

UNDERSTANDING VALUE CHAIN STRATEGIES FOR THE IPOD THROUGH THE PERSPECTIVE OF FINE'S EVOLUTIONARY MODEL

Como referenciar este artigo:

GRAEML, Alexandre Reis; ENGELBERT, Ricardo; WEILER, Alexandre Luís Götz. Understanding value chain strategies for the iPod through the perspective of Fine's evolutionary model. Proceedings of the 15th Annual International Conference of the European Operations Management Association (EurOMA), Groningen, Netherlands, 15-18 June, 2008.

UNDERSTANDING VALUE CHAIN STRATEGIES FOR THE IPOD THROUGH THE PERSPECTIVE OF FINE'S EVOLUTIONARY MODEL

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ABSTRACT

This paper analyzes the impacts of Apple's strategies for the iPod/iTunes solution in the infotainment market, revisiting Charles Fine's concepts, introduced ca. one decade ago. The research was based on secondary data obtained from the specialized media and technology oriented websites. The conclusion was that Fine's concepts about the evolution of the value chain have not been proven wrong by time. In fact, Fine's forecasts for the infotainment sector were right: Apple and several other players in that market have strategically positioned themselves according to Fine's double helix model, trying to take advantage of their core competences as *box*, *conductor* and/or *content* providers.

Keywords: evolution, strategy, value chain, double helix model

INTRODUCTION

In order to justify the object of his research on the evolution of value chains, Fine (1999) compares the way companies evolve - and the way they coordinate their activities to produce goods and services - to the way species evolve in the animal world. He reminds us that fruit flies are studied much more often by biologists than any other animal. The reason for that is their short life-cycle, which allows a single researcher to study many generations of *drosophilae*, following up changes that occur over time. He then suggests that "corporate geneticists" should focus on studying companies that belong to the fastest evolving industries, because any phenomena observed there may lead to better understanding of changes that are happening in other industries but that are difficult to notice because of their slow pace.

Among the sectors that are considered by Fine (1999) as having high evolutionary speed and therefore deserving special attention is the infotainment (information + entertainment) sector, also known as Mice (multimedia, information, communication and electronics).

Fine (1999) considers that the purpose of the infotainment sector is to develop and provide information content to consumers. However, customers access *content* using a *box* that they choose. The *content* is made available to be used in the *box* via a *conductor*, which is responsible for transferring the *content* from the content provider to consumer.

The infotainment sector was already in acceleration in the late 1990's, thanks to the strong development of communication systems based on optical fiber and semiconductor technology. However, over the last decade, the Internet increased the infotainment sector's evolution speed even further, so that we are experiencing a true revolution of the supply and distribution chains for many of its products. New sales and distribution possibilities for digital audio and video, using fixed and mobile networks, have brought new players into the field, which are integrating the virtual value chain of the infotainment sector (COSTA, 2007; FISHER, 2006; VLACHOS *et al.*, 2006). This value chain was drastically changed as a result of developments in *conductor* technologies, the increase of transmission capacity of broad band wired or wireless networks, and the evolution of *boxes*, including DVD players,

digital recorders (DVR - Digital Video Recorders), digital TV decoders (STB - Set Top Boxes), music and video digital players, PDAs (Personal Digital Assistants) and digital cell phones, with multimedia functionality (ALLARD, 1999).

Fine (1999) speculated on the possibility of a company finding the right hybrid device that would be able to cause significant changes to the industry's value chain. A friendly user interface could provide the market edge for a company that produced a device that were so irresistible to consumers that all *conductor* and *content* providers would align themselves to its standards. Fine believed that two forces were responsible for the creative destruction in the high speed evolution sectors: technical innovation and competitive intensity, both undoubtedly present in the infotainment industry.

Amongst the changes that occurred in the infotainment sector's value chains since Fine's (1999) studies, the launch of iPod as a *box* and iTunes store as a *conductor* have caused major changes (evolutions) to the industry, with impacts on suppliers, manufacturers, distributors and consumers.

