

# *Staying* Power

## **Six Enduring Principles for Managing Strategy & Innovation in an Uncertain World**

*(Lessons from Microsoft, Intel, Apple, Google, Toyota & More)*

*Forthcoming, Oxford University Press 2010*

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**Michael A. Cusumano**

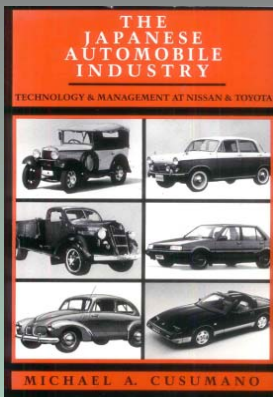
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Engineering Systems Division





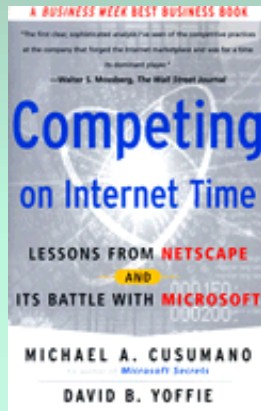
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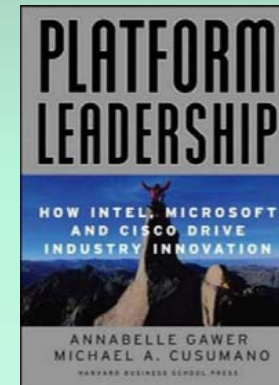
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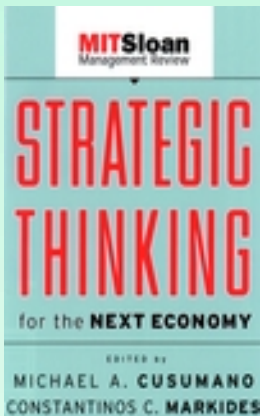
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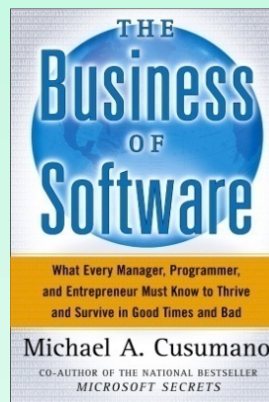
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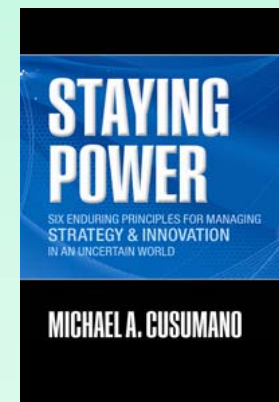
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# STAYING POWER

SIX ENDURING PRINCIPLES FOR MANAGING  
**STRATEGY & INNOVATION**  
IN AN UNCERTAIN WORLD

**MICHAEL A. CUSUMANO**

# In Search of “Best Practice”?

- *Lots of popular books & academic research*, though mostly case studies, small samples, or limited analysis
- *Hard to generalize*; what works in one firm, market, time period, industry or nation may not transfer to others.
- Partially a problem of **knowledge** (what do we *really* know) as well as **context** (“controls,” implementation, etc.)
  - *Imitation* (best to common to non-differentiating practices)
  - *Lifecycle* (adjust by new, mature, disruptive)
  - *Type of innovation* (product, process, service)
  - *Industry* (structure, “clock speed,” business/firm differences)
  - *Institution & environment* (country, government, culture)
  - *Luck or population ecology* (timing, survival bias?)

# General Observations

- Some practices seem more enduring than others
  - **Though unpredictable events can disrupt any market and any firm**
- What is a lasting best practice surely *DEPENDS*
  - **E.g., in manufacturing Ford (Model T) “best” until surpassed by GM (variety) and then by Toyota (JIT “lean” production)**
  - **E.g., in software, Microsoft packaged software product model “best” until surpassed (?) by the Internet and Google, SaaS, cloud computing, mobility, etc.**
- Need to state qualifying “conditions” or context
  - **But, for managers, specific practices moderated by formal “contingency frameworks” get complex fast**

# My Six ‘Enduring’ Principles

Not original to me, but underlie my work & others, with ca. 30 years of empirical & theoretical research behind them

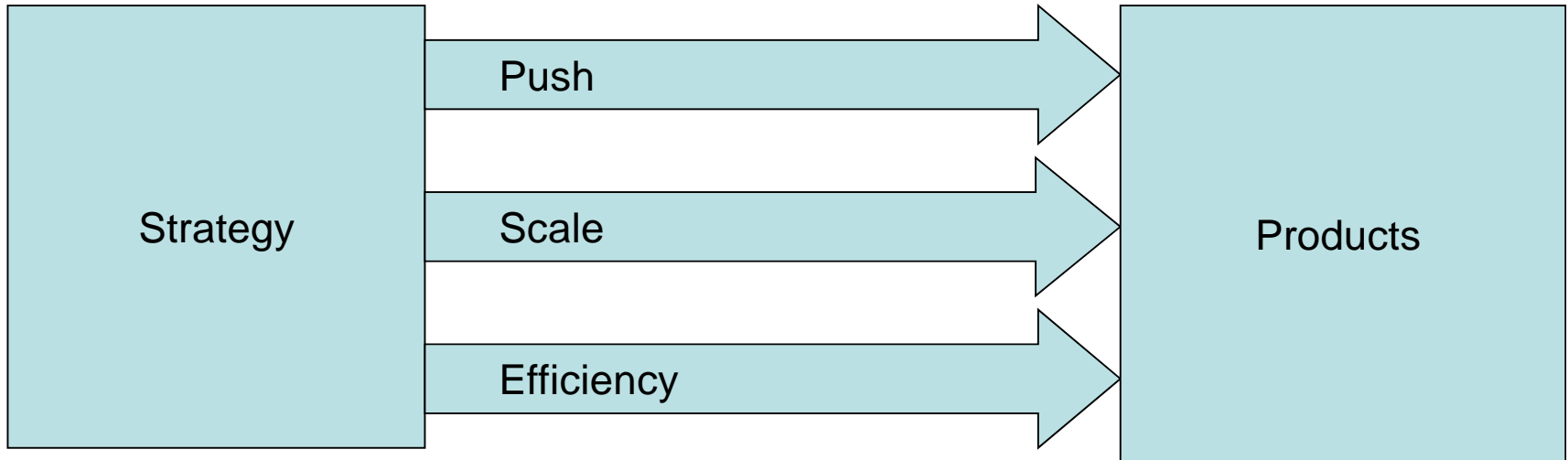
1. *Platforms*, Not Just Products
2. *Services*, Not Just Products (or Platforms)
3. *Capabilities*, Not Just Strategy (& “Planning”)
4. *Pull*, Don’t Just Push
5. *Scope*, Not Just Scale
6. *Flexibility*, Not Just Efficiency

