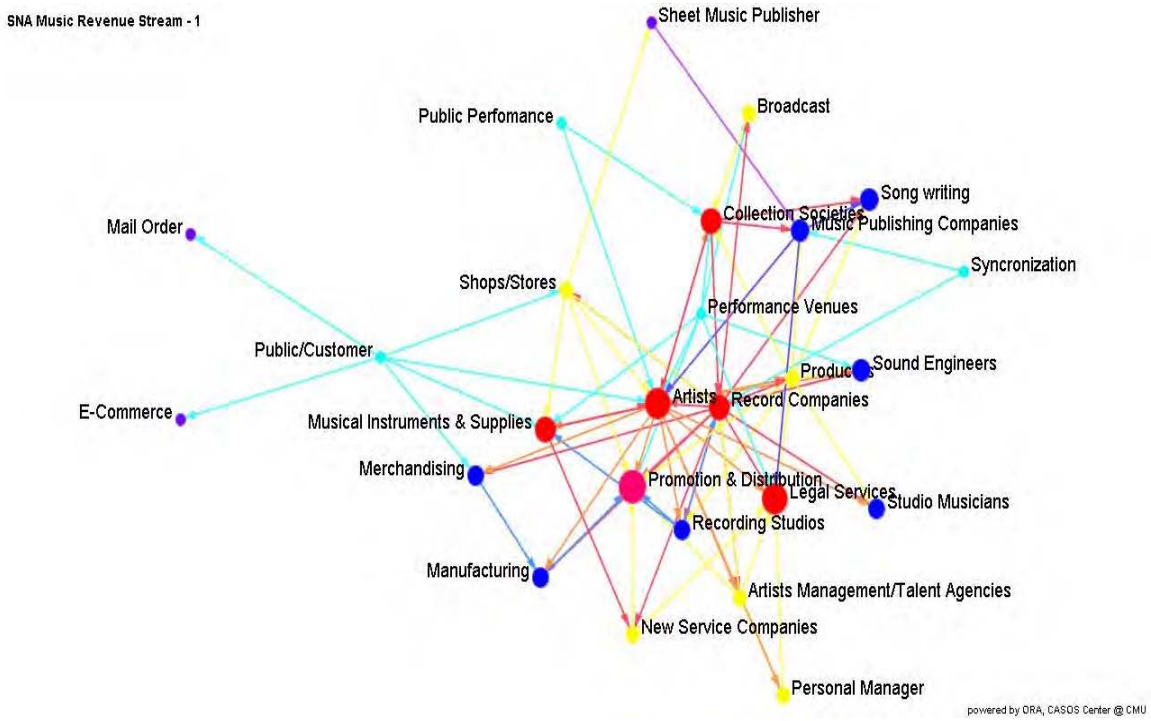


Figure 12. SNA music industry supply chain (revenue streams)

Important Vertices	Network	Artist	Record Companies	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	26	1	1	1	1	1
Number of Links	79	18	16	9	8	7
Density	0.1215	NA	NA	NA	NA	NA
Centralization Measures						
Total Degree	0.3017	0.4	0.38	0.18	0.16	0.14
Indegree	0.248	0.32	0.2	0.36	0.32	0.16
Outdegree	0.456	0.48	0.56	0	0	0.12
Centrality-Betweenness	0.1556	0.1694	0.1504	0	0	0.0379
Centrality-Closeness	0.2427	0.1344	0.1389	0.0385	0.0385	0.125

Table 9. SNA measures (revenue streams)

Figure 12 represent the revenue flows in the music industry's supply chain. This network is much less cohesive as shown by a low level of density (0.1215)(Table 9). Again, the artist is the most central vertex or agent within the supply chain (18 links, 0.4 total degree). The indegree measure (0.32) shows the variation of vertices that provide revenue to the artist whereas the outdegree measure (0.48) shows the variation of expenses that the artist provides to the other agents within the supply chain.

The record companies are in a similar position as the artist regarding revenue flows. The outdegree measure (0.56) shows us that the record companies greatly contribute economically to the music industry's supply chain. In fact, the SNA tells us that the record companies are the biggest contributors to the supply chain. Therefore many agents within the supply chain depend on the record companies to survive.

Note that the legal services (out degree 0, in degree 0.32) and promotion and distribution (out degree 0, and in degree 0.36) are only on the receiving end of the revenue flow. Therefore they do not contribute financially to the other agents within the supply chain.

