

**Sardar Patel Institute of Technology**

**A Report**

**On**

**MICROSOFT vs APPLE**



**S.E. COMPS  
GROUP D1**

**OCTOBER 2009**

**Sardar Patel Institute of Technology**

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**Group D1**

**(Roll Numbers: 55-60)**

*A report submitted in partial fulfillment of the  
requirement of Presentation and Communication  
Techniques syllabus: Report Writing*

**October 2009**

# CERTIFICATE

This to certify that the work on the project titled ([type title here](#)) has been carried out by the following students, who are bonafide students of Sardar Patel Institute of Technology, Mumbai, in partial fulfillment of the syllabus requirement in the subject “Presentation and Communication Techniques” in the academic year 2009-2010:

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# PREFACE

A famous Turkish proverb says "The doors we open and close each day decide the lives we live." But it is really the Windows that we open every day that makes our life so much more efficient.

Today, as the world zips through barriers unbreakable and technologies un-thought of, two conglomerates emerge as front runners for the crown. The winner shall be the undisputed ruler of the world. The future of mankind rests in balance as Redmond and Cupertino wage daily battles so that mankind can live with ease.

Such is the battle of the behemoths of the computer world. The world waits with baited breathe; Can these two giants co-exist in a cut throat world? Is it going to be marketing versus innovation? In this battle royale, only time will tell who dons the mantle - Microsoft or Apple?

# **ACKNOWLEDGEMENTS**

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# SUMMARY

Microsoft was formed by a Harvard College dropout called Bill Gates and his friend Paul Allen in the year 1975. Apple was established on April 1, 1976 by Steve Jobs, Steve Wozniak, and Ronald Wayne to sell the Apple I personal computer kit.

At the 1997 Macworld Expo, Steve Jobs announced that Apple would be entering into partnership with Microsoft. Included in this was a five-year commitment from Microsoft to release Microsoft Office for Macintosh as well a US\$150 million investment in Apple. Microsoft chairman Bill Gates appeared at the expo on-screen and stated that he was very excited to be helping Apple return to success.

Microsoft is a wonderful place for people who love making software, with almost no paperwork for a software developer and an ethical leadership. At Apple Inc. managers expect the promised work and a little extra too.

At Microsoft, recruits are hired not just for their current skills and talent but for their future potential. Apple looks for team-players and proactive personalities.

Microsoft follows the Go-to-Market strategy for effective marketing of its products while Apple uses the brand value to compete across several highly competitive markets. Irony is the main weapon Apple uses to fight Microsoft by way of hilarious Apple TV ads that bring to light flaws and weaknesses of the Microsoft Windows operating systems.

Looking at usability of their websites, Apple comes out ahead. They have a better designed homepage that offers less choice, which means the user needs to think less. The headings are heavy-set and the navigation bar appears to be efficiently crafted out of steel. The Microsoft site follows a faint Windows theme with the light blue clouds. However it lacks a consistent, coherent and a unified brand appears somewhat cluttered and displays overwhelming information. This could be justified as Microsoft offers a wide arena of products while Apple works at a much smaller scale.

As about the operating systems of both, the kernel is highly configurable in the case of UNIX and users are encouraged to learn about it and modify it and to download and install updated versions. In case of Microsoft Windows operating systems, in contrast, kernels cannot be modified or replaced. More and more, Windows is drawing closer to the OS X in terms of the GUI and effects.

In the stock market, Apple seems to find growth opportunities easily, while Microsoft struggles with increasing competition and market saturation issues.

Thus, Microsoft and Apple, the two giants, willingly or not, stand pitted against each other. It only time will tell, who ends on top.

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# 1. INTRODUCTION

True friendship makes a great story....  
But,  
A saga of enmity makes history.....!

When we talk of India- we think of Pakistan.  
When Cricket is recalled, the English wars Australia for the Ashes..  
Whether the cold war freezes us or not, USA will always rival the USSR.

To add to such a list, would be the battle of the giants of the computer world, MICROSOFT and APPLE.

Being two non-withstanding highly flourishing giants in the same field, it is but obvious that Microsoft and Apple, the world's two leading companies in revolutionizing the computer world, must constantly be under the microscope.

Microsoft was formed by a Harvard College Dropout called Bill Gates and his friend Paul Allen. As young learners, they worked with several companies and computer firms delving deeper into the world of programming. Microsoft went through some rough first years, but eventually was able to license MS-DOS to IBM as also launch the now popular Internet Explorer browser.

Apple was established on April 1, 1976 by Steve Jobs, Steve Wozniak, and Ronald Wayne to sell the Apple I personal computer kit. Incidentally, like Bill Gates, Steve Jobs was also a college dropout. The Apple I went on sale in July 1976 .They later followed it with the Apple II and began selling shares in 1980. The hugely successful Macintosh was introduced to the public in 1984. Steve jobs is widely known for helping Apple to grow from a company bordering on bankruptcy in the 1990s to a very successful company today.

The following chapters take the reader through a comparative study of the hardware designs, the work environment, the marketing strategies, the position they hold in the share market of the two great companies.

They outline the journey of these dwarfs who grew to be mammoths, whose destiny was to rule the computing worlds.



## **2. METHODOLOGY**

Various websites were accessed in order to gather and assimilate information on Apple and Microsoft's workplace environment, software and hardware systems. Online newspapers, books and projects were referred to. In order to gauge the research work undertaken in this field, the views of some ex-employees in certain departments were taken into consideration. For detailed information, hardware reviews of technical experts were accessed. The data accumulated was analyzed, classified, organized and documented in the report supported with images and graphs. Statistics about current market shares, growth rates and other available data was also studied and conclusions drawn.

## 3. THE BEGINNING...

### 3.1 Foundation of Microsoft Corporation

Microsoft was formed by a Harvard College dropout called Bill Gates, born William Henry Gates III on October 28, 1955. He was born to a family that was successful in business, living a comfortable upper middle class life in Seattle, Washington.

Early in his elementary school days, Bill Gates consistently outscored his peers in mathematics and science. His parents soon enrolled him in Lakeside Prep School. It was here, in the spring of 1968, that he was introduced to computers.

Bill Gates and his friend Paul Allen quickly took to computing. They were even hired by a computer company to find bugs and explore weaknesses in the system, which kept causing the computers to crash. Gates and his friends studied manuals, explored the system, and hounded the employees with questions until they had formed a base of knowledge that would eventually lead to the formation of Microsoft <sup>[1]</sup>.

A local computer firm in Seattle, Computer Center Corporation, or C-Cubed as Bill and Paul nicknamed it <sup>[2]</sup>, heard about how Lakeside students had become obsessed with their computer and offered to make a deal with the school for access to its PDP. This was Gates' first real venture into computing.