Organizations do not make changes without reason and try to develop strategies to capitalize on opportunities created by the changing environment, which occur more frequently in high speed evolution sectors. This paper will analyze the strategic movements of different players as they attempt to better position themselves to benefit from the *content - conductor - box* value chain, and verify that Fine's theory still applies and continues to explain the evolution of this industry's value chain ten years after it was first formulated.

Studying the effects of the introduction of a new *box* (iPod, from Apple) and a new *conductor* (iTunes store) for the infotainment value chain may help drawing interesting conclusions that can be extended to other chains and sectors. Analyzing the strategic movements of players in the field, some of which contribute to increase integration of the value chain and others that inhibit it, helps understanding the players' actions to gain access to strategic positions in their value chains.

This paper first presents the main concepts involved in Fine's theory. It then presents the methodological approach that was adopted, followed by the analysis of the secondary data that was gathered, comprising Apple's strategic actions for launching the iPod/iTunes solution, as well as the response from competitors and other players in the field. At last, conclusions are presented and some questions about the future are posed.

THEORETICAL FRAMEWORK

When Fine redirected the focus of his studies to companies in high speed evolution sectors, where there are constant transformations and continuous innovation, he intended to broaden the reach of his findings, taking advantage of the accelerated life cycle, which is typical of such sectors. Following the example of biology and genetics, which studied fruit flies because of their very short life cycle, allowing for a larger number of experiments to be carried out with different generations of insects in a specific period of time, Fine (1999) decided to study organizations of high speed evolution sectors, among which infotainment. This sector is characterized by fast introduction of new products that have their life cycles measured in months or, sometimes, even weeks or days, depending on the type of content and the audience to which they were conceived.

Fine (1999) defined a "business genetics", which helps to understand evolution, mutation, survival or extinction of companies. The same way as biology genetics, the business genetics defined by Fine relies on an infinite double helix, in which sectors and products go through alternate cycles of horizontalization and verticalization. Vertically integrated and horizontally disintegrated configurations of companies and products take turns, as a result of internal and external forces, that follow the model presented in Figure 1.

The constant evolution of most markets makes any competitive edge resulting from the company's core competences just a temporary advantage. Fine's (1999) model for a sector's dynamics is based on each company's decision making about its own strategic actions and positioning resulting on a dynamic behavior that is dictated by the double helix model.

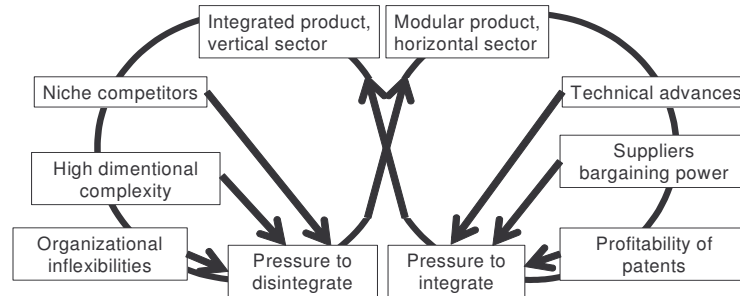


Figure 1. Double helix model
Source: Fine (1999)

The double helix model analyzes the cyclic movements involving periods of time when sectors are vertically integrated and moments when they become horizontally fragmented, with large vertical organizations being replaced by a myriad of small innovators, each one trying to conquer its own niche after the extinction of the "mammoths" of the previous period (FINE, 1999). When the sector's structure is vertical and the architecture of the product is integrated, several disintegration forces start acting towards a more horizontal and modular design: (i) new entrants, (ii) maintenance of leadership or even just survival in the market, (iii) inflexibility due to rigid organizational structures. On the other hand, when the structure is horizontal and the product is modular, a different set of forces gets into action, leading to vertical integration of the organization and integrated architectures for the products: (i) technological advances, (ii) suppliers' bargaining power, (iii) patents and integrated systems.

Fine (1999) also noticed that sectors in which there is constant technological innovation evolve at a faster pace. Competition speeds the development of products and processes and stimulates mergers and acquisitions. A practical consequence of the increase in the evolutionary pace is that the concept of sustainable competitive advantage becomes senseless. Any competitive edge in high speed evolution sectors is, at the most, temporary. The higher the evolution speed, the least durable the edge.