## Narrow Way of Thinking About Focus and Competitive Advantage at the Product Level

Examples:

- Ford in Model T Era
- GM in the 1920s

- Sony in Betamax era
- IBM before Open Source
- Apple before mid-2000s

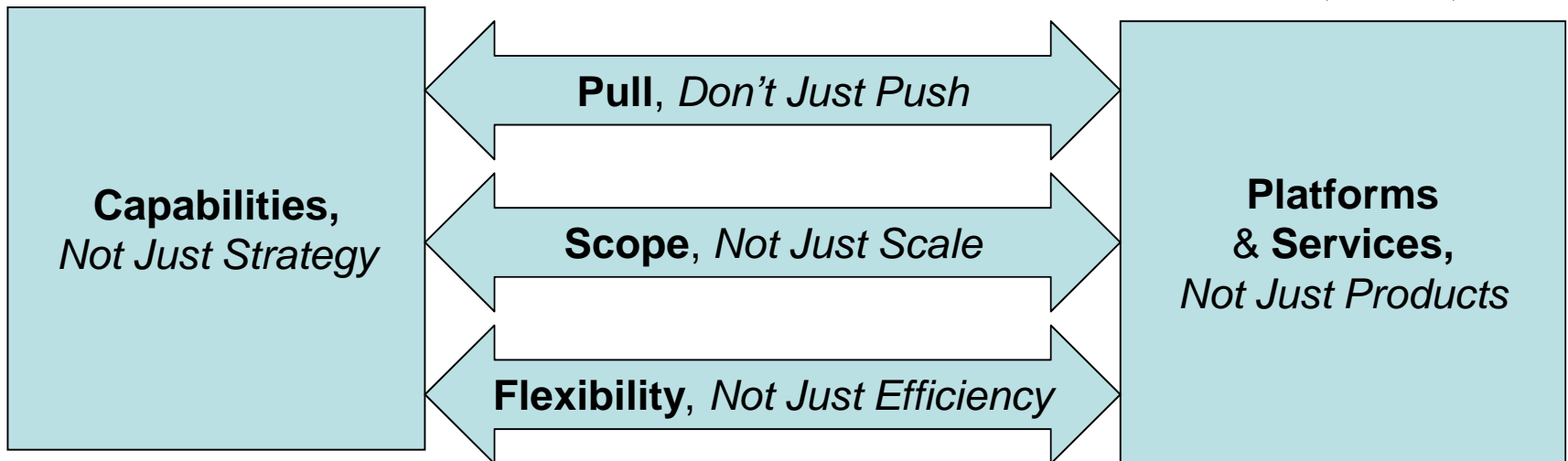


## Broader Way of Thinking About Agility and Competitive Advantage at the Ecosystem Level

Examples:

- Toyota
- Microsoft
- Intel

- JVC in VHS Era
- Apple after mid-2000s
- Google, Adobe
- Cisco, Qualcomm, et al.



# *1. Platforms, Not Just Products*

- **Move beyond conventional thinking about strategy and capabilities** to compete on the basis of **platforms**, or **complements**.
- **Requires an external ecosystem** to generate complementary innovations and build “positive feedback” between the complements and the platform.
- The effect is **much greater potential for growth and innovation** than a single firm can generate alone.



# “Platforms” Intellectual History

## ***In-House Product Platforms & Product Modularity***

Meyer & Utterback (1993), Ulrich (1995), Sanchez & Mahoney (1996), Meyer & Lehnerd (1997), Baldwin & Clark (1999), etc.

## **Product then Industry-Level Standards, Dominant Designs and Platforms, with Network Effects**

Utterback & Abernathy (1975), David (1985), Farrel & Saloner (1986), Arthur (1989), Katz & Shapiro (1992), Shapiro & Varian (1998), Bresnahan & Greenstein (1999), etc.

## **Multi-Sided Markets (*Industry Platform + Complementors + Multiple Players, such as Advertisers or Content Providers*)**

Parker & Van Alstyne (2005), Eisenmann (2006), Evans, Hagiu & Schmalensee (2006), Eisenmann, Parker & Van Alstyne (2006), Yoffie & Kwak (2006), Adner (2006), etc.