C-Cubed went out of business in 1970, but the boys were soon hired by Information Sciences Inc. to write a program for payroll. They earned money as well as enjoyed the unlimited computer time. Each job helped Gates and his friends learn their skill and delve ever deeper into the world of programming.

Paul Allen and Bill Gates began their business careers not with Microsoft, but with a company called Traf-O-Data formed during high school. Traf-O-Data used an Intel 8008 chip (which cost \$360) to build a system that monitored traffic patterns using a rubber hose stretched across a roadway. <sup>[3]</sup>

In the autumn of 1973, Gates left for Harvard University. He enrolled as a prelaw student, but spent most of his time in the campus computer center, programming away.

One year later, Paul Allen saw the first microcomputer on the cover of a magazine. They realized the time was right. The home PC business was about to explode and someone would need to provide software for the machines. Gates arranged for a meeting with the Altair manufacturers. Gates and Allen stayed up for nights, writing a program he had promised them. It worked perfectly at the meeting, and everyone was impressed. They sold the program, and saw that this was something they could do for real. Within a year, Gates had dropped out of Harvard and Microsoft was formed.

The company went through some rough first years, but eventually was able to license MS-DOS to IBM. The IBM PC took the public by storm, and its success signaled the success of Microsoft. Microsoft continued writing software, for businesses as well as the consumer market. Gates and

Allen were able to identify market opportunities which were not being fully exploited by others. Just as Altair bundled BASIC with its systems, Microsoft would later bundle an Internet browser with its operating system <sup>[3]</sup>.

In 1986, the company went public, and Gates became a 31-year old billionaire. The next year, the first version of Windows was introduced, and by 1993 a million copies per month were being sold.

In 1995, Gates knew that the Internet was the next area of focus. The popular Internet Explorer browser soon became a bestseller. Today, Microsoft software is everywhere.

To some, Microsoft Corporation's early vision - "A PC on every desk and in every home and Microsoft on every computer" - must have seemed like science fiction. But Bill Gates and Paul Allen were passionate about the same idea. They envisioned bringing computers to life by developing software - the instructions that make electronic devices work - that would make computing power accessible to everyone <sup>[4]</sup>.

### **3.2 Foundation of Apple Inc.**

Steve Jobs is the Chairman, CEO and co-founder of Apple Inc., a leading manufacturer of electronic devices including the Macintosh Computer (MAC), iPod, iPhone, and the music and video software iTunes. He was CEO of Pixar Animation Studios until it was acquired by Disney in 2006 <sup>[5]</sup>.

Steven Paul Jobs was born in San Francisco to Joanne Carole Schieble and Syrian Abdulfattah John Jandali and adopted by Paul and Clara Jobs. He attended the Cupertino Middle School followed by high school at Homestead H.S. in the same town of Cupertino. He spent his childhood in the South Bay area, a region that would later become known as Silicon Valley. During high school Jobs held a summer job at the Hewlett-Packard Company in Palo Alto prior to attending college. His original association with Steven Wozniak began as a result of attending lectures and working at HP.

Although he attended Reed College in Portland, Oregon, Steve Jobs never graduated, having only spent about six months at college. At the same time he took a job at Atari to save money for a spiritual retreat to India. While working there he discovered that a popular whistle recreated the tones needed to make long distance phone calls with AT&T. Jobs convinced Wozniak to go into business with him to create "blue boxes" and sell them to people wishing to make free long distance phone calls.

Jobs ended up backpacking through India but returned to work with Atari. Finally he convinced Wozniak to market a computer he had built for himself.

Apple was established on April 1, 1976 by Steve Jobs, Steve Wozniak, and Ronald Wayne to sell the Apple I personal computer kit. On April Fool's Day, 1976, they released the Apple I computer and started Apple Computers <sup>[6]</sup>.

Mr. Wayne was brought in, in part, because he had money. Showing his class and wisdom, however, Mr. Wayne reveals in Apple Confidential 2.0 that he has no regrets, having made the best decision he could with the information he had.

Apple was incorporated January 3, 1977 without Wayne, who sold his share of the company back to Jobs and Wozniak for \$800.

Although the business started with printed circuit boards, Steve Wozniak and Steve Jobs eventually created their first personal computer, the Apple I, and sold it for \$666.66. The Apple I was the first with a hand-built single circuit board used in a computer. The Apple I was sold as a motherboard (with CPU, RAM, and basic textual-video chips). The Apple I went on sale in July 1976 and was market-priced at \$666.66. They later followed it with the Apple II. Apple Inc. began selling shares in December of 1980 <sup>[7]</sup>.

The hugely successful Macintosh was introduced to the public in 1984 and became the first personal computer with a graphical user interface (GUI) through which individuals could interact with the items on the screen.

In 1983, Steve Jobs offered John Sculley, CEO of Pepsi, and the creator of the Pepsi Challenge, the reins at Apple. As Apple grew even more, Jobs experienced tension with the board and the struggles led to Jobs leaving Apple in May of 1985 <sup>[6]</sup>.

Steve Jobs went on to create the company called NeXT in 1986, a company designed around aesthetic interpersonal computing, software development, email and the World Wide Web.

Apple bought neXT in 1996 and reinstated Jobs as the Chief Executive Officer.

Steve Jobs is well known for his work ethic as well as his rumored temper and also as a business and sales wizard, but has consistently helped to grow Apple from a company bordering on bankruptcy in the 1990s to a very successful company today.

### 3.3 Tie-up between Microsoft and Apple:

At the 1997 Macworld Expo, Steve Jobs announced that Apple would be entering into partnership with Microsoft. Included in this was a five-year commitment from Microsoft to release Microsoft Office for Macintosh as well a US\$150 million investment in Apple. It was also announced that Internet Explorer would be shipped as the default browser on the Macintosh. Microsoft chairman Bill Gates appeared at the expo on-screen, further explaining Microsoft's plans for the software they were developing for Mac, and stating that he was very excited to be helping Apple return to success.

## 4. The Hardware...

### 4.1 Kernel Definition:

The kernel is a program that constitutes the central core of a computer operating system. It has complete control over everything that occurs in the system.

A kernel can be contrasted with a shell which is the outermost part of an operating system and a program that interacts with user commands. The kernel itself does not interact directly with the user, but rather interacts with the shell and other programs as well as with the hardware devices on the system, including the CPU, memory and disk drives.

The kernel is the first part of the operating system to load into memory during booting (i.e., system startup), and it remains there for the entire duration of the computer session because its services are required continuously. Thus it is important for it to be as small as possible while still providing all the essential services needed by the other parts of the operating system and by the various application programs.

