

## Book Review

### **Platform Leadership: How Intel, Microsoft, and Cisco drive industry innovation**

*Annabelle Gawer and Michael A. Cusumano*

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This book focuses on the strategic problems faced by firms in industries dominated by platform products <sup>1</sup>. Gawer and Cusumano recommend that firms compete by developing *modular* products, because it allows for increased "... ability to *innovate* [italics in origin] by more actors in the high-tech world" (p.3). Modularity and platform products are found in industries which produce *complex* products which are built of interdependent components and subsystems. Examples include cars, radios, refrigerators, and stereo systems. The key attribute of these industries, whose number is rapidly increasing, is a network of interdependent producers of different parts of the product who also have the "license" to rapidly innovate without violating the integrity of the overall joint product <sup>2</sup>.

Gawer and Cusumano, contend that because the design and production of complex modular products involves *interdependencies* which transcend organizational boundaries, firms must focus strategically, organizationally, and technologically on the management of complementary assets needed by their organization and their product and network externalities created through the development and use of their products. Successful implementation of such a focus manifests itself as platform leadership.

Gawer and Cusumano identify four levers of platform leadership (p.4): 1) *the scope of the firm* or its level of vertical integration, 2) *product technology* <sup>3</sup> which in this context means product architecture, level of modularity, and the degrees of interface openness to complementors, 3) how collaborative are the *relationships with external complementors*, and 4) what is the requisite *internal organization*. All four levers have to be applied dynamically, with a high level of organizational adaptability, because, as the authors put it "We found that since innovative, modular industries are often ambiguous environments, where a complementor today can become a competitor tomorrow, and internal atmosphere that encourages debate... accelerates the strategic reformulations that are sometimes necessary." (p.9)

They illustrate the implementation of the levers with an extended case study of Intel, and then shorter analyses of other technology-intensive firms. They follow *Intel* from the advent of the PC in the 1980s to the establishment of *Intel* as a platform leader with the Intel Architectural Lab initiatives in 2001. Chapter 2 shows how "the failure of PC manufacturers such as IBM and Compaq to take the lead in evolving the PC platform created the opportunity and incentive for Intel to get involved in architecture design, by specifying a new and better bus technology, for instance" (p.26). In response, *Intel* took the architectural lead in defining the key interfaces of the PC, in this moving from a component supplier to a platform leader. With this move *Intel* solved the evolutionary path of the PC industry, specifically focusing on

creating "forward compatibility" of the chip-set with the microprocessors. In other words "...Intel engineers designed [the interfaces] so that future versions of the microprocessor would *not* [in origin] require a redesign of anything else in the PC architecture. Seemingly, as arcane technical details, this design decision was strategically brilliant. The design left enough room for Intel's chips to evolve and find their place in the PC architecture without requiring further approval or extra coordination between other actors in the industry - this reducing an important hurdle for the adoption of Intel' future chips" (p.30). This decision also allowed Intel to vertically integrate downstream into design and production of chip-sets and motherboards, but without stifling innovation of other players, keeping the platform open industry wide.

Gawer and Cusumano dedicate chapter 3 to illustrating in rich detail *Intel's* use of the four levers of platform leadership for achieving competitive success. First, they highlight the emerging role of Intel Architectural Lab in driving the discipline of design around specified and accepted interfaces as central to lever two of *product technology*. Second, the example of the PlugFest event is key in understanding lever three of *relationships with external complementors*: " In August 1998 PlugFest in Milpitas, California, .. Intel reserved nearly all the rooms in a large hotel for the event; each company had a room. As Miller put it, the PlugFest was 'like watching the layers of industry come together.' Engineers walked from room to room with oscilloscopes, other testing devices, and their own prototype peripheral products to conduct tests (behind closed doors) of interoperability with workstations, computers, and other equipment (p.58)."

Chapter 4 outlines *Intel's* principles of interfirm relationships critical in maintaining its platform leadership when dealing with conflicts of interest between its role as both complementor and competitor in the PC industry. I would contend here that this issue is emerging as quite generalizable across industries and countries with contract manufacturers often facing the danger of competing with their OEM customers by vertically integrating into design and production of their own branded products. *Intel* dealt with this conundrum internally and externally by being direct, open, trustworthy and consistent.

In chapter 5 Gawer and Cusumano took the principles of platform leadership they developed by analyzing Intel and applied them to *Microsoft* and *Cisco*, as follows: Lever one - *the scope of the firm*: While *Intel* heavily relied on external complementors, *Microsoft* developed many of its components itself by pushing for integration and, what got it eventually into anti-trust trouble, industry-level control. *Cisco*, on the other hand, although similar for *Microsoft* pushed for integration and control, avoided legal trouble by acquired its complementors.