METHODOLOGICAL APPROACH

It has already been said that the purpose of this study is to analyze Apple's strategy for the introduction of the iPod/iTunes solution to the market, as well as the strategy of other players in the infotainment industry, revisiting Fine's (1999) concepts on the evolution of value chains. In order to accomplish this, secondary data was gathered from articles published on web sites and magazines specializing in the infotainment industry, business and/or IT.

Table 1 shows the specialized magazines and web sites that were used in the research.

Table 1 – Sources of secondary data used in the study

Category	Name	Papers	News	Total
Specialized media	Slate Magazine	2	3	5
	Red Herring Magazine	2	2	4
	Wired Magazine	1	3	4
	Financial Times	3	6	9
	MacMagazine	1	1	2
Specialized web sites	Internet Evolution	2	-	2
	Variety	-	2	2
	Info-online	2	1	3
	IFound	-	1	1
	Cnet	2	-	2
	Webinsider	-	3	3
	Videobusiness	1	-	1
	MP3NewsWire	-	1	1
	MacWorld	-	3	3
	PaidContent.Org	-	1	1
	Apple.com	-	1	1
	Dnt.adv	1	-	1
	Motorola.com	-	1	1
	Forbes.com	1	-	1
	Wharton.edu	1	1	2

Source: table created by the authors, including secondary data sources used in this paper.

Gathered information was then organized to build the scenario in which Apple launched its products and managed its market strategy for the iPod/iTunes solution, comparing Apple's strategy to actions taken by other players in the value chain, using Fine's concepts as the basis for the analysis. Sources were selected based on relevance criteria. The analysis involved understanding the infotainment value chain, determining the companies responsible for the *boxes*, the *conductors*, and the *content* and mapping Apple's strategic choices for its iPod/iTunes solution and the responses from other players in the field. The level of technological innovation and the industry's competitive intensity were also taken into account, to evaluate their impact on strategic planning and actions, according to Fine's (1999) theoretical model.

ANALYSIS OF IPOD'S IMPACT ON THE INFOTAINMENT VALUE CHAIN

Technical changes that occurred since Fine's studies in the late nineties severely affected the infotainment sector's value chains.

In this section, we will first provide a brief view of the infotainment sector as a whole, then we will discuss the iPod/iTunes solution, specifically, and the businesses that are more directly affected by its introduction to the market.

The evolution of boxes, conductors and content in the infotainment sector

The high evolutionary speed continued to have an important impact on the infotainment value chain, changing the relevant components in the model proposed by Fine (1999) and allowing other components to appear, as shown in Figure 2. It is important to highlight that, in addition to the large number of new components added to the value chain that had originally been outlined by Fine, some items could possibly already be removed from it, for having been extinct (just using the biology jargon of the Darwinian evolutionists). *Conductors* such as pager and video-cassette player are among the extinct (or almost extinct) technologies.

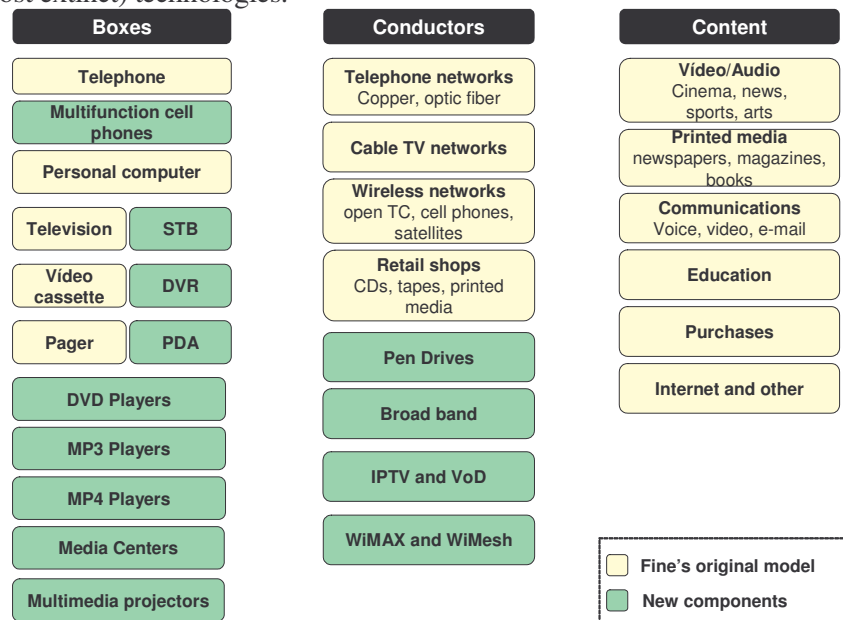


Figure 2 – The infotainment sector and its "boxes", "conductors" and "contents"
 Source: adapted from Fine (1999).