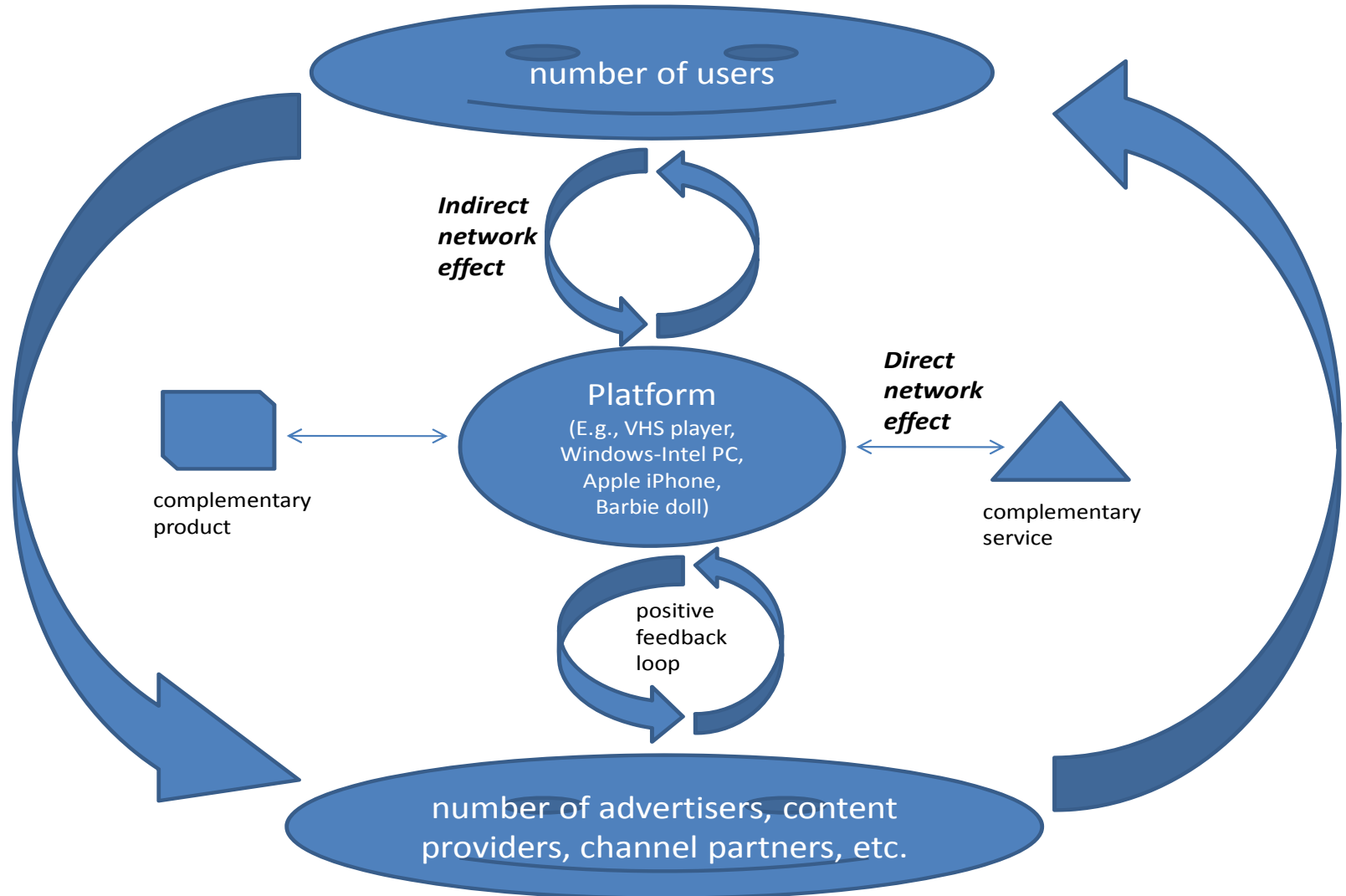
# My Examples

- Distinctions between a *Product* vs. *Platform* strategy (Sony and Apple vs. JVC and Microsoft) (M. Cusumano, Y. Mylonadis, and R. Rosenbloom, “Strategic Maneuvering and Mass-Market Dynamics: Triumph of VHS Over Beta,” *Business History Review*, 1992; M. Cusumano, “The Puzzle of Apple,” *Communications of the ACM*, 2008)
- The concept of “platform leadership,” based on the 4 Levers from Intel & comparisons to Microsoft, Cisco, DoCoMo et al. (A. Gawer and M. Cusumano, [Platform Leadership](#), 2002)
- How turn a product into a platform, and the challenges for new entrants and “wannabes” (Google, Qualcomm, et al.) (A. Gawer and M. Cusumano, “How Companies Become Platform Leaders,” *MIT Sloan Management Review*, 2008)

# Some Key Questions

- **Possible for firms to think “platform first” and still develop “great” products?**
  - Sony and Apple –traditionally have thought “product first”
  - JVC, Microsoft, Intel – generally thought “platform first”
  - What about Google, Qualcomm, Facebook et al.?
- **When does a “product” have industry-level “platform” potential?**
- **How best use the different levers and concepts in the evolving “platform strategy toolkit” to:**
  - maintain a leadership position
  - overtake an existing leader, or
  - create a platform where one has not existed before?

# Ecosystem Dynamics



# Ongoing Platform Battlegrounds

- **Web Search** Google vs. Bing/Yahoo, foreign engines
- **Smart PhoneOS** Apple vs. RIM, Nokia/Symbian, Android, Microsoft, Palm, Other Linux)
- **Digital Media** Apple (iPod, iPad & iTunes) vs. Microsoft (Media Player, Zune) vs. Real?
- **Social Network'g** Facebook, Twitter, LinkedIn, etc.
- **Video Games** Sony, Nintendo, Microsoft
- **Enterprise s/w** SAP vs. Oracle/Sun, Microsoft, IBM
- **Micropayment** Sony Felica vs. PayPal, credit cards
- **Displays** E-Ink vs. LCD (Sharp, Sony, Samsung, others)
- **Batteries** Sony vs. Panasonic, Sanyo, A123, others
- **Cloud Comp'ng** Amazon, Google, Salesforce, Microsoft et al.

*And many more platforms, or platforms within platforms, in smaller or emerging markets*

