

From Hardware Manufacturers to Service Providers

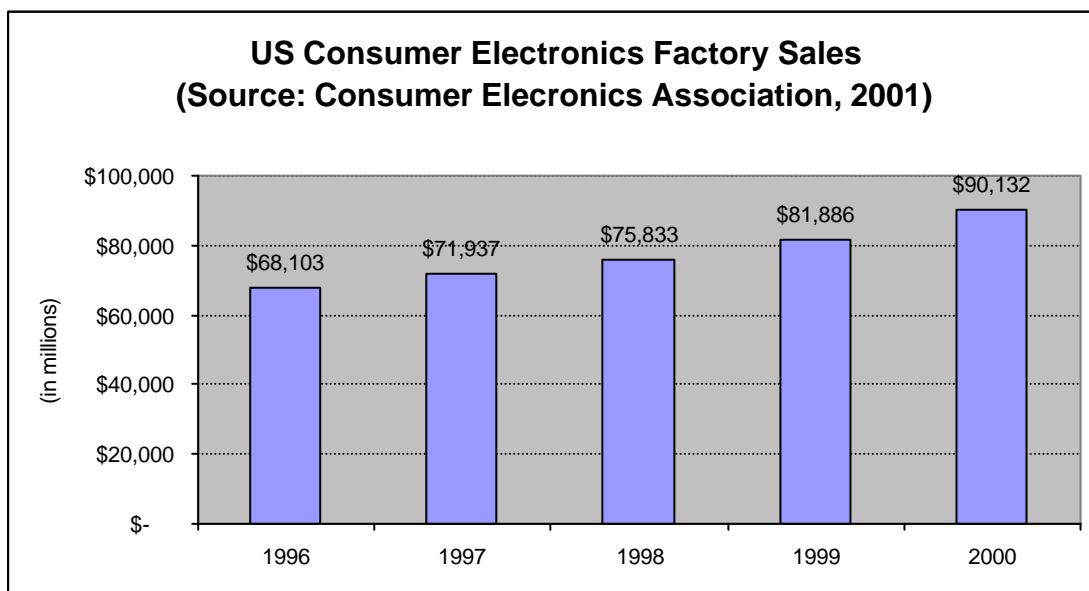
The Changing Role of Consumer Electronics Companies in the Digital Age

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A new generation of Internet appliances and digital home entertainment systems is changing the traditional role of consumer electronics manufacturers. For more than half a century, consumer electronics companies made money by selling hardware, but decreasing margins have forced them to move into higher-margin areas, such as the services business. The transformation from hardware manufacturers to service providers is well under way, and those manufacturers who are successful in shifting their strategy ultimately are expected to become strong players in the services business.

Most manufacturing businesses did well during the economic growth of the 90s. Confident consumers spent a lot of money in numerous areas, including durable goods such as cars, houses and consumer electronic devices. In the U.S., factory sales for consumer electronics reached 90 billion dollars last year, up 32% from 1996, according to the U.S. Consumer Electronics Association.

However, since late last year the economy has been showing signs of a slowdown mainly due to deteriorating business investments and need for reducing inventories. Fear of a recession and an uncertain economic outlook are resulting in people's reluctance to spend money on large items, weakening sales of durable goods. The latest production and sales data appears to confirm that the economic slow-down and decrease in consumer confidence is more severe than initially thought and that the manufacturing industry is being confronted with serious negative impacts thereof. The Consumer Electronics Association reports that in the first half of 2001, factory sales of audio equipment fell 6.7% compared to the same period last year. With a decrease in factory sales exceeding 10%, the decline of video products is even more severe. Now consumer electronics (CE) manufacturers and retailers are hoping for a good Christmas season, in order to "prevent a difficult year from getting worse", as Elliot Spagat of the Wall Street Journal notes.



Even with a good Christmas season, the long-term outlook of the industry remains questionable. Low margins, widespread overcapacity and fierce competition are continuing to put stress on revenues and profits. Once a stellar industrial sector that produced astonishing outputs with ever-increasing revenues, the manufacturing industry faces serious structural issues that will force fundamental and drastic changes.

