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MICROSOFT'S DIVERSIFICATION STRATEGY

Since the early 2000s, a string of bad news had seriously undermined the future growth of Microsoft. The delay in rolling out the new version of the Windows operating system ("OS") announced in June 2005 further reinforced the prevailing impression that the software giant was in strategic disarray. In late 2005, Bill Gates finally announced a long-awaited corporate strategy to revamp the software giant. By formally recognising the emerging business opportunities introduced by the new internet era ("Web 2.0"),¹ Microsoft began to reinvent itself. It restructured key business units, streamlined decision-making processes and realigned itself to become more nimble in producing software. The restructuring initiative was undertaken in tandem with the company's new diversification strategy of moving beyond the personal computer ("PC") software business and into other devices such as mobile phones, television set-up boxes and game consoles.

In November 2005, Microsoft launched Xbox 360, its latest game console. It was an extraordinary event, not because of the glamorous business executives and journalists attending the event, the cool festival mood soaking Mojave Desert or the graphic technologies dazzling the giant consoles surrounding the conference room. Rather, the air was filled with a mix of trepidation and excitement about the viability of the company's new strategy of moving beyond Windows-based PCs. Everybody in the room wondered whether Microsoft could regain its past glory by wading into new territories. What opportunities and challenges, they thought, awaited it in markets where it did not have proprietary advantage? What specific strategies would it adopt to capitalise on these opportunities and counter the challenges? How best could Microsoft execute its diversification strategy?

Brief History of Microsoft

In 1975, Bill Gates founded Microsoft in Albuquerque, New Mexico after dropping out of Harvard. He partnered with Paul Allen to sell a version of BASIC, a programming language that the duo had written for Altair (the first commercial microcomputer) when Gates was still

¹ With a range of internet-enabled innovations introduced to the market, many had come to believe a new era of the internet ("Web 2.0") had arrived.

Samuel Tsang prepared this case under the supervision of Prof. Ali F. Farhoomand for class discussion. This case is not intended to show effective or ineffective handling of decision or business processes.

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at Harvard. In 1979, Microsoft relocated to Seattle and began to develop software that helped users write their own programs. In 1980, IBM selected Microsoft to develop the operating system for its PCs. Subsequently, Microsoft bought QDOS, or “quick and dirty operating system”, for US\$50,000 from a Seattle programmer, and renamed it the Microsoft Disk Operating System (MS-DOS).

In 1983, Allen developed Hodgkin's disease and left the start-up. In the mid-1980s, Microsoft introduced Windows, a graphics-based version of MS-DOS that borrowed features from its rival Apple's Macintosh system. In 1986, Microsoft went public and Gates became the industry's first billionaire. In 1993, Microsoft introduced Windows NT to compete with UNIX, a popular operating system on minicomputers.

As Microsoft continued to dominate the desktop software market and expanded aggressively into other industry sectors, the US Justice Department filed antitrust charges in 1998 against the software company, claiming that Microsoft had stifled internet browser competition and limited consumer choice. The courts initially ruled in 2000 that Microsoft be split up into two companies. Subsequently, a tentative settlement was reached between the company and the US Justice Department. The settlement left Microsoft intact, but imposed restrictions on the licensing policies for its operating systems. More specifically, Microsoft agreed to uniformly license its operating systems and allowed computer manufacturers to include rivals' software with Windows. In addition, Microsoft also reached settlement agreements with major players (eg, Netscape, Sun Microsystems and IBM) in the market owing to the antitrust investigation. While Microsoft was settling the majority of its antitrust issues, an ongoing investigation was pending by the European Union (“EU”). In March 2004, the EU fined Microsoft and ordered the it to offer European computer manufacturers a stripped down version of Windows by taking out its media player software. Microsoft announced plans to appeal the decision.²

With the growing importance of the networked economy, Microsoft was initially reluctant to adopt the internet. Not until 1995 did it found Microsoft Network (“MSN”), a web portal that offered a wide range of services. Like many other established IT companies, Microsoft experienced the toughest economic downturn due to the burst of the dotcom bubble. Although the it recovered, its near-monopoly on PC operating systems and basic office software had been challenged by a string of start-ups. These new competitors were able to churn out popular programs such as email, desktop search engines and instant messaging over the internet much faster than Microsoft. Such sluggishness in new product development was caused by Microsoft's inefficient approach. In particular, its flagship product, Windows, had been developed as a massive program that was stitched together into one gigantic computer program. The code base of Windows had become complex, and extremely difficult to build and test. And in fact, the next generation of Windows (namely Vista), scheduled to be rolled out in the later part of 2006 in a scaled-down fashion, was already two years behind its original schedule. This would also mark the longest interval between two versions of Windows.³

In view of antitrust regulation in the US and EU, and increasing competition in the desktop software market, Microsoft was determined to move beyond the PC software industry. Its strategy was to extend its software products into web-based services for businesses and consumers. By transforming itself from a traditional software provider to a broader technology services and media company, Microsoft aimed to position its operating systems, software and services as a de facto standard for accessing, communicating and doing business over the internet.

² Lower. J. (2005) “Microsoft Corporation”, *Hoover's Company Information*, Austin TX: Hoover's Inc.

³ Guth, R. “Microsoft Sets Big Restructuring Plan”, *The Wall Street Journal*, September 21st 2005; Guth, R. “Microsoft Changes How it Builds Software”, *The Wall Street Journal (Europe)*, September 27th 2005.

Development Factors in the Emerging IT Industry

According to a study conducted by McKinsey & Co. in 2004 on IT spending trends, chief information officers (“CIOs”) from the Fortune 500 companies would spend money differently after the burst of the dotcom bubble. Although IT spending had increased since 2003 after three years of decline [see **Exhibit 1**], customers would expect to get more out of their technology investments. Companies had been more concerned about the value of IT and enforced stringent rules and guidelines for IT spending. For instance, procurement departments became more involved in the IT purchasing process, and in particular, for the commodity products such as PCs and desktop software. Many had applied formal bidding mechanisms that required vendors to go through a competitive process in bagging the complex deals. In addition, chief executive officers (“CEOs”) became more demanding on the return on investment (“ROI”) on new technology spending. As a result, CIOs were required to develop stronger business cases to support their investments, and tie the overall performance of IT to their personal performance measures. Subsequently, the growth of overall IT spending was expected to be more modest (around 4% to 6%) from 2003 onwards. This would be far below the double-digit figures of the heydays in the 1990s.⁴

The IT industry was considered to be in the midst of an eight-year period of “technology digestion”. Hence, senior managers had become reluctant to make major technology investments. According to Forrester Research Inc, a technology and market research firm, explained “technology digestion” as follows. Investment in IT had continued to increase since 1956. In the US, the ratio of IT investment to gross domestic product (“GDP”) increased from 1% in the mid-20th century to more than 4% at the beginning of the 21st century. However, such growth was not always constant. In fact, it was characterised by periods (eight to ten years) of fast growth followed by equally long periods of slow or negative growth. Based on previous historical data, three growth periods were identified in the IT industry corresponding to the introduction of the new technologies [see **Exhibit 2**]. The first period was the introduction of mainframe computing between the mid-1950s and mid-1960s. The second period was the introduction of personal computing from the mid-1970s to the mid-1980s. The third period was the introduction of network computing between the early 1990s and the early 2000s. In these periods, companies often invested in new technologies on faith and without strong links to ROI measurements. Subsequently, companies went many years before fully exploiting the technologies. During these digestion periods, companies often focused on changing the relevant business processes as well as the corresponding organisational structures. Therefore, this often led to lower spending on new technologies. These spending lags were also noted by researchers from MIT’s Centre for eBusiness. Based on large scale statistical results, they cited that companies often implemented new technologies years ahead of time before they could get value from them. This was particularly true in terms of infrastructural investments.⁵

Towards the Next Big Thing

Although the IT industry looked rather gloomy in 2006, analysts, based on previous cycles, predicted that the industry would take off again in 2007 or 2008. In particular, a number of emerging factors would drive the next growth cycle for the technology economy.⁶ Some

⁴ Davis, K.B., Rath, A.S. and Scanlon, B.L. (2004) “How IT Spending Is Changing”, *McKinsey Quarterly*, 2004 Special Edition; “IT Spending Growth to Slow”, *Red Herring*, August 1st 2005; Nystedt, D. “IDC Lowers 2005 Global IT Spending Growth Forecasts”, *Computerworld*, May 4th 2005; Bartels, A. (2004) “IT Spending Outlook: 2004 to 2008 and beyond”, Forrester Research Inc., Cambridge, MA.

