

Book Summary

Platform Leadership How Intel, Microsoft, and Cisco Drive Industry Innovation

Authors : **Annabelle Gawer** and **Michael A Cusumano**

Price: \$29.95

Publishers: HBSP

About the Authors

Annabelle Gawer is Assistant Professor of Strategy and Management at INSEAD. Gawer is engaged in research work on the 'why' and 'how' of innovation strategies for firms operating in industries such as computers and telecommunications. She is affiliated with MIT research centers like the Internet and Telecom Convergence Consortium (ITC), which studies the possible evolution of the industry of computer-enhanced human communications and the Center for Innovation in Product Development (CIPD), an engineering research center.

Michael A Cusumano is Professor of Management at the MIT Sloan School, Chairman of the Board of the *MIT Sloan Management Review*, and co-author of the bestseller *Microsoft Secrets*. He specializes in competitive strategy and technology management in the computer software, automobile, and consumer electronics industries, and does much of his work on technology-based Japanese companies and comparisons with US firms.

The quest for companies to become leaders in their respective industries is a continual and essential exercise in the intensely competitive corporate world, across the globe. This race is fought more fiercely perhaps in the technology industry than in any other, because of its inherently dynamic nature. Broadly divided into two segments, namely hardware and software, the technology industry is dominated by a few firms in both these divisions. These are the companies who are referred to as the platform leaders—for instance, Intel in the field of microprocessors and Microsoft in software. Many others aspire to become platform leaders beating the existing ones. This makes it necessary for the established leaders to struggle continuously to maintain their leadership position. Not surprisingly, companies such as Intel, Microsoft and Cisco are realizing the challenges facing them and have been working towards excelling in the art of becoming, and more importantly, remaining as platform leaders.

Introduction

Unchallenged positions of leadership in industries, especially in the domain of Information Technology, have become a thing of the past. The interdependence of various products and the widespread activities of many firms are forcing technology companies to devise their strategies taking into consideration what the other companies, whether big or small, are doing. Also, since technological innovation has by and large been restricted to the laboratories of rich and powerful companies, it has not been widely distributed. The above two issues have been largely responsible for a new phenomenon of 'sharing' of innovations by the innovators (with complementors and competitors alike) to achieve the objective of driving innovation in their respective industries.

Many firms want their products to become the foundations on which other companies build their products. This is what the authors of the book refer to as platform leadership. The book presents strategies adopted by Intel, Microsoft, Cisco, Palm and NTT DoCoMo to become platform leaders in their industries. It examines in detail how these companies have coordinated industry innovations to support their products, thereby establishing for themselves dominating market positions. The book explores in-depth the

origins and evolution of the various platform technologies in the high-tech arena.

Platform leadership: The story of Intel

Intel's transition from a simple component maker, supplying microprocessors for system architectures to a major source of influence in the evolution of PC architecture and subsequently its rise as the platform leader is truly awe-inspiring. Its story is the only one of its kind as there is no other company which has dedicated much of its thoughts and resources to issues which would not only improve its own performance, but of everyone participating in its industry while preserving its leadership position.

However, the company had to work hard to reach the above position. It faced problems in its initial years in growing the microprocessor business because computer end-users bought PCs—not microprocessors. The view of these end-users regarding microprocessors was thus greatly affected by the other products, which Intel did not make. Another problem for Intel was that it had to ensure demand for its ever-evolving microprocessors in accordance with the Moore's law. This law would not become a reality if there were no demand for more computing power; as a result all computer manufacturers and software producers would not make PCs that would take advantage of the latest Intel technology. Needless to add, this was a scenario Intel could not be comfortable with as it hampered its own growth. In order to overcome these problems, Intel devised a new strategy—to build a platform, which was everything that was around the microprocessor. The company believed in 'keeping pace and improving and scaling, so that the microprocessor can deliver its potential'.

During the early 1990s, PC demand was poor because of the obsolescence of PC architecture and the non-willingness of PC industry leaders to advance system hardware along with the software. Even though the industry had evolved away from vertically integrated firms to a more open one, it was unclear which firm was going to take the lead in bringing new architectural standards in PCs. This lack of platform leadership in the industry had limited the scope of innovation at the system level. Put simply, the PC platform itself was not moving with the pace at which Intel was able to develop additional processor power. This was a serious issue for Intel because the microprocessor was a big growth industry and the fact that many companies had say in PC design indicated that no single supplier could change the system by itself.

