The Demise of HD-DVD: A Lesson for Us – Part 1

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Triumph for Blu-Ray DVD

On 19 Feb 08, Toshiba Corporation finally announced that it has undertaken a thorough review of its overall strategy for HD DVD and has decided it will no longer develop, manufacture and market HD DVD players and recorders. Accordingly to the press release, Toshiba clarified that the decision was made following recent major changes in the market place but assured the public and its partners that the company will continue to provide full product support and after-sales service for all owners of Toshiba HD DVD products.

For those of us who have not been following the DVD format war closely, I have provided in the next few paragraphs some basic information on this topic.

101 on DVD Formats

Both Blu-Ray and HD-DVD use blue lazers which operate at much lower wavelengths of about 405 nanometers compared to the current popular red lazers at 650 nanometers which are used in our convention DVD players (in contrast, CD player uses near infra-red wavelength operating at 780 nanometers).

Using the blue lazer's shorter wavelength allows it to read and write data over a much smaller surface area thereby allowing high density storage of data on a disc that is approximately the size of the current DVD which are 12 cm in diameter. Some numbers for you to chew on: Double layer Blu-Ray discs can store up to 50 GB of data which is approximately 6 times more storage over a double-layer DVD disc. Double layer HD-DVD discs however can store up to 30 GB. Although the physical specifications for Blu-Ray discs were finalised in 2004, developments are on going for a commercial quad-layer Blu-Ray disc that can store up to 100 GB of data.

Blu-Ray disc standards are championed by the Blu-Ray Disc Association (BDA) which was set up in Feb 2002 by 9 founding members comprising Sony, Matsushita, Pioneer, Philips, Thomson, LG Electronics, Hitachi, Sharp and Samsung. Over the years, companies such as Apple, TDK, Dell, Hewlett Packard, The Walt Disney Company, Warner Bros and Universal Music Group became members of the BDA. As of end-2007, there are some 250 members of the Association.

At the opposite camp are Toshiba Corporation and NEC that proposed the High-Definition DVD (HD-DVD) format. The DVD format war started back in Aug 2002 when Toshiba and NEC proposed the HD-DVD standard to the 17 steering committee members of the DVD Forum that comprised 10 members who were founders of the Blu-Ray Associations. Despite being voted down twice by these 10 BDA members, the HD-DVD technical specification was finally endorsed by the DVD Forum in Nov 2003. There are currently about 200 registered members at the DVD Forum.

Concerns over the DVD format war lead to an attempt in early 2005 by both the DVD Forum and Blu-Ray Disc Association to negotiate a compromise but the talks stalled and in Aug 05, both organisations announced the negotiations had failed. Shortly in Sep 05, Microsoft and Intel decided to support HD-DVD format.

HD-DVD players and movies were first released in the US in Apr 06 with Blu-Ray movie discs being launched two months later in Jun 06.

The Last Stand

HD-DVD didn't go down without a fight after the format war broke out. Toshiba and NEC had the backing of Microsoft and Intel. Of the 600,000 HD-DVD players sold in the US, half of them were actually Xbox 360 HD-DVD drives. Elsewhere in Europe, some 100,000 HD-DVD players were sold with another 30,000 more in Japan. In a short period of just over 20 months, some 730,000 HD-DVD players were sold since it was first launched Apr 2006.

At the basic level, the key difference between a HD-DVD and Blu-Ray standard is that the latter has a higher storage capacity of 50 GB compared to 30 GB for HD-DVD disc. However, HD-DVD players are retailed at a significantly cheaper price compared to Blu-Ray player. Moreover, all HD-DVD players are required to have Ethernet port but this is optional in Blu-Ray player. Early models of Blu-Ray players also does not support music CD but both players are back-ward compatible to read and play DVD disc. In a nutshell, HD-DVD players cost significantly less, offer more functionalities and for all practical purposes, delivery the same image quality as their Blu-Ray counterpart.

To push sales further, Toshiba launched a less than US$100 model in Nov 07 and the likes of Amazon introduced huge discounts on a wide range of HD-DVD titles that were purchased online.