⁵ Brynjolfsson, E. and Hitt, L. (1998) “Beyond the Productivity Paradox”, Center for e-business, Massachusetts Institute of Technology, Cambridge MA.

⁶ Mines, C. (2005) “The Seeds of the Next Big Thing”, Forrester Research Inc., Cambridge, MA; Colony, G. (2005) “My View: The Google Future”, Forrester Research Inc., Cambridge, MA.

foresaw that software spending would reach US\$325 billion by 2008, and the growth rate of the market was expected to be in the range of 3% to 7% annually.⁷

Service-Oriented Architecture and Web Services

Customers frequently looked for ways to modify and upgrade their enterprise applications to meet their changing business needs. However, many of them found that their IT infrastructure was unable to keep up with such rapid changes. In particular, their IT infrastructure was often confined to specific technologies, often proprietary, that were used by the functional applications. The IT department's infrastructural support was too limited to support the changes in business processes across the enterprises. To address such issues, companies began redesigning their IT infrastructures around business processes rather than functional applications. By leveraging the concept of service-oriented architecture ("SOA"), companies were able to capture business processes and represent them in a common digital form, ie, web services. In this way, organisations could eliminate those silos of functional applications across business processes that were created by previously incompatible technologies.

More specifically, SOA was a conceptual framework that developed and integrated applications, and which emphasised code reuse and business modelling. It was also an evolution of distributed computing based on the loosely coupled design paradigm. With this architecture (ie, its specification), developers would be able to package business logics and functions as web services that could be used in different environments. All web services would then be connected with each other through the internet (the common communication backbone). Subsequently, developers could build applications by composing one or more of these services together without having to know the underlying implementation details of the services. For instance, a service could be implemented in Microsoft's .Net or in Sun Microsystems' Java, the lingua franca on the internet, and the applications consuming the same service could be on different platforms (eg, legacy mainframes or PCs).⁸

Applications as Services

Most websites were full of static information; executable functions (eg, buy, search and cancel) were rarely evoked to execute tasks that were not on the individual PCs but which were, rather, on the servers of the host websites. As the new web services technologies continued to take hold, players were able to develop and centrally maintain a variety of executable programs, or applications as services, which could be downloaded to the individual PCs and could then be used to carry out tasks locally. For instance, the search, desktop, toolbar and map programs created by Google were prime examples of such executable programs. These programs would not only improve the productivity of desktop computing, but also bridge the divide between desktop computing and the internet. Moreover, as many of these programs were available for free to customers (in the case of Google, these programs were funded by advertising and syndication), they would spread extremely fast on the internet. Sooner or later, companies would have to incorporate these executables into their existing systems to stay relevant to their customers. In addition, as these free programs were as powerful as the paid desktop programs but far more flexible to use and cost effective, they would not only replace static web pages on the internet, but also standard desktop software, mostly created by Microsoft. Besides desktop applications, many had foreseen that enterprise applications such as enterprise resource planning ("ERP"), supply chain management ("SCM") and customer relationship management ("CRM") software would be increasingly developed

⁷ Davis, Rath and Scanlon (2004), op. cit.; Bartels (2004), op. cit.; "Business's Digital Black Cloud", *The Economist*, July 16th 2005; "Software: Expect the Giants to Stay Sluggish", *Business Week*, January 10th 2005.

⁸ Heffner, R. (2005) "Digital Business Architecture: Harnessing IT for Business Flexibility", Forrester Research Inc., Cambridge, MA.

and distributed under the application-as-services model, and perhaps enterprise applications would one day be given away freely.

Extended Internet

Businesses typically require various devices and systems to be connected beyond the virtual world, for which the internet was extended: it connects computers in the digital world with various machines in the physical world, eg, automobile and electronic appliances with built-in wireless connections, tracking devices with embedded radio frequency identification ("RFID") technology, biometric devices with remote sensing capability. In addition, the extended internet can collect richer data gathered through these network-enabled devices. Subsequently, the information analyses will improve and the value of business intelligence deduced from these analyses will increase. Furthermore, with the extended internet, organisations can tighten control over their assets, and improve the flow of goods and customers.

Social Computing

IT had reached deep into most households in the developed economies. As social computing technologies like storage devices, wireless networks, instant messaging and others had become ubiquitous, they would have a tremendous influence on how people accessed the relevant information sources. In the case of the US, broadband internet access was expected to grow from 0.6 million households in 1998 to more than 63 million households in 2008.⁹ Some analysts expected that home computer networks would connect PCs and other devices in more than 40 million households by 2008. Such an exploration in home computer networks would foster a convergence of IT with television and cable broadcast, entertainment, consumer electronics, and gaming industries. Social computing technologies would empower individuals through many activities such as searching, downloading, streaming, consumer-to-consumer commerce, blogging, podcasting and instant messaging, and would change individual behaviours in communications, marketing, media and commerce.

Microsoft's Strategic Repositioning

As the desktop software market matured, Microsoft continued to diversify and hoped to make headway into the non-PC markets. The company expanded its product lines into enterprise software, consumer products and services markets. Facing fierce competition on all fronts, Microsoft was driven to reinvent itself. In September 2005, Microsoft announced a major restructuring exercise, which reorganised the company into three business units. The new diversification strategy was to group products and services that had high synergies, streamline decision making, and further realign the company to become nimbler in producing software. The first unit was the Platform Products and Services Division, which oversaw the Windows Client, Server and Tools, and MSN groups and aimed to leverage MSN's success in the development of Windows-based products. The second unit was the Business Division, which oversaw the Information Worker (Microsoft Office-related products) and Microsoft Business Solutions (enterprise application software products) groups. The third group was the Entertainment and Devices Division, which oversaw the Home and Entertainment group (Xbox videogame) and the Mobile and Embedded Devices group, and which aimed to compete with players such as Apple and Sony. Ray Ozzie, the highly regarded guru from Groove Networks, would assist the three units in adopting a network-based development approach.¹⁰

⁹ Mines (2005) op.cit.

¹⁰ Guth, R. "Microsoft Sets Big Restructuring Plan", *The Wall Street Journal*, September 21st 2005; Guth, R. "Microsoft Changes How it Builds Software", *The Wall Street Journal Europe*, September 27th 2005; "Spot the Dinosaur", *The Economist*, April 1st 2006.

Platform Products and Services Division

Microsoft had ventured into the services market through MSN in order to generate new revenue. MSN was a web portal that offered a wide range of online services including: news, information search (which was once based on Google's technology before Microsoft developed its own search capability), e-mail (Hotmail was acquired by Microsoft in 1997), instant messaging, online shopping and games, chat rooms, and message boards. In addition, MSN also operated various fee-based services including: a dial-up internet service, MSN TV (interactive television based on WebTV Networks, a company purchased by Microsoft in 1997), Hotmail Plus (upgraded email service), Radio Plus (commercial-free online music radio), MSN Music (online music business), and an online travel service that was offered in partnership with Expedia.

Based on its success in MSN, Microsoft had hoped to leverage its experience to transform its Windows-based platform products into web-based services for consumers and enterprises. In late 2004, in view of this strategic move, Microsoft adopted the modular or Lego-like development approach that was adopted by MSN and favoured by Google and other players. By first developing a core for Windows, the engineers of Microsoft could gradually add new features to the program. Through this new approach, Microsoft could more easily plug in and pull out new features without disrupting the entire Windows program. Moreover, Microsoft also leveraged MSN to generate revenue through traditional advertising on its web site, and also sold text-based advertisements to compete with Google's AdWords and AdSense, and Yahoo! Search Marketing.

In 2005, the Company acquired Groove Networks (founded by Lotus Notes developer Ray Ozzie), a collaboration software maker; Sybari Software, an anti-virus security provider; and FrontBridge Technologies, an email security developer. These technologies were critical to Microsoft's existing platform product lines. Subsequently, Microsoft extended its Windows operating system as an online service (namely Windows Live). In addition, to complement its platform products and internet services, Microsoft further strengthened itself in the web services technology market by leveraging its .Net technology, which was originally developed to compete with the Java technology created by Sun Microsystems. Moreover, Microsoft had developed a number of essential tools that would help customers build the key elements in SOA platforms, and develop specific web service-based modules and solutions.

Business Division

Traditionally, the Office application family within the Information Worker Group had been the second most money-generating division for Microsoft. However, in view of the pressing threats from Google and other players that had provided similar software as free online services, Microsoft announced that it would provide its Office application product family as an online service, namely, Office Live). Although this was basically a repackaging of existing products, and they were not yet available as free software like the email program provided by Google, the action demonstrated the seriousness of the matter in Microsoft's eyes.