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Tough Times for Consumer Electronics Industry

Historically, consumer electronics companies are among those hardest hit in the manufacturing industry during economic slowdowns. The current industrial slow-down seems to be no different. Unlike other durable goods such as cars, consumer electronics devices like Hi-Fi systems, TV sets, and other fancy electronic gadgets are expendable and the first to be crossed off shopping lists. Experts are painting a dark picture for the current and short-term future of the consumer electronics industry and it's widely expected that most companies are facing difficult times ahead. Cautionary comments from experts follow a series of negative news from within the industry; almost every day we hear about mass layoffs, plant closures and cancellations of entire product lines.

Japan's consumer electronics industry is particularly affected by the economic downturn as many companies including NEC, Toshiba, Panasonic and Hitachi are re-organizing and downsizing their businesses. The situation does not look much better in other regions like the U.S., where consolidation of the consumer electronics market is rapidly proceeding. Even large well-established corporations with formidable track records such as Motorola, HP, Dell and Gateway are revising revenue forecasts downwards and lowering profit margins and earnings.

Smaller consumer electronics companies with limited financial strength and cash reserves are even more severely affected by the downturn. Many smaller companies have already gone out of business; among them Merinta - a manufacturer of low cost Internet appliances that closed its doors earlier this year. Other companies struggling to survive have been sold to larger and better-funded companies. For example, Be Incorporated, owner of the BE operating system, was recently acquired by Palm, the leading handheld devices manufacturer who also saw a drastic decline in business in recent months, while SonicBlue acquiring the Rio MP3 player business and the ReplayTV service, but later itself got in trouble, going through several rounds of layoffs.

Reviewing the Past, Building the Future

Layoffs, plant shutdown and product cancellations may help reduce the current overcapacities of consumer electronics companies. However, these measures will not resolve the fundamental issue of ever-decreasing margins, which are a result of continuing fierce competition in the manufacturing industry. How will consumer electronics companies and original equipment manufacturers (OEMs) return to prosperity and long-term growth? To answer this question it is helpful to look at the industry's recent history: For decades, CE manufacturers focused on selling hardware at a time when new technical innovations drove the expansion of the consumer electronics market. Faster chips and cheaper, smaller and more versatile devices led businesses and consumers to buy new hardware and replace existing equipment. The short product and upgrade cycles filled the pockets of consumer electronics companies.

Rapid growth of the consumer electronics market over the last two decades can be attributed mainly to the frantic speed of technical innovation. According to the U.S. Department of Commerce, the compounded annual growth rate (CAGR) of consumer spending on electronic devices from 1980 to 2000 was 5.5%. Authors of an SG Cowan study noted that the overall spending during the same time period grew at a 4.5% annual rate, or 1% less per year than consumer electronic spending.

Previous growth in consumer electronics spending could be largely attributed to purchases of personal computer systems. However, with the recent slow-down in the PC market, future growth is expected to come from spending related to other devices such as TV, Hi-Fi systems, camcorders, and set-top boxes. Most of these devices are still based on analog technologies and will be replaced by consumers in the near future with a new generation of devices based on digital technology. Consumer electronics companies will undoubtedly benefit from this major upgrade cycle from analog to digital, although the revenue upside will be less than during upgrade cycles in the past due to competition and reduced margins. Also, it is unclear when the upgrade cycle will happen and when it will reach its peak.

From Hardware to Services

Previously, CE manufacturers increased revenues by selling more devices and upgrading existing hardware. However, competition in the hardware business remains high, forcing manufacturers to keep prices low, and resulting in lower margins on hardware sales. While the

consumer electronics industry typically does very well in strong economic times, it does much worse than other industries when the economy is weaker. During the last recession in the early 90s, growth rates of spending related to electronic devices declined faster than the overall spending. The U.S. annual growth rate during that time was actually negative, which means overall revenues for electronic devices declined - something unheard of in an industry that significantly surged over the last two decades. Volatility in consumer demand remains a constant issue for CE manufacturers.

To mitigate this volatility and increase revenue and profit margins, CE manufacturers will have to focus to a greater extent on selling software and digital services. This new focus is forcing CE manufacturers to modify their existing business models quite drastically. Instead of relying on hardware sales for a one-time fee, franchises will have to put their energy in creating recurring revenue streams by selling services and software as add-ons to hardware.

