HD DVD Vs. Blu-Ray:
The End Of A Battle

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ABSTRACT

The launch decisions made by the HD DVD and Blu-ray clans are compared in order to explain the victory of the Blu-ray technology on the market of new generation digital versatile disc (DVD) players.

Keywords: launch decisions, network externalities, case study.

INTRODUCTION

Network externalities arise when a consumer's satisfaction from using a product depends on the number of users of that product (Katz and Shapiro, 1985; Farrell and Saloner, 1986). There are network externalities; on the market of products, such as telephone, fax, and e-mail since a larger user base increases communication opportunities. Furthermore, a large user base is also appealing to suppliers of complementary products and services. In such cases, consumers benefit indirectly from the user base because it increases the availability of complementary products and services (Berg, 1988; Chou and Shy, 1990; Church and Gandal, 1993). Network externalities are at play on the videocassette recorder (VCR) market as well as that of the new generation of digital versatile disc (DVD) players. Without movies to watch on them, these electronic devices have little value, except as living-room ornaments. The value of such products thus depends on their intrinsic characteristics but, maybe more importantly, on movie availability, either to buy or rent, which, in turn, depends on the size of the user base.

The existence of network externalities in a market makes it rather unlikely that incompatible technologies can coexist even if they appear equally matched at the outset. The battle between the VHS and Betamax technologies on the VCR market is a classic example of one technology eventually dominating and ousting the other from the market. In this case, despite the technical advantages of the Betamax format, VHS emerged as the winner.

In this paper, we examine the battle between the HD DVD and the Blu-ray formats which was raging on the high-definition DVD market. Early in 2008, the HD DVD clan led by Toshiba that conceded the victory as the company announced it would stop the production of HD DVD players (Gonsalves, 19/2/2008). In what follows, we attempt to explain the victory of the Blu-ray format by comparing the launch decisions made by backers of the two clans.

STRATEGIES

We compare the decisions made by firms belonging to the HD DVD clan to those in the Blu-ray clan relating to the launch of new generations of DVD players. The HD DVD was led by Toshiba, while Sony is the major proponent of the Blu-ray technology.

Market Strategies

Both clans adopted similar market strategies. They were both targeting a mass market and counting on a rapid increase in the number of drive manufacturers with an aggressive licensing strategy (HD DVD Promotion Group USA, 09/01/2007, Blu-ray Association Licence Office, 16/4/2008). Nevertheless, the Blu-ray clan took a lead with more total members and more potential player manufacturers than its rival. Despite the fact that both technologies had gained the support of many companies, Blu-ray technology was able to garner the backing of 172

firms by the end of 2006 compared to 137 for the HD DVD (HD DVD Promotion Group International, 31/12/2006, Blu-ray Disc Association, 31/12/2006). Production began on a small scale in the HD DVD clan (Prodhan, 3/9/2008), whereas a shortage of blue diode lasers slowed Sony's production (High-def Digest, 15/5/2006). HD DVD technology reached mass markets before Blu-ray in Japan and the United States (Ricker, 31/3/2006; Arango, 18/4/2006). However, both technologies arrived almost at the same time in Europe (Patrick, 5/6/2006; Le Guyader, 1/6/2006). The order of market entry did not appear to have had significant impact, because sales of Blu-ray players outstripped that of HD DVD players by the middle of 2007 (Block, 24/4/2007).

No firms in either clan have made any vertical or horizontal acquisitions specifically related to launching their technologies. However, Sony, leader of the Blu-ray clan, had acquired two movie studios – Columbia Pictures and Tristar – in 1989 (Flagg, 4/10/2000). This greater control over content probably helped the Blu-ray clan in getting the backing of five major movie studios as compared to only two for HD-DVD (FinancialWire, 19/2/2008). Moreover, the Blu-ray clan had entered into many more exclusive agreements with Hollywood studios with the support of Buena Vista Home Entertainment, 20th Century Fox Home Entertainment and Sony Pictures Home Entertainment (Jiji Press English News Service, 24/4/2007).

Product Strategies

The HD DVD and Blu-ray standards are considered technology platforms resulting from DVD technology (Auger, 11/2005). Their market acceptance was deemed to be eased by compatibility with CD and DVD standards, which ensures consumers that the complementary products they already own may be used with both technologies (HD DVD Promotion Group International, 4/1/2007, Blu-ray Disc Association, 31/12/2006). On the other hand, HD DVD and Blu-ray technologies are not mutually compatible, which means that their discs cannot be used in each other's players.

The two main innovations delivered by these technologies are viewing high-definition media and high storage capacity. As can be seen in Table 1, HD DVD and Blu-ray have similar technical characteristics. However, Blu-ray has a few technical advantages relative to HD DVD with a higher transfer rate and a higher maximum storage capacity (25 GB on each side compared to 15 GB for HD DVD) which results in a longer recording in high definition (Blu-ray Disc Association, 31/12/2006; HD DVD Promotion Group International, 4/1/2007).

Table 1. Characteristics of high definition DVD standards

Characteristics	HD DVD	Blu-ray
Video resolution	Widescreen (16 :9), 1080p resolution	Widescreen (16 :9), 1080p resolution
Sound	7.1 channels, DTS HD and Dolby TrueHD	7.1 channels, DTS HD and Dolby TrueHD
Optical functions	Playing and recording	Playing and recording
Encoding	MPEG-4 and VC-1	MPEG-4 and VC-1
Audio/video connector interface	HDMI	HDMI
Transfer rate	36,55 Mbps	54 Mbps
Ethernet	Yes	Yes
Region codes	Region free	A : East Asia, Southeast Asia, North America, South America and their dependencies B : Africa, Southwest Asia, Europe, Oceania and their dependencies C : Central Asia, East Asia (China and Mongolia only) and their dependencies Or region free
Storage capacity	15 gig octets on each side	25 gig octets on each side
Recording capacity in HD	8 hours	13 hours
Digital rights management	Advanced Access Content System (AACS)	Advanced Access Content System (AACS), BD+, BD-ROM Mark
Hard coating of disc	Optional	Mandatory

Sources: HD DVD Promotion Group USA, 4/1/2007; HD DVD Promotion Group International, 4/1/2007; Christophe, 10/10/2006; Hara, 5/10/2006; Blu-ray Disc Association, 4/1/2007.