In the enterprise software market, Microsoft deliberately chose not to compete with leading enterprise applications providers such as SAP and Oracle for large multinational companies. Instead, the software giant aggressively pursued opportunities with small and mid-sized enterprises. In 2001, after acquiring Great Plains Software, a long-time partner and a specialist in accounting applications for small and mid-sized businesses, for US\$1.1 billion, Microsoft Business Solutions was formed. The new division combined the expertise of Great Plains with its existing small business software operations, including the bCentral small business services unit. The division grew substantially in 2002, when Microsoft acquired Navision, a Denmark-based enterprise software maker for about US\$1.5 billion. Focusing on

small and mid-sized businesses, Microsoft Business Solutions offers a wide range of software applications including accounting, customer relationship management, supply chain management, analytics and reporting, e-commerce, business portals and online business services, human resources, manufacturing and retail management, field services management, and project management.

Entertainment and Devices Division

In terms of the consumer market, one of Microsoft's most important moves was its entry into the video gaming business in 2001. Since the first launch of the video game console, Xbox, the software giant had sold 22 million units worldwide. According to Forrester Researcher Inc, a technology and market research firm, this had put Microsoft in the distant second place behind Sony's Playstation 2 (sold 92 million units) and slightly ahead of Nintendo's GameCube (sold 19 million units). The games business was cyclical. Generally, in every five to six years, a new generation of game consoles would be created. With the new Xbox 360, Microsoft was determined to capture the top spot in the latest cycle of the game business, and to challenge the Sony's dominant position. Firstly, the software giant's Xbox 360 was launched several months ahead of its rivals' products: Sony's Playstation 3 was expected to appear in the market in spring 2006; and Nintendo's Revolution would be launched in late 2006. Some believed that the success of Sony's Playstation 2 had been partly due to its advantage in reaching the market earlier than its rivals. Hence, Microsoft had copied this marketing trick by becoming the first game console in the new business cycle. Secondly, learning from the flop of the original Xbox in Japan, this time Microsoft had worked closely with the producers of the Japanese games in the hope of neutralising the traditional advantages of its two main rivals. Thirdly, Microsoft abandoned its previous approach in building a game console, ie, by using off-the-shelf parts provided by Intel and Nvidia. Although efficient, that approach lacked the flexibility that Microsoft's rivals had enjoyed in reducing the consoles' costs and increasing the profit margins during their lifetime. For instance, Sony had gradually reduced the number of chips required by its Playstation 2 without sacrificing its performance. So, Microsoft had adopted a new design for Xbox 360 hoping to achieve a new degree of flexibility that could help integrate various components and profitability in the future. In addition to producing and selling game consoles, Microsoft's Xbox Live had been a leader of online gaming. The system provided classic arcade games, game trailers and upgrade packs that were downloadable, and suggested the way to online delivery of games and episodic gaming.

Besides gaming, another new market that Microsoft had ventured into was mobile communications. For years, the software giant was denied entry into the market by mobile handset manufacturers. In fact, these manufacturers even deliberately formed a consortium (called Symbian) to prevent Microsoft in developing smartphone software. In order to address this disadvantage, Microsoft went to the mobile operators. During this time, many mobile operators, particularly in Europe, started to leverage original design manufacturers ("ODM"), mostly in Taiwan, to produce handsets that would bear their own brand names in order to create market differentiators. Microsoft spotted this opportunity and persuaded the operators and handset manufacturers to develop phones based on its Windows Mobile operating system. In 2002, Orange launched the first Windows-based smartphone developed by High Tech Computer Corporation ("HTC"), a leading ODM in Taiwan. Other operators had followed suit, particularly owing to the large volume of data-driven revenue generating smartphones. In 2003, Motorola left Symbian and licensed the Windows Mobile software for some of its smartphones. Others would be based on Symbian software and Linux (the open-source operating system). In addition to the opportunity of partnering with the ODMs and operators, the convergence of mobile phone and handheld computers had played to Microsoft's strengths. In late 2005, Palm (Microsoft's rival in handheld device) decided to adopt the Windows Mobile software and replace its Palm OS for its Treo smartphone. This further

signalled Microsoft's success in penetrating the mobile and handheld market segments. Although Microsoft had made a huge progress in the mobile industry, it remained an outsider in many respects. Nonetheless, as mobile phones had become evermore like handheld PCs, particularly with the success of inexpensive PDA phones, Microsoft would have the opportunity to further establish itself in the market.

The cable television market was one in which Microsoft had struggled for many years. In particular, Microsoft had been deliberately kept out of the market by cable operators' refusal to adopt its software in their cable boxes. Cable operators were concerned that once Microsoft entered the market it would repeat its monopolistic practices of the PC business in the cable industry. In view of this situation, Microsoft had formed strategic partnerships, and hoped that would improve its position in the cable market. For instance, the software giant formed a partnership with NBC Universal Cable to provide MSNBC Interactive News and MSNBC Cable services. In 1999 Microsoft agreed to invest US\$5 billion for a minority stake in AT&T as part of that company's move to acquire cable operator MediaOne. The overall results from these moves, though, were less than satisfactory. Microsoft saw a new opportunity however, as telecom operators began to compete with cable operators by offering television service on top of their broadband data service. Television services delivered on the broadband networks was based on a technology called internet protocol TV (IPTV), which could also support various kinds of interactivity such as video-on-demand services. Although the technology held great potential, telecom operators were reluctant to invest and build the entire system by themselves. Seeing this particular issue, Microsoft partnered with Alcatel, a French telecom technology provider, for it to provide the required hardware. In this way, Microsoft established itself as a leading IPTV technology provider. Through this arrangement, a number of leading telecom operators, including Deutsche Telekom, SBC (acquired AT&T and BellSouth), Bell Canada, British Telecom (BT) and Telecom Italia, adopted Microsoft's software for their IPTV services.

Key Competitors

With the arrival of the New Internet era ("Web 2.0") and the ongoing convergence of IT, telecommunications and media, many players were eyeing the same markets. Hence, Microsoft was expected to face many more competitors as it moved beyond the PC business. The following section highlights Microsoft's key competitors [for performance details, see **Exhibit 3**].

Red Hat

Red Hat dominated the market for Linux, the open-source computer operating system, and the main rival to Microsoft's Windows-based products. Besides Enterprise Linux OS, Red Hat also provided other products such as database, content, collaboration management applications and software development tools. The company also offered various services such as consulting, custom software development, support and training.

Red Hat compiled and distributed the significantly improved version of Linux, first through CD-ROMs and later through the internet. As Linux itself was free, Red Hat's revenue came from manuals, technical support and other value-added services that were challenged by the software's ever-changing source code. Until 1997, Linux and Red Hat's package was only known to a small group of programmers who were looking for an alternative to Microsoft's Windows. Only after Intel, Netscape, Compaq, IBM, Novell, Oracle, and SAP made investments in the company in the subsequent two years did Red Hat become famous. Subsequently, the company went public in 2000.

In 2001, Red Hat expanded its software products and included database applications and an e-commerce software suite designed for mid-sized businesses. In late 2003, Red Hat acquired Sistina Software of Minneapolis, a supplier of data storage infrastructure software for Linux operating systems. Sistina was founded in 1997 and had about 20 employees. Red Hat paid about US\$31 million in stock to acquire Sistina. SAP Ventures, the venture capital arm of SAP, had invested in Sistina earlier in 2003. With Linux's popularity on the rise, Red Hat turned its focus to corporate customers. In particular, the company decided to end its routine maintenance of the Red Hat Linux line in 2004 in order to focus on enhancing and supporting its Enterprise Linux products. Red Hat established the Fedora Project, an open-source software effort relying on the work of volunteer programmers, for support of its original Linux distribution. In 2005, Red Hat began to focus on the government sector and to establish a dedicated unit to look after that business [see **Exhibit 4**].

Google

Google had been revered as the most successful online search company in the world. The company operated one of the most popular search engines by offering search results from more than 8 billion web pages. It was also about to become one of the most innovative software makers that stood to change the face of the software industry. Throughout the years, Google had rolled out a series of powerful programs (eg, Toolbar, Desktop Search, Gmail, and Froogle—a comparison shopping service) that aimed to seamlessly bridge customers' desktops and the internet. Many customers downloaded these free software products and used them extensively in their homes and offices. Moreover, Google changed the funding model for product development by using the income earned from its advertisements and syndication to cover the costs of developing these innovative products. With the success of this subsidising approach, some predicted that the software industry would one day be funded by advertising; whether it was for the consumer's desktop or for enterprise application software such as sales automation or supply chain software.