Sony, for example, has quickly learned to develop its devices as platforms for distributing and selling various services and software. Early next year Sony will launch new peripherals for its game console, Playstation 2, that will allow users to surf the Internet, access music and movies online, and use instant messaging to communicate with friends and family. Given the marketing budget to launch these peripherals, Sony clearly expects to generate significant recurring revenues from these services and features.

Sony is using its Playstation 2 as a Trojan horse to tap into the service market. To accelerate the adoption rate of its services, Sony and other OEM/CE manufacturers are selling hardware well below the actual production cost – a common practice in the game console market. Sony believes that once users are hooked onto a device, they will buy games and sign up for other services, generating revenues that will more than compensate for losses from selling hardware below production cost. Similarly, PC manufacturers applied the new service-oriented business model early on, by offering computers at a fraction of the production cost (sometimes for free) to buyers who agreed to commit to multi-year Internet access subscription services.

Change Driven by Financial Rationale

With the services model, growth in the consumer electronics industry largely depends on whether manufacturers will be able to persuade people to pay for new product features and services. These services will also entice users to buy a new generation of devices, generating revenues for CE manufacturers. Revenue growth is just one reason why CE manufacturers are focused on introducing new digital services. Other motives for shifting business in this direction are as follows:

1. **Higher Margins**
Services typically carry higher margins than the hardware business, since ever-increasing competition in hardware sales results in razor-thin margins.
2. **Lower Capital Cost**
Services require lower capital cost than manufacturing hardware. While almost all require some sort of capital investment, there is no need to build factories, buy machines, rent storage space, or maintain inventories and distribution centers for goods sold.
3. **Flexibility**
There is more flexibility in managing services than manufacturing businesses. Simply put, employees can be more easily trained and deployed according to the changing environment conditions in factories and hardware inventories.
4. **Stable Revenue Streams**
Many services, particularly subscription services, provide recurring revenue streams, whereas hardware is typically a one-time sale. Recurring revenue streams, such as a monthly subscription fee to access the Internet, helps produce predictable corporate income. In a world where the creation of shareholder value is critical, predictable revenue streams help build confidence among the financial industry and investors.

5. Customer Binding & Branding

Services function as an excellent promotional tool for companies' brands. Many services also enable companies to communicate with customers on a regular basis, and such communication is often used as an up-sell opportunity to promote additional services to existing customers.

There are disadvantages to the services businesses as well. Some types of services cannot be protected by intellectual property rights, which allow other providers to launch similar competing services. For example, anybody can offer a subscription service for Internet access. In addition, some services require a large investment in human resources, particularly for customer support and marketing.

The Internet as Services Mecca

The Internet plays an important role in the strategic shift of consumer electronics companies from manufacturers of hardware to providers of services tightly integrated with devices. The Internet offers a new cost-effective, marketing and distribution channel to reach customers to whom the manufacturers can market entertainment services such as games and music, information services such as news and financial reports, and interactive services such as chat and instant messaging.

The economies of scale of the Internet are quite significant and as such are not only the foundation of new ventures, but also the reason for increasing the efficiency of existing businesses. Some enterprises have gone as far as entirely altering their business models because of the Internet. Take Sega as an example. Once a traditional manufacturer of game consoles (Dreamcast), Sega decided to abandon hardware manufacturing altogether and focus instead on game development and Internet gaming services. The idea was to follow a business model with higher margins and less cyclical sales volumes. The Internet has helped Sega with the transition, as the global network is a perfect fit for its new strategy. Sega claims that "Phantasy Star Online", the most popular Internet game of its gaming portal SegaNet, already has more than 300,000 subscribers. The company recently announced to start charging a monthly fee of \$9.95 for playing online games.

The World Wide Web is not only a way to efficiently market various services to consumers but also a network of servers on which data can be stored and managed relatively inexpensively. The role of the Internet as a global content network has been debated for quite a while. George Gilder, a leading hi-tech expert within the financial community of Wall Street, points out that the amount of content and services available to users on the Internet is increasing with every storage server added to the global network. To highlight the power of the Internet as a global storage and retrieval network, Gilder refers to the so-called "Metcalf Law." Metcalfe was founder of the hi-tech company 3Com and inventor of Ethernet, the world's dominant local computer network system. The Metcalfe Law says the value of a network rises in exponential proportion to the power of all devices attached to it. In other words, with each additional device connected to the network, its value increases exponentially.

