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Microsoft Memo

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FROM: Bill Gates

DATE: October 30, 1992

SUBJECT: Technical Strategy

Prologue

The "Challenges and Strategy" memo from a previous "Think Week" (May 1991) reached a far broader audience than I had intended. However, I received positive feedback about the internal benefit of sharing my thoughts. *Do not copy and further distribute this memo.* Please contact Julie Girone Gwin regarding additional copies for direct reports or other individuals on a need-to-know basis.

My goal for 'Think Week' is a mixture of reading, thinking and writing. Just catching up on memos from Nathan takes most of the first day! I am putting more emphasis on writing because I am increasingly finding that I have not broadly communicated the things I take for granted. Product groups do not have a clear picture of where they fit into the overall strategy. This is true even for groups that are developing key technologies, pioneering new markets, or key to our competitive position.

Microsoft

This memo focuses on product technology and strategy, but I hope that managers throughout the company will find it useful and provide feedback. Expanding on our success requires more synergy between our product groups, and an understanding of our technical strategy throughout the company.

Successes

We should never dwell on our successes, but it is worth considering them briefly to set the context for this memo.

Our focus on Windows has paid off. The majority of new PCs use Windows and virtually everyone except Will Zachmann sees it growing significantly over the next two years. In applications, the early entry into the Macintosh and Windows market, along with innovative work, has gained us a great deal of share and profitability.

Microsoft has benefited from the rapid price/performance improvements in the Intel x86 platform which resulted from competition and innovation in the chip and hardware businesses. These improvements encouraged users to move from DOS to Windows. Before the end of the year, the majority of all new PCs in the United States will be 486 based. Future performance improvements will come at a rapid pace as the 486 is sped up, the P5 ships in 1993, and the P6 ships by late 94/early 95. These performance improvements combined with continued fragmentation of the UNIX market has made it difficult for SUN and other workstation vendors to be high-volume on the desktop.

Microsoft also benefited from the lack of quality and timeliness of our key competitors' Windows applications. Lotus, WordPerfect, and Borland have given us a chance to have majority share in their categories because of this failure to deliver quality products at the right time.

Our application success has come from focusing on the Mac and Windows even before it was popular outside, or in some cases, inside the company. Also, developing applications for GUI operating systems, provided de-facto sharing of technology between applications, which would have been much harder for DOS based applications. For example, Excel and Word share the same printer drivers and window manager, because they were provided by the operating system.

Strategy

DOS/Windows. We need to build the Windows franchise on conventional PCs. Windows must be made far more usable through shell enhancements and 'plug and play'. ISVs need to be attracted in areas in which we are relatively weak compared to Apple, such as education and publishing, and in new areas, such as image management and workgroups. Applets need to strengthen our desktop and workgroup applications and our data format standards. We must work with PC OEMs, chip companies and peripheral companies on hardware advances to keep the Windows platform competitive with other hardware/operating system combinations. Examples are video speed, full-color, power management, audio and speech, flash memory and pen. Our main competitor in this area is Apple.

Desktop Applications. Desktop applications need to continue to build and maintain the market shares they have won over the last couple of years. It is going to be more difficult to compete, as all of our competitors will have strong Windows applications within the next 6 months. In order to continue to build market share, we will need innovative releases and a family strategy which includes a common macro language. We have invested in doing better support than WordPerfect, but we have gotten no credit for it. High-quality support needs to be used as a competitive tool. We should be willing to sacrifice profits in order to retain a significant share of Windows word-processing and spreadsheets in all countries. In an effort to get 50% of our application customers to use the Office product, we should build more value into the product. Our applications need to be re-architected to be object oriented in order to allow for easier extensions.

We should emphasize our openness to 'Popular' platforms by continual demonstration of Mac support, and by some approach for applications to run on SUN and other forms of UNIX. We should ally with UNIX vendors in order to integrate with their built-in mail and workgroup capabilities. We can show technical leadership over WordPerfect/Ami Pro with structured documents, linguistics and user interface. We can show technical leadership over 123/Quattro Pro with database integration, development tool integration and user interface.

NT. NT needs to extend Windows into the workstation, server and high-end corporate development platform. Over a million copies of NT on the Intel, MIPS and Alpha platforms, along with a great ISV story and a great hardware platform story are necessary in order to compete effectively on the high-end. Virtually all workstation applications must be available for NT. The hardware for NT machines must maintain its competitiveness with other high-end hardware platforms. High-end hardware, system software and application software must be constantly reviewed to make sure that the NT platform supports these capabilities and can compete. NT needs to provide network management and Netware server capability.

OS/2 is our main competitor. We need to correct the impression that OS/2 is a viable platform and reinforce the fact that it is a dead-end in terms of technology and the ability to run mainstream applications. It is extremely important that this occur during 1993. Sun and the PowerPC platform backed by Apple and IBM, along with extended AIX, is the greatest threat after OS/2. Other competitors include Netware and Univel. Solaris is the primary product for technical comparison.

Installed Base. We need to continue to build customer loyalty and greatly increase the sales of upgrades and accessory products. In order to do this, we must build an ongoing relationship with customers. Accessory products include things like fonts, daily views, sound cards and sound libraries. A single annual fee should cover support, communication, system updates and some interesting accessories. I want this predictable installed base revenue to become greater than 1/3 of our sales. On-line services could play an important role here, but we shouldn't wait for that to drive this type of customer relationship.

Tools. Our tools strategy needs to be strong in order to support our platform and application strategies. Most people underestimate the impact of tools. Visual BASIC has done more to help sell Windows than all but Word and Excel. It would have had even a bigger impact if the first versions connected to databases in a more usable way. Getting great tools into the hands of domain experts is the best way to address large vertical markets like medicine or banking.