To tackle the PC platform obsolescence problem and also to address the essential challenge of increasing the demand for PCs, Intel established its own Intel Architecture Lab (IAL) in 1991. The goal of IAL was to move the PC platform forward by expanding its scope to more than simply trying to redefine the technical architecture of the PC. The creation of IAL coincided with the moment that 'platform leadership' became an explicit goal at Intel. The role of IAL was defined as spreading out the market for Intel's high-end microprocessors and to act as a catalyst for innovation in the industry.

IAL got involved in three key areas—driving architectural progress on the PCs, motivating and facilitating innovation on its complementary products, and coordinating innovation outside of Intel in an effort to drive the development of new system capabilities. Intel, through IAL was successful in driving innovation activities at other firms that manufactured complementary products to its microprocessors. IAL also tried to create new uses for PCs and in turn generate demand for new computers, most of which would use Intel's microprocessors.

The development of Peripheral Component Interconnect (PCI), and enabling the whole industry to use this was a major achievement for Intel. PCI involved a remarkable transformation of the internal architecture of the PC. IAL developed a new connector called 'bus' technology that linked many pieces of the PC system. This soon became a

standard for many firms in the industry. Soon, Intel started preparing PCI compatible chips as it was concerned that other chipset manufacturers did not fully understand the PCI standard and would not be able to provide proper chipset designs. The non-availability of proper chips would result in sufficient demand for its own chip, the Pentium, and could even push Intel from its platform leadership position. PCI played a pivotal role in making Intel the platform leader and transform the company from merely 'supplying silicon embedded microprocessors' to become 'the architect of the PC industry.'

Intel's strategic principles for platform leadership

The platform leadership strategy of Intel contained three major rules—sponsoring innovations in PC architecture, stimulating external innovations on complements, and finally, coordinating industrial innovation. While the PCI bus designed by Intel helped in creating a better PC system architecture, the AGP was a step further in developing a fast interface that transferred data between the microprocessor and various graphic cards.

Even with these, various blockages like the limited bandwidth between PCs and peripherals like scanners, printers and digital cameras, which ultimately slowed down the overall performance, could not be removed. Thus, Intel decided to go for another innovation called the Universal Serial Bus (USB) in the mid-1990s. The USB was a new interface linking the PC to external devices such as the keyboard, scanner and the printer. It was a 'universal' plug in the PC wherein several peripherals could be connected into one USB plug. Here again Intel faced the same problem, that of PC architecture, because manufacturers like the IBM and others designed their PCs in a way that each peripheral device needed its own individual plug at the back of the PC. In order to make the USB successful, Intel need to convince PC manufacturers to build USB compatible systems.

Intel handled this challenge by attempting to stimulate innovation on products that could connect to this interface (USB) and acted on Lever 3 (see box 'The Four-Lever Framework') by creating business possibilities for external companies. As a result, many companies became complementors of the PC platform by adopting to the new USB interface. Before March 1996, Intel was able to integrate the necessary logic into the PC chip sets and also encouraged other manufacturers to do likewise.

Intel had the desire to act as a catalyst in the industry innovation. For this, it devised a two-way strategy: One was to stimulate complementary innovations, which would enhance the PC, and the second, to define the parameters of compatibility among complementary products made at other firms. The second dimension involved playing a coordinating role to stimulate innovation in other firms. These strategies were implemented with the help of IAL, which helped Intel to raise the barriers to entry for any firm that wanted to compete directly with the Intel-sponsored (and industry-backed) PC architecture. Intel adopted the following strategies to maintain a sophisticated approach to manage external relationships:

- *Building momentum around interfaces*
- *Relinquishing royalties on intellectual property*
- *Using public fora to generate momentum and also to refine standards*
- *Organizing compliance workshops called the 'plug fests'*

- *Creating and distributing enabling tools*
- *Strong marketing campaigns to enhance its brand image.*

The ability of Intel to mix out increasingly faster chips and establish relationships with other players in the PC industry helped it to exert much influence over its suppliers, complementors and the end-users. To increase the potential sources of innovation, Intel appealed to as many outside firms as possible. In these efforts, IAL played an effective role, but other Intel constituents like the Computing Enhancement Group (which developed chip sets), the Content Group (which established good working relationships with external software developers) and the Corporate Business Development Group (which invested in third parties) also played a major role in helping the company realize its aim of platform leadership.