The Internet and Metcalfe Law are the DNA for the strategic shift of manufacturers from hardware sellers to service providers. Consumer electronics companies are leveraging the Internet in order to market and provide digital services. By embracing the Internet, consumer electronics companies enter the world of "Telecosm," the new age of the Internet and digital media, as George Gilder calls the new area characterized by millions of users take advantage of abundant bandwidth to communicate with other people, learn new things and entertain themselves.

The Giants Start Moving

Surprisingly, industrial giants such as General Electric (GE) and International Business Machines (IBM) in the U.S. were among the first manufacturers in the world to shift their strategy to providing services in the early 90s. Under the guidance of their respective CEOs, Jack Welch and Lou Gerstner, GE and IBM acted swiftly by beginning to shed money-losing hardware businesses such as the production of power plants and PC operations. The new focus was to move into various service businesses, which they rapidly expanded within just a couple of years. Today, IBM's annual revenues from software and consulting services exceed \$30 billion a year,

and the giant claims to have more than \$80 billion in services backlogged. In some divisions of GE, revenues from services exceed 60% of the total.

Other large U.S. manufacturers have followed the example of GE and IBM. Compaq acquired Digital Equipment Corporation (DEC), partly in order to boost their services business. Hewlett-Packard recently acquired Comdisco, after negotiations to purchase Price Waterhouse's services unit failed. And U.S. manufacturer Dell created an Internet access service for its PC users based on Microsoft's MSN.

Consumer electronics companies in other regions of the world have also expanded into the services business. Thomson/RCA, the world's fourth largest consumer electronics company, formed two divisions (New Media Services and Digital Media Solutions) that are focused on building a broad variety of digital services, from video production to interactive media guides. Sony launched a series of services within a short period of time, from Internet access to personal broadcasting, game portals and financial services. Other consumer electronics companies such as Toshiba, Yamaha, Panasonic and Philips are considering similar steps by evaluating how to bundle multimedia services with their devices.

Challenges on the Horizon

Manufacturers face a steep learning curve as they transition to the services model. To be successful manufacturers must address many technical and business issues related to the services business. Possibly the biggest challenge for manufacturers is figuring out which services to bundle with their devices.

Some issues consumer electronics companies have to deal with specifically apply to the services industry. Take subscription services as an example: Acquiring new subscribers is usually quite costly to companies. To generate a continuing stream of recurring revenues, it is necessary for service providers to excel in subscriber retention, and each canceled subscription means a loss of future revenues. In other words, the success of subscription services largely depends on the churn rate, which is the rate at which subscribers cancel their subscription over a given period. In a report by investment bank ING-Barings, analysts David Kestenbaum and Michael French note that the value of digital services lies in "enhanced customer stickiness and reduced churn." They add that in the nascent stages of the digital services market there will be limited revenue potential, however it is likely that such services will significantly contribute to the bottom-line of companies that offer such services in the long run.

Besides reducing churn rates, there are many other challenges, such as pricing and marketing strategies that are specific to service businesses. For example, manufacturers of Internet appliances and digital home entertainment systems must create services that people are willing to pay for; services which they may have been accustomed to receiving for free on the Internet. The image of a free-for-all Internet is also being modified slowly as many service providers realized that they cannot be profitable by relying solely on advertising revenues. The shift from free to paid services plays right into the strategy of CE manufacturers wanting to generate revenues by connecting users of their devices to the manufacturers' service offerings.

Digital Rights Management as Holy Grail

Many users buy devices to access entertainment oriented offerings such as music and movies, persuading CE manufacturers to provide these content services. A key issue of hampering the mass distribution of content is the distributors' need to comply with existing copyright regulations. The only way to adhere to copyright regulations is by ensuring content is distributed in a secure way, preventing users from copying and redistributing digital content illegally. After all, content owners such as film studios and music labels have an interest in collecting money from users who access and use their content.