As pointed out by Shapiro and Varian (1999), the information and media sector's value chain had been severely changed as a result of the introduction of the first video-cassette players. Content producer associations, in an attempt to protect their associates, defended their rights, opposing to the sale of VCR devices, considering such equipment as a risk to their interest. Only later they realized that the video-cassette recorder represented a sales opportunity rather than a threat, as it created the home-video market.

Table 2 presents the mix of different revenue sources studios have. It is possible to evaluate the impact of each new technology to the traditional business of movie making. One easily realizes that new technologies cause the revenue to migrate to other *conductors* than the theaters.

Table 2: Revenue produced by each different "conductor" (in billions of US dollars)

Year	Theaters	VHS/DVD	Paid TV	Open TV	Total
1948	\$ 7.80 bi (100%)	-	-	-	\$ 7.80 bi
1980	\$ 4.50 bi (55%)	\$ 0.20 bi	\$ 0.39 bi	\$ 3.35 bi	\$ 8.53 bi
1985	\$ 3.04 bi (25%)	\$ 2.40 bi	\$ 1.07 bi	\$ 5.74 bi	\$ 12.20 bi
1990	\$ 5.28 bi (22%)	\$ 6.02 bi	\$ 1.66 bi	\$ 7.60 bi	\$ 20.31 bi
1995	\$ 5.72 bi (20%)	\$ 10.90 bi	\$ 2.40 bi	\$ 8.13 bi	\$ 27.22 bi
2000	\$ 6.02 bi (19.5%)	\$ 11.97 bi	\$ 3.20 bi	\$ 11.03 bi	\$ 32.23 bi
2003	\$ 7.68 bi (17.9%)	\$ 18.90 bi	\$ 5.71 bi	\$ 11.70 bi	\$ 42.27 bi
2004	\$ 7.40 bi (16.8%)	\$ 20.90 bi	\$ 4.00 bi	\$ 12.60 bi	\$ 44.70 bi

Source: Motion Picture Association (2005)

The studios were highly reluctant to the growth of video shops in the past, because they were afraid that such businesses would reduce their revenue with movies presented in the theaters. What actually happened was the opposite: the massification of the use of video-cassette devices, reduced costs and increased the penetration of the movie industry. After DVDs appeared in the market, the growth of this sector received another push, as can be seen on Table 3, which shows the migration of audience from the video-cassette technology to the DVD, as well as the growth of the home-video market as a whole.

The fact that the iTunes shop now distributes video files has created an opportunity to sell movies through this new distribution channel, which competes but also collaborates with traditional *conductors* in the commercialization of DVDs and TV series.

Table 3: Migration of VHS to DVD

(Revenue generated in the United States, in billions of dollars)

Year	DVD	VHS	Total
1993	-	5.9	5.9
1997	-	9.8	9.8
2002	10.4	5.9	16.3
2003	14.9	3.9	18.9
2004	18.8	2.1	20.9

Source: Motion Picture Association (2005)

Apple, iPod and iTunes - dominating important positions in the value chain

After Apple took the decision of using a verticalized organizational structure and designing an integrated personal computer platform in the 1980's (FADER, 2007), which seems to have determined its own fate and contributed to the competitor's success over decades, the company changed its strategic positioning when it launched new products, more recently. Partnerships, third party hiring and licensing started being part of the plan for products introduced in the market in the 1990's. The company first partnered with Kodak to launch the QuickTake digital camera, in 1994. In the video games arena, it licensed Pippin to Bandai, in 1996. Even when creating the PDA concept (the company was a pioneer, launching the *Newton Message Pad* in 1993), where it adopted the Power PC processor line, manufactured by a joint venture between IBM and Motorola, and when it licensed its MacOS operational system to Power Computing, which manufactures Power MAC clones, the company showed to be collaborative with other players in the value chain. However, all such initiatives also resulted in huge market failure. Reasons for that are plentiful: little availability of (software) applications, incompatibility with other software with higher market penetration, little competitive prices, and even poor performance in recognizing touchpad writing, which happened in the case of Newton's first models (HORMBY, 2007).