Both technologies are incorporated in the same categories of products: simple players or recorders, computer drives for laptop or desktop, and home entertainment drives (or game consoles). On the game consoles front, a HD DVD drive may be incorporated as an add-on in a Xbox 360 (manufactured by Microsoft) while a Blu-ray drive is built into every Sony's PlayStation 3. A Blu-ray drive is thus a standard feature of PlayStation 3's game consoles.

Both clans have also bundled prerecorded discs with players such as several Toshiba HD DVD players, the Xbox 360 external HD DVD player, and the first generation of Sony Blu-ray players (Toshiba America Consumer Products, 1/11/2006; Xbom.com, 13/1/2007; Sony Style USA, 12/1/2007).

Lastly, a similar range of complementary products was available for both technologies: blank and prerecorded discs and storage management software. In addition, all the video games for the Playstation 3 are prerecorded in the Blu-ray format (Blu-ray Disc Association, 31/12/2006). Note that camcorders, printers and integrated home theater are now available on Blu-ray technology, but were not in the heat of the battle with HD DVD.

Products incorporating either technology indicate its presence. Indeed, the name HD DVD or the Blu-ray logo appears on products and models along with the manufacturer's trademark. The aim of this ingredient branding tactic is usually to increase the awareness of the technology that is a component of the end product offered to consumers (Norris, 1993).

Pricing Strategies

In general, the price of a HD DVD player was lower than the price of a Blu-ray player. Indeed, Toshiba, the major proponent of the HD DVD technology, set low prices for its players, with the lowest cost unit regularly available for under $200 and occasionally close to $99 while the lowest cost Blu-ray player could be bought at around $350 (Case, 21/5/2008). According to iSuppli, Toshiba set a price $200 below the production cost of its entry level player models – HD-A1 and HD-A2 – (Willem, 23/6/2006).

It seems that Sony set a price below its production cost for the PlayStation 3 game console which incorporates a built-in Blu-ray player. Such a pricing strategy is common in the game market as manufacturers expect to compensate losses on hardware (game consoles) with greater sales of software (games) and accessories (Lee and Alabaster, 12/3/2008) as console manufacturers earn about 10% royalties from games sold for their systems (Wingfeld and Kane, 15/5/2008). But the price of the PlayStation 3 was set even below the usual level as Sony seems to have wanted to increase the user base of the Blu-ray technology in order to boost sales of regular players (Lee and Alabaster, 12/3/2008; Sanchata, 20/9/2007). In fact, iSuppli has estimated that the price of PlayStations 3 has been set between $241 and $306 below its production cost approximately $125 of which comes from a charge for Blu-ray optical lasers (Freeberg, 16/11/2006). It is expected that 85% of the Blu-ray players on the market in 2008 will be found in PlayStations 3 (Entertainment & Travel, 28/4/2008).

Communication Strategies

The two clans have adopted very similar communication tactics, having their own promotional campaign (Lawler, 20/11/2006). Advertisements appeared in the print media, on the television, on the Internet, and at points of sale, in addition to advertising specific to each of the models marketed by the different companies. The public-relations activities carried out included press releases that contain a lot of preannouncements (Fulton III, 20/10/2006), electronic exhibits, itinerant activities, executive's debates, and statements promoting one technology or attacking the other.

The budgets for advertising campaigns in the United States have been impressive, in particular, the US$150 million allotted to HD DVD promotion only for the first year of commercialization (Lawler, 20/11/2006). Several HD DVD backing companies undertook a promotional tour across the USA in 2006 and 2007 (Saracevic, 30/11/2006). Blu-ray stood out by having its technology visible in movies and television series (Swann, 5/6/2006).

Distribution Strategies

There are no major differences in distribution tactics adopted by both clans. Indeed, the supporters of HD DVD and Blu-ray devices opted for mass distribution in stores and over the Internet (Ault, 19/05/2006; Murph, 10/11/2006; Hanson, 25/10/2006). Moreover, no exclusivity deals seemed to have been signed with retailers which we thus carrying both technologies. The only minor difference was that Sony sold its Blu-ray products in its own stores.

CONCLUSION

The battle between HD DVD and Blu-ray technologies is a case in which only minor differences in strategy are likely to result in a very different outcome for each technology. Remember that on market with network externalities, the value of a product for consumers is the sum of its intrinsic value but also on its extrinsic value. It seems that Sony has played on both sides of the equation.

Indeed, the Blu-ray technology had a slight advantage in terms of its technical characteristics with a greater rate of data transfer and greater capacity of storage. But, as Sony has learned during the war between the BETA and VHS technologies on the VCR market, an advantage over technical characteristics – or the intrinsic value of a technology – is not enough to ensure a victory. The extrinsic value of the Blu-ray has been increased by the fact that Sony had secured more control over content over the years. Sony also bet that a greater user base (due to the PlayStation 3) would increase the incentive to develop content which in turn would increase the attractiveness of players. Finally, the Blu-ray technology was visible in movies and television series. This greater visibility may have positively impacted consumers who may have believed the Blu-ray technology was more popular. In markets with network externalities, such minor differences may trigger great discrepancies in the market shares of opposing technologies.

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