Internet security guaranteeing protection of copyrights is still in its infancy, yet it is a central issue that must be resolved for wide adoption and success in distributing copyrighted content. The rise and fall of Napster exemplifies how important copyright issues are in the realm of digital content distribution. Napster provides a network platform that enables users to download and store copyrighted audio and video content without paying the copyright holders. U.S. Federal Courts found Napster guilty of infringing copyright laws since they allowed users to download copyrighted material without a license agreement from the content owners.

In the aftermath of Napster, companies are intensifying the development of copyright protected distribution services. At the core of these services are digital rights management

(DRM) solutions. DRMs are supposed to provide legally appropriate solutions for content owners, distributors, manufacturers and users to market copyrighted content via digital networks. Several consortiums were formed in the last 12 months, which will use DRM solutions for the distribution of audio and video content. Such distribution rights will enable manufacturers to directly participate in revenues from music and video services.

For example, Sony and Vivendi Universal joined forces to build PressPlay, an online music service that will use Microsoft's DRM solution. Another service is MusicNet, which is co-owned by Bertelsmann, EMI, AOL Time Warner and Zomba, using RealNetworks' DRM solution. Both groups are in the process of licensing their online music libraries to Internet portals and distributors, such as Yahoo and Napster.

The movie industry is building similar ventures. Participants in the ventures are often the very same media giants who partner in other areas and use similar DRM solutions. One joint-project is Moviefly. Originally founded by Sony, Moviefly is a joint-project of five major movie studios: Metro-Goldwyn-Mayer (MGM), Paramount Pictures (Viacom), Sony Pictures Entertainment, Universal Studios (Vivendi-Universal), and Warner Brothers (AOL Time Warner). The service will offer film libraries through the Internet from the five movie studios. Twentieth Century Fox (News Corp) and Disney have announced a similar venture.

While all these digital music and video ventures are well into development, it is yet to be decided how manufacturers will charge users for listening to music and watching movies. Various pricing models could be applied. For example, the services could be based on subscriptions, such as a monthly subscription to a specific genre of music or category of movies. Rental services are another possibility, or a combination of subscription and rental service, where users pay a small fee to listen to a particular song a limited number of times during a fixed time period.

Point of Sales in the Homes

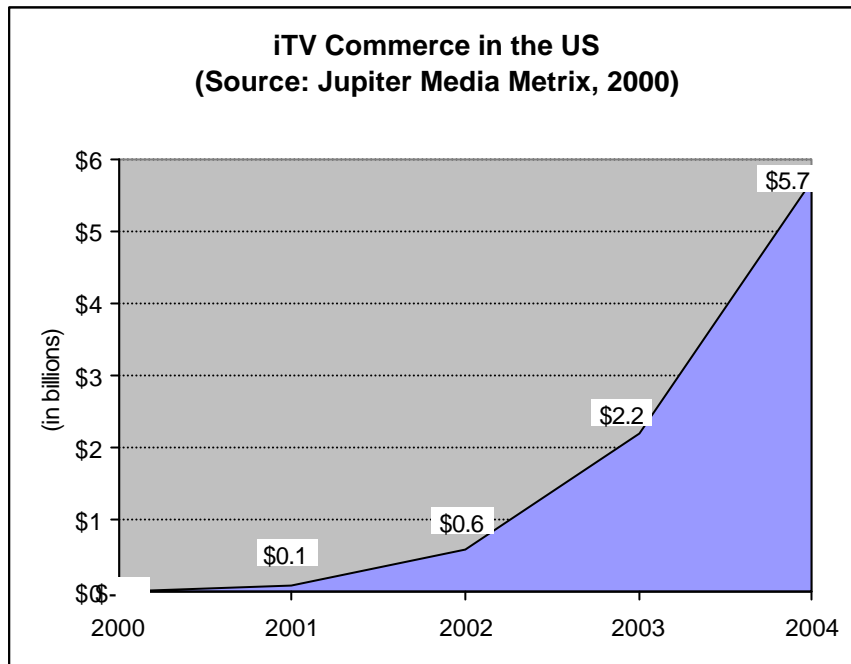
In many cases, elaborate software platforms are needed to run digital services on consumer electronics devices and are used to integrate various backend systems such as billing and content management databases. The tasks are fairly complex, and often CE manufacturers rely on third-party companies to assist with integration of various software solutions, among them are IMagicTV, Orca Interactive, Yes Television, Myrio, Third Space, Minerva Networks and nCube.