Lever two - *product technology*: In contrast to *Intel's* open interfaces widely used by the whole PC industry, *Microsoft* tried to dominate by creating proprietary products and standards, protecting them with copyrights and aggressive legal action against violators. On the other hand, the inherent openness of the Internet forced *Cisco's* to operate with extremely public standards, and created for it a difficult competitive regime, open to severe competition.

Lever three - *Relationship with external complementors*: *Intel* had little capabilities beyond microprocessors, so it had to heavily rely on and to be very collaborative with its complementors, with the invasion of the chip-set market as an exception to the rule. *Microsoft*, on the contrary, was ready to compete with any complementors in software and even with some in hardware, creating competitive barriers, still being scrutinized under the

anti-trust law, by using the *Microsoft* proprietary Operating System as the means. *Cisco*, similar to Intel, has been collaborative, but often with an eye towards acquisition.

Lever four - *internal organization*: Intel tried to establish "Chinese walls" to separate internal products and R&D groups that might have conflicting interests with third party complementors, while *Microsoft* integrated the two domains to the detriment of external complementors, with the contention that it is good for customers and industry, having enough power to push for it, until it was hit with anti-trust action. *Cisco*, because of its acquisition-based patchwork of divisions, initially had separate products and components, but again, with the intent to integrate towards comprehensive solutions.

Chapter 6 is unevenly divided among *Palm* (with a more detailed and complete analysis), NTT *DoCoMo*, and *Linux*, dubbed "platform-leader wannabes" by the authors, with examples of strategies that challenge the regularity of the product life cycle and theory of innovation. Here, the story of *Palm Pilot* after being acquired by *3Com* illustrates how the two mindsets - the modular, or platform, and the integrated - collide: While *3Com* management were used to premium pricing of the product very early in the product lifecycle, before the emergence of the dominant design standardized and commoditized the product, Donna Dubinski of *Palm* (she left soon after to start *Handspring*) believed that for platform business it is critical "to get as much market share and installed base as possible, to draw as many developers as possible... And when we get high barriers to entry and lots of support, the network effects kicks in" (p.198). *Linux*, being a freely available open source operating system, independently co-written by thousands of individual innovators around the world, is obviously the antithesis of *Microsoft*. It is also emerging as unique and first of its kind, and because of that I cannot fault Gawer and Cusumano for the limited analysis of this case; appropriately, they defer to Glen Moody's book *Rebel Code*.

Chapter 7 is an adequate if a somewhat dry finale to an interesting and informative book. My conclusion is that this well-written and confidently narrated book is an excellent exemplar of its genre - clinically and qualitatively researched emerging reality of business. The information provided is fresh, detailed and dynamic to almost qualify for a *Wall Street Journal* column. At the same time, the book lives up to its scholarly roots - Michael Cusumano is Professor of Management at MIT's Sloan School of Management, while Annabelle Gawer, currently an Assistant Professor at INSEAD, holds a PhD from the same institution. Consequently, although the authors are careful not to let their erudition interfere with the "story," the copious endnotes draw on both academic and general sources. In general, I find that such books effectively stimulate reconceptualization of time-honored and well-accepted paradigms. I would like to recommend this one to scholars of strategy, technological innovation, and high-technology entrepreneurship. On second thought, its accessibility and user-friendliness makes it a stimulating reading for fresh MBAs aspiring to fame and glory and jaundiced high-technology veterans alike.

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1. Key references on platform products are Sanderson and Uzumeri, *Innovation Imperative: Strategies for Managing Product Models and Families* (NY: McGraw-Hill, 1996) and Meyer and Lehnerd, *The Power of Product Platforms: Building Value and Cost Leadership* (NY: Free Press, 1997).
  2. Important further references on modularity include Langlois and Robertson, "Networks and Innovation in Modular System: Lesson from the Microcomputer and Stereo Component

Industries," *Research Policy*, 21 (1992): 297-313; Garud and Kumaraswamy, "Changing Dynamics in Network Industries: An Exploration of Sun Microsystems' Open Systems Strategy," *Strategic Management Journal*, 14 (1993): 351-369; Sanchez and Mahoney, "Modularity, Flexibility and Knowledge Management in Product and Organization Design," *Strategic Management Journal*, 17 (Winter 1996): 63-76; Schilling, "Toward a General Model Modular Systems Theory and Its Application to Interfirm Product Modularity," *Academy of Management Review*, 25, 2 (2000): 312-334; Baldwin and Clark, *Design Rules: The Power of Modularity* (Cambridge, MA: MIT Press, 2000).

3. In private communication, Ron Sanchez, one of the champions and pioneers of modularity concepts in management of technological innovation and strategy research, was adamant about the discipline of interfaces: "After they are agreed upon, they are not just important, they are sacred!"