Notwithstanding the much cheaper HD-DVD players compared to the expensive Blu-Ray player, affordable HD-DVD titles and support from Microsoft, the lack of entertainment studio support as well as the move by major retailers to go with the Blu-Ray standard was the straw that broke the camel's back.

Re-play of the VHS and Betamax Format War?

Before we dived into more details to find out the story behind how HD-DVD fell; I am sure many of us are familiar with the VHS and Betamax war more than 20 years ago. Are there similarities in these two format wars and common lessons for us?

From a technology perspective, Sony's Betamax was deemed more superior than the VHS format so how JVC's VHS (Video-Home-System) won the format war. While there are numerous documented reports on this subject which is also frequently debated in business schools; I will attempt to summarise the salient points.

Sony understood that in order for its Betamax standard to be accepted in the marketplace, it had to get major hardware manufacturers to adopt Betamax for the video cassette recorders they produced. According to urbanlegend.com, Sony offered to license its Betamax technology to JVC and Matsushita in 1974 but JVC disliked Sony's "overbearing" attitude. Moreover, JVC felt that the technology they were developing were much superior in particularly the length of recording hours.

Although Sony had a two years head-start against JVC, it ended up losing the war. While different parties offered differing views on why Sony lost; I concluded that there are three key factors.

First Mover Disadvantage

The first mover advantage that is often used by many organisations against their competitors had turned against Sony in this case. Being the first to offer a very innovative and disruptive technology to play and record movies had attracted unwarranted attention from many movie houses in Hollywood who were concerned about copyrights issues. In late 1970s, Universal and Disney Studios had singled out and named Sony as the sole defendant of the legal battle on copyrights. While Sony was defending its position in the courts, JVC and their allies worked on refining and improving their video recording technology.

Besides being distracted by the legal issues, Sony also did not anticipate adequately the impact from JVC as a technological pioneer in the field of video recording technology. As a pioneer coming second to the market place, JVC had better information about the consumer preferences and more time to plan efficient manufacturing operations and distribution capabilities. At the same time, JVC also had capitalised on the time window to seek alliance with other manufacturers and movie producers to adopt their standard.

In the DVD format war, Sony had learned from its previous Betamax lessons and forged strong alliance and partnerships early with manufacturers, movie producers, and retailers. I will share with you more on this point in the Part 2 of this article.

Rapid Market Penetration

Both Sony and JVC knew there was a huge global market for video recording and the demand would be generated by the mass market – the "home video". However, both took on a different approach to achieve market penetration. Sony who has always prided its brand name was reluctant to have other companies licensed its technology and to manufacture machines under other brands. JVC on the other hand realised that it is not possible to achieve a worldwide standard without alliance and was prepared to work on OEM licensing. With Matsushita behind its back (Matsushita is always known for its capability for mass production, efficient marketing and distribution of consumer products. The several brands under the company include Technic, Panasonic and National), JVC continued to forge alliance with the US and European markets.

With the surge in demand from the consumer market, Sony was unable to cope with the production of the Betamax video recorders. Although Sony has an initial market share of 58% in 1977, this dropped to 25% in 1983.

Fast forward to 2006, the time window between HD-DVD players and Blu-Ray players and movies was only 2 months apart. While the number of HD-DVD players in the market outstripped that of Blu-Ray players, it is the content that counts. After all, what's the use of a player when there is no movie to watch from?

Listen to the Consumers

When Sony first demonstrated the Betamax to Matsushita engineers in end 1974; one of the observations was that the technology could only provide a 1 hour long recording which they felt was insufficient to meet the consumer expectation. In contrast, VHS planned to introduce a 2-hour recording machine right from the start. This was a turning point that set Matsushita to forge the strategic alliance with JVC in stead of Sony.

Although Sony introduced the 2-hour machine 5 months after JVC launched the VHS 2-hour recorder, the inability to strike up alliance with strategic partners such as Matsushita and others had already put Sony at a great disadvantage.

In the DVD format war, Blu-Ray disc has a larger storage capacity of 50 GB over HD-DVD 30 GB but this alone is not the critical factor leading to the downfall of HD-DVD. We will discuss more on this and other contributing factors in Part 2 of this article next month.

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