6.4 Scenario 1: "What if" record companies disappeared?

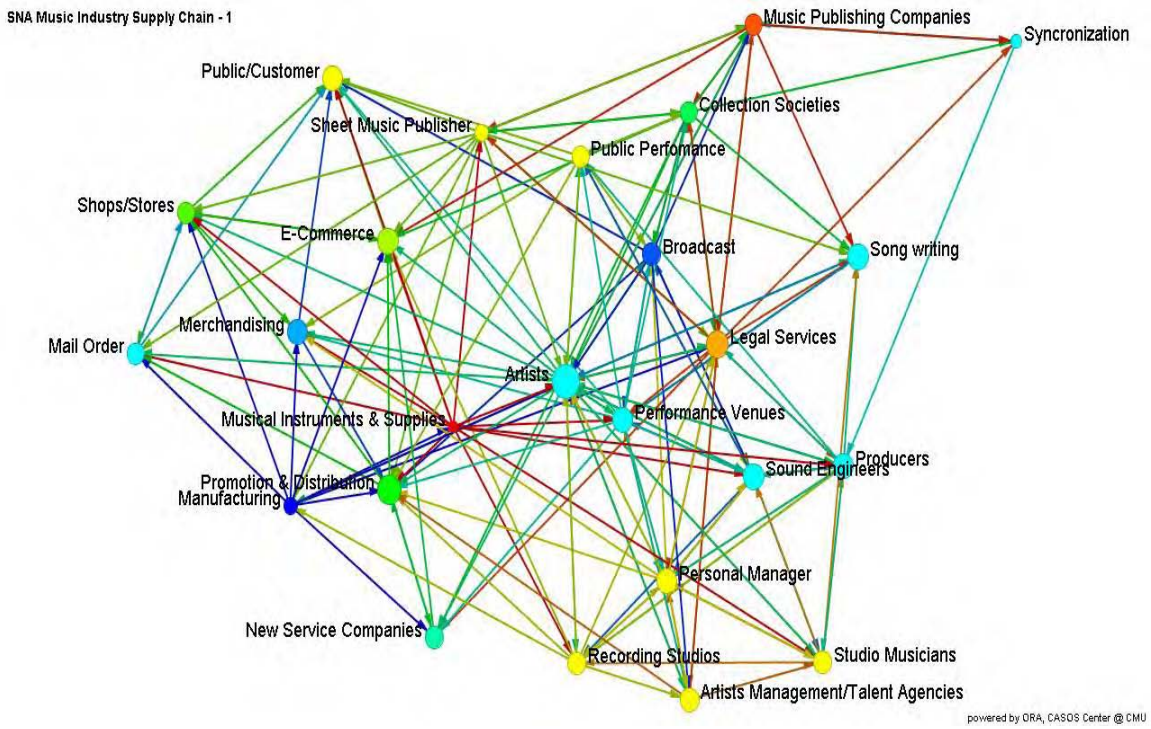


Figure 13. SNA music industry supply chain (information flows (-) record companies)

Important Vertices	Network	Artist	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	25	1	1	1	1
Number of Links	176	23	15	14	8
Density	0.933	NA	NA	NA	NA
Centralization Measures					
Total Degree	0.519	0.7708	0.3333	0.4167	0.2708
In degree	0.3889	0.6667	0.5	0.375	0.25
Out degree	0.6059	0.875	0.1667	0.4583	0.2917
Centrality-Betweenness	0.1966	0.2127	0.0328	0.0533	0.0256
Centrality-Closeness	0.9414	0.8889	0.0524	0.6316	0.5714

Table 10. SNA measures (information flows (-) record companies)

The first figure (Figure 13) in my first alternate scenario shows a supply chain where record companies are inexistent. In the occurrence of such an event the supply

chain would become much less cohesive as shown by an extremely low-density measure (0.933) (Table 10). Visually this is obvious as the network becomes more stretched out exhibiting more outliers such as the synchronization or the talent agencies/agencies vertices.

The positioning of the artist is virtually unchanged. In fact, as record companies disappear the artist would be constraint to get more involved, take charge and "self-manage". This is partly shown by increased measures of total degree (0.77) and outdegree (0.875) as well as a slight increase in centrality-closeness measure (0.89).

Lawyers would also have increased responsibility as some of the tasks formerly performed by the record companies would be delegated to them. This is represented similarly to artist by an increase in total degree measure (0.4167), outdegree (0.45) and centrality-closeness (0.63).

However, the promotion and distribution companies and music publishing companies as well as most of the other agents within the supply chain would be impacted negatively as the flow of information/tasks would slow down as in a stage of recession. This is shown by lower measures across the board.

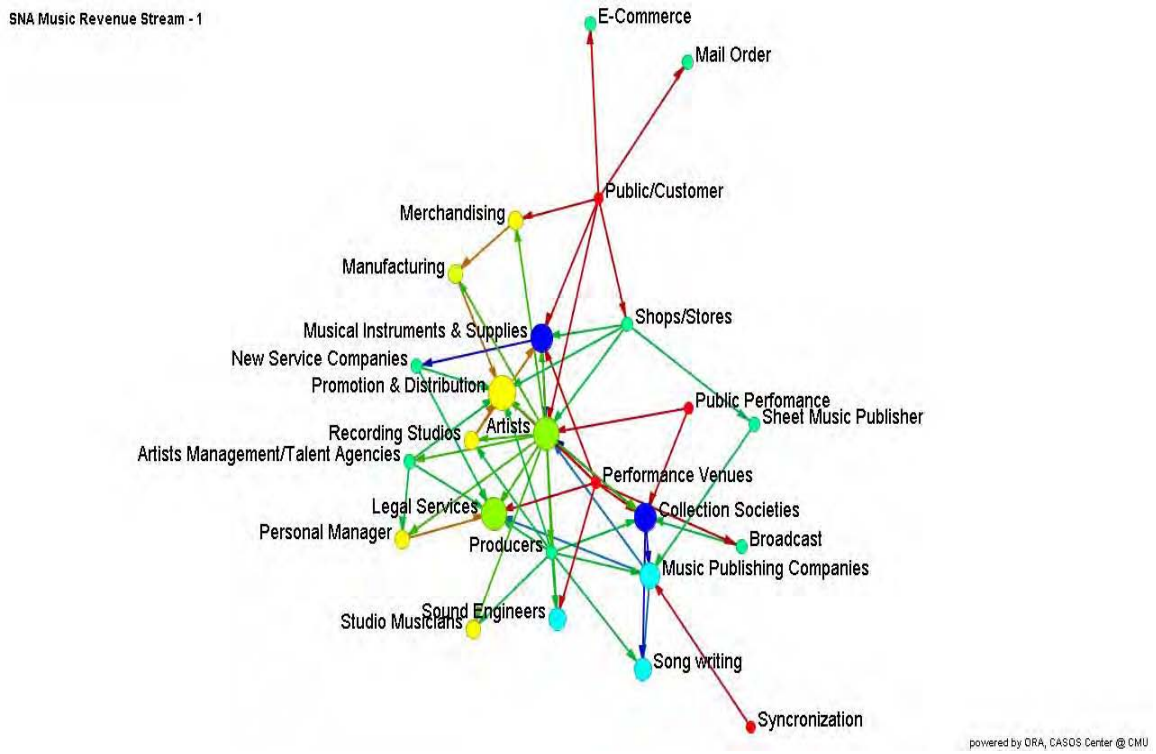


Figure 14. SNA music industry supply chain (revenue streams (-) record companies)