In spite of Apple's previous market failures, iPod's launching was a success, actually transforming the digital audio and video markets, with deep impact on the infotainment sector as a whole. The idea was not original, as the concept of personal and portable music existed since Sony's walkman, first released

in 1979, which had been replaced by the CD players, late in the 1980's and by MP3 digital players, in 1998, when Korean SaeHan MPMan device was first brought to the market (YOUNG, 2007).

iPod was launched in October 2001, having several versions of the product followed, referred to as new generations. Storage capacity increased and new accessories were made available. However, the most important iPod upgrade did not involve any hardware or software, but rather the creation of a completely new business around the iPod, which was actually the original intention of Tony Fadell, who conceived the device (HORMBY, 2007). *iTunes Music Store* (iTMS) was announced in the Summer of 2003, providing iPod with a Web supplier of legal content. iTunes proved that it was feasible to sell music online, quickly becoming an important source of revenue for Apple. The initiative's success even allowed the company to cut down iPod's price (HORMBY, 2007). Until September 2006, more than 1.5 billion songs had been sold through the iTunes Website, which concentrated ca. 80% of the worldwide online music sales.

A key factor for digital content providers with respect to Apple's business model is that the music files that are transferred from iTunes present user restrictions, defined by the company's own digital rights management system: FairPlay (HORMBY, 2007). This avoids content diffusion by means of unauthorized copies, assuring that the owners of the rights will be paid for the content they provide. As a result of an agreement that was considered historical by recording companies – Universal, Sony BMG, Warner and EMI, which control the distribution of over 70% of the music in the world – each file that is downloaded from iTunes can be reproduced in up to five computers and an unlimited number of iPods (ATHENIENSE, 2007). All songs are sold by the same price around the world, except for Japan, where, due to strategic reasons, iTunes started selling at US\$ 1.35 per download, having sold over one million files in just four days, after it was launched (SOARES, 2005).

Launched in October 2005, iPod's fifth generation is considered as having an impact on the industry as important as the creation of the *iTunes Music Store*. The device was equipped with 30 GB or 60 GB storage capacity and a new functionality was introduced: the possibility of reproducing video in addition to music (HORMBY, 2007).

Disney negotiated with Apple the sale of all ABC network TV series through iTunes. Conversations started over one year before the fifth generation product was released to the market (EPSTEIN, 2005).

At the *iTunes Store*, TV series episodes sell for US\$ 1.99, the same price of video clips and short duration films. Long duration films sell for US\$ 12.99 during their launching week. Afterwards, they cost US\$ 14.99. Catalogue films (old ones) sell for US\$ 9.99 (HORMBY, 2007). This reveals the company's intention of segmenting the market and selling products according to the customers' willingness to have fast access to them. Shapiro and Varian (1999) stress that it is easy to perform market segmentation in the case of information products, because it is possible to purposefully degrade the quality of the offered product/service, or postpone its delivery, to create cheaper versions still suitable for less demanding customers.

The moment of creation of the iPod/iTunes joint strategy

iPod was launched right after the legal disputes between Napster and RIAA (Recording Industry Association of America) took place, which resulted in Napster shutting down, for not having been able to convince the courts that it was innocent of the accusation of stimulating the violation of intellectual property (FRANK, 2001).

iPod first appeared in the market as a safe alternative for the distribution of electronic content, reducing piracy that was prevalent in Napster's business models. iTunes' fast penetration and success as a distribution channel was also a consequence of the parallel development of peer-to-peer networks (P2P), as it benefited from the demand that was being generated and the massification of the new way of distributing content, which was not dependant on a physical media (tape, CD, DVD) bought at a physical store. Users were becoming accustomed to music being delivered by means of a digital computer file, acquired in a virtual shop, through the Web.