Since its beginning in 1998, Google had upheld its unique company philosophy by first releasing new products and then perfecting them on the fly. It developed business plans based on the feedback it gathered from customers. Google went public in 2004 and successfully raised US\$1.6 billion in a highly anticipated initial public offering ("IPO"). Besides developing innovative products and making them available for free in the market, Google had invested an effort to digitising books and other materials collected in the various university and public libraries, including those at Stanford, Harvard and Oxford, as well works in the New York Public Library collection.

Although Google seemed to be ahead of the pack, it had been competing fiercely with Yahoo! and MSN in the search-driven advertising sector. Both these rivals launched their own search technology and targeted advertising programs. To further capture market share, Google continued to launch additional online services. Following its acquisition of Picasa in 2004, Google made the photo-sharing software freely available. Subsequently, the search company acquired Keyhole in the same year and released a free version of that company's 3-D satellite imaging software as the latest component of its localised content offerings. In 2005, Google introduced an instant messaging client, Google Talk. It also acquired Urchin Software, a maker of web analytics tools.

Besides creating its own desktop programs, Google released data of its online information services, eg, Google Maps, to encourage "mashing" (combining data and capabilities of various websites to produce hybrid sites). This was a prime example of how Google leveraged open standards propagated by the internet in generating innovations outside its four walls. In

addition, the building of the mash-up sites let Google tap into the creativity of software developers around the globe, and furthering its advertising channels¹¹ [see **Exhibit 5**].

Yahoo!

As a pioneer in internet search and navigation, Yahoo! had been one of the best known online brands. It was the largest web portal and the second most popular internet search engine after Google. The company drew more than 345 million people to its sites (published in 15 languages in 20 countries) with a mix of news, entertainment, and a range of online services.

After the dotcom crash and the recession thereafter, Yahoo! had diversified its revenue streams with a mix of paid content and services. Besides offering registered users free personalised web pages, email and message boards, Yahoo! earned revenue from sales of advertising and subscriptions for premium paid services such as online gaming and music downloading. Moreover, Yahoo! provided fee-based online marketing and other commercial services. For instance, Yahoo! sold search results and targeted advertising through Yahoo! Search Marketing, and job listing services through Yahoo! HotJobs. In addition, it offered web hosting and merchant services to small businesses. Besides online services, Yahoo! provided branded internet access through partnerships with telecommunications companies, eg, SBC Communications and Verizon in the US; BT Group in the UK; and Rogers Communications in Canada.

As online advertising continues to grow, Yahoo! faced challenges from Google and Microsoft's MSN. In particular, Google had significantly captured the search market by building a range of free web services to attract customers. Although it lagged far behind both Yahoo! and Google, MSN had launched its own search-driven advertising program. In response to the threats, Yahoo! had lured the former head of programming at ABC television, Lloyd Braun, to create original content and to form content partnerships with major studios. In addition, Yahoo! had improved its search technology by acquiring Inktomi in 2003. In the same year, its purchase of Overture, an online marketing firm, had given Yahoo! a significant boost in advertising revenue. The company continued to strengthen its web services portfolio through acquisitions. For instance, Yahoo! purchased Flickr, a photo sharing web site; Dialpad Communications, an internet telephony business; and Musicmatch, an online music downloading service to compete with Apple Computer's iTunes service and Napster.

Yahoo! expanded its international presence, which accounts for about a quarter of its revenue. In particular, the company acquired Kelkoo (a European comparison shopping service) and Yisou.com (a Chinese search site). In mid-2005, Yahoo! acquired a 40% stake in Alibaba.com, the leading e-commerce company in China, for US\$1billion. Under the new partnership, Alibaba.com would take over operations of Yahoo! China. In addition, the company also announced plans to buy out the remaining shares of Yahoo! Europe and Yahoo! Korea from its partner SoftBank¹² [see **Exhibit 6**].

Oracle

In 2003, Oracle launched a hostile takeover bid for PeopleSoft, which had just disclosed its own plans to acquire a mid-market rival, JD Edwards. Initially, the board of PeopleSoft rejected the offer of US\$5.1 billion in cash: they considered the bid inadequate and were troubled by associated antitrust issues. After many rounds of negotiations and offers, Oracle finally reached an agreement to acquire PeopleSoft for US\$10.3 billion in December 2004. Subsequently, Oracle cut the newly combined workforce by 9%. Although the layoff mostly

¹¹ "Mashing the Web", *The Economist*, September 17th 2005; Colony, G. "My View: The Google Future", Forrester Research Inc., Cambridge, MA; Bramhall, J. (2005) "Google Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc

¹² Bramhall, J. (2005) "Yahoo! Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc.

affected PeopleSoft's employees, Oracle retained the majority of PeopleSoft's development and support teams.

In 2004, Oracle continued to pursue its acquisition-driven growth in order to strengthen its presence in the market. When SAP announced its plan to acquire Retek, a retail software developer, for about US\$500 million, Oracle immediately acquired 10% of Retek and offered to buy the remaining shares. After a short bidding battle, Oracle purchased Retek for \$670 million and formed a new business unit called Oracle Retail Global. In addition, Oracle acquired Oblix, a software developer for identity management; TimesTen, a software developer for data management; and ProfitLogic, a software developer for retail inventory management. In September 2005, nine months after acquiring PeopleSoft, Oracle announced its purchase of Siebel Systems Inc., the leading CRM software maker in the world, for US\$5.8 billion. The deal was expected to close in early 2006.

In order to solidify its position in the enterprise software market after its strategic acquisitions, Oracle announced Project Fusion in early 2005. This new strategic initiative aimed to create a comprehensive platform of its next-generation enterprise technologies, applications and services. The move sought to unite Oracle's full range of software products (from enterprise applications to database software) with the best functionality from the product lines of PeopleSoft, JD Edwards, Retek, Siebel and other newly acquired companies, through the web services technologies. Through this strategic initiative, Oracle emphasised that it would create the most integrated and complete enterprise solution in the market to operate business processes for its customers. Oracle also promised to: ensure continuity of the existing Siebel, PeopleSoft and JD Edwards' product lines, provide customers options of staying with their existing technology platforms created by rivals (eg, IBM's DB2 database management products, BEA's middleware products), offer customers more flexibility in creating their own upgrade schedules, and reduce the total cost of ownership of the enterprise software.¹³

Besides building the most comprehensive development and integration platform for large customers, Oracle continued to equip itself to be a provider of enterprise-software-as-a-service by hosting and running the enterprise applications at Oracle's premise. The service catered to small and medium-sized customers that did not have the resources or capabilities to deal with the complexities and costs of an on-site implementation of their enterprise application software¹⁴ [see **Exhibit 7**].

SAP

In 2001, SAP conducted one of the most daring corporate campaigns in its 33-year-history—it opened up its proprietary software through its new technology, NetWeaver. SAP determined to counter the increasingly heterogeneous nature of the computing environment by providing free access to its software. After putting in more than US\$1 billion in research and development, SAP introduced NetWeaver—an open platform that allows applications to be developed and accessed as web services. This new technology was designed to link up various applications (packaged as web services) running on different systems, from legacy mainframes to internet-enabled devices to enterprise applications. By leveraging NetWeaver, SAP was able to break up its software products into open and modular pieces. Customers were then able to pick and choose the specific SAP web services modules that met their needs. Moreover, customers could add in modules developed by other companies as long as these products met the specification of the NetWeaver framework. As a result of SAP's move,

¹³ Lower, J. (2005) "Oracle Corporation", *Hoover's Company Information*, Austin TX: Hoover's Inc. ; Reinhardt, (2005), op. cit.; Mirani, J. and Ozzimo, A. (2005) "Oracle Applications: Committed to Your Success", Oracle's White Paper, Redwood: Oracle Corporation.

¹⁴ Perez, B. "Oracle Unveils On-Demand Future", *South China Morning Post*, September 27th 2005.

customers could speed up the creation and modification of their own applications, improve the overall fit of the applications, and eventually reduce the associated development costs that it would normally have incurred.

Since the software products were broken up into smaller chunks, SAP changed the delivery mode of features and functions for its products. Rather than making customers wait for massive releases to take place periodically (minor releases can take months and major releases can take years), the web services approach allows improvements of the software products to be made immediately. SAP found that with this new engineering approach, it solicited tremendous customer support. In 2003, SAP released the early version of NetWeaver as free bundled software, which was aimed at bridging SAP and non-SAP software programs by reducing the need for building customised links. The full version of the software was scheduled to launch in 2007. Since mid-2005, more than 1,300 customers had tested NetWeaver and some of them were highly satisfied with it and would welcome the opportunity to refer it to future buyers.