Because of its critical nature, the kernel code is usually loaded into a protected area of memory, which prevents it from being overwritten by other, less frequently used parts of the operating system or by application programs. The kernel performs its tasks, such as executing processes and handling interrupts, in kernel space, whereas everything a user normally does, such as writing text in a text editor or running programs in a GUI (graphical user interface), is done in user space. This separation is made in order to prevent user data and kernel data from interfering with each other and thereby diminishing performance or causing the system to become unstable (and possibly crashing). When a computer crashes, it actually means the kernel has crashed.

The contents of a kernel vary considerably according to the operating system, but they typically include (1) a scheduler, which determines how the various processes share the kernel's processing time (including in what order), (2) a supervisor, which grants use of the computer to each process when it is scheduled, (3) an interrupt handler, which handles all requests from the various hardware devices (such as disk drives and the keyboard) that compete for the kernel's services and (4) a memory manager, which allocates the system's address spaces (i.e., locations in memory) among all users of the kernel's services.

The kernel should not be confused with the BIOS (Basic Input/output System). The BIOS is an independent program stored in a chip on the motherboard (the main circuit board of a computer) that is used during the booting process for such tasks as initializing the hardware and loading the kernel into memory. Whereas the BIOS always remain in the computer and are specific to its particular hardware, the kernel can be easily replaced or upgraded by changing or upgrading the operating.

Most kernels have been developed for a specific operating system, and there is usually only one version available for each operating system. For example, the Microsoft Windows 7 kernel is the only kernel for Windows 7.

A few kernels have been designed with the goal of being suitable for use with any operating system. The best known of these is the Mach kernel, which was developed at Carnegie-Mellon University and is used in the Macintosh OS X operating system.

The term kernel is frequently used in books and discussions about Linux, whereas it is used less often when discussing some other operating systems, such as the Microsoft Windows systems. The reasons are that the kernel is highly configurable in the case of Linux and users are encouraged to learn about and modify it and to download and install updated versions. With the Microsoft Windows operating systems, in contrast, there is relatively little point in discussing kernels because they cannot be modified or replaced.<sup>[8]</sup>




## **4.2 Kernel Comparison: UNIX versus Windows Vista**

### 4.2.1 Major Releases of Kernels:<sup>[9]</sup>

- UNIX 2.4.0 January 2001
- UNIX 2.6 December 2003
- UNIX 2.6.18 September 2006
- Windows XP October 2001
- Windows Vista January 2007
- Windows Server 2003 April 2003
- Windows Server 2003 R2 December 2005

## 5. The Workplace...

### 5.1 Work Environment at Microsoft:

Mr. Brundage who has worked several years in Apple and is now working at Microsoft since October 1999, has given his opinion about what it means to work at Microsoft. Here's Mr. Brundage personal perspective on the good ( , the bad ( , and the in-between ( .

#### 5.1.1 Focus

Mr. Brundage states that in Microsoft software is just a step towards some other goal (space science, finance, etc.).

Everyone at Microsoft "gets" software — the managers, the administrative assistants, the vice presidents... Even many of the "blue collar" workers (cooks, janitors, bus drivers) know something about software.

Elevating the common denominator in this way makes Microsoft a wonderful workplace for people who love making software.

#### 5.1.2 Personal Freedom:

Microsoft gives software developers a lot of personal freedom over both the work and the work environment and even more importantly except for semi-annual reviews, there's almost no paperwork for a software developer at Microsoft.

#### 5.1.3 Company Leadership:

Mr. Brundage says that leadership at Microsoft is very ethical. They talk about ethical behavior all the time, and lead by example. . They also think very far ahead, and do a good job of getting the information they need to make solid decisions.

It's refreshing to work at a company where you can trust that the upper echelon is smart, hardworking, and making right decisions. Employees don't have to worry that his/her general manager or vice-president will drive their division (or company) into the ground through incompetence or greed.

#### 5.1.4 Source Code:

At Microsoft, employees have access to the source code for almost every Microsoft product. Mr. Brundage himself had access to source code for Halo 1 & 2, Internet Explorer, MDAC, MSXML, and Xbox Live etc.

#### 5.1.5 Benefits/Compensation:

At Microsoft, employees earn more money than they would have earned in any other company. Overall, Mr. Brundage think Microsoft's compensation and benefits package are still above average for the industry.

### 5.1.6 Work/Life Balance:

Microsoft starts off at a disadvantage here, because the people Microsoft hires tend to be driven and a little socially dysfunctional. So employees already tend ruin their relationships with others and focus on work to the exclusion of everything else, without any encouragement from Microsoft. Also, the Seattle area is known for being somewhat isolating - lots of young, ambitious professionals with no time for making friends <sup>[10]</sup>.

## 5.2 Recruitment policy of Microsoft:

Doug Bugie, executive of Norman Broadbent, the recruitment agency that helps place staff with Microsoft, has provided valuable information about recruitment process that Microsoft uses to select best of employees. He says that at Microsoft Recruitment is not just about hiring, it's about the longer term, thinking about the needs of the people. To meet this vision Microsoft works with schools and universities to keep track of talents.

At Microsoft, the aim is to make a talent pipeline that its new recruits pass through. They are hired not just for their current skills but for their future potential. According to Gill, when they hire new staff, the recruitment team focuses on the strengths of the individual.

Microsoft's take on around 20 new graduates per year - These are divided into two main areas - the commercial side and the technical side. For each stream, they get approximately 1,000 applicants.

Process at Microsoft is as follows.

1. Applications for positions are then made via the website.
2. These are screened and a shortlist drawn up.
3. A template is used with which Microsoft's criteria are outlined. A score-card system is then used to whittle the candidate list down. This part of the process is usually done by an outside agency or partner.
4. The next stage is where Microsoft meets the candidates, usually at a presentation day where the candidates go through various sorts of psychometric testing to gauge their aptitude and personality.
5. There is then a final stage which might involve inviting the candidate back to meet senior executives at Microsoft.
6. The candidate is then offered a permanent contract as a "graduate trainee" and will quickly be fully integrated into the workplace, provided they pass the three month probationary period <sup>[11]</sup>.



### **5.3 Work Environment at Apple:**

A person working at Apple for last twenty years, who doesn't not want to reveal his name, has shared his valuable experience of working at Apple.

He says that in Apple, no one is going to guide you the right path. You yourself have to find the ways to do your tasks and so you need to be very professional. He also says that in Apple, you have to be very careful while communicating with manager. At Apple you have to deliver what you promise and even more. You are not allowed to ignore something that you had promised to do. At Apple you could not count on someone for doing something because they were told to do it. Rank means very little at Apple.

He says that at Apple you are in charge of your own career. No one is taking notes on your accomplishments. It is rare in Apple; Apple managers that you could trust to care about your best interests would last long enough to help you advance.

