Open Innovation and Open Business Models:
A new approach to industrial innovation

Presentation to Joint OECD/
Dutch Ministry of Economic Affairs
Conference on “Globalization and Open Innovation”

Dec. 6, 2006

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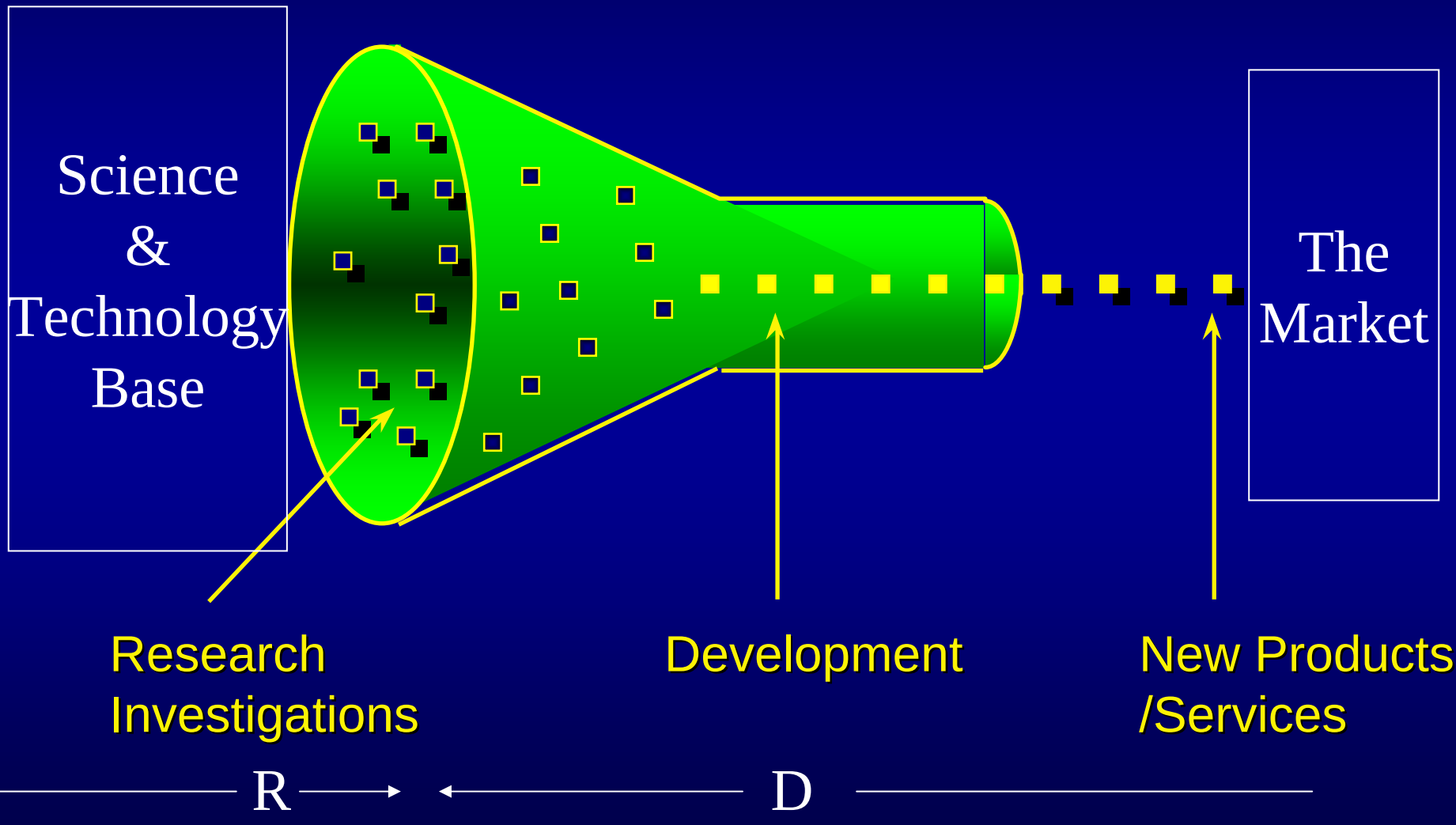
Haas School of Business
UC Berkeley