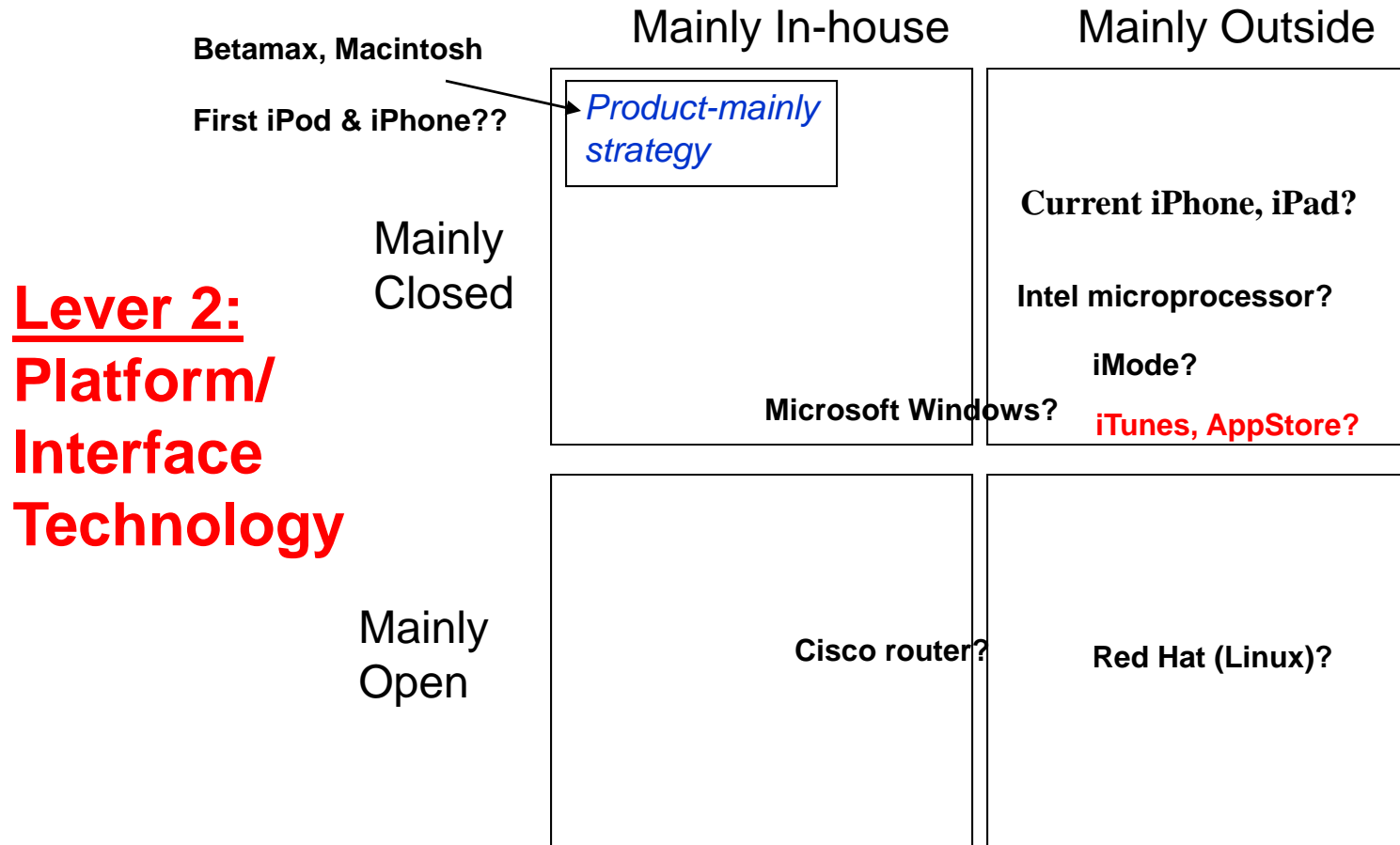
# 4 Levers of Platform Leadership

*Four decision variables to promote  
& sustain platform positions*

- 1) **Scope**: Do what inside the firm (complements) versus let partners & users (the “ecosystem”) do?
- 2) **Technology**: Make platform how open & accessible (interfaces, intellectual property, modularity)?
- 3) **External**: Do what to encourage outside firms & users to adopt the platform?
- 4) **Internal**: How deal with conflicts of interest if you offer key complements yourself and compete with complementors and partners (products, services)?

# Product vs. Platform Strategy?

## Level 1: Source of Key Complements



# Apple:

**Before = Product Over Platform**  
**Since 2003 = Product + Platform!**

- Apple through 2009 still  $\frac{1}{2}$  the sales and  $\frac{1}{4}$  the profits of Microsoft, but catching up. *Surpassed Microsoft in market value on May 27, 2010.*
- Enormous increase in Apple's sales, profits, and market value since introducing great new products and adopting more of an open but not open (or closed but not closed) platform strategy with iPod, iTunes & iPhone since 2003



		<b>Microsoft</b>			<b>Apple</b>		
	<b>Revenues</b>	<b>Operating Profits (%)</b>	<b>Year-End Market Value</b>		<b>Revenues</b>	<b>Operating Profits (%)</b>	<b>Year-End Market Value</b>
2009	\$58,437	34.8%	\$246,630		\$36,537	21.0%	\$180,150
2008	60,420	37.2	149,769		32,479	19.3	118,441
2007	51,122	36.2	287,617		24,006	18.4	74,499
2006	44,282	37.2	251,464		19,315	12.7	45,717
2005	39,788	36.6	233,927		13,931	11.8	29,435
2004	36,835	24.5	256,094		8,279	3.9	8,336
2003	32,187	29.7	252,132		6,207	(loss)	4,480
2002	28,365	29.2	215,553		5,742	0.3	4,926
2001	25,296	46.3	258,033		5,363	(loss)	7,924
2000	22,956	47.9	302,326		7,983	6.5	5,384
1995	5,937	35.3	34,330		11,062	6.2	4,481

# **“Winner Take All” (or Most) if...**

- 1) Very strong direct or indirect network effects**
- 2) Little room to distinguish among different platforms (few niches or differentiation opportunities for your competitors!)**
- 3) Difficult or costly to use more than one platform (“multi-homing” rare for users & app developers or advertisers)**

# Why Did Windows Win as the Consumer Desktop OS?

1. **Strong network effects?** – Yes. Many more apps for Windows; incompatibility of the Mac meant that Apple could not benefit from this broader PC ecosystem (until recently, with the switch to Intel chips & virtual s/w)
2. **Little differentiation?** – Yes. Growing similarity with the Mac; rivalry among PC manufacturers and low entry barriers also kept bringing PC prices down. *Mac survived in a niche – desktop publishing & extreme ease of use, such as for schools*
3. **High cost of multihoming?** – Yes. The Mac usually cost 2x a WinTel PC. Both are costly so users choose one.

# Why No Permanent Winner in Video Game Console Market?

- 1. Strong network effects?** – Yes. Strong direct network effects tying specific games to each platform (Sony PlayStation, Nintendo Wii, Microsoft Xbox). Some network effects tying game developers but often do multiple platforms.
- 2. Little differentiation?** – No. Each vendor exploiting a niche or differentiation strategy – Sony and high-end gamers, Nintendo and non-traditional audiences and h/w innovations, Microsoft and PC/internet platforms. Also “hit” games or features or consoles vary a lot by generation.
- 3. High cost of multihoming?** – No. Consoles relatively cheap. Often subsidized by makers. Serious game users buy more than one platform. Some games on multiple consoles.

# Why Has Google Won Most But Not All the Search Market?

- 1. Strong network effects?** – No, for users – no direct network effects, easy to switch. Google portal (email, etc.) “stickier.” Stronger indirect network effects for advertisers and app developers tied to Google search.
- 2. Little differentiation?** – Yes, and no. Search engines similar. But some specialties or niches by geography and language (e.g. China, Brazil), and technology (e.g. video)
- 3. High cost of multihoming?** – No. Users can easily move to different search engines. Some multi-homing costs for advertisers, but not much. More for app developers.

# Will There Be One Winner in the Global Smart-Phone Market?

- 1. Strong network effects?** – Yes. Direct network effects tying specific applications and some services to each platform (Nokia/Symbian, RIM/Blackberry, Apple iPhone , Google Android, NTT Docomo, Microsoft Windows CE)
- 2. Little differentiation?** – No. Different vendor strengths (e.g. business/email vs. consumer functions, computer-like, social networking, etc). Different operator strengths, politics, and bundles in different regions.
- 3. High cost of multihoming?** – Yes. Phones often subsidized, but service contracts expensive. Most users chose one vendor. **But users can and do switch over time.**

# What about Cloud Computing?

(SaaS Infrastructure Services as a Platform)

- 1. Strong network effects?** – *Yes, or moderate?* Cross-platform APIs, but apps will still depend on some platform-specific APIs or services from Google, Amazon, Windows Azure, Salesforce's AppExchange & Forge.com, etc. Maybe an ecosystem of complementary apps & services will also emerge.
- 2. Little differentiation?** – *No?* Some infrastructure platforms and ecosystems seem quite different (e.g. Google Maps, or Microsoft Azure Product services)
- 3. High cost of multihoming?** – *Yes, and No?* Application developers may find it cumbersome to port some of their apps across different cloud platforms. *Cloud makes it easier for users to utilize applications or services on multiple platforms.*

# Lessons for Managers

- Enormous **implementation differences** between a product and a platform strategy: (1) source of key complements, (2) modularity/openness of platform, (3) how organize to compete with partners, (4) how stimulate ecosystem
  - Huge potential differences in economic benefits (e.g. JVC-Sony, Microsoft-Apple)
  - Complementors have similar decisions to make
- But still must understand the **connection** between *product strategy* and *platform strategy*
  - Platform battles are won by having (a) the best platform, not simply the best product – though a great product helps! And (b) the most compelling (or maybe the most) complements!