Apple is a great training ground, and with the appropriate amount of keeping your head down, a place where you could work with some of the brightest employees around. It's not a place for people looking for a structured career or one where you can expect the company to groom you for anything but possible early retirement if you get out of line.

So, overall you have to be very professional at Apple and proactive <sup>[12]</sup>.

### **5.4 Recruitment policy of Apple:**

Apple looks for a "type," not a person with vast experience and knowledge. If you are a team player and can fit into Apple's work ethic and philosophy, the company will teach you anything you need to know to meet their job performance goals.

There are no barriers of race, sex, age or appearance. Apple's retail employees represent the full range of humanity. Your lifestyle i.e., tattoos etc are not a problem. But there are some dress regulations that everyone has to follow.

Before you apply for a job you need to know what kind of job you are applying for .you need to know job requirements.

Apple performs a background check on applicants after the final stage of interviewing. The check includes submitting references and other information on your application, and authorized by a document that you sign (and which describes your rights). Your references may not be contacted, but it's clear that Apple does check credit histories and some type of criminal history check.

Process is as follows:

1. You apply for job. Apple contracts with third-party recruiters to reach out and find potential applicants.

2. Next, you'll have some type of initial telephone or e-mail contact with the manager or assistant manager of the store where you've applied.
3. Next, you'll have some type of interview-- either a personal interview with the manager, assistant manager or other supervisor from the store, or a group interview with 5-15 other applicants.
4. At the end of all this, you'll probably have to wait until the manager makes up his/her mind <sup>[13]</sup>.

## **6. The Marketing...**

### **6.1 Microsoft Marketing Strategy:**

#### **6.1.1 The Go-to-market (GTM) Solution**

GTMs address the lack of new product releases on which to hang marketing campaigns by identifying a strategic issue facing Microsoft and constructing a framework for addressing it with broad-reach advertising, sales tools for partners and the Microsoft field sales force, and customer and partner incentives.

##### **6.1.1.1 What's in a GTM?**

The basic components of a GTM include the following:

A broad advertising campaign is aimed at the target audience to raise its awareness of specific IT problems, such as operational complexities that limit an organization's ability to respond to new opportunities, and Microsoft solutions, such as server consolidation and management tools. This campaign generates sales leads as customers order marketing CDs or visit special Web sites to learn more about the issues. Some advertising campaigns feature partners whose products complement the GTM or who have experience in deploying related solutions. Microsoft also produces marketing collateral, such as brochures, case studies, and direct mail and e-mail campaigns that partners can put their own logos and messages on.

Training, consulting offerings and evaluation products help interested customers better understand how a proposed solution solves a customer's specific requirements and the steps required to deploy it. Hands-on labs, either at training sessions or delivered online, let customers explore solutions at their own pace.

Solution Accelerators and Project Guides aid customers who have committed to a Microsoft solution in deploying, configuring, and managing the solution, minimizing the likelihood of a bad experience or an over-budget project for both customers and partners. Partners who sell to enterprise partners can also tap Microsoft Consulting Services to speed deployments.

Promotions and incentives - As part of a GTM Microsoft sometimes offers special incentives to both customers and partners, such as special upgrade opportunities or partner rebates when they sell certain products.

##### **6.1.1.2 GTM Limits**

While Microsoft is putting considerable energy and money into GTMs, they are not a perfect solution.

Connecting a given GTM to a partner's business requires some study. The titles are vague and easy to confuse, not only within a given year but from year to year—for example, what's the difference between 2005's CPI Scenario and its CPI GTM, and how they are different from the

Communication and Collaboration GTM of 2004. Refined annually, GTMs may not provide the continuity that customers and partners need. Ultimately, GTMs are designed to fit Microsoft's business priorities, and partners who find a GTM useful one year may find its successor program, if there is one, a less-suitable match for their business <sup>[14]</sup>.

## **6.2 Apple's Branding Strategy**

Apple Inc. uses the Apple brand to compete across several highly competitive markets, including the personal computer industry with its Macintosh line of computers and related software, the consumer electronics industry with products such as the iPod, digital music distribution through its iTunes Music Store, and more recently in the smart phone market with the Apple iPhone.

Apple's product strategy is to create innovative products and services aligned with a "digital hub" strategy, whereby Apple Macintosh computer products function as the digital hub for digital devices, including the Apple iPod, personal digital assistants, cellular phones, digital video and still cameras, and other electronic devices.

### **6.2.1 The Apple Brand Personality**

Apple has a branding strategy that focuses on the emotions. The Apple brand personality is about lifestyle; imagination; liberty regained; innovation; passion; hopes, dreams and aspirations; and power-to-the-people through technology. The Apple brand personality is also about simplicity and the removal of complexity from people's lives; people-driven product design; and about being a really humanistic company with a heartfelt connection with its customers.

### **6.2.2 Apple Brand Equity and Apple's Customer Franchise**

The Apple brand is not just intimate with its customers, it's loved, and there is a real sense of community among users of its main product lines.

The brand equity and customer franchise which Apple embodies is extremely strong.

It is arguable that without the price-premium which the Apple brand sustains in many product areas, the company would have exited the personal computer business several years ago. Small market share PC vendors with weaker brand equity have struggled to compete with the supply chain and manufacturing economics of Dell. Apple has made big advances in becoming more efficient, particularly in logistics and operations, but would still find it difficult to make a profit at the price levels Dell transacts at.

### **6.2.3 The Apple Customer Experience**

The huge promise of the Apple brand, of course presents Apple with an enormous challenge to live up to. The innovative, beautifully-designed, highly ergonomic, and technology-leading products which Apple delivers are not only designed to match the brand promise, but are fundamental to keeping it.

Apple fully understands that all aspects of the customer experience are important and that all brand touch-points must reinforce the Apple brand.

Apple is expanding and improving its distribution capabilities by opening its own retail stores in key cities around the world in up-market, quality shopping venues. Apple provides Apple Mac-expert retail floor staff to selected resellers' stores (such as Australian department store David Jones); it has entered into strategic alliances with other companies to co-brand or distribute Apple's products and services (for example, HP who was selling a co-branded form of iPod and pre-loading iTunes onto consumer PCs and laptops). Apple has also increased the accessibility of iPods through various resellers that do not currently carry Apple Macintosh systems (such as Harvey Norman), and has increased the reach of its online stores [15].

### **6.3 Apple Communication Strategy**

Apple communication is sober, intriguing, simple, clear, minimalist and clever. Irony is the main weapon Apple uses to fight Microsoft- irony and ridicule. In these hilarious Apple TV ads the flaws and weaknesses of the Microsoft Windows operating systems are brought in full view in a smart, intriguing, amusing way.

The style makes think of the old surrealistic Marx Brothers movies and the classical Stan Laurel and Oliver Hardy of many decades ago, revisited in a the 21st century style. But the irony mechanism is closely similar.