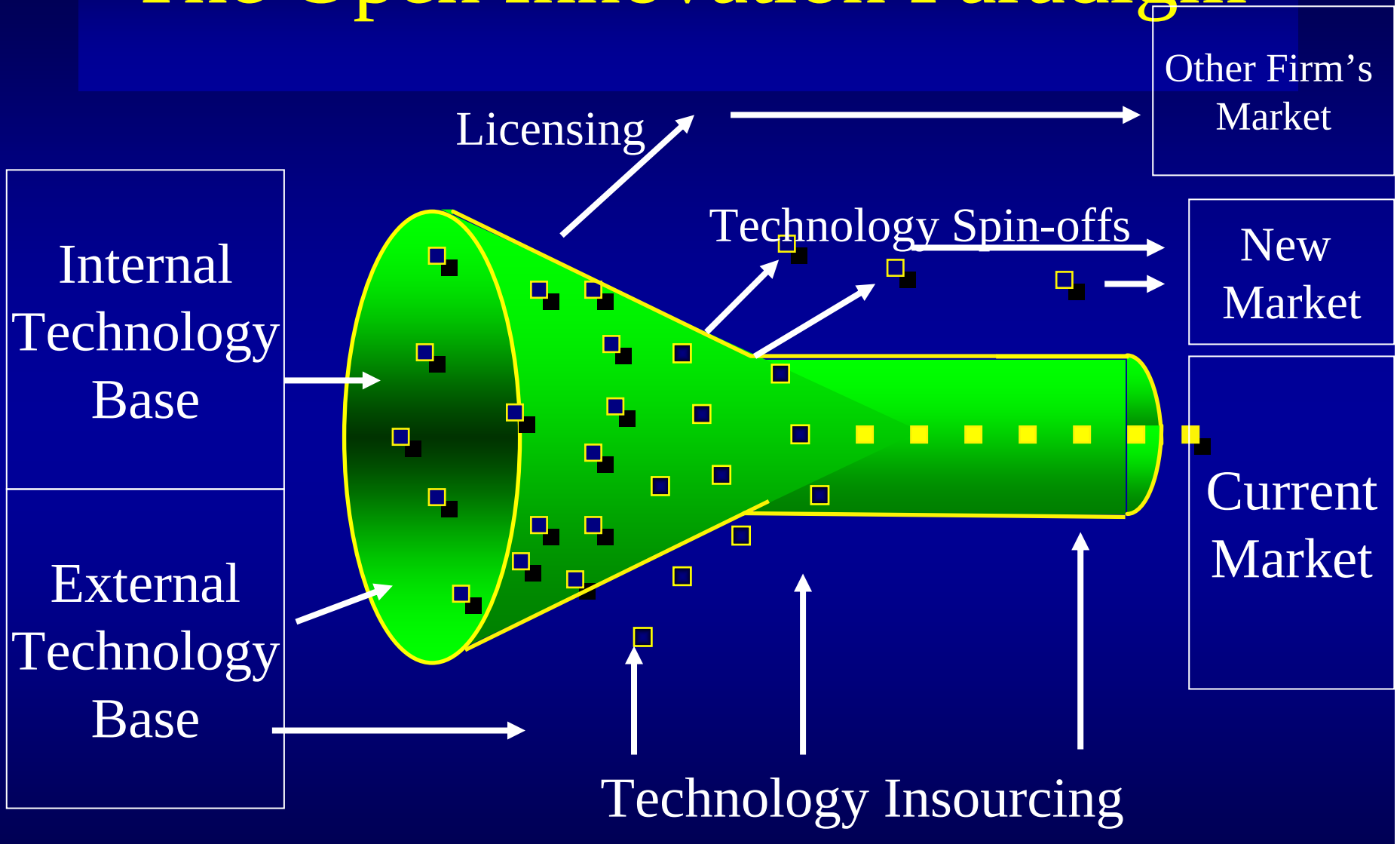
Agenda

- Open Innovation
- Open Business Models
- Implications for Managing IP
- Policy Implications