Important Vertices	Network	Artist	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	25	1	1	1	1
Number of Links	64	20	8	7	7
Density	0.1067	NA	NA	NA	NA
Centralization Measures					
Total Degree	0.4049	0.4792	0.1667	0.1458	0.1458
In degree	0.2361	0.2917	0.3333	0.2917	0.1667
Out degree	0.5833	0.6667	0	0	0.125
Centrality-Betweenness	0.279	0.2868	0	0	0.0731
Centrality-Closeness	0.2605	0.1412	0.04	0.04	0.1304

Table 11. SNA measures (revenue streams (-) record companies)

The first alternate scenario's revenue flow network (Figure 14) is also impacted by a lower level of cohesiveness (density 0.1067 as compared to 0.1215 in the base model) (Table 11). Surprisingly, all of the agents -including the artist and lawyers- within

the revenue flow supply chain are worse off in this scenario. This information is provided by the lower values in the indegree measures for all the agents and the network as a whole.

Therefore, I would argue that the majors are the driving force behind the economical welfare of the music industry's supply chain. If the majors would disappear, which is a likely possibility, the present social network analysis predicts that it would financially impact the whole supply chain including the artist.

6.5 Scenario 2: "What if" piracy and black markets became a substitute for the record companies?

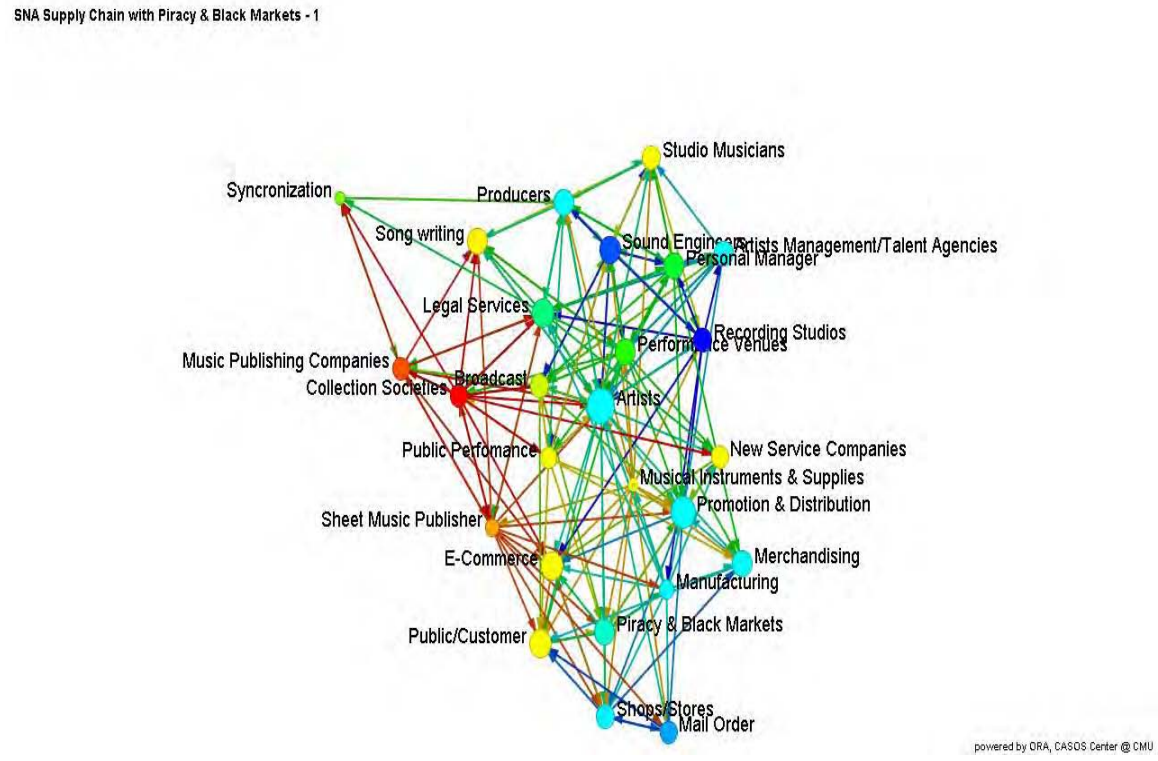


Figure 15. SNA music industry supply chain (information flows (-) record companies (+) piracy & black markets)

Important Vertices	Network	Artist	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	26	1	1	1	1
Number of Links	188	24	16	13	8
Density	0.2892	NA	NA	NA	NA
Centralization Measures					
Total Degree	0.4883	0.74	0.34	0.4	0.26
In degree	0.3648	0.64	0.52	0.36	0.24
Out degree	0.5728	0.84	0.16	0.44	0.28
Centrality-Betweenness	0.2334	0.2775	0.0304	0.1226	0.0258
Centrality-Closeness	0.7608	0.8621	0.2632	0.625	0.5682

Table 12. SNA measures (information flows (-) record companies (+) piracy & black markets)

The purpose the my second alternate scenario (Figure 15) is to test out what would be the impact of piracy and black markets on the music industry's supply chain in a utopia world where record companies are inexistent. It has been previously discusses in this dissertation that record companies occur significant losses due to piracy and black markets. This second scenario builds upon my previous model to pay particular attention to the welfare of the artist.