Most famous of them being "I am a Mac, I am a PC" Apple TV ads.

Following are the "I am a Mac, I am a PC" Apple TV video ads:

I am a Mac, I am a PC - The Calming Teas - on Microsoft Vista - 2008

I am a Mac, I am a PC - The Podium - on Microsoft Vista - 2007

I am a Mac, I am a PC - The PR Lady - on Microsoft Vista - 2007

I am a Mac, I am a PC - Bloated - 2007

I am a Mac, I am a PC - The Psychologist Session - 2006

Apple communication is simple and minimalist. Apple does not hire famous actors as George Clooney - "No Martini, No Party" TV ads, or Andie MacDowell - L'Oreal.

The "I am a Mac, I am a PC" TV ads are a milestone in communications. They are smart, effective and humiliating (for Microsoft ...).

Apple communication has a unique style as seen in the TV ads, as in print ads, in the online communications and in packaging. A lesson to be learned by many companies in the world. Well, of course when you have great products it is much easier to entice the costumers, but nevertheless doing it with style and cleverness is a very good point. It not only boosts sales, but also enhances the brand value tool. <sup>[16]</sup>

### **6.4 Apple vs. Microsoft – A Website Usability Study:**

Each company's business revolves around different markets. Microsoft's business targets pretty much everyone, from home computer owners to developers and enterprises. On the other hand,

Apple is primarily a consumer company, and makes most of its profit selling hardware, like its iPod music players and Mac computers.

#### **6.4.1 Homepage-**

The homepage is one of the most important pages of the whole site because it's the first, and in many cases the only chance you get to impress the visitor enough to keep them browsing.

##### Apple homepage

The interesting thing here is that the main ad at the top is huge — indeed it almost covers the entire page. If this doesn't grab your attention then nothing will. One other thing to note is the lack of content. You're not distracted by sidebars, notices or extra navigation items — there are only a few items on the page, focusing your attention and making the decision of where to go next easier.

##### Microsoft homepage

Microsoft has a different approach to their homepage. Firstly, they feature a similar style of ad at the top, designed to be attention grabbing. These are large images, but only one out of 3 ads is shown at a time — you have to hover over the other two to expand them. The space below acts as a set of highlights and news for various areas of the business. One big problem with the content featured here is that it's fairly boring and overwhelming.

#### **6.4.2 Readability-**

Because most of the content on the sites is text, it's vital to ensure that everything is readable and legible.

##### Apple text

Apple does a great job of keeping everything easy to read. The text is generally small, but never too small so as to be a problem. Headings are set in heavier type and stand out, allowing you to quickly get the gist of each section.

##### Microsoft text

It follows the general usability guidelines by breaking things down into small bite size pieces of text that are easy to digest. It looks a lot busier than the Apple site because there is more content on one page and there are many different treatments for headings and highlighted words. Too much variety causes visual chaos on the page, with each different colored or bold item competing for your attention.

#### **6.4.3 Aesthetics-**

Researches show that people perceive better looking interfaces as more usable. Attractive interfaces will set better first impressions and may even make their users more tolerable to problems.

##### Apple aesthetics

Apple's website aesthetics closely mirrors that of its product line. The navigation bar looks like it's crafted out of aluminum and features gentle gradients and indented text. There are also plenty of reflections and minimalist design elements.

#### Microsoft aesthetics

The site follows a faint Windows theme with the light blue clouds. The look and feel is very generic and doesn't do enough to differentiate itself or build a coherent brand. The designs are overall pretty good, but pretty good just isn't enough. There are plenty of inconsistencies and a lack of polish, which puts Apple ahead in this area.

#### **6.4.4 Conclusion-**

Looking at usability alone, Apple comes out ahead. They have a better designed homepage that offers less choice, which means the user needs to think less.

Having said this, the Apple website is much smaller in scale than Microsoft's site. Unlike Apple, Microsoft hosts many different sites and sections under the Microsoft.com brand, creating a whole ecosystem of sub-sites. Microsoft just doesn't have a consistent, coherent and unified brand. Every section looks and feels different. There is no global navigation and there are not many visual clues that tell the user that this is a Microsoft site <sup>[17]</sup>.

## 7. The OS...

### 7.1 Disk Formatting/Initialization:

#### 7.1.1 Mac OS X-

Formatting and initializing disks is primarily done using the "Disk Utility" program. This program is capable of formatting partitions in HFS Plus, UFS, or FAT (MS-DOS) file systems, and can also be used to create, destroy, and repair RAID sets. Formatting and initializing may also be performed from the Mac OS X command line with the `diskutil` and `hdiutil` commands.

Disk Utility can create disk images in the Mac OS X disk image format `.dmg` and the `.cdr` format (equivalent to `.iso`). Disk Utility also burns disk images, restores from them and can convert one format of disk image to another. Additional disk image commands include: Verify, Checksum, Resize and Change Password.

Formatting of a disk is done via the "Erase" tab. In the Erase tab, for any selected volume, the user can choose the file system and name for the volume once it's erased. The "Security Options" button provides access to the "Secure Erase" feature in Disk Utility. This feature prevents recovery of erase data on by writing over the disk's data one or more times with ones or zeros. Users can select how many times to overwrite a drive's data based on how securely they wish to erase the data though higher levels of secure erasure can a long time to complete. The "Erase Free Space" button allows the user to only securely erase the free space on the disk leaving other data alone.

#### 7.1.2 Windows Vista-

Formatting in Windows Vista is taken care of by the Microsoft Management Console. MMC only supports NTFS, FAT and FAT32 for hard disks. There is no support for disk image mounting or creation.

### 7.2 Disk Defragmenting:

To understand why defragmenting disks is important, one must understand why disks become fragmented in the first place. Hard drives are comprised of several different circular disks (platters), whereupon data is "written" using a magnetic head on a small actuator arm. In order to seek out and read specific bits of data, the disk must spin, and the actuator arm must move into the correct position over the surface of the platter. When a disk is initially formatted, data may be written in nice, neat contiguous blocks of data, and it is relatively trivial for the head to be moved into the correct position. However, when the data is deleted from the disks, certain blocks of data are made writable and thus usable by the system for storing other kinds of data. As a result, data will often be broken into "non-contiguous" blocks, which are spread out all over the surface of the disk. Because of this effect, software was needed to be written which would straight out this non-contiguous mess, and rearrange all of the blocks of data into nice contiguous sections, which can improve performance.

However each platform takes a different approach to the management of fragmentation and defragmentation.