## *2. Services, Not Just Products*

- Use **service capabilities and innovations to sell, enhance, and even “de-commoditize” product offerings** or standardized services as well as create **new sources of revenues and profits**, such as an ongoing maintenance stream.
- Find the right **revenue balance** and then **“servitize” products** to create new value-added opportunities and **“productize” services** to deliver them more efficiently and flexibly, using information technology & service automation.

# “Services” Intellectual History

## **Struggle over How to Define *Services* versus *Products***

Judd (1964). Rathmell (1966), Bell (1973), Levitt (1972, 1976)

## **Theories of *Service Innovation* (in contrast to “Products”)**

Barras (1986), Thomke (2003), Mansharamani (2007 – lit. review), others

## **Services Over the Product Lifecycle (“Servitization” & Value)**

Teece (1986), Potts (1988), Bowen et al. (1991), Quinn (1992), Knecht et al. (1993), Gadiesh and Gilbert (1998), Nambisan (2001), Oliva & Kallenberg (2003), Slack (2005), Neely (2009)

## **Common (or Extreme?) Case: Computers & Software Industry**

Campbell-Kelly and Aspray (1996), Gerstner (2002), Campbell-Kelly (2004), Cusumano (2004), Campbell-Kelly and Garcia-Schwartz (2007)

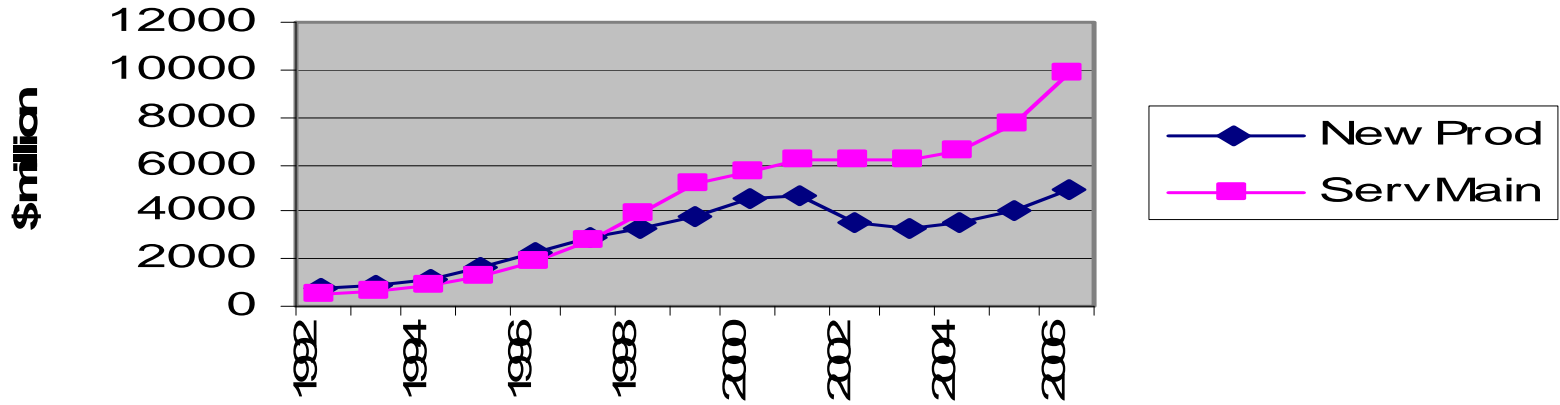
# My Examples

- How services and services innovation can help the business of product firms and platform strategies (M. Cusumano, F. Suarez, S. Kahl, “A Theory of Services in Product Firms,” WP 2008; F. Suarez and M. Cusumano, “The Role of Services in Platform Markets,” in A. Gawer, ed., Platforms, Markets, and Innovation, 2009)
- Rise of services (professional, maintenance) among software product and IT systems firms (M. Cusumano, The Software Business, 2004, and “The Changing Software Business: From Products to Services,” *IEEE Computer*, 2008; F. Suarez, M. Cusumano, and S. Kahl, “Services and the Business Models of Product Firms: An Empirical Analysis of the Software Industry,” WP 2008, 2009, etc.)
- Rise of Software as a Service (SaaS) & Cloud Computing (M. Cusumano, 2010 book chapter and CACM article)