The recording companies' quick adoption of the iTunes model resulted from the fact that it represented a feasible alternative in a scenario of uncertainties and fast and constant transformations, where revenue from the traditional distribution channels was on a decline.

However, after some time, the recording companies and studios seem to have noticed that they were being locked in by Apple's system, and started struggling to release themselves. NBC, for example, decided to create its own system and Website to promote its content. ABC partnered with Amazon and AOL to commercialize the content it generated (GERON, 2007).

Fine (1999) argued that the ability to recognize important competences, distinguishing them from what will be treated as commodity by the market, is crucial to any organization, particularly with respect to the timing. Apple was very competent in realizing that controlling the *box* and the *conductor* was an important competence, which would give it the control over the entire value chain. In brief, it was able to notice that in the evolving scenario, studios and recording companies (content providers) would lose their bargaining power, because they would rely on iTunes (the *conductor*) to convey their *content* to be played in an iPod (the *box*). Content providers started looking for alternative conductors or are trying to develop their own because they have probably also realized that Apple was becoming too strong a partner, as it becomes clear when one analyzes their actions, reported in the previous paragraph.

Apple's strategy for the iPod/iTunes provided the company with the benefit of being the pioneer, launching a solution that represented a legal alternative to piracy that prevailed in music transactions over the Web, but it also offered irresistible performance to customers and did so while locking them in, a strategy that is pointed out by Shapiro and Varian (1999) and Hax and Wilde (2001) as very effective to assure control over a value chain.

Technological innovation and competitive intensity in the infotainment value chain

Fine (1999, p. 36) defined the technological innovation and the competitive intensity as "the fuel to evolution speed". This study allowed the identification of facts that show the presence of such "fuel" in the infotainment value chain, where Apple plays an important innovative role, as shown in Figure 3.