### 7.2.1 Mac OS X-

OS X takes a preventative approach to the management of fragmentation. A number of technologies built-in to OS X dramatically reduce the amount of fragmentation that will occur. To summarize Apple's own documentation (About disk optimization with Mac OS X):

- Fragmentation was often caused by continually appending data to existing files, especially with resource forks. With faster hard drives and better caching, as well as the new application packaging format, many applications simply rewrite the entire file each time. Mac OS X 10.3 Panther can also automatically defragment such slow-growing files. This process is sometimes known as "Hot-File-Adaptive-Clustering."
- Aggressive read-ahead and write-behind caching means that minor fragmentation has less effect on perceived system performance.

### 7.2.2 Windows Vista-

Microsoft has traditionally included a defragmentation utility with their operating system. This bit of software will actually rearrange the blocks on the disk, so as to actually "defragment" the fragmented disk. This utility is called "Disk Defragmenter". By default, it is configured to automatically run behind the scenes on weekly basis.

Users can adjust this schedule to be run daily or even monthly according to their own needs. Users can also run Disk Defragmenter manually by pressing "Defragment Now". <sup>[18]</sup>

## 7.3 GUI Customization-Appearance and Themes:

### 7.3.1 Mac OS X Leopard-

For the Mac OS X Leopard, there's only one unified theme.

Visual effects such as drop shadows, transparent menus, and animations can't be turned off.

All Windows documents require a minimum 4 pixel border both to allow resizing handles and to mark the border between one document and the underlying one, and still sometimes leave some visual confusion about which is the top document (see under Windows Vista below). The Apple drop shadow creates an even better visual separation with a zero pixel border requirement as can be seen above.

The desktop for each user can be set to a different background.

The menu bar in Mac OS X Leopard is transparent by default and blends in with the desktop background being displayed. This can be disabled to provide a solid coloured menu bar for those who do not prefer this appearance.

### 7.3.2 Windows Vista-

Windows Vista has three primary themes: Aero, Basic, and Classic. There is also a special Aero Standard theme only available to The vista Home Basic edition. Each of these themes can be customized to various degrees. Themes can be chosen and customized by right-clicking on the desktop and choosing Personalize > Window Color and Appearance. Themes are selectable under the Appearance Settings dialog. <sup>[19]</sup>

## 7.4 Legacy Software Support:

Both Windows Vista and Mac OS X permit you to run applications designed to run on earlier operating systems. This is important, because when a user decides to upgrade their OS, they can continue to use the same applications if they choose to.

### 7.4.1 Mac OS X-

Legacy Support on Power PC (PPC) Macs

Mac OS X Leopard no longer supports the Classic environment, thus making it incapable of running pre OS X applications.

### 7.4.2 Legacy Support on Intel (x86) Macs

Intel chips in the new Macintosh use x86 architecture, which is completely different from the Power PC architecture used on older Macs. Many current applications use universal binaries, which mean the applications contain code to run on both x86 and PPC hardware. For running PPC code, there is an emulator named Rosetta.

According to Apple's documentation, Rosetta is incapable of running the following:

- Screensavers written for the PowerPC
- System Preference add-ons
- Applications which specifically require the PowerPC G5
- Kernel extensions
- Java applications with JNI (PowerPC) libraries

### 7.4.3 Windows Vista-

Legacy Application Support in 64-bit versions

The 32-bit editions of Vista are all limited to accessing a maximum of 4GB of RAM. To address this need and to take full advantage of 64-bit processors, Microsoft produces 64-bit versions of all editions of Vista except Starter Edition. Different editions can access different amounts of RAM in their 64-bit versions. Home Basic supports 8GB, Home Premium supports 16GB, and Business and Ultimate support 128GB+. For 32 bit programs, there is a different version of WoW that emulates the 32-bit version of Vista.

This results in a number of drawbacks. There is no support at all for 16-bit (windows 3.x and MSDOS) programs. Vista does however have some very limited support for popular 16 bit installers that some 32 bit programs may use. 32 bit drivers do not work and require 64 bit versions. 32 bit ActiveX controls will not work in the 64 bit version of Internet Explorer (Vista also supplies a 32 bit internet explorer version to help in this situation.<sup>[20]</sup>

## 8. Market Today

### 8.1 Comparison of shares

#### 8.1.1 52-Week Chart of Apple Stock Vs Microsoft Stock:

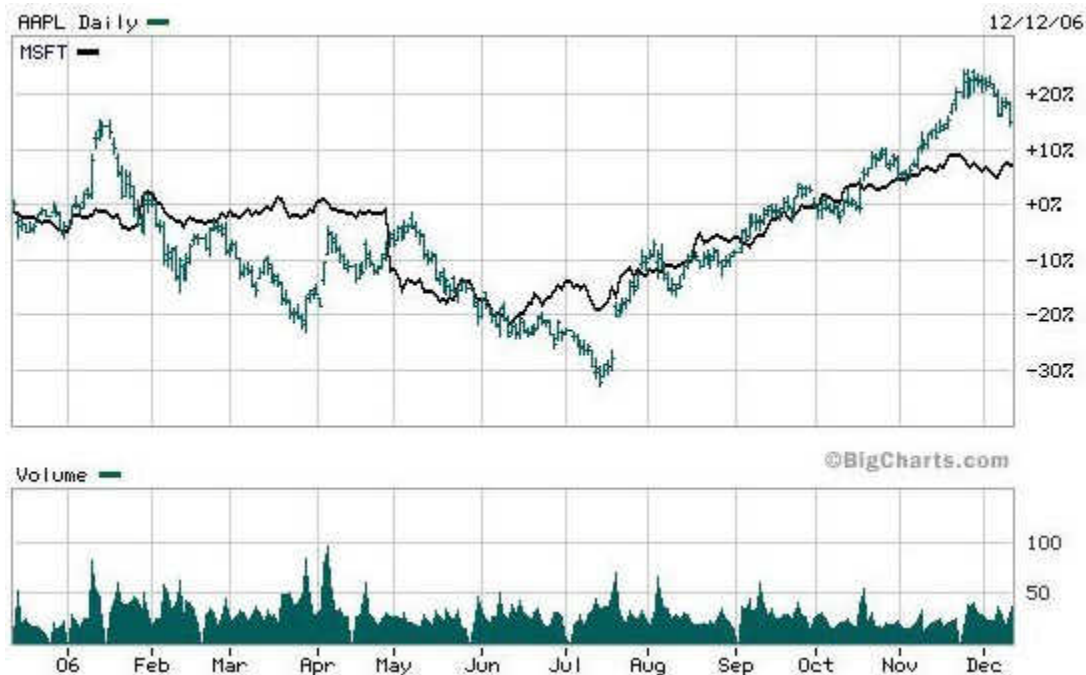


Fig8.1: 52-Week Chart of Apple Stock Vs Microsoft Stock

Apple Shares have gained 15% in year 2006's 52 weeks, as investors have felt confident about iPod and iBook sales.