Third-party integrators provide backend services for devices from manufacturers and cable operators. While the third party integrators typically are not prominently branded in these devices, they play an important role in the integration process, and can be expected to remain a key driver of the business for digital services via consumer electronic devices.

The backend systems enable manufacturers to sell products and services directly through the device. Thus, game consoles, home servers, and web tablets become point-of-sales within the house, office and public space. Since interactivity provides highly personalized relationships between manufacturers of consumer electronics equipment and their customers, it will allow the manufacturers to develop revenue streams that go beyond traditional services such as content subscriptions, Internet access, game portals etc. Interactivity allows greater customer involvement and monitoring of usage patterns. For example, if usage statistics show a particular subscriber is an avid multi-game player, additional interactive games can be offered to the same user.

According to market analysts, there is enormous market potential for distributing services via the Internet as users are becoming more and more familiar with purchasing online. Authors of a study by the market research firm Taylor Nelson Sofres point out that the percentage of online buyers rose from 10% of all Internet users to 15% in 2001, a 50% growth rate. As a result, e-commerce revenues are growing, and according to a study by Jupiter Media Metrix, online revenues are expected to grow to more than \$5 billion by 2004.

Buying audio and video is one of the top product categories besides purchases of hardware, software, books and travel. The Boston Consulting Group reports that already, close to 10% of all Internet users in the U.S. have bought videos or music via the web. CE manufacturers that bundle such services with their devices are expected to become major players in generating revenues with e-commerce, partly by launching their own services, and partly by receiving commissions for third party services offered with their devices.



Online advertising is another potential source of revenue for CE manufacturers. Currently relatively simple ad banners and pop-up menus are dominating among online advertising. Going forward, it is expected that online advertising will become more interactive. A Datamonitor industry survey of September 2001 concluded that interactive advertising through Internet appliances and iTV will be on par in terms of revenue with more traditional promotional tools such as ad banners in the years ahead.

It is questionable whether the optimistic growth rates of Internet e-commerce and advertising are realistic. Still, most experts believe that over time, e-commerce and online advertising will become substantial revenue sources, just as regular commerce and conventional advertising have become major revenue source for traditional media such as radio, broadcast TV and newspapers.

Where will YOU be tomorrow?

John Malone, who built the cable and content empire Tele Communications Inc. (TCI) over two decades before selling it to AT&T for \$48 billion in 1998, once said: "Two or three companies will eventually dominate the delivery of telecommunications services over information highways worldwide." Malone seems to be right: Over the years many telecommunications and media companies have merged with giants such as AOL Time Warner and Vivendi Universal.

The question remains whether or not OEMs and CE manufacturers will face the same destiny as media and telecommunications companies. Will Sony and Panasonic merge together some day? Will Pioneer and Philips join forces? Consolidation among CE manufacturers is nothing new. As noted by Alfred Chandler, author of a recently published book about the history of consumer electronics and the computer industry, consolidation in the consumer electronics industry began early in the twentieth century. The consolidation of radio tuner manufacturers is a good example: Several hundred manufacturers used to produce radio devices in the late 20's, a decade later less than two-dozen were among the survivors.

Consolidation has accelerated in the second half of the last century. As a result, the number of CE manufacturers has been greatly reduced. The most recent downturn and financial pressure from the globalization of the business will most likely spur new waves of consolidation.

Ultimately, the issue at stake is which CE manufacturers will survive and how many players the market will be able to support. The answer largely depends on the ability of CE manufacturers to evolve and improve their business models. Shifting from hardware manufacturers to service providers will play a pivotal role. In addition to protecting their brands from becoming marginalized by ever-cheaper no-name devices, it will enable CE manufacturers to explore new revenue streams with higher margins.

The consumer electronics industry has an opportunity to become part of the rapidly growing sector of digital multimedia services, and the Internet is the means that will get them there. In contrast to other networks such as cable and satellite, the Internet is not proprietary but open to use by everyone, and is not limited by band frequencies, unlike other media such as broadcast television. In its marketing campaigns, Microsoft is asking users: "Where do you want to go today?" Executives at Sony and Panasonic are probably asking themselves: "Where will we be tomorrow?"