Snapshot

Innovation is a must in the highly competitive high-tech sector for companies to survive and succeed. Besides innovation that is taking place internally, companies need to be aware of innovations (in terms of quality as well as quantity) that are taking place externally. Thus, whatever a company innovates or develops, it is vulnerable to the innovative moves of its complementors and competitors. In spite of this unsafe position, some firms have managed to develop strategies and execute them in a way that would help them establish themselves as technology powerhouses and world-class companies—paving their way towards becoming platform leaders.

The book describes the efforts of a few companies that have become platform leaders as well as those who are struggling to become platform leaders. It presents some mantras for the new players who aim to become platform leaders and who wish to drive innovation in their industries. In a nutshell, they are:

- Platform leaders need to balance multiple roles
- Platform leaders need to manage platform evolution
- Platform leaders and wannabes need to stimulate external innovation.

For executives, strategists and entrepreneurs in many high-tech businesses, this book shows how firms can orchestrate innovation to ensure their own competitive futures—and drive the evolution of their industry.

In its efforts to become a platform leader, Intel simultaneously developed many organizational capabilities, which would be helpful to achieve platform leadership. These were:

- Ability to cultivate internally a 'system mindset', which requires managerial attention, technical expertise and resources at the level of the overall system of platform.
- The ability to create external momentum.

Intel: Managing conflicts of interest

Intel had to face many obstacles on its way to pursue platform leadership, externally as well as internally. External tensions which kept on arising between the platform leader

and outside firms (i.e., when a platform leader encouraged innovation outside the company), and internal tensions which might occur between groups inside the platform leader (i.e., when one department followed objectives at the cost of another department). Intel realized that if these conflicts of interests were allowed to grow, they could become full-fledged battles among the groups both within the platform leader and also outside the platform leader.

Intel thus developed strategies to ensure that internal and external relationships worked effectively without affecting its platform leadership position. As a first step, the company identified factors responsible for triggering external conflicts of interest (which were inevitable) and classified them into three broad categories:

- When complementor firms had to take large investment risks in uncertain markets and got very short time to get their return on investment
- When the platform leader failed to follow on some particular commitments it had made and
- When the platform leader decided to compete with its complementors.

The second step was formulating strategies to overcome the conflicts of interest with the outside firms. These included: Establishing trusting relationships with complementors, exerting some restraint over their scope of activities, taking a gradual, low key approach in pushing innovations, keeping the implementation specifications of new interfaces open, and lastly, persuading external firms to accept new standards or innovate ways that would support the latest Intel microprocessor line and also the PC platform. The uniqueness of this strategy was that while trying to persuade the external firms to follow the new standards, Intel did not forget that a platform leader needed to compete with its rivals as well. This made Intel a real platform leader in terms of effectively managing conflicts with external firms.

By managing both the internal and external conflicts effectively, Intel demonstrated that companies which balanced multiple roles (that of an 'industry enabler' and a 'neutral broker') could become platform leaders in their respective industries.

Microsoft and Cisco

The existence of various high-tech markets enabled companies to establish their own products as a platform of choice. Microsoft, in the field of PC operating systems and related technologies, and Cisco, in the field of Internet-based networking technologies, are two such companies which are well-known platform leaders like Intel, but with different strategies of leadership.

Ever since its inception, Microsoft has been dominating the software side of the PC platform with its MS-DOS and Windows operating systems. Microsoft was well aware of the fact that Windows would be of no use and would not generate sales without any additional applications. This was where its strategy of 'platform leadership' differed from that of Intel. Microsoft's strategy was to rely on making its own complements—thus the development of applications like Word, Excel, Outlook, e-mail, scheduler and even an information manager embedded in Windows.

The scale and importance of the complements of Microsoft differentiated it from Intel, which made relatively a small number of complements to its microprocessor. On the other hand, there were a few similarities as well. Like Intel, Microsoft dominated a significant part of the PC platform, worked hard to evolve its operating systems and shared a part of its proprietary technology openly with potential complementors

(external). Microsoft always believed in building its operating systems incrementally, (from Windows 3 to Windows XP) offering multiple versions of the software platform gradually for individuals, groups and corporate customers. The company actively promoted standards that would be beneficial to it as a platform leader; first the standards in DOS and again in Windows.

To face the challenge posed by the Internet, Microsoft packed a browser with Windows and pursued deals aggressively with PC manufacturers to make Internet Explorer as their default browser. To face the threat posed by competitors, Microsoft restructured its Windows software platform, server products, applications and MSN in a manner that made Internet browsing facilities available as Windows `services', made available to Windows users by accessing the Microsoft.NET features.