By leveraging a universally accepted platform, thousands of individual developers were able to develop specialised modules that would serve highly targeted industry segments, which were traditionally too fragmented to be addressed by using the old one-size-fits-all approach. This was particularly important for SAP in capturing the millions of new small and mid-sized enterprise customers around the world. So, to realise this strategy based on NetWeaver, SAP fostered a new ecosystem. In the past, SAP mainly relied on its internal programmers (mostly residing in Walldorf, Germany) to develop its products. With the new NetWeaver platform, the software company needed to change from being an industry introvert that focused on its supreme engineering capabilities to an extrovert that attracted tens of thousands of individual developers in joining the virtual development network [see **Exhibit 8**].

IBM

As software was a key component of its new corporate strategy, On Demand Strategy, IBM acquired a number of companies to strengthen its software capability. As a leader in the software industry, IBM Software Group offered a wide range of products, particularly in the areas of database management, systems management, and application integration and development. The division was also a leader in collaboration and communication applications through its Lotus product line. In addition, the division's Tivoli product lines were well established in the storage and security software markets. The global strength of IBM's massive hardware and services businesses continued to sustain the growth of its software products, which accounted for 17% of IBM's total sales.

In order to streamline its diverse product lines, IBM Software Group consolidated its disparate software products into five major sub-groups: ie, information management software (DB2); collaboration software (Lotus); systems development software (Rational); systems management software (Tivoli); and application server and integration software (WebSphere).

WebSphere, in particular, was the centrepiece of IBM's software development and integration strategies, and was the answer to their rivals' competitive products, eg, SAP's NetWeaver. WebSphere was a platform for building a basic but robust web services environment. Although Microsoft and others offered similar products, WebSphere contained most of the basic components and tools required, and a number of extensions that helped customers: integrate systems and applications with web services applications; present data on various devices; deploy applications; secure and manage web services application environments.

To further strengthen its WebSphere product line, IBM had made a number of strategic acquisitions in 2005. These included Gluecode Software (an open-source application server

developer), PureEdge Solutions (an electronic forms developer) and Ascential Software (a leading provider of data integration software for US\$1.1 billion)¹⁵ [see **Exhibit 9**].

Apple

Since the success of its digital music player iPod in 2002, Apple Computer had become a consumer electronics powerhouse rather than a computer vendor. Since its initial launch, Apple had provided regular updates to its iPod line, including colour displays with video playing capability and flash memory-based models. In 2003, Apple launched its iTunes Music Store in the US, an online music service. The site included songs from the five largest record labels in the world, allowing users to download songs for 99 cents, thereby further boosting sales of iPods. Subsequently the company created international versions of iTunes that served Canada, and European and Asian countries. Given the popularity of the online music service, Apple, Motorola, and Cingular Wireless launched the first iTunes-enabled mobile phone in the world in late 2005. Besides its vastly popular iPod products and iTunes services, Apple's desktop and laptop computers, including iMac, iBook, Power Mac and PowerBook, continued to capture small but significant shares of the consumer, education, and high-end design and publishing professional markets. Additionally, Apple offered servers (Xserve), wireless networking equipment (Airport), publishing and multimedia software, and database software through its FileMaker subsidiary.

Although it was no longer the top seller in the PC market, which had been dominated by Microsoft Windows software and Intel processors, Apple continued to attract and maintain a group of loyalists that were fond of the Macintosh's aesthetic sense and its user-friendliness. Moreover, this group of customers was willing to pay premium prices and tolerate any potential interoperability issues with Windows (which had largely been addressed through the years). In addition to its proprietary operating system, the basis of its unique interface and design, another differentiator for Apple's machines was its use of IBM's PowerPC processors. Nonetheless, in 2005, Apple decided to use Intel chips for its PC products starting in 2006, with complete transition by the end of 2007.

While computer companies were increasingly interested in selling their machines only through the online channel, Apple had made a significant effort to appeal consumers via hundreds of retail stores in the US, Canada, Japan and the UK. In 2005, Apple generated 17% of its sales through its retail channel. In order to counter the sluggishness in the global PC sales, Apple had cut prices on many of its products and continued to roll out unique offerings. For instance, Apple introduced Mac mini, its cheapest machine with a base price of US\$499. Additionally, the company had increasingly looked to software development to drive sales. Many of the company's multimedia applications such as iTunes, iMovie and iPhoto were available for free, but the company charged for bundled versions of its software.

With its massive marketing campaign that urged Windows users to switch to Macs, Apple further complicated its relationship with Microsoft. Although it was an alternative to Microsoft's Windows operating system, Apple's relative size and market share had not been a real threat to the software giant. In fact, both Microsoft and Apple had long maintained a working relationship; the Mac-compatible version of Microsoft's popular Office suite was a key software title for Apple, and Apple had scored crossover hits with Windows-friendly editions of iPod and iTunes. Soon after Apple released its Safari Web browser, however, Microsoft announced it would cease development of the Mac version of its Internet Explorer [see **Exhibit 10**].

¹⁵ Lower, J. (2005) "International Business Machine Corporation", *Hoover's Company Information*, Austin TX: Hoover's Inc.

Sony

Sony's PlayStation 2 had captured 70% of the game console market, whereas Nintendo's GameCube and Microsoft's Xbox had only about 15% each. Sony was one of the leading consumer electronics companies (eg, digital cameras, Walkman stereos), and PC and semiconductor companies in the world. These products accounted for more than 60% of its sales. Sony's entertainment assets included recorded music and video (Epic and Columbia), motion pictures (Sony Pictures Entertainment, Sony Pictures Classics), DVDs (Sony Pictures Home Entertainment), and TV programming (Columbia TriStar). Sony had also partnered with Ericsson to develop and sell mobile phones. Moreover, Sony also owned an 8% stake in music club Columbia House.

Although the PlayStation product lines had dominated the video game market, its sales of other electronics (DVD recorders, TVs and computers) and music products had dropped. Weak consumer demand, price wars and increased competition from Apple Computer's iPod had undermined sales of Sony's CD and mini-disk Walkman, and TV products. These challenges, as well as costs incurred in streamlining operations, had significantly decreased its market value. To rectify the situation, Sony began to emphasise high definition products for consumers and broadcasters, integrated mobile video, music, and gaming products, and semiconductors (that aimed at achieving performance improvements of products, eg, reducing the total number of chips required by PlayStation).

In 2005, Sony brought in Sir Howard Stringer to replace Nobuyuki Idei as chairman and CEO, the first non-Japanese chief of the company. Prior to this post, Stringer was the head of the company's US and electronics divisions. Since taking over the top post, Stringer announced Project Nippon, a corporate restructuring plan that aimed to revamp the electronics business and foster better collaboration between the company's divisions. Stringer also announced that he planned to implement a concrete research and development scheme with greater emphasis on consumer demands and to re-establish Sony's leading presence in Japan.

The new reorganisation plan was to continue Sony's "Transformation 60", the last restructuring exercise started in 2004 that aimed to reduce the company's headcount by 20,000, combine operating divisions, and shift component sourcing to low-cost markets such as China. Stringer's new plan aimed to cut 10,000 jobs, shut down 11 manufacturing plants, and reduce the company's electronics product lines by 20%. Moreover, Stringer had abolished Sony's "Network Companies" structure in favour of five product-focused business groups ie, TV, video, digital imaging, audio and VAIO. In addition, Sony had streamlined its operations from R&D to distribution and marketing. The two new product development groups and two business units would focus on semiconductors and electronic components. In the future, the company planned to spin off Sony Communication Network, the subsidiary that operated So-Net Internet service (which had nearly 3 million subscribers), in an IPO scheduled for late December 2005.

Sony's PlayStation 3 was scheduled to be released in the spring of 2006, several months after Microsoft's Xbox 360. Similar to Xbox 360, PlayStation 3 was designed to be a multimedia entertainment hub. Its computing power would allow users to play video games, chat online, listen to music, and view high quality animations similar to those projected by the cinematic digital projector. The machine would also be backward-compatible with games designed for previous PlayStations. Besides the video game console, Sony's PSP (PlayStation Portable), a Walkman-like device with DVD-quality video was launched in Japan in late 2004. The marketing hype surrounding the device's US launch led to long lines at Sony stores when it was released in early 2005. The PSP generated US\$150 million in sales for Sony the first week it hit the stores. Lastly, PSX, an electronics and game technology, was released in Japan

in late 2003; the device's US launch was planned for 2005. It also rolled out a "portable broadband TV" in 2004 — the device plays television shows and videos and allows users to connect to the internet.