Microsoft shares have gained 9% in year 2006's 52 weeks, and should continue recent momentum gains as the holiday season comes to an end. Microsoft is projecting strong sales of its newest operating platform Vista, and its video gaming console, Xbox 360.

#### 8.1.2 Stock Valuation: MSFT vs. AAPL

Microsoft stock is actually fairly valued while Apple stock seems to be highly overvalued. When comparing P/E (Price over Earning) ratios over the last 4 quarters, Apple stock stands at around 38 times its earnings, but Microsoft only trades at 20 times its earnings. Microsoft is a much cheaper stock than Apple, according to valuation ratios, even though Microsoft shares have only gained a couple of dollars in the past 3 years.

In fact, Apple's 5 year average P/E is over 60 times its earnings, forcing investors to pay a premium to hold the stock.

The Technology industry usually exhibits higher Price over Earnings ratios than the rest of the market, yet Microsoft's 5 year average is only 30 times its earnings. Investors can purchase Microsoft stock at a discount to its 5-year average P/E ratio, suggesting that it's a cheap stock buy.

P/E ratios are a key indicator of stock valuation, but ms will also use PEG (Price Earnings to Growth) and Price-to-Book ratios to search for key buying opportunities.

Both companies exhibit PEG ratios of around 2, and share nearly identical Price-to-Book ratios. The separating factor is still P/E, making Microsoft twice as cheap in comparison to Apple Shares.

### 8.1.3 Growth: MSFT vs. AAPL:

Apple is creating long-lasting value for shareholders with its explosive growth margins. In the last 5 years, EPS grew 110%, compared to Microsoft's 11% gains.

### 8.1.4 Why is Apple gaining on Microsoft so fast?

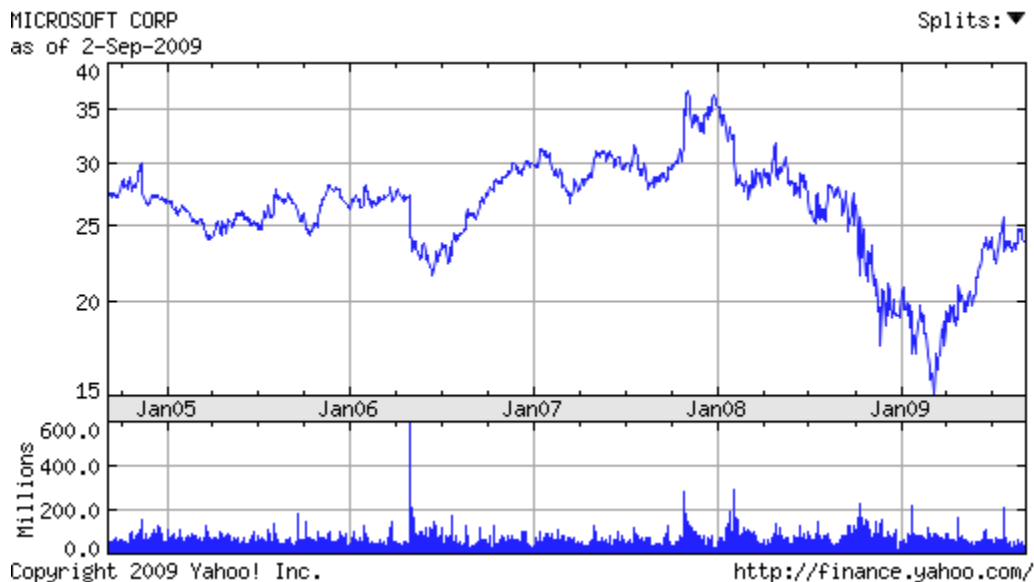


Fig8.2: Microsoft's last five years share profile

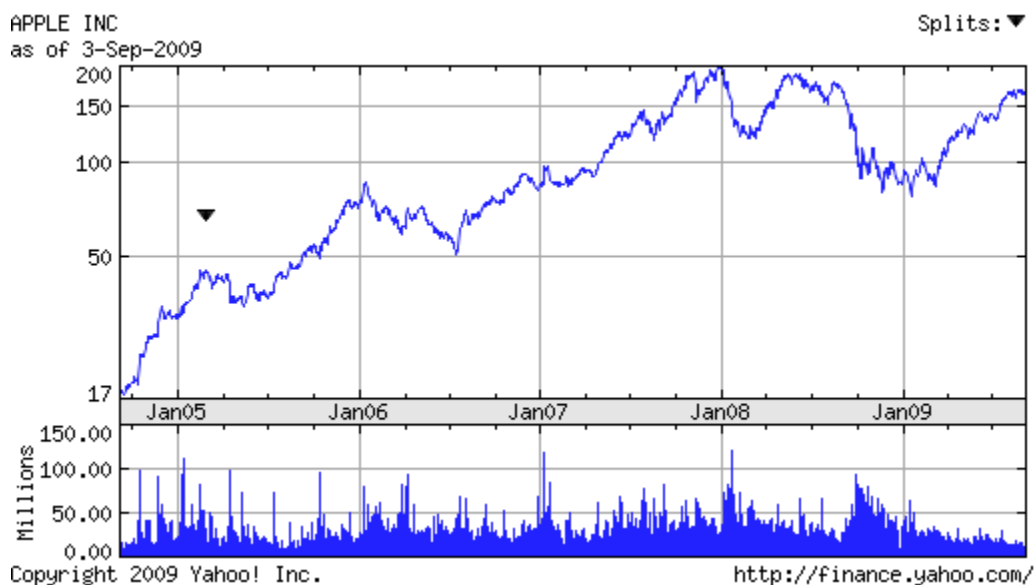


Fig 8.3: *Apple's last five years share profile*

Apple seems to find growth opportunities easily, while Microsoft struggles with increasing competition and market saturation issues. Analysts rewarded Apple with its market leading innovation by projecting 5 year earnings growth of nearly 20%.

On the other hand, Microsoft earnings growth is projected at only 11%, even in the midst of a new platform release and 1-year Xbox 360 console anniversary. The performance of Vista will dictate how Microsoft competes with Apple for the next 5 years as computer users choose which operating system they like the best.

### 8.1.5 Profit Margins: MSFT vs. AAPL:



Fig8.4: *Microsoft's 2009's share profile*



Fig 8.5: *Apple's 2009's share profile*

Microsoft maintains some of the best gross margins in the business, standing at 86% annualized. No wonder Bill Gates' fortune eclipsed \$40 billion dollars; his business grossed 86 cents of every dollar earned from revenue, an incredible feat of immense proportion.

Apple achieves 29% gross margins, which is still a solid ratio, but how on earth can Apple compete with Microsoft's PC dominance? Microsoft keeps a lot of hands away from their profits, and efficiently maximizes earnings potential. Maybe Apple should take notes from the developers over at Microsoft.