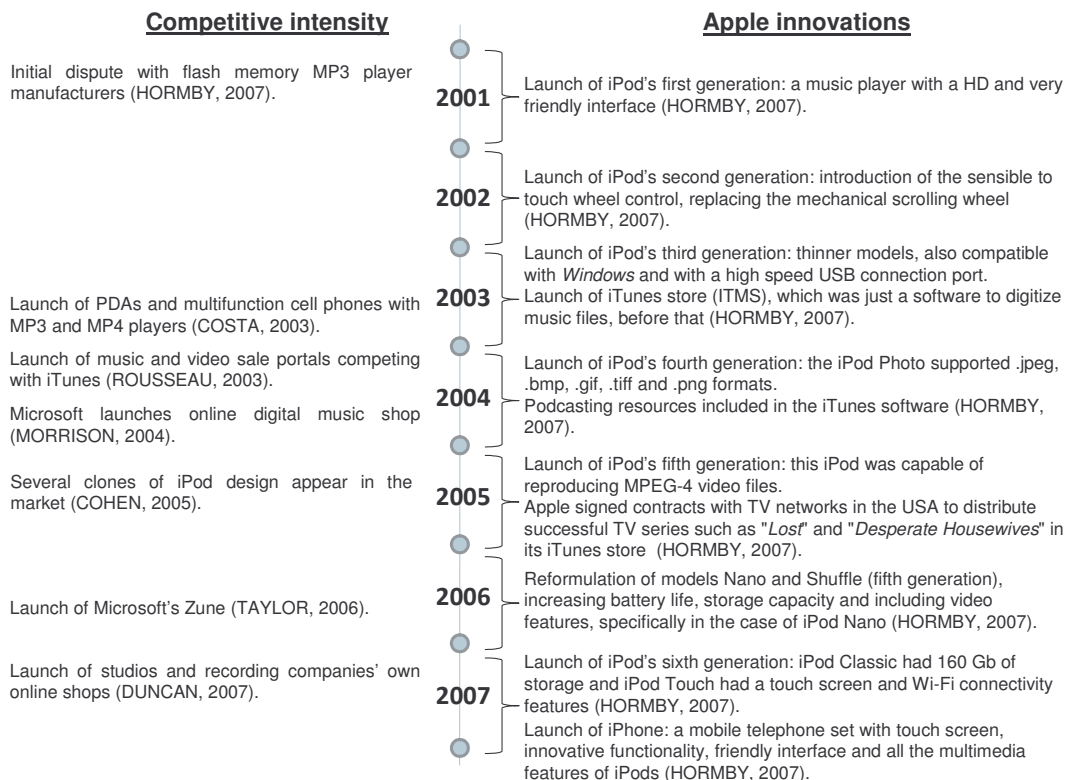


Figure 3 – Innovation and competitive intensity in the infotainment sector

Source: the authors, based on gathered secondary information

This events may also be organized based on the double helix model, showing the integration and disintegration movements that happen in the value chain, as players try to reposition themselves to take advantage of market opportunities. Table 4 includes relevant events to demonstrate the players' movements along the double helix model. Four moments are essential to this analysis: (1) iPod launching, (2) iTunes store launching, (3) video iPod launching and (4) iPhone and iPod Touch launching.

Table 4: Apple's strategy for the iPod and the reaction of other players - Fine's double helix model

Position in the double helix	Relevant events
<p>Disintegrated product - horizontal market:</p> <ul style="list-style-type: none"> ▪ digital music meant piracy and P2P networks for illegal content exchange; ▪ <i>boxes</i> were not tied to <i>conductors</i> of legal content; ▪ the Napster phenomenon was "buried" by the courts. 	<p>October/1998:</p> <ul style="list-style-type: none"> ▪ The first MP3 player is launched, with 32 MBytes storage capacity (YOUNG, 2007). <p>December/1999:</p> <ul style="list-style-type: none"> ▪ "MP3" is the most searched term on the Web in 1999 (YOUNG, 2007).
<p>Products being integrated - beginning of verticalization:</p> <ul style="list-style-type: none"> ▪ Apple introduces a product capable of preventing piracy while facilitating the distribution of audio in digital format; ▪ content suppliers are seduced by the possibility of selling content through iTunes. 	<p>November/2001:</p> <ul style="list-style-type: none"> ▪ <u>The first generation iPod is launched</u> (HORMBY, 2007). <p>April/2003:</p> <ul style="list-style-type: none"> ▪ <u>iTunes</u> store is launched (HORMBY, 2007).
<p>Integrated product - verticalized sector:</p> <ul style="list-style-type: none"> ▪ Apple signs agreements with large studios and TV series producers; ▪ Apple detains exclusivity of <i>conductor</i> and <i>box</i>; ▪ strong partners detain the <i>content</i> that, in general, is offered exclusively by means of Apple's <i>conductor</i> (iTunes) and <i>box</i> (iPod); ▪ Apple launches new products that expand its domain over the value chain. 	<p>October/2005:</p> <ul style="list-style-type: none"> ▪ <u>iPod with video is launched</u> (HORMBY, 2007). ▪ ABC signs a deal with Apple for the distribution of TV series (EPSTEIN, 2005). <p>November/2006:</p> <ul style="list-style-type: none"> ▪ studios demand greater control over piracy to keep content offer for Apple's iPod (GARRAHAN, 2006). <p>April/2007:</p> <ul style="list-style-type: none"> ▪ MGM signs a contract for video content distribution with Apple (EVANS, 2007). <p>June/2007:</p> <ul style="list-style-type: none"> ▪ <u>Launch of iPhone and iPod Touch</u>, with the inclusion of mobile and wi-fi networks in the infotainment value chain (HORMBY, 2007).
<p>Towards disintegration:</p> <ul style="list-style-type: none"> ▪ Other companies present themselves as alternatives to Apple as <i>box</i> or <i>conductor</i>; ▪ Large studios stop providing Apple with exclusivity and create their own solutions (trying to grab part of Apple's stake of the value chain); ▪ open standards appear (reducing Apple's power over the value chain). 	<p>August/2007:</p> <ul style="list-style-type: none"> ▪ NBC breaks the contract with Apple and starts selling content through Amazon, after having been responsible for 40% of the video downloads from the iTunes shop (BARNES, 2007); ▪ Sony intends to use its Playstation 3 console to allow digital content download (KANE, 2007). <p>October/2007:</p> <ul style="list-style-type: none"> ▪ NBC launches its own virtual shop for digital content (DUNCAN, 2007). ▪ Sandisk launches an online shop to sell CBS' content (CRUM, 2007). ▪ Apple reduces prices of its iTunes Plus catalogue, in an attempt to discourage potential entrants and avoid the fragmentation of its power (DONLEY, 2007).