To compete with its competitors, Sony was expected to invest US\$1.67 billion to build a leading semiconductor plant in Japan. The company hoped that in 2006 it would be able to sell home servers for broadband and high-definition TV systems powered by its new Cell computer chip, jointly developed with IBM and Toshiba. This powerful chip would also power the new PlayStation 3. Sony also joined Matsushita and Samsung, plus a few other companies, to jointly develop the Blu-Ray Disc. The alliance, formed in 2004, was aimed to establish the new DVD format for optical storage media. In late 2004, Disney agreed to use the Blu-ray format. Games designed for the PlayStation 3 would be the first mass utilisation of the Blu-ray format. In May 2004 the company launched Sony Connect (formerly known as Net Music Download), an online music service available to users of Sony's electronics and mobile devices. The service would eventually expand to include video downloads. This site was managed by a newly formed subsidiary of Sony Corporation of America. At the same time, Sony launched Vaio Pocket, a portable music player designed to compete with Apple's iPod. Vaio Pocket debuted in the US in late 2004. Sony also introduced a similar product, Network Walkman—its first Walkman with a hard drive. In October 2004, the company launched a music download system in Japan dubbed MusicDrop. The system utilised Microsoft's Windows Media Player.

In the entertainment industry, Sony merged its music division with BMG and formed Sony BMG Music Entertainment. The company also led a consortium of companies, including Comcast (a cable company) and a number of investment firms, to acquire the movie studio MGM in early 2005. Such a move had allowed Sony to license and distribute MGM's sizable film library. In addition, the deal would also enable Sony to participate in film co-productions, cable channels and video-on-demand services that would likely generate additional revenue for the company through Comcast-Sony Networks, a joint venue between the cable and the electronics and media companies [see **Exhibit 11**].

Looking Ahead

By pursuing its diversification strategy, Microsoft continued to move beyond its comfort zone, the highly monopolised desktop and server software industry. Hence, one of the major challenges Microsoft would face was many new competitors in new segments.

As Microsoft's Windows-based products continued to hold the near-monopoly in the operating system market, the only product that could challenge Microsoft's dominant position would be Linux, the operating system created in the public domain and distributed by players such as Red Hat. Besides the Windows-based products, the MSN services were another critical component in its diversification strategy. The key competitors, Google and Yahoo!, had adopted the application-as-services model coupled with a new advertising-driven funding approach which enabled them to develop open-source and free software products to the general public.

Bill Gates knows how to compete with anyone who charges money for products ... but his head explodes whenever he has to go up against anyone who gives away products for free.

- George Colony, chairman and CEO, Forrester Research¹⁶

¹⁶ *The Economist* (2006) op. cit.

In addition, with the growth of online service businesses, Microsoft, Google and Yahoo! had been fighting fiercely to become the primary gateway to the internet or the leading web portal. These players had provided internet users a range of services from search to email and discussion blogs to news. In particular, Google and Yahoo! had formed partnerships with various telecommunication or cable service providers in order to position their respective portals as the default entrance to the internet. Google had struck a deal with Comcast, the largest cable provider in the US and a partner of Sony's. Yahoo! had been working with SBC (AT&T) and Verizon, the top three telecommunication operators in the US. Furthermore, Google had tied the knot with AOL by acquiring 5% shares of the troubled online service pioneer owned by Time Warner. Although it was considered one of the smallest portals in the market, AOL was rich in content (thanks to its media parent) and still owned a sizable subscription base (through its dial-up access) in the US market. Hence, such a partnership with AOL would help Google enrich its content and be on par with Yahoo! With these new arrangements, MSN was put in a highly unfavourable situation against its competitors in the portal business.¹⁷

With the major mergers and acquisitions orchestrated by Oracle in 2004 and 2005 (the purchase of PeopleSoft and Siebel in particular), it seemed that the consolidation in the enterprise application segment would come to an end, as there were not that many large players left in the market. SAP, Oracle and IBM had emerged as dominant players in this segment. Traditionally, Oracle and SAP had been fierce rivals while Microsoft, IBM and SAP were partners. For instance, SAP and Microsoft had been in partnership to jointly develop a product that would link Microsoft Office Applications to the SAP products. IBM had been a SAP partner in implementation, middleware and database software. As these software vendors began to develop their own unique SOA and web services platforms, friction was expected to arise: as competition became fierce, long term partnerships would likely be jeopardised.¹⁸

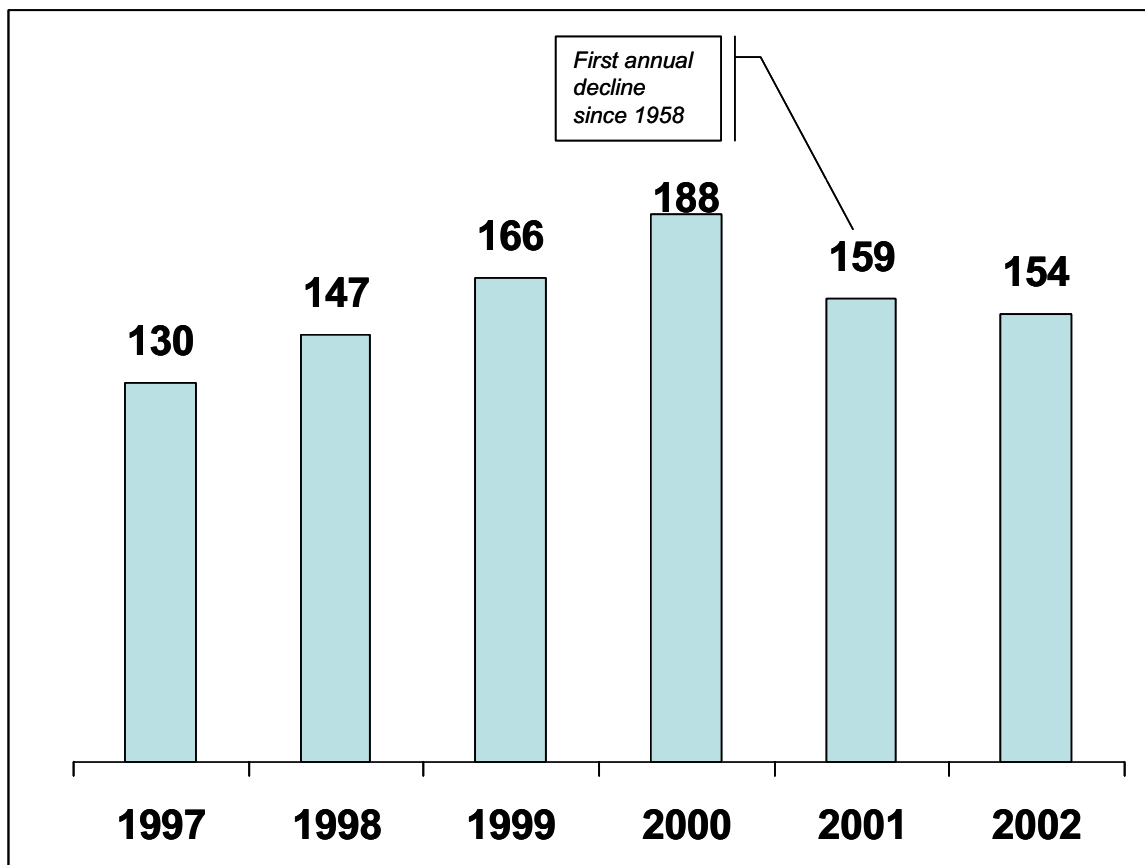
In the entertainment and consumers markets, with the Xbox game console and the ventures in mobiles and IPTV, Microsoft would be competing with players such as Apple and Sony. These players were much more consumer-oriented and media savvy than Microsoft. On one hand, Apple's iMac and iPod products, and iTunes services were designed to cater for the high-end media-centric consumers. On the other hand, although it had been in strategic disarray, particularly in the consumer electronics segment, Sony's video games and entertainment business remained one of the strongest in the industry.

With its new diversification strategy, Microsoft had entered various new markets in which it had no proprietary advantages. Facing many new challenges in such a fast-changing competitive landscape, Microsoft could not conquer these markets alone. It had to significantly leverage existing and new partnerships, particularly with established players in the newly targeted industries. Microsoft needed to constantly monitor the dynamic changes in the relevant ecosystems, and adjust its alliance strategies to capture opportunities in these markets.