The results are quiet surprising as the overall network is much denser than in the previous scenario (0.2892) (Table 12). However, it is slightly less dense than my base scenario (0.3169). Our most central agent is again the artist. The artist is here impacted by piracy as regard to the inflow of information (indegree 0.64). However, the outdgree and the centrality-closeness measures are not impacted hardly at all. This can be explained by the fact that black markets and piracy also rely on the artist's creative work in order to make a profit.

Also interesting, lawyers are slightly impacted (total degree 0.4, centrality closeness 0.625) by the advance of piracy and black markets because the latter does not require legal services. Similarly, music publishing companies (total degree 0.26) are further negatively impacted as piracy and black markets, marginal by definition, do not require their services.

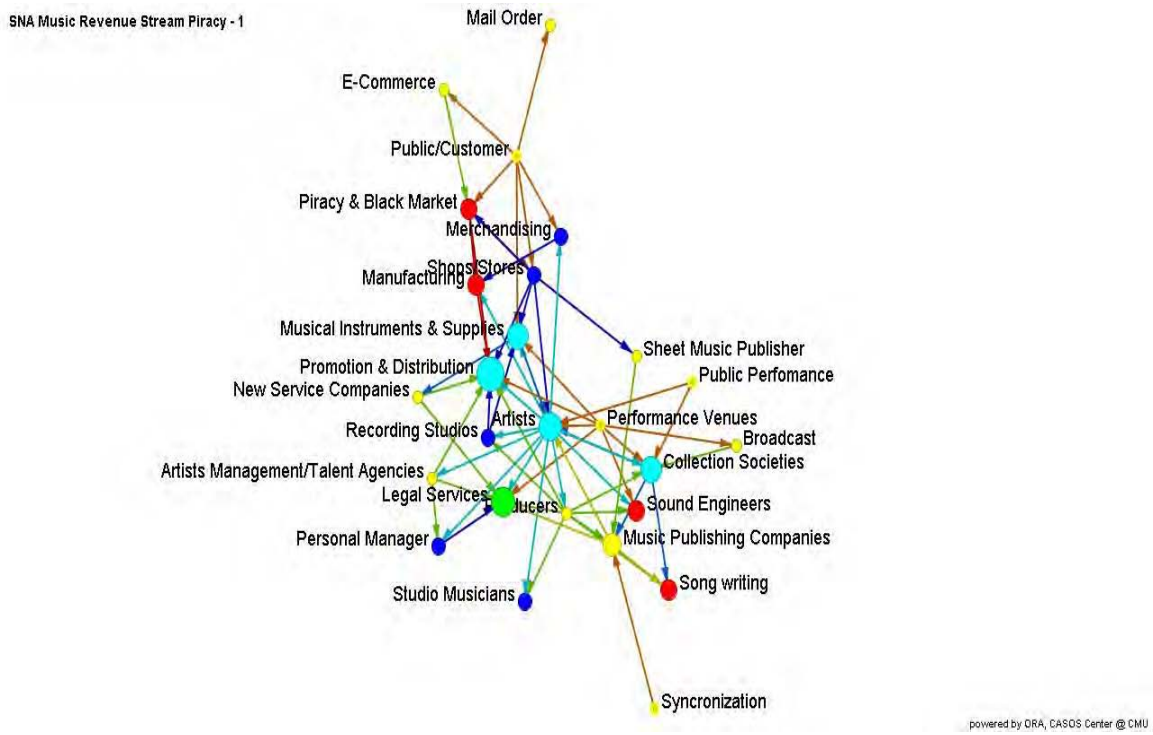


Figure 16. SNA music industry supply chain (revenue streams (-) record companies (+) piracy & black markets)

Important Vertices	Network	Artist	Promo & Distribution	Legal Services	Publishing Companies
Number of Nodes	26	1	1	1	1
Number of Links	65	16	9	7	7
Density	0.1	NA	NA	NA	NA
Centralization Measures					
Total Degree	0.2817	0.36	0.18	0.14	0.14
In degree	0.2704	0.24	0.36	0.28	0.16
Out degree	0.3952	0.48	0	0	0.12
Centrality-Betweenness	0.2265	0.2374	0	0	0.0578
Centrality-Closeness	0.1937	0.0899	0.0385	0.0385	0.0868

Table 13. SNA measures (revenue streams (-) record companies (+) piracy & black markets)

In this last figure (Figure 16), the impact of piracy and black markets on the revenue flows within the music industry's supply chain is quiet clear. The density of this network is the lowest of the three (0.1) (Table 13). In this scenario the artist suffers a great deal shown by lower scores in total degree (0.36 as compared to 0.4 in the base scenario and 0.48 in the first alternate scenario) and in centrality-closeness (0.089 as compared to 0.134 in the base scenario and 0.141 for the first alternate scenario). Therefore, the artist economical welfare greatly suffers from piracy and black markets. Let's mention that P2P file sharing could to some extent be affiliated to the category of the piracy and black market agent.

Legal services and music publishing companies are also slightly negatively affected by the piracy and black market but to a much lesser degree than the artist. Finally, I would like to add that as seen in the layout of this SNA; it is obvious that if a vertex representing the record companies were to be added, it would obviously suffer similar losses to the artist.