Source: elaborated by the authors, based on the collected data

CONCLUSIONS AND MANAGERIAL IMPLICATIONS

This paper did not intend to propose any new theory on product innovation or the evolution of value chain configurations. By following up the strategic actions of the major players in the infotainment sector, particularly those affected by the introduction of the iPod/iTunes solution in the market, the authors were able to test Fine's concepts to find out if they were still valid, ten years after having been formulated.

Fine believed that an organization that were able to conceive the right device, with a friendly interface, i.e., an "irresistible" *box*, would have a lot of bargaining power with *conductors* and *content* providers, which would have to align their offers to the standards of the "irresistible" *box*.

Apple's strategy for the iPod/iTunes solution was to develop and control the standards not only for the *box*, but also for the *conductor*, locking in *content* providers to its solution. At first, *content* providers were glad to adopt Apple's solution, even knowing that it reduced their own bargaining power. The reason for that was that Apple presented itself as a feasible distribution channel for the products of large recording companies, which had been seeing their revenue eroded after their content started being distributed online in a way that made it difficult for them to enforce their intellectual property rights.

From the consumers' perspective, the iPod/iTunes solution was interesting, because it filled the void left by Napster, which had raised interest in downloaded music and other digital content, prior to its legal defeat in court. However, it introduced two conditions not present in the Napster model: payment for the acquired *content*, and lock-in to the *box* and *conductor*. In spite of these conditions, the iPod/iTunes solution started representing a legal option to people who did not want to violate authors' rights, but still wished to benefit from the convenience of the Internet to purchase music and other content. In addition, iPod/iTunes also reduced the incentive to piracy, offering digital products at accessible prices.

The success of the model was such that it encouraged Apple to broaden the scope of its actions and develop products for other markets in a clear expansionist (vertical integration) strategy. One such market was mobile telephony. The iPhone, once again, represents an "irresistible" *box*, for consumers that are attracted to its innovative interface and attractive functionality. Mobile telephony operators - which control the *conductor* for this segment, i.e. the telecommunications infrastructure - are rushing to sign exclusive contracts with Apple for their areas of coverage. Of course, being a sector for which standards have already been set and for which switching costs are high, iPhone has not yet caused changes to the *conductors* standards. This reduces the probability of Apple achieving a double lock-in (*box* and *conductor*), as it has been able to achieve with iPod/iTunes. Exactly the same way as it happened with iPod, Apple is now once again capable of dictating the standards for the mobile telephony *box*. The design, functionality and interfaces of the iPhone are already being copied to some extent by different manufacturers.

Fine reminds us that there is no permanent advantage, particularly in fast evolving market sectors. The movements of *content* producers in order to avoid the lock-in imposed by Apple, and Apple's continuous maneuvers aiming at retaining control over the value chain are clear examples. Such strategic confrontation deserves to be studied now and revisited in the future as the scenario evolves. Will Apple pursue value chain integration, controlling the *box* and *conductor*, while other players struggle to escape the lock-in situation they are currently faced with? In other markets, such as mobile telephony, is Apple likely to repeat its attempt to dominate the *box*, and eventually other parts of the value chain? Only time will tell!

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Notes

- ¹ Napster initiated its activities in 1999 as a music exchange service, via *uploads* and *downloads*, using the company's software and the Internet. It became a success very quickly, with hundreds of thousands of users around the world, attracted by the easiness of obtaining music for free. After a fierce legal dispute with the recording companies, Napster went out of business in March 2001. A few months later, after making deals with several record labels, Napster started operating again, but it was never able to recover the popularity of previous times (WATERS, 2001).
- ² *Peer-to-peer* networks (P2P) connect computer users in pairs, in a way that they can exchange computer files that are stored in their personal computers.