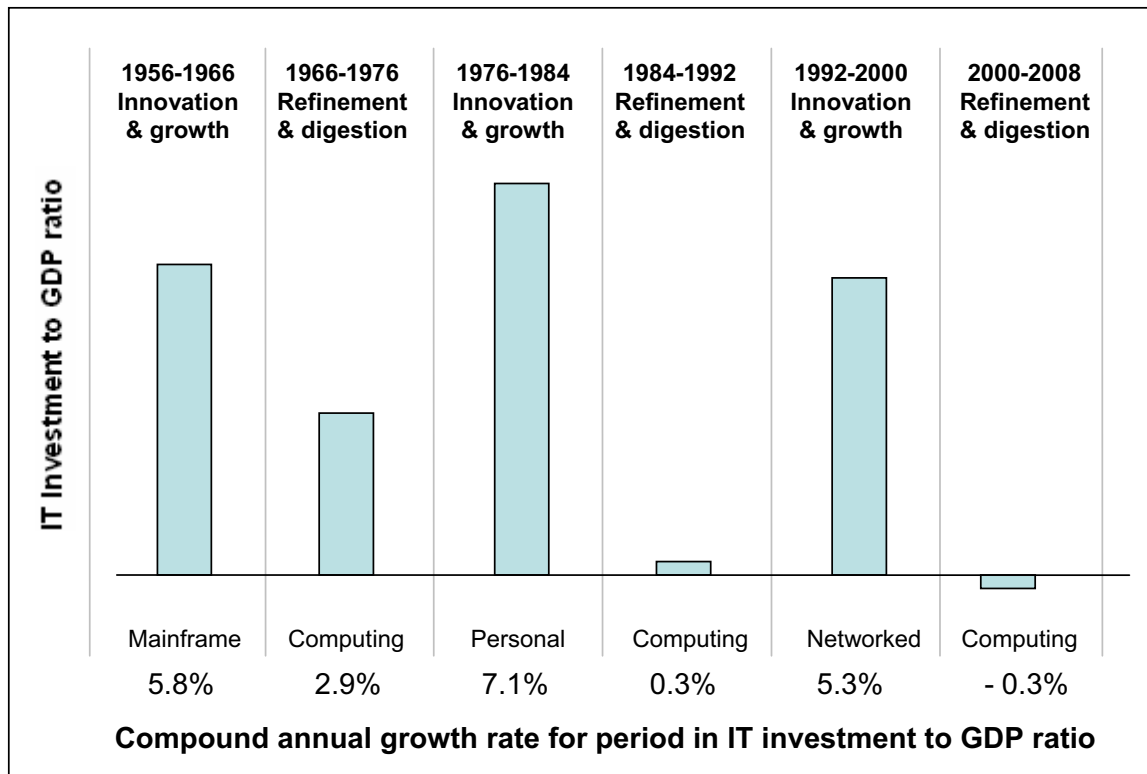
¹⁷ "The Battle of the Portals", *The Economist*, October 20th 2005; Hansell, S. and Siklos, R. "Time Warner to Sell 5% AOL Stake to Google for \$1 Billion", *The New York Times*, December 17th 2005.

¹⁸ Heng (2005) op. cit.; Reinhardt, A. "SAP: A Sea Change in Software", *BusinessWeek*, July 11th 2005; Evers, J. and Blau, J. "Microsoft and SAP to Link Office with ERP", *Computerworld*, April 26th 2005.

**EXHIBIT 1: AGGREGATE CAPITAL EXPENDITURE OF
US COMPANIES ON IT (US\$ BILLION)**



Source: Davis, K.B., Rath, A.S. and Scanlon, B.L. (2004) "How IT Spending Is Changing", McKinsey Quarterly, 2004 Special Edition.

EXHIBIT 2: STAGES OF TECHNOLOGY INNOVATION AND DIGESTION

Source: Adopted from Bartels, A. (2004) "IT Spending Outlook: 2004 to 2008 and Beyond", Forrester Research Inc.: Cambridge, MA.

**EXHIBIT 3: MICROSOFT'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Jun 2005	Jun 2004	Jun 2003
Revenue	39,788.00	36,835.00	32,187.00
Cost of Goods Sold	5,345.00	5,530.00	4,247.00
Gross Profit	34,443.00	31,305.00	27,940.00
Gross Profit Margin	86.60%	85.00%	86.80%
SG&A Expense	19,027.00	21,085.00	13,284.00
Depreciation & Amortization	855	1,186.00	1,439.00
Operating Income	14,561.00	9,034.00	13,217.00
Operating Margin	36.60%	24.50%	41.10%
Nonoperating Income	2,067.00	3,162.00	1,509.00
Nonoperating Expenses	0	0	0
Income Before Taxes	16,628.00	12,196.00	14,726.00
Income Taxes	4,374.00	4,028.00	4,733.00
Net Income After Taxes	12,254.00	8,168.00	9,993.00
Continuing Operations	12,254.00	8,168.00	9,993.00
Discontinued Operations	0	0	0
Total Operations	12,254.00	8,168.00	9,993.00
Total Net Income	12,254.00	8,168.00	9,993.00
Net Profit Margin	30.80%	22.20%	31.00%
Diluted EPS from Continuing Operations (\$)	1.12	0.75	0.92
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	1.12	0.75	0.92
Diluted EPS from Total Net Income (\$)	1.12	0.75	0.92
Dividends per Share	3.4	0.16	0.08

Source: Adopted from Lower. J. (2006) "Microsoft Corporation", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 4: RED HAT'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Feb 2005	Feb 2004	Feb 2003
Revenue	196.5	126.1	90.9
Cost of Goods Sold	25.6	27.8	26
Gross Profit	170.9	98.3	64.9
Gross Profit Margin	87.00%	78.00%	71.40%
SG&A Expense	130.1	87.9	74.1
Depreciation & Amortization	13.9	7.3	6.5
Operating Income	26.9	3.1	-15.7
Operating Margin	13.70%	2.50%	--
Nonoperating Income	24.4	10.8	10.8
Nonoperating Expenses	6.4	0	0
Income Before Taxes	44.9	13.9	-6.4
Income Taxes	-0.5	0	0
Net Income After Taxes	45.4	13.9	-6.4
Continuing Operations	45.4	14	-6.3
Discontinued Operations	0	0	0
Total Operations	45.4	14	-6.3
Total Net Income	45.4	14	-6.6
Net Profit Margin	23.10%	11.10%	--
Diluted EPS from Continuing Operations (\$)	0.24	0.08	-0.04
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	0.24	0.08	-0.04
Diluted EPS from Total Net Income (\$)	0.24	0.08	-0.04
Dividends per Share	0	0	0

Source: Adopted from Lower. J. (2006) "Red Hat, Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 5: GOOGLE'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Dec 2005	Dec 2004	Dec 2003
Revenue	6,138.60	3,189.20	1,465.90
Cost of Goods Sold	2,277.70	1,309.20	570.8
Gross Profit	3,860.90	1,880.00	895.1
Gross Profit Margin	62.90%	58.90%	61.10%
SG&A Expense	1,459.80	890.3	497.6
Depreciation & Amortization	293.8	148.5	55
Operating Income	2,107.30	841.2	342.5
Operating Margin	34.30%	26.40%	23.40%
Nonoperating Income	124.4	10	4.2
Nonoperating Expenses	0	0	0
Income Before Taxes	2,141.70	650.2	346.7
Income Taxes	676.3	251.1	241
Net Income After Taxes	1,465.40	399.1	105.7
Continuing Operations	1,465.40	399.1	105.6
Discontinued Operations	0	0	0
Total Operations	1,465.40	399.1	105.6
Total Net Income	1,465.40	399.1	105.6
Net Profit Margin	23.90%	12.50%	7.20%
Diluted EPS from Continuing Operations (\$)	5.02	1.46	0.41
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	5.02	1.46	0.41
Diluted EPS from Total Net Income (\$)	5.02	1.46	0.41
Dividends per Share	0	0	0