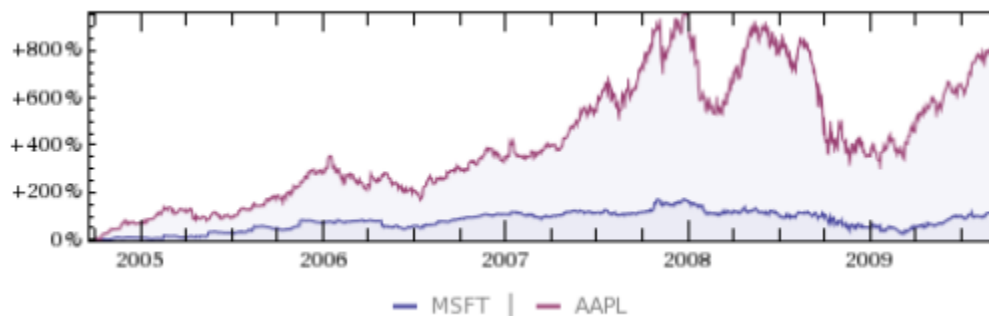
## 8.2 Finances - Microsoft & Apple

Wolfram Alpha compares the current commercial stats of both companies:

	Microsoft	Apple
market cap	\$224.5 billion	\$156.9 billion
revenue	\$58.44 billion	\$34.56 billion
employees	93 000	35 100
revenue / employee	\$639 100	\$984 700
net income	\$14.57 billion	\$5.175 billion
shares outstanding	8.911 billion	895.8 million
annual earnings / share	\$0.95	\$5.09
P/E ratio	26.53	34.41
annual dividends / share	\$0.52	
dividend yield	2.06%	

(based on trailing 12-month totals, last close price and annual employees)

Fig 8.6: finances- MSFT & AAPL



(normalized relative to September 20, 2004 starting date)

Fig 8.7: relative price history

## **8.3 About Microsoft's shares:**

### **8.3.1 Corporate structure:**

The company is run by a Board of Directors consisting of ten people, made up of mostly company outsiders (as is customary for publicly traded companies). The ten board members are elected every year at the annual shareholders' meeting, and those who do not get a majority of votes must submit a resignation to the board, which will subsequently choose whether or not to accept the resignation. There are five committees within the board which oversee more specific matters. These committees include the Audit Committee, which handles accounting issues with the company including auditing and reporting; the Compensation Committee, which approves compensation for the CEO and other employees of the company; the Finance Committee, which handles financial matters such as proposing mergers and acquisitions; the Governance and Nominating Committee, which handles various corporate matters including nomination of the board; and the Antitrust Compliance Committee, which attempts to prevent company practices from violating antitrust laws.

There are several other aspects to the corporate structure of Microsoft. For worldwide matters there is the Executive Team, made up of sixteen company officers across the globe, which is charged with various duties including making sure employees understand Microsoft's culture of business. The sixteen officers of the Executive Team include the Chairman and Chief Software Architect, the CEO, the General Counsel and Secretary, the CFO, senior and group vice presidents from the business units, the CEO of the Europe, the Middle East and Africa regions; and the heads of Worldwide Sales, Marketing and Services; Human Resources; and Corporate Marketing. In addition to the Executive Team there is also the Corporate Staff Council, which handles all major staff functions of the company, including approving corporate policies. The Corporate Staff Council is made up of employees from the Law and Corporate Affairs, Finance, Human Resources, Corporate Marketing, and Advanced Strategy and Policy groups at Microsoft. Other Executive Officers include the Presidents and Vice Presidents of the various product divisions, leaders of the marketing section, and the CTO, among others.

### **8.3.2 Stock:**

When the company debuted its IPO in March 13, 1986, the stock price was US \$21. By the close of the first trading day, the stock had closed at \$28, equivalent to 9.7 cents when adjusted for the company's first nine splits. The initial close and ensuing rise in subsequent years made several Microsoft employees millions. The stock price peaked in 1999 at around US \$119 (US \$60.928 adjusting for splits). While the company has had nine stock splits, the first of which was in September 18, 1987, the company did not start offering a dividend until January 16, 2003. The dividend for the 2003 fiscal year was eight cents per share, followed by a dividend of sixteen cents per share the subsequent year. The company switched from yearly to quarterly dividends in 2005, for eight cents a share per quarter with a special one-time payout of three dollars per share for the second quarter of the fiscal year.



Despite the company's ninth split on February 2, 2003 and subsequent increases in dividend payouts, the price of Microsoft's stock largely remained steady for the next several years, with a rise in stock price around the release of Windows Vista and a fall during the economic crisis of 2008.

### **8.3.3 Diversity:**

Flags rose in front of the Microsoft Sammamish Campus in Issaquah, Washington. The flag on the left is the flag of Microsoft's gay and lesbian employees group GLEAM.

In 2005, Microsoft received a 100% rating in the Corporate Equality Index from the Human Rights Campaign, a ranking of companies by how progressive the organization deems their policies concerning LGBT (lesbian, gay, bisexual and transsexual) employees. Partly through the work of the Gay and Lesbian Employees at Microsoft (GLEAM) group, Microsoft added gender expression to its anti-discrimination policies in April 2005, and the Human Rights Campaign upgraded Microsoft's Corporate Equality Index from its 86% rating in 2004 to its current 100% rating

In April 2005, Microsoft received wide criticism for withdrawing support from Washington State's H.B. 1515 bill that would have extended the state's current anti-discrimination laws to people with alternate sexual orientations.<sup>[83]</sup> Microsoft was accused of bowing to pressure from local evangelical pastor Ken Hutcherson who met with a senior Microsoft executive and threatened a national boycott of Microsoft's products. Microsoft also revealed they were paying evangelical conservative Ralph Reed's company Century Strategies a \$20,000 monthly fee. Over 2,000 employees signed a petition asking Microsoft to reinstate support for the bill. Under harsh criticism from both outside and inside the company's walls, Microsoft decided to support the bill again in May 2005.

## CONCLUSION

An epic war has raged since Microsoft and Apple began in the 1970's. In this while, they have fought on different fronts, come together for a while and in general, been at loggerheads. Today, Apple Inc. is fast growing in a market that was once, Microsoft's by right. Microsoft is desperately trying to make up lost ground by aping OS X in each of their latest operating systems. But, a close look at the market shows that Microsoft is still far ahead in terms of statistics. AAPL (180.24) scores heavily against MSFT (24.88) on the NASDAQ. But even as of December 2008, figures show that Microsoft still has almost 89.6% market share in the operating system market as compared to Mac OS X's 8.9%.<sup>[23]</sup> This is clearly an indication, of how far Apple Inc. still has to go before it can be a strong enough competitor.

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