Cisco became a platform leader because it provided a major part of the infrastructure hardware and also software behind the Internet. Cisco was to Internet-based networking as Intel was to microprocessors and Microsoft was to PC software. The company's prime strategy was to allow an `interoperable networking' between Internet routers and other types of networking and communications technologies. However, unlike Intel and Microsoft, Cisco faced many competitors in its area of business and the strategy it adopted to be a platform leader was to `acquire' and `assimilate' its competitors and substitutes. The four key elements of its strategy were:

- Providing complete solutions for customers, thereby becoming a one-stop shop for net working
- Acquiring the products for making complete solutions and to make acquisitions a structured process to bring down the high rates of failures of acquisitions
- Defining and deriving industry standards for networking protocols, and
- Forming alliances and partnerships with complementors and competitors.

By doing the above, Cisco became a classic example of managing acquisitions effectively and in the process became the platform leader in Internet networking services.

The Four-Lever Framework

1. Determine the scope of the firm: Is it preferable to create product complements internally or let the `market' produce them?
2. Design product technology strategically: What degree of modularity is appropriate? Should product interfaces be open or closed? What information should leaders disclose to outside firms?
3. Shape relationships with external complementors: How can the company balance competition and collaboration with outside players?
4. Optimize internal organizational structures: What processes and systems will allow the company to manage internal and external conflicts of interest most effectively?

Platform leader probables

Apart from Intel, Microsoft and Cisco, which were platform leaders in their industries,

many more are struggling hard to become platform leaders. They include Palm, Inc. in the field of handheld computing, NTT DoCoMo in the field of wireless content, and Linux in the area of open source software. In the process to become platform leaders, these companies are encountering many challenges, often coming face-to-face with the existing platform leaders.

While Palm has to fight Microsoft in playing the platform game, DoCoMo faces the challenge of internationalizing the local platform formula. Linux needs to probe deeper the advantage of relying exclusively on external developments and open standards to create complements to an existing platform. Palm's strategy is to become a software leader from a device vendor, while NTT is betting on integrating wireless and content to become a platform leader, and Linux plans to benefit from harvesting user innovation.

Platform leadership: The essence

Platform leadership enables companies to exert influence over the direction of innovation that is taking place in their industry, thus extending their weight over the network of firms and customers involved with the industry. But becoming a platform leader is not possible to all and neither can all industries create platform leaders. The arithmetics works only under certain conditions, the fundamental one being that the company's product(s) have very little value when used alone but gain value when used along with the components. Platform leadership, when combined with complementary innovation has the ability to produce win-win situations for the platform leader, complementary product manufacturers and finally customers.

Having described the ways and means through which many technology firms were able to become platform leaders, the book summarizes the essence of platform leadership as "that of recognizing that certain kinds of products have little value by themselves but can be extremely valuable as the center of a network of complements. It all depends on how broader the `vision' of a wannabe platform leader is and if they know what to do and how to do it. Becoming a platform leader is like winning the Holy Grail: Many claim it, but few are able to achieve it!"

- Rama Krishna Neti

Member, Editorial Team.

Reference # 14-02-12-07. © ICFAI Press. All rights reserved.

Now platform wannabes including Palm, NTT, DoCoMo, and Linux are charging into the market. A new book, *Platform Leadership: How Intel, Microsoft, and Cisco Drive Industry Innovation*, offers a framework that managers can use to design a strategy of platform leadership. PLUS: Q&A with Annabelle Gawer. by Annabelle Gawer and Michael A. Cusumano. Modularity and industry evolution At the birth of many industries, a few firms develop all or almost all the components necessary to make the products. As industries evolve, what generally happens is that specialized firms emerge to develop certain co 2002. *Platform leadership: How Intel, Microsoft, and Cisco drive industry innovation*. Cambridge, MA: Harvard Business School Press. Google Scholar. Gereffi, G., J. Humphrey, and T. Sturgeon. 2007. How to capture value from innovation: Shaping intellectual property and industry architecture. *California Management Review* 50: 278-296. CrossRef Google Scholar. Pon, B., and M. Kenney. 2011. Structuring the smartphone industry: Is the mobile internet OS platform the key? *Journal of Industry Competition and Trade* 11: 232-239. Google Scholar. Santos, F.M., and K.M. Eisenhardt. 2009. Constructing markets and shaping boundaries: Entrepreneurial agency in nascent fields.