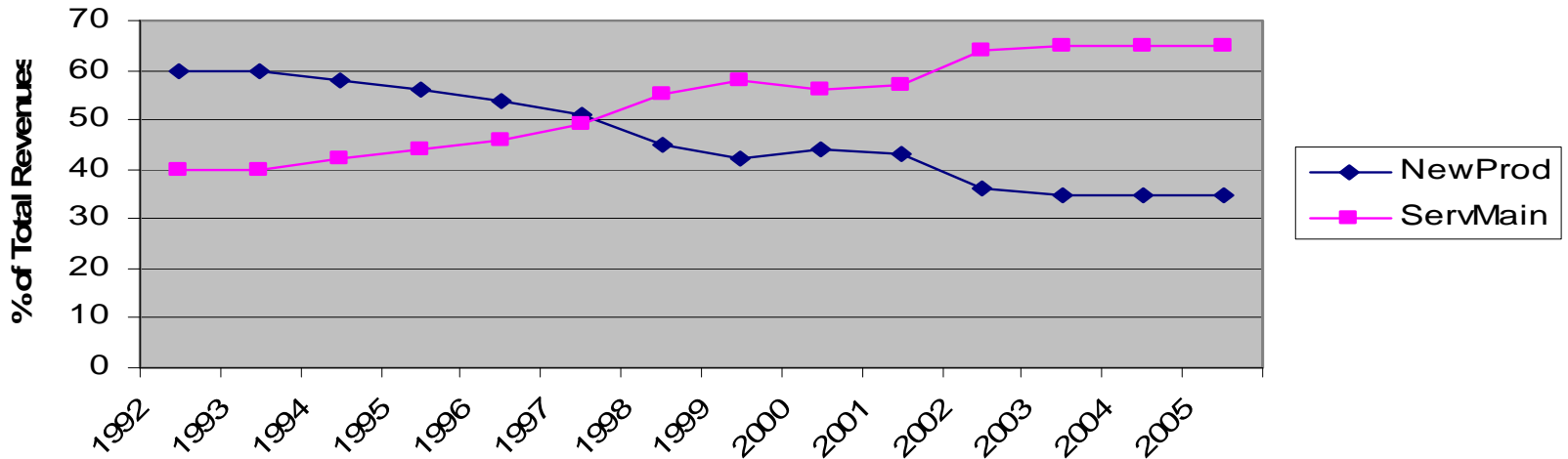
# Some Key Questions

- **When should product firms treat services as essential to their *business models* (ways of making money, or smoothing out revenues & profits) **and** *competitive strategies* (ways of competing more effectively)?**
- **How does managing the services side of the business differ from the product business? Or complement it?**
- **Why have we seen the rise of services (professional and automated) so prominently in computing & information technology?**
  - Simultaneous trend of “innovation & commoditization”? 28

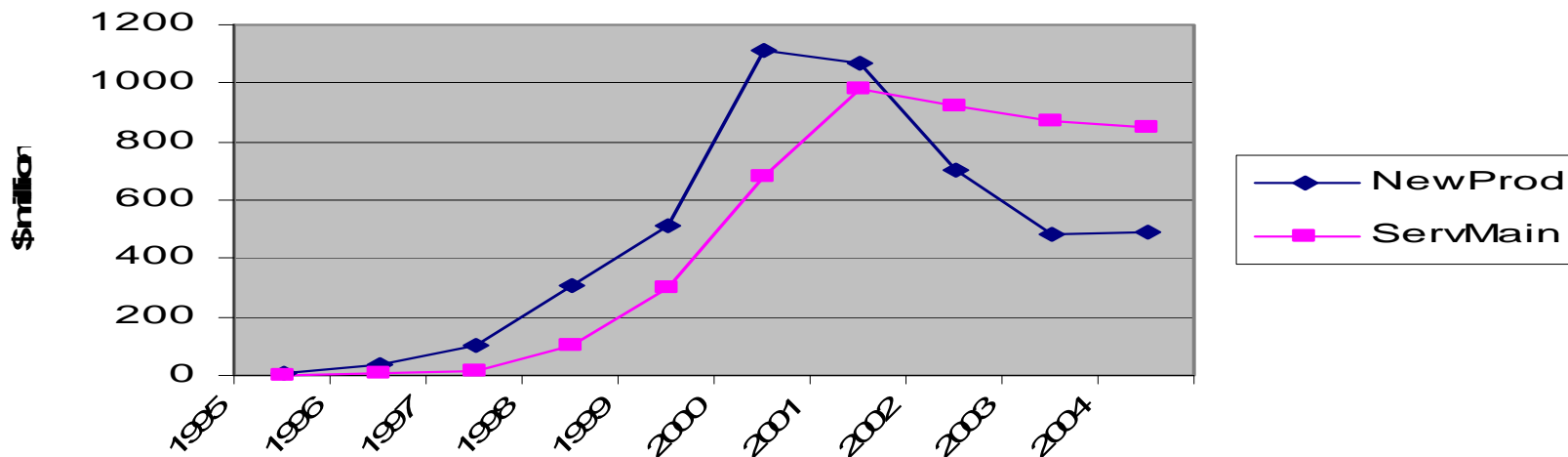
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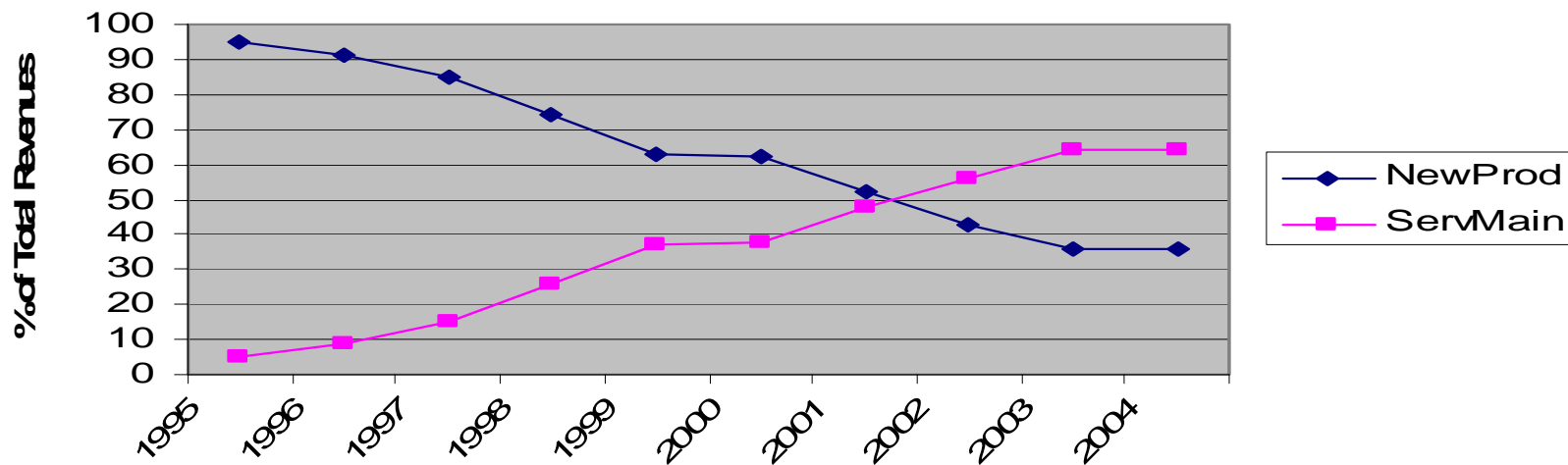
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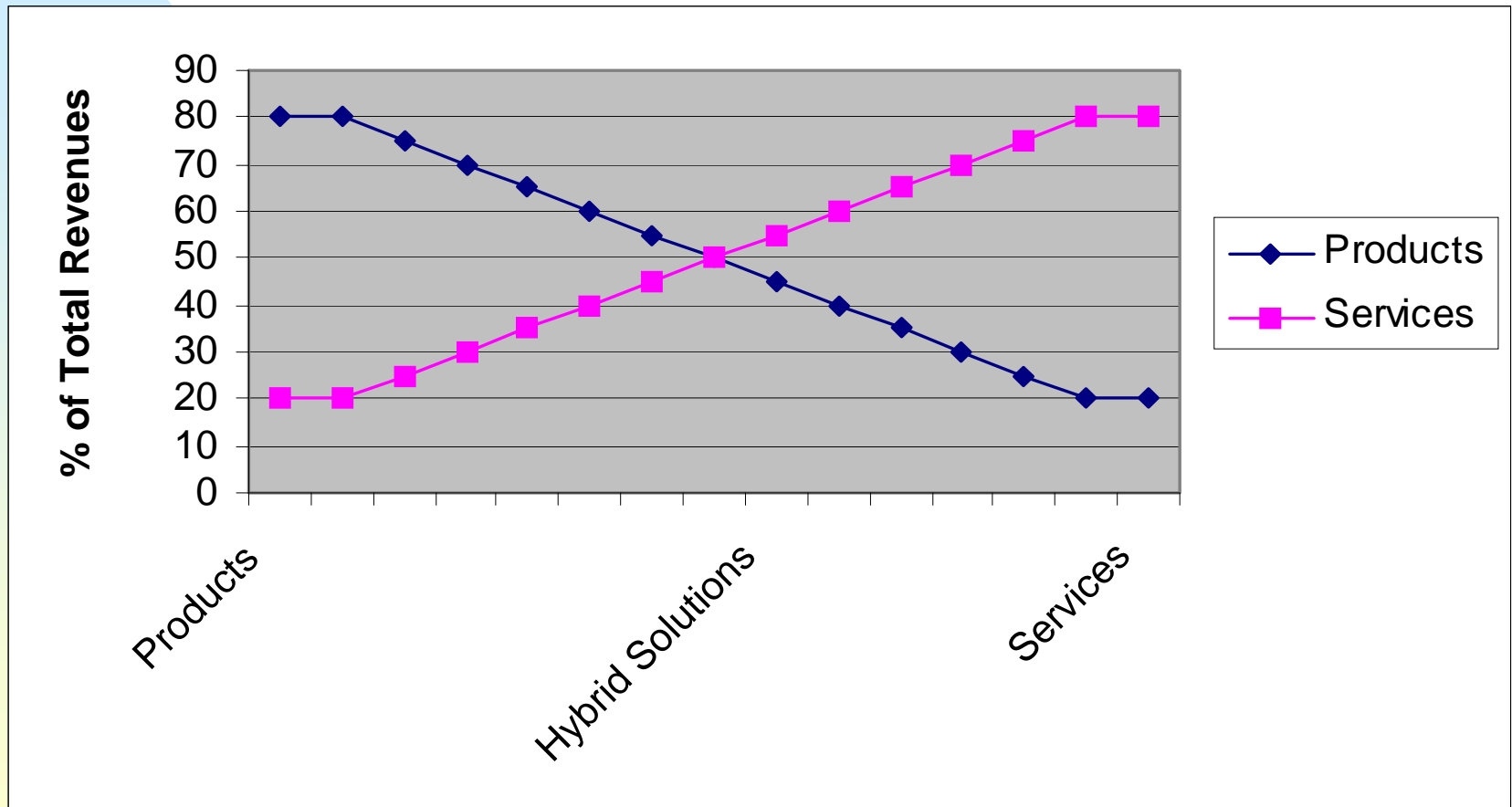
### Siebel