7 Conclusion

Music is the world's universal form of communication and it affects every person and every culture. The broader music industry is worth over $160 billion worldwide. I assessed that carrying research about the music industry was undoubtedly legitimate. Therefore, this thesis offers an analysis of the international music industry supply chain- a supply chain is two or more parties linked by a flow of goods, information, and funds.

My dissertation addresses the following three research questions:

Given the revolution in technology in the music industry where do the Majors fit? What is the positioning of the artist in the new digital technology? And given the change of position of the Majors and the positioning of the artist what are the descriptive and prescriptive possibilities should the Majors disappear and be replaced by alternate elements in the music industry supply chain?

I argue that the advent of the Internet and peer-to-peer (P2P) software programs for exchanging music via the Internet is having a significant impact on both the supply chain for music and the dominance of the big record labels also known as the Majors. The physical product, such as a CD, is being replaced by a digital product, which can be distributed via the Internet. As no one knows at this stage where this revolution in technology is going to lead the long established music industry; three major implications for the music industry can be observed. The first implication is that the physical distribution chain will become less and less important. The second is that the "big four"

stranglehold on the music industry is likely to lessen as 1) other players find it easier to enter the market and 2) the rise of music piracy create a shift in revenue streams forcing the record labels into new directions and strategic positioning. The third implication views the positioning of the agent responsible for the value-added quality within the music supply chain, namely the artist, which is a key point of this dissertation.

I build my academic framework upon two sets of literature. The first set views in detail the industry structure whereas the second set focuses on the copyrights literature relevant to the music industry.

I build upon Hagel and Singer's (1999)[250] concept describing fractured industries not just as unbundling, but also rebundling, creating a new organization. Then, I build my theoretical argument upon technology shock and technology replacement as regard to the MP3 replacing the CD and explain that in order for a new technology to displace an established dominant technology, a new technology must overcome the network externalities enjoyed by an established (old) technology (Windrum and Birchenhall). [251]

I follow by describing how the music industry is characterized by intense competition among a small group of large conglomerates whose market share approximates 70% and has remained relatively constant over the years-the majors. However, smaller firms and new entrants are in the making of affecting the dominance of the major record companies by successfully bypassing the significant entry barriers in the areas of distribution and marketing by going directly to retail and end-users via the Internet.

[250] Hagel III, J. and Singer, M. (1999) *Unbundling the Corporation*, Harvard Business Review.
[251] Windrum, P and Birchenhall, C. (2004) *Structural change in the presence of network externalities: a co-evolutionary model of technological successions,* MERIT-Infonomics Research Memorandum series.

The industry is, however, marked by highly uneven patterns of distribution. While the United States still remains the largest location of production as well as the most important market for musical output, this dominance has gradually eroded over the last twenty years. On top of that record companies are not particularly interested in signing new artists. They would rather profit from their current catalog of profitable artists. The large fixed costs endured by record labels drive these companies away from investing in new talents.

Therefore, the majors are now as focused on accumulating intellectual property as they are in originating new material since selling already produced and successful works requires little overhead and less risk. The consequence of such an aggressive takeover by the majors is ultimately the lack of work entering the public domain. An emerging phenomenon involved the "big four" to acquire the rights on anything they possibly can.

Another issue is labels and publishers becoming "music companies" as opposed to two separate entities with different roles. Record labels are grasping at sources of revenue from their recording artists through "360-degree" or "multiple-rights" agreements that allow labels to share in artist touring, merchandise and product-endorsement revenues, and music-publishing revenues.

7.1 Contribution and limitations

In order to address my three research questions, first, I introduce a statistical representation and the decline of physical sales as regard to digital sales and performance rights revenues.

It presents the top 20 countries (United States, Japan, UK, Germany, France, Canada, Australia, Italy, Spain, Netherlands, Brazil, Russia, Switzerland, Belgium Austria, Mexico, Sweden, South Korea, India, and Denmark) as the driving force behind the global music industry. Also of importance is that, as of 2008, a third of the sales were divided between digital and performance rights. Note that, regarding the proportion of physical to digital sales; the North American (US and Canada) market is a year ahead the Top 20 figure and two years ahead of the European and Latin American regions.

Also of interest are the other 27 countries represented in the data (Norway, South Africa, Poland, Finland, China, Turkey, Portugal, Thailand, Argentina, New Zealand, Taiwan, Greece, Hong Kong, Indonesia, Czech Republic, Hungary, Colombia, Malaysia, Singapore, Venezuela, Chile, Philippines, Croatia, Ecuador, Peru, Slovakia, and Uruguay) are closely aligned with the European and Latin American regions

Finally, I suggest that it is important to comprehend that prerecorded music physical sales and retail -or in-stores- sales are pretty much one and the same. Unfortunately, because the data is failing to provide a break down between physical sales sold online and physical sales sold in stores, this data is not entirely accurate. The decline in physical sales proves that the traditional supply chain in the music industry is failing. The music industry's profits are still very much rooted in the traditional supply chain's model and the ability to control this supply chain is therefore quickly fading away forcing the majors into new strategic positioning.

To describe where the majors fit into a new strategic positioning, I combine social network analysis and scenario planning. Building on the works of Leyshon (2001), Premkumar (2003) and Graham, Burnes, Lewis and Langer (2004), I construct a fresh

representation of the flows of information and revenues within the supply chain for the music industry. Social network analysis focuses on ties among, people, groups of people, organizations, and countries whereas scenario planning is a disciplined method for imagining possible futures to a great range of issues.

I further explain how in general the music industry's supply chain has evolved drastically in the past 25 years from a traditional model to an online model. To be more adequate the music industry's supply chain has been recently in an early stage of rebundling. It is a little bit more complex than purely an online value chain. As discussed previously, physical product sales are rapidly declining while record companies try to reposition themselves forming alliances with new service companies. Therefore, the supply chain for the music industry is somewhat in a transitional stage forming a hybrid value chain. In this hybrid supply chain, the positioning of every agent involved in the music industry has been shaken. Therefore, I create visual representations of the new positioning of those agents.