Languages, such as extended C++, extended dBase and Object Basic, need to be separated from visual design and data storage. Our visual design strategy needs a good forms architecture and component connection beyond that available in VB or on Next. Our data storage strategy needs to include good database access objects working against standard low-end, high-end, and server databases, the Cairo file system and a high-end Cairo database. The tools need to work with Microsoft applications. The tools need to make it easy to create workgroup applications. We need to appeal to corporate developers by showing them how to move from their current development techniques to group development using these tools.

Cairo. Cairo needs to evolve the Windows platform so that it offers the best of future technologies. It must integrate rich information browsing with a distributed storage system. It needs to ship by the end of 1994. It must advance the user interface, while providing an evolutionary path from the past. We will need to develop versions of our applications in parallel to exploit the platform. Our key competitor is Netware. Cairo must redefine what users expect from a network. Other competitors include Taligent, Sun's distributed objects everywhere, and Notes. Until late 1993, when code will be running, this product should only be externally discussed in a conceptual way.

Consumer. We need to move conventional PCs into the home market. We must take upon ourselves and evangelize others to build easier-to-use software for adults and kids, pioneer electronic services including financial services, and develop a critical mass of great CD based applications. The user interface work being done for our kids and home projects is really fantastic. Home banking is an area we need to put more effort into. Our efforts building and evangelizing CD titles will determine our position versus Apple, CDI, and video games with a CD. Both a short term tools approach, based on VB, and a long term tools strategy, based on the Multimedia Document Architecture (MDA) are important. We are considering partnerships with additional "content" companies to advance our consumer goals.

Technology. We need to stay on top of advances in technology. Internal research will be funded to allow us to advance technology. We also need to be aware of relevant research being done elsewhere, particularly in universities, so that we can be the first to apply it. Key research topics include: speech synthesis, speech recognition, natural language, handwriting recognition (all languages and special notations like music, math, chemistry), user interface (particularly information browsing of massive amounts of data), learning, rapid software development, document formats, protocols, object databases, agents, advanced graphics (including motion video), AI. Not all of the efforts need to be in the Research Group or ATBD.

Office Integration: We need to promote an exciting vision of the Office of the '90s where the PC and the LAN integrate with office equipment, computer peripherals and communication services. The Workgroup division, Digital Communication group (Karen Hargrove in ATBD), and SPAG all will contribute to this. It will make the basic Windows platform, rather than NOTES, the basis on which innovative office communication applications are built. Additionally it is an opportunity to get our system software in a range of intelligent office equipment. There is a vacuum here created by Apple's focus on the consumer and their lack of installed base in the office. In April/May '93 we will have an event in the US (which will repeat later in Europe and Japan) that will be the kick-off for promoting this vision and extending the message we communicated on Workgroup day. Meeting support applications, telephony, voice-mail, video conferencing, faxe, copiers, printers and electronic document interchange are all elements of this vision.

A key technology you will be hearing more about is Asynchronous Transfer Mode (ATM). It is a networking technology that has the bandwidth and guaranteed real time delivery to merge PBX and LAN. The digital communication group will expand to set up relationships with large office equipment suppliers. This vision will impact not only large corporate users, but also small business and home office users for whom ease-of-use and multi-purpose devices are particularly important.

PDAs. We want to expand our technology to include small, portable, personal, intelligent devices. These devices include screen phones, calculators, personal organizers, portable game machines, electronic books, portable locators/guides, in-vehicle guidance systems, and generalized remote controllers. Communication can be via PC-MCIA cards, physical connection to a LAN, analog or ISDN phone line, wireless cellular, wireless LAN, or by many other choices. Input can be via touch, keyboard, voice, pen or any combination. Our entry strategy is for these devices to be used in conjunction with desktop PCs. We will use our low end database (undefined), Visual BASIC, and Modular Windows as key technologies to allow easy customization and low-cost application creation. We wanted to work with AT&T but they appear to be working with GO/EO/General Magic.

Eventually we think most businesses will let you dial in to their 'server' with your PC or PDA in order to browse information and place orders. The protocol used could be very important. Our major competitor in this area is General Magic's Telescript.

TV: As more and faster microprocessors move into the home to manage digital information and entertainment, Microsoft needs to play a leading role. Digital capabilities will enter many homes through video games and infotainment machines, such as Nintendo, SEGA, SMSG (a new high technology video game), Philips' CDI, or Tandy VIS (which uses Modular Windows and will ship this fall). 'Another way digital capabilities can enter the home is through advanced TVs themselves, all HDTVs will be powerful digital computers. Yet other ways are through a digital satellite receiver; digital cable boxes; interactive TV devices, such as the HP/TV answer device; and digital VCRs, based on a combination of MPEG-II and improved capacity optical disk

technology. The instruction sets and system software in these devices will become a very important standard. We need to work with the key companies which influence the above devices and get them to use our system software. Our main value added is our technology and user-interface experience.

The best case is for conventional PCs to establish a critical mass of consumer applications and to gain enhanced motion video and graphics capabilities. We can then promote PC-architecture based machines in the living room. Our first effort along these lines is the Tandy VIS. We need to help support this machine, and we need to help develop next generation VIS machines with 386s, more memory and vastly better video and graphics capabilities. This video capability is crucial to compete with classic video game machines. The fact that the PC machine will not have a tax on game authors will make the platform attractive to developers, although it prevents players from being subsidized. An opportunity for a new VIS might be commercial kiosks (a rapidly growing market and a target of Apples Sweet Pea). We are considering a number of prototype demonstrations and partnerships to help us with the goals of promoting a subset PC into the living room and to play a role in the other intelligent devices which might become popular.

WHG/jg