### Siebel



# Business or Life Cycle Models?



Source: M. Cusumano, The Business of Software (2004)

# Software Product Firms and Other Large-Sample Research

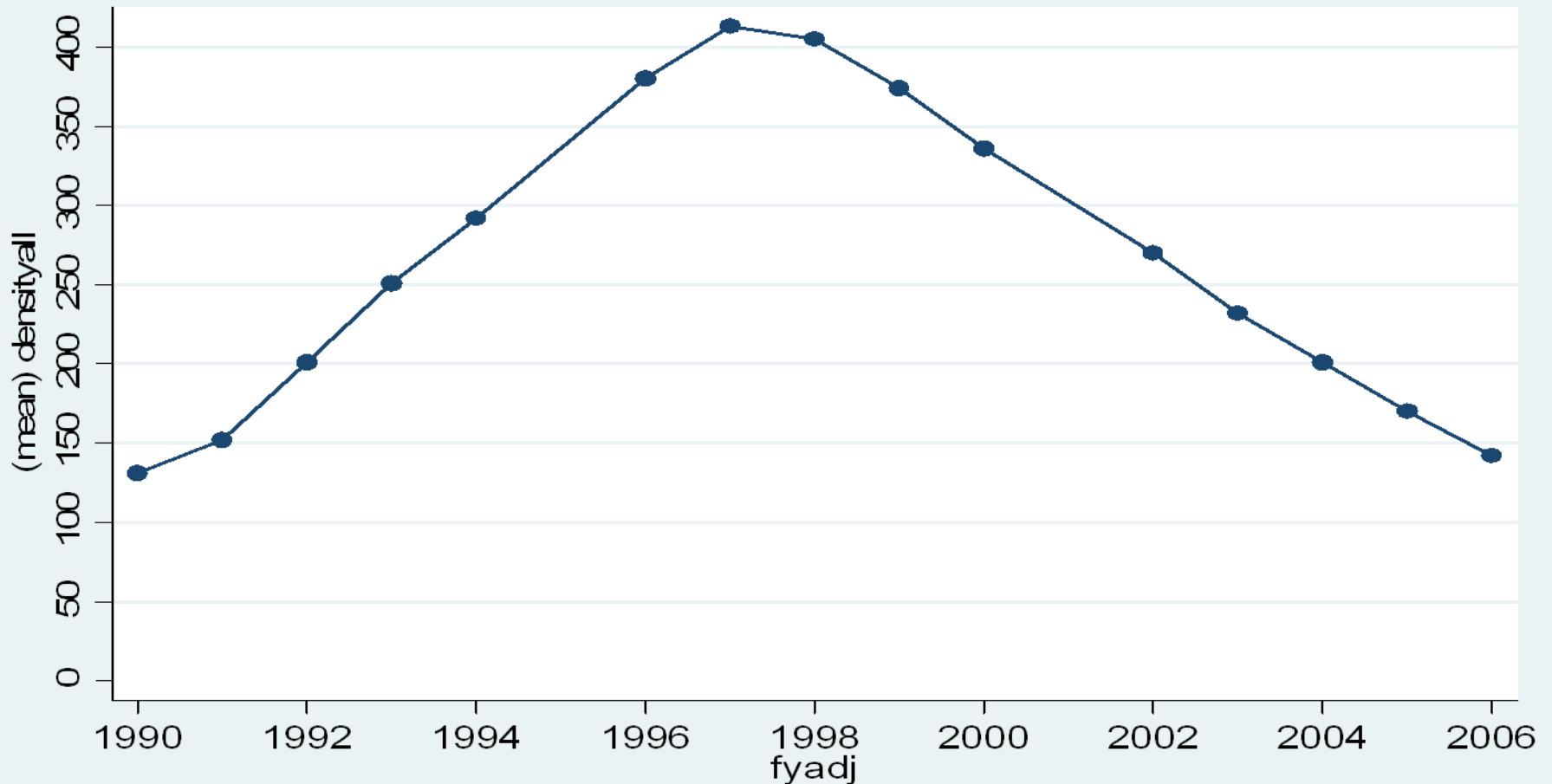
- M. Cusumano, F. Suarez, and S. Kahl
- Public software “products firms” -- Identified **ca. 500** (listed on US stock exchanges) under US SIC code 7372 – **PrePackaged Software Products**
- Since 2003, downloaded data from Compustat, Mergent, and directly from 10K reports
- Over 3000 yearly usable observations
- Average 10+ years of detailed financial data from 1990 or later
- Also now databases on all IT Services firms and S&P 1000 firms with products and services revenues