My first social network analysis presents the intense mergers history of the majors over the past 40 years. This is as far as I know the first representation of this complex phenomenon available in the literature. The SNA is not comprehensive, as it does not include all of the hundreds of record labels owned by each major. However, it is revealing as it represents each company's unique history and merger strategy.

My second SNA shows how the majors are creating alliances with new service companies such as P2P service companies (Qtrax), supply chain management companies (Accenture, Microsoft IM Group), digital distribution companies (iTunes, Amazon.com,

Tunecore), mobile phone companies (Verizon Wireless, Sprint, Nokia, AT&T), social networking sites (Myspace), and media and broadcasting companies (YouTube, AOL). The key information in this SNA is the emergence of the most central node -iTunes.

I argue that as artists now have the ability to sell their songs directly on iTunes bypassing record companies it would not be far fetched to suggest that iTunes could replace the majors. Also, if iTunes would acquire and run a major publishing company, the majors would be placed in a very difficult position, as they would have no reason to exist anymore.

My SNA also indicates that EMI and Warner have opted to compete with a similar strategy against each other whereas UMG and Sony have chosen a collaborative strategy.

In my second sets of SNA, I expose that the artist is being the most central and most important agent in the supply chain. Without the artist there would not be a music industry. My analysis also tells us that the record companies are the biggest contributors to the supply chain. Therefore many agents within the supply chain depend on the record companies to survive.

The first figure in my first alternate scenario shows a supply chain where record companies are inexistent. I support that in the occurrence of such an event the supply chain would become much less cohesive. However, I show that the positioning of the artist is virtually unchanged. In fact, as record companies disappear the artist would be constraint to get more involved, take charge and “self-manage”. Lawyers would also have increased responsibility as some of the tasks formerly performed by the record companies would be delegated to them. However, the promotion and distribution companies and

music publishing companies as well as most of the other agents within the supply chain would be impacted negatively as the flow of information/tasks would slow down as in a stage of economic recession.

Therefore, I argue that the majors are the driving force behind the economical welfare of the music industry's supply chain. If the majors would disappear, which is a likely possibility, the present social network analysis predicts that it would financially impact the whole supply chain including the artist.

The purpose of my second alternate scenario is to test out what would be the impact of piracy and black markets on the music industry's supply chain in a utopia world where record companies are inexistent. It has been previously discusses in this dissertation that record companies occur significant losses due to piracy and black markets. This second scenario builds upon my previous model to pay particular attention to the welfare of the artist. The artist is here impacted by piracy as regard to the inflow of information but the outflow of information and the closeness of the artist as regard to the other agents within the supply chain, is hardly unchanged. This can be explained by the fact that there would be no reason for black markets and piracy to exist if not for the artist's creative work. Therefore, I conclude that the artist economical welfare greatly suffers from piracy and black markets.

7.2 Further considerations

An important detail available in my SNA on joint ventures and alliances is the fact that both Amazon.com (2007) and iTunes (2009) have recently been offering their digital products DRM-free. To my knowledge, there has not been any scholarly literature

on this topic as of the time of the writing of this dissertation. It is an area of great interest for the future of the music industry and open lot of opportunities for further research.

Also what is abundantly clear is that further research is needed on the long-term trends of sales of sound carriers. Though claims are being made that the value of falling sales is the appropriate measure of piracy and illegal downloading on the Internet, my analysis does not accept this simplistic analysis of the effects of piracy. I recognize that there is considerable damage done by these illegal behaviors but not that falling sales measure the cost of piracy. Towse (2003) argues that:

> "It is necessary that property rights are properly established and defended by law but that cannot be maintained indefinitely in the face of popular resistance. The dynamic problem is to persuade a generation of young free-riders that it is in every-one's long term interests for property rights to be respected." [252]

I believe that further research is also needed on digital supply of music and the returns from it to sound recording makers and to performers.

Finally, the international aspect of the changes to the Copyright Act is crucial, given the emphasis in the WIPO Treaties on international trade. To quote Acheson and Maule (1999): "Lack of conformity in copyright laws and their enforcement, together with increasing trade in copyrighted material, has led to a series of trade irritants between countries." (p. 258).[253]

[252] Towse, R. (2003) *Assessing the Economic Impacts of Copyright Reform in the Music Industry*, Commissioned by Industry Canada.
[253] Acheson, K and Maule, C. (1999) *Much Ado About Culture: North American Trade Disputes*, University of Michigan Press, Ann Arbor.

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Appendix 1: Table presenting music sales for 47 countries from 2004 to 2008