Source: Adopted from Bramhall, J. (2006) "Google Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 6: YAHOO!'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Dec 2005	Dec 2004	Dec 2003
Revenue	5,257.70	3,574.50	1,625.10
Cost of Goods Sold	1,808.30	1,133.20	252.8
Gross Profit	3,449.40	2,441.30	1,372.30
Gross Profit Margin	65.60%	68.30%	84.40%
SG&A Expense	1,944.50	1,441.70	917
Depreciation & Amortization	397.1	311	159.7
Operating Income	1,107.80	688.6	295.6
Operating Margin	21.10%	19.30%	18.20%
Nonoperating Income	1,226.10	591.4	95.2
Nonoperating Expenses	0	0	0
Income Before Taxes	2,671.90	1,280.00	390.8
Income Taxes	767.8	438	147
Net Income After Taxes	1,904.10	842	243.8
Continuing Operations	1,896.20	839.6	237.9
Discontinued Operations	0	0	0
Total Operations	1,896.20	839.6	237.9
Total Net Income	1,896.20	839.6	237.9
Net Profit Margin	36.10%	23.50%	14.60%
Diluted EPS from Continuing Operations (\$)	1.28	0.58	0.19
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	1.28	0.58	0.19
Diluted EPS from Total Net Income (\$)	1.28	0.58	0.19
Dividends per Share	0	0	0

Source: Adopted from Bramhall, J. (2006) "Yahoo! Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 7: ORACLE'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	May 2005	May 2004	May 2003
Revenue	11,799.00	10,156.00	9,475.00
Cost of Goods Sold	2,445.00	2,083.00	2,015.00
Gross Profit	9,354.00	8,073.00	7,460.00
Gross Profit Margin	79.30%	79.50%	78.70%
SG&A Expense	4,552.00	3,975.00	3,693.00
Depreciation & Amortization	425	234	327
Operating Income	4,377.00	3,864.00	3,440.00
Operating Margin	37.10%	38.00%	36.30%
Nonoperating Income	164	102	1
Nonoperating Expenses	135	21	16
Income Before Taxes	4,051.00	3,945.00	3,425.00
Income Taxes	1,165.00	1,264.00	1,118.00
Net Income After Taxes	2,886.00	2,681.00	2,307.00
Continuing Operations	2,886.00	2,681.00	2,307.00
Discontinued Operations	0	0	0
Total Operations	2,886.00	2,681.00	2,307.00
Total Net Income	2,886.00	2,681.00	2,307.00
Net Profit Margin	24.50%	26.40%	24.30%
Diluted EPS from Continuing Operations (\$)	0.55	0.5	0.43
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	0.55	0.5	0.43
Diluted EPS from Total Net Income (\$)	0.55	0.5	0.43
Dividends per Share	0	0	0

Source: Adopted from Lower. J. (2006) "Oracle Corporation", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 8: SAP'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Dec 2005	Dec 2004	Dec 2003
Revenue	10,074.50	10,179.10	8,831.30
Cost of Goods Sold	3,212.40	3,221.40	2,913.70
Gross Profit	6,862.10	6,957.70	5,917.60
Gross Profit Margin	68.10%	68.40%	67.00%
SG&A Expense	3,870.10	3,942.00	3,479.30
Depreciation & Amortization	240.9	284	270.9
Operating Income	2,751.10	2,731.70	2,167.40
Operating Margin	27.30%	26.80%	24.50%
Nonoperating Income	9.7	96.4	71.2
Nonoperating Expenses	4.6	11	5
Income Before Taxes	2,741.30	2,807.60	2,233.60
Income Taxes	967	1,025.80	870.8
Net Income After Taxes	1,774.30	1,781.80	1,362.80
Continuing Operations	1,771.00	1,775.20	1,354.10
Discontinued Operations	0	0	0
Total Operations	1,771.00	1,775.20	1,354.10
Total Net Income	1,771.00	1,775.20	1,354.10
Net Profit Margin	17.60%	17.40%	15.30%
Diluted EPS from Continuing Operations (\$)	1.43	1.42	1.09
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	1.43	1.42	1.09
Diluted EPS from Total Net Income (\$)	1.43	1.42	1.09
Dividends per Share	0.28	0	0.13

Source: Adopted from Lower. J. (2006) "SAP Aktiengesellschaft", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 9: IBM'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Dec 2005	Dec 2004	Dec 2003
Revenue	91,134.00	96,293.00	89,131.00
Cost of Goods Sold	49,414.00	55,346.00	51,412.00
Gross Profit	41,720.00	40,947.00	37,719.00
Gross Profit Margin	45.80%	42.50%	42.30%
SG&A Expense	27,156.00	25,057.00	22,929.00
Depreciation & Amortization	5,188.00	4,915.00	4,701.00
Operating Income	9,376.00	10,975.00	10,089.00
Operating Margin	10.30%	11.40%	11.30%
Nonoperating Income	3,070.00	1,192.00	930
Nonoperating Expenses	220	139	145
Income Before Taxes	12,226.00	12,028.00	10,874.00
Income Taxes	4,232.00	3,580.00	3,261.00
Net Income After Taxes	7,994.00	8,448.00	7,613.00
Continuing Operations	7,994.00	8,448.00	7,613.00
Discontinued Operations	-24	-18	-30
Total Operations	7,970.00	8,430.00	7,583.00
Total Net Income	7,934.00	8,430.00	7,583.00
Net Profit Margin	8.70%	8.80%	8.50%
Diluted EPS from Continuing Operations (\$)	4.91	4.94	4.34
Diluted EPS from Discontinued Operations (\$)	-0.01	-0.01	-0.02
Diluted EPS from Total Operations (\$)	4.9	4.93	4.32
Diluted EPS from Total Net Income (\$)	4.88	4.93	4.32
Dividends per Share	0.78	0.7	0.63

Source: Adopted from Lower, J. (2006) "International Business Machines Corporation", Hoover's Company Information, Austin TX: Hoover's Inc.

**EXHIBIT 10: APPLE'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Sep 2005	Sep 2004	Spe 2003
Revenue	13,931.00	8,279.00	6,207.00
Cost of Goods Sold	9,709.00	5,870.00	4,386.00
Gross Profit	4,222.00	2,409.00	1,821.00
Gross Profit Margin	30.30%	29.10%	29.30%
SG&A Expense	2,393.00	1,910.00	1,683.00
Depreciation & Amortization	179	150	113
Operating Income	1,650.00	349	25
Operating Margin	11.80%	4.20%	0.40%
Nonoperating Income	165	57	93
Nonoperating Expenses	0	0	0
Income Before Taxes	1,815.00	383	92
Income Taxes	480	107	24
Net Income After Taxes	1,335.00	276	68
Continuing Operations	1,335.00	276	68
Discontinued Operations	0	0	0
Total Operations	1,335.00	276	68
Total Net Income	1,335.00	276	69
Net Profit Margin	9.60%	3.30%	1.10%
Diluted EPS from Continuing Operations (\$)	1.56	0.36	0.1
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	1.56	0.36	0.1
Diluted EPS from Total Net Income (\$)	1.56	0.36	0.1
Dividends per Share	0	0	0

Source: Adopted from Lower, J. (2006) "Apple Computer, Inc.", *Hoover's Company Information*, Austin TX: Hoover's Inc.

**EXHIBIT 11: SONY'S INCOME STATEMENT
FROM 2003 TO 2005 (US\$ MILLION)**

Income Statement	Mar 2005	Mar 2004	Mar 2003
Revenue	66,912.00	72,081.00	63,264.00
Cost of Goods Sold	40,673.00	42,175.00	40,672.00
Gross Profit	26,239.00	29,906.00	22,592.00
Gross Profit Margin	39.20%	41.50%	35.70%
SG&A Expense	18,856.00	22,152.00	15,402.00
Depreciation & Amortization	6,057.00	6,462.00	5,621.00
Operating Income	1,326.00	1,292.00	1,569.00
Operating Margin	2.00%	1.80%	2.50%
Nonoperating Income	644	377	379
Nonoperating Expenses	230	268	231
Income Before Taxes	1,740.00	1,401.00	1,717.00
Income Taxes	150	507	684
Net Income After Taxes	1,590.00	894	1,033.00
Continuing Operations	1,575.00	871	978
Discontinued Operations	0	0	0
Total Operations	1,575.00	871	978
Total Net Income	1,531.00	851	978
Net Profit Margin	2.30%	1.20%	1.50%
Diluted EPS from Continuing Operations (\$)	1.52	0.89	1
Diluted EPS from Discontinued Operations (\$)	0	0	0
Diluted EPS from Total Operations (\$)	1.52	0.89	1
Diluted EPS from Total Net Income (\$)	1.48	0.87	1
Dividends per Share	0.23	0.21	0.2

Source: Adopted from Drapes, M. (2006) "Sony Corporation", *Hoover's Company Information*, Austin TX: Hoover's Inc.