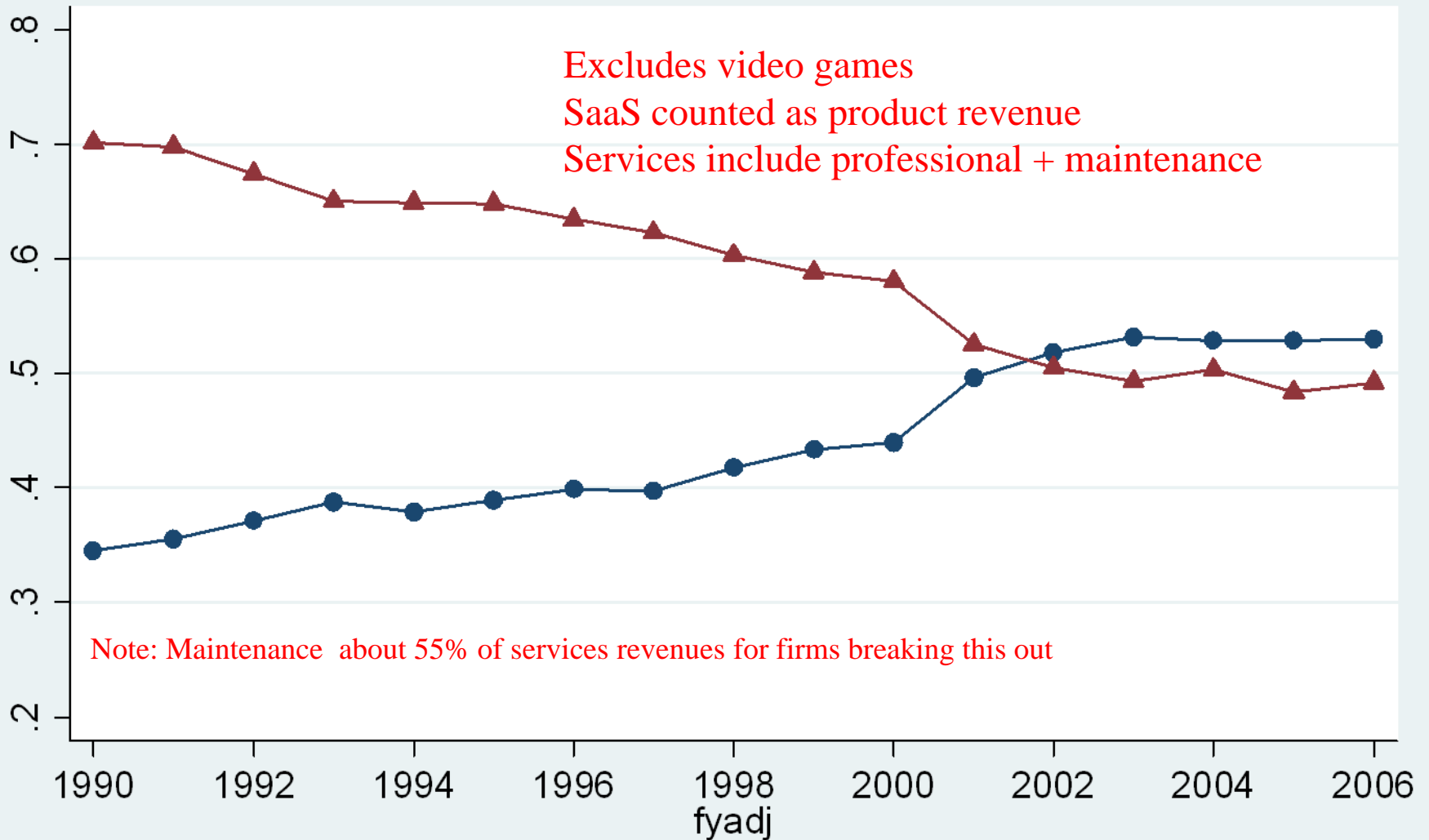
# Public Software Product Firms

## Listed on US Stock Exchanges (SIC 7372)

Number of Firms in the Industry - All Sample



# Service vs Product as % Sales - Average All Sample



—●— (mean) servpctsales      —▲— (mean) prodpctsales

# Change: Software Products Business

## Extreme Example of Innovation & Commoditization?

- **Decline of Enterprise Sales (or Prices?)**
  - Only exceptions are hits & “platform” products?
- **Growth of Services & Maintenance Revenues**
  - Freeware/open source driving prices to zero?
  - Customers rebel against costly products?
- **Massive Industry Consolidation!!**
  - The data are clear
- **Emergence of New Business & Pricing Models**
  - ➔ *Software as a Service/Cloud Computing* – cheaper products, bundled support/maintenance (Salesforce, Amazon)
  - ➔ *Free, But Not Free* – supported by advertising (e.g., Google) or services (Red Hat), or multi-sided market (Microsoft & Adobe, Facebook)

# Strategy Questions

## *Rise in services and new business models temporary or permanent?*

- **Temporary Argument:** In transition phase between platform and business model innovations (*now client-server to internet to web services & mobile?*)
- **Permanent Argument:** Software and digital goods now commoditized and prices will fall close to zero for any standard or common products. Future is software as a service or “free but not free,” supported by advertising or other indirect revenues. *Many other technology-based global industries will follow.*