	PHYSICAL (US$ Millions)					DIGITAL				
COUNTRIES	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Canada	630.2	598.8	527.3	424.0	359.1	2.1	16.6	32.2	53.0	77.0
USA	7002.7	6376.0	5542.0	4559.1	3138.7	211.5	636.0	1094.2	1530.9	1783.3
Austria	169.4	158.2	144.9	140.8	123.6	1.6	5.0	8.4	9.6	10.2
Belgium	203.9	186.7	179.2	169.5	146.2	1.1	3.6	11.4	13.4	19.8
Croatia	13.8	12.3	12.5	14.4	12.5					
Czech Republic	44.5	34.7	31.3	29.5	34.1			1.2	2.0	2.1
Denmark	135.5	128.6	122.7	111.4	90.4		1.8	7.8	13.4	19.4
Finland	98.9	95.6	89.4	82.6	80.7			2.2	3.7	4.4
France	1473.6	1435.5	1241.9	1004.0	803.8	20.0	33.0	83.4	102.4	160.3
Germany	1690.4	1668.6	1578.4	1494.5	1416.0	17.6	46.1	81.8	111.8	123.4
Greece	81.9	76.6	70.9	65.7	46.9			4.6	5.7	5.6
Hungary	45.5	38.6	40.1	36.4	25.5			0.6	1.2	1.2
Italy	501.4	485.7	422.7	341.7	268.5	4.3	18.4	27.9	28.2	28.9
Netherlands	336.8	283.9	264.2	243.9	207.9	1.3	5.8	9.7	12.4	15.1
Norway	171.9	149.7	131.2	122.6	103.1		2.0	5.0	8.1	10.8
Poland	92.9	85.9	85.1	95.5	102.9			0.4	2.7	4.4
Portugal	104.7	95.4	83.6	71.2	61.8			3.7	3.8	4.4
Russia	352.3	220.2	228.8	222.1	209.2			0.8	3.5	7.6
Slovakia		10.2	8.4	7.3	6.6					
Spain	454.8	429.1	364.6	270.9	237.4	2.4	4.9	20.0	27.0	29.1
Sweden	184.4	164.4	148.3	130.5	119.9	0.2	3.5	9.1	10.2	10.8
Switzerland	246.9	234.9	204.0	186.2	172.9		3.5	7.0	11.8	13.2
Turkey	116.5	107.7	96.2	84.8	73.7			0.5	2.1	3.6
UK	2248.8	2131.8	1931.5	1614.6	1458.8	18.2	69.2	120.2	159.4	252.2
China	104.8	68.0	54.0	41.2	31.5			30.7	34.7	50.5
Hong Kong	67.1	66.1	56.5	49.8	42.4			4.6	6.5	7.2
India	112.7	112.3	107.3	97.4	89.6			10.2	21.8	29.0
Indonesia	59.3	50.3	40.5	32.3	24.3			26.4	22.5	28.9
Japan	3813.5	3665.4	3565.5	3348.3	3215.6	122.5	295.6	439.4	654.5	820.8
Malaysia	29.0	26.2	22.9	18.5	14.7			4.9	4.8	6.2
Philippines	22.8	23.6	19.3	15.2	13.4			0.8	1.1	2.3
Singapore	44.7	38.6	29.7	26.1	20.5			1.1	1.0	1.4
South Korea	89.4	71.9	58.4	47.5	56.4			74.0	73.7	84.3
Taiwan	137.3	101.7	67.0	62.1	49.6			4.8	8.1	8.1
Thailand	116.2	93.3	59.5	48.1	43.0			14.5	14.9	25.0
Australia	531.7	455.6	423.4	369.7	325.2	1.3	8.2	23.8	33.0	51.2
New Zealand	78.3	76.9	65.4	57.4	51.6			3.0	4.3	5.2
Argentina	36.7	47.0	53.1	56.4	54.7			1.1	2.1	2.7
Brazil	399.8	348.3	257.1	176.9	179.0		2.2	6.0	16.6	29.7
Chile	27.0	25.8	22.3	20.5	12.7			1.0	2.8	4.1
Colombia	29.8	31.5	30.1	22.0	21.0			1.5	4.1	6.3
Ecuador	3.0	3.1	2.4	2.0	1.6					
Mexico	232.6	255.8	222.0	171.0	129.7		0.5	8.3	15.5	15.7
Peru	2.8	2.6	2.2	1.9	1.6					
Uruguay	2.5	2.4	2.9	3.1	3.0					
Venezuela	9.4	10.6	12.8	15.6	18.2				0.8	1.0
South Africa	110.6	121.5	124.0	126.2	114.6		0.5	2.0	2.8	3.4

	PHYSICAL (US$ Millions)					DIGITAL				
REGIONS	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
North America	7632.9	6974.8	6069.3	4983.1	3497.8	213.6	652.6	1126.4	1583.9	1860.3
Europe	8768.8	8234.3	7479.9	6540.1	5802.4	66.7	196.8	405.7	532.4	726.5
Asia	4596.8	4317.4	4080.6	3786.5	3601.0	122.5	295.6	611.4	843.6	1063.7
Latin America	743.6	727.1	604.9	469.4	421.5	0.0	2.7	17.9	41.9	59.5
Asia excl. Japan	783.3	652.0	515.1	438.2	385.4	0.0	0.0	172.0	189.1	242.9
Top 20	20810.8	19411.7	17534.2	15124.0	12747.9	404.1	1153.9	2075.6	2902.1	3581.0
Others	1651.9	1495.9	1313.3	1208.4	1066.2	0.0	2.5	114.6	139.8	188.8
GLOBAL (47Countries)	22462.7	20907.6	18847.5	16332.4	13814.1	404.1	1156.4	2190.2	3041.9	3769.8