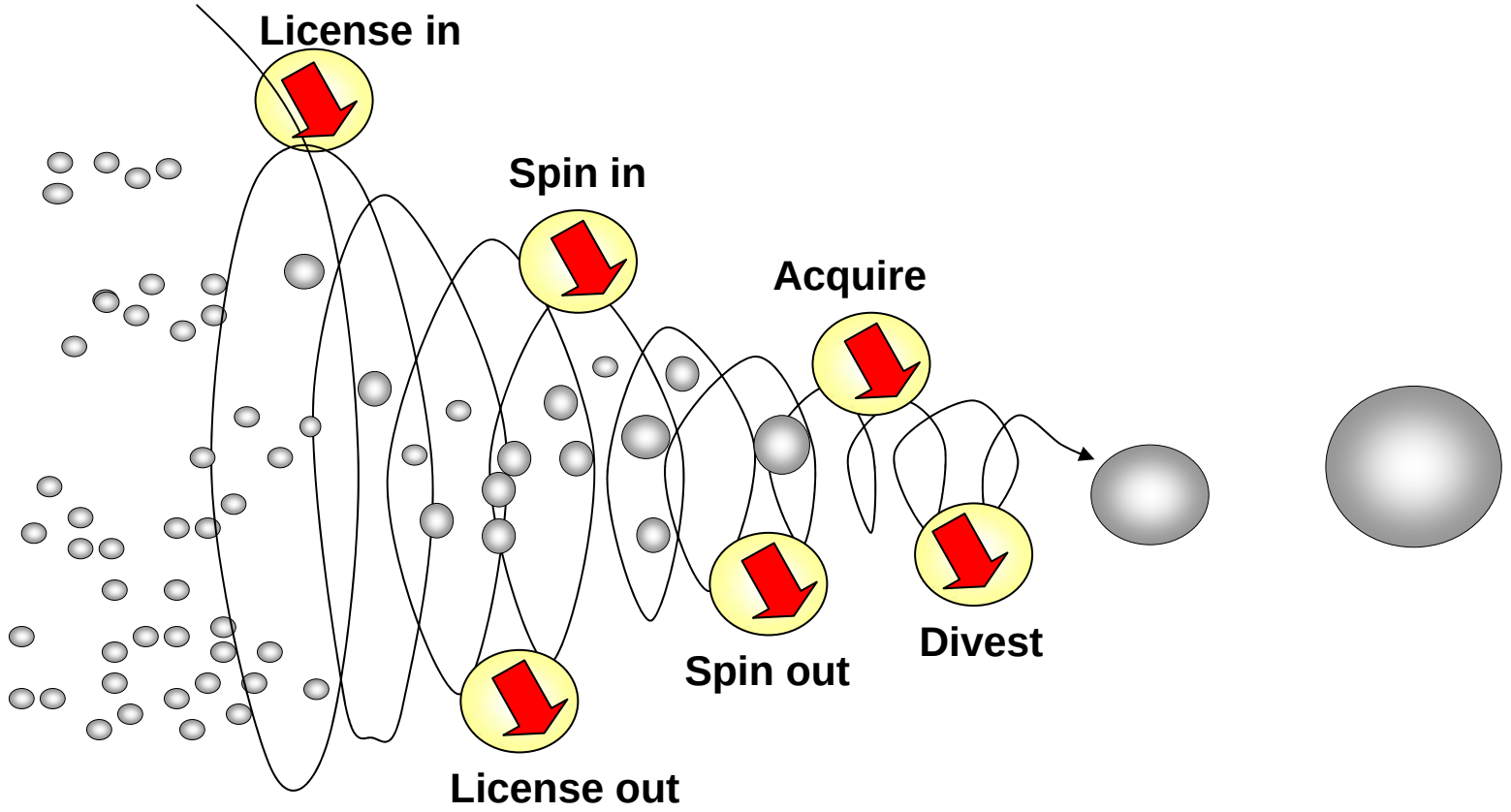
The Current Paradigm: A Closed Innovation System



The Open Innovation Paradigm



Open innovation in practise