	PERFORMANCE RIGHTS			RECORDED MUSIC SALES (US$ Millions)				
COUNTRIES	2006	2007	2008	2004	2005	2006	2007	2008
Canada	18.1	19.5	20.1	632.3	616.5	577.7	496.4	456.3
USA	15.3	23.5	54.8	7214.2	7011.9	6651.5	6113.5	4976.8
Austria	12.2	13.1	13.5	170.9	163.2	165.5	163.5	147.3
Belgium	12.0	18.9	26.1	205.0	190.3	202.6	201.8	192.1
Croatia	3.1			13.8	12.3	15.6	14.4	12.5
Czech Republic	4.5	5.2	5.6	44.5	34.7	37.0	36.6	41.8
Denmark	15.0	12.8	14.7	135.5	130.5	145.6	137.5	124.5
Finland	10.4	9.9	10.7	98.9	95.6	102.1	96.1	95.9
France	76.1	77.7	85.5	1493.6	1468.6	1401.4	1184.0	1049.6
Germany	89.1	92.1	88.3	1708.0	1714.7	1749.3	1698.4	1627.8
Greece	2.6	4.3	5.5	81.9	76.6	78.1	75.7	58.0
Hungary	5.3	6.2	6.5	45.5	38.6	46.1	43.8	33.2
Italy	21.8	22.8	28.6	505.8	504.1	472.4	392.7	326.1
Netherlands	33.8	45.5	48.9	338.1	289.8	307.7	301.9	271.9
Norway	7.5	9.6	10.2	171.9	151.8	143.6	140.3	124.0
Poland	2.0	3.7	4.8	92.9	85.9	87.6	101.9	112.2
Portugal	2.4	2.6	2.6	104.7	95.4	89.6	77.6	68.8
Russia	0.3	0.7	4.0	352.3	220.2	229.9	226.2	220.8
Slovakia	1.7	2.6	3.2		10.2	10.1	9.9	9.8
Spain	25.0	30.2	36.0	457.2	434.0	409.6	328.1	302.4
Sweden	12.4	13.2	12.5	184.7	168.0	169.8	153.9	143.2
Switzerland	0.9	5.5	6.3	246.9	238.4	211.8	203.5	192.5
Turkey	1.8	2.8	3.6	116.5	107.7	98.5	89.7	80.9
UK	112.9	118.8	134.4	2267.0	2201.0	2164.6	1892.8	1845.4
China				104.8	68.0	84.7	75.9	82.0
Hong Kong	5.4	6.3	6.2	67.1	66.1	66.4	62.7	55.8
India	12.4	12.8	21.8	112.7	112.3	117.5	132.1	140.4
Indonesia				59.3	50.3	67.0	54.8	53.2
Japan	69.4	70.2	72.7	3936.1	3961.0	4074.3	4072.9	4109.0
Malaysia	3.8	3.9	4.4	29.0	26.2	31.6	27.2	25.3
Philippines				22.8	23.6	20.1	16.2	15.8
Singapore	2.4	0.6	1.4	44.7	38.6	33.2	27.7	23.3
South Korea				89.4	71.9	132.4	121.2	140.6
Taiwan			1.3	137.3	101.7	71.8	70.2	59.1
Thailand		0.6	0.3	116.2	93.3	74.1	63.6	68.3

	PERFORMANCE RIGHTS			RECORDED MUSIC SALES (US$ Millions)				
COUNTRIES (continued)	2006	2007	2008	2004	2005	2006	2007	2008
Australia	**10.9**	**11.3**	**12.8**	**532.9**	**463.8**	**458.0**	**413.9**	**389.2**
New Zealand	**1.5**	**1.9**	**2.3**	**78.3**	**76.9**	**69.9**	**63.6**	**59.1**
Argentina	**3.7**	**4.7**	**5.9**	**36.7**	**47.0**	**57.9**	**63.3**	**63.2**
Brazil	**10.9**	**11.6**	**13.1**	**399.8**	**350.5**	**274.0**	**205.2**	**221.8**
Chile	**1.6**	**1.5**	**1.7**	**27.0**	**25.8**	**24.9**	**24.8**	**18.5**
Colombia	**1.8**	**2.0**	**2.1**	**29.8**	**31.5**	**33.5**	**28.1**	**29.5**
Ecuador			**0.1**	**3.0**	**3.1**	**2.4**	**2.0**	**1.6**
Mexico	**0.1**	**0.6**	**0.5**	**232.7**	**256.3**	**230.4**	**187.1**	**145.9**
Peru	**0.2**	**0.2**	**0.4**	**2.8**	**2.6**	**2.4**	**2.1**	**2.0**
Uruguay	**0.3**	**0.5**	**0.6**	**2.5**	**2.4**	**3.3**	**3.6**	**3.6**
Venezuela	**0.4**	**0.7**	**1.1**	**9.4**	**10.6**	**13.3**	**17.0**	**20.3**
South Africa			**1.7**	**110.6**	**122.0**	**126.0**	**128.9**	**119.7**
REGIONS								
North America	**33.4**	**43.0**	**74.9**	**7846.5**	**7628.4**	**7229.2**	**6609.9**	**5433.1**
Europe	**452.8**	**498.2**	**551.5**	**8835.6**	**8431.6**	**8338.5**	**7570.3**	**7080.7**
Asia	**93.4**	**94.4**	**108.1**	**4719.4**	**4613.0**	**4773.1**	**4724.5**	**4772.8**
Latin America	**19.0**	**21.8**	**25.5**	**743.7**	**729.8**	**642.1**	**533.2**	**506.4**
Asia excl. Japan	**24.0**	**24.2**	**35.4**	**783.3**	**652.0**	**698.8**	**651.6**	**663.8**
Top 20	**548.6**	**600.8**	**694.6**	**21215.1**	**20567.0**	**20146.0**	**18626.6**	**17023.6**
Others	**62.4**	**69.8**	**82.2**	**1651.9**	**1498.5**	**1490.8**	**1417.7**	**1337.4**
GLOBAL (47Countries)	**611.0**	**670.6**	**776.8**	**22867.0**	**22065.5**	**21636.8**	**20044.3**	**18361.0**

Data Source: IFPI Recording Industry in Numbers 2009 [254]

[254] IFPI (2009) *Recording Industry in Numbers 2009: The Definitive Source of Global Music Market Information*, Published by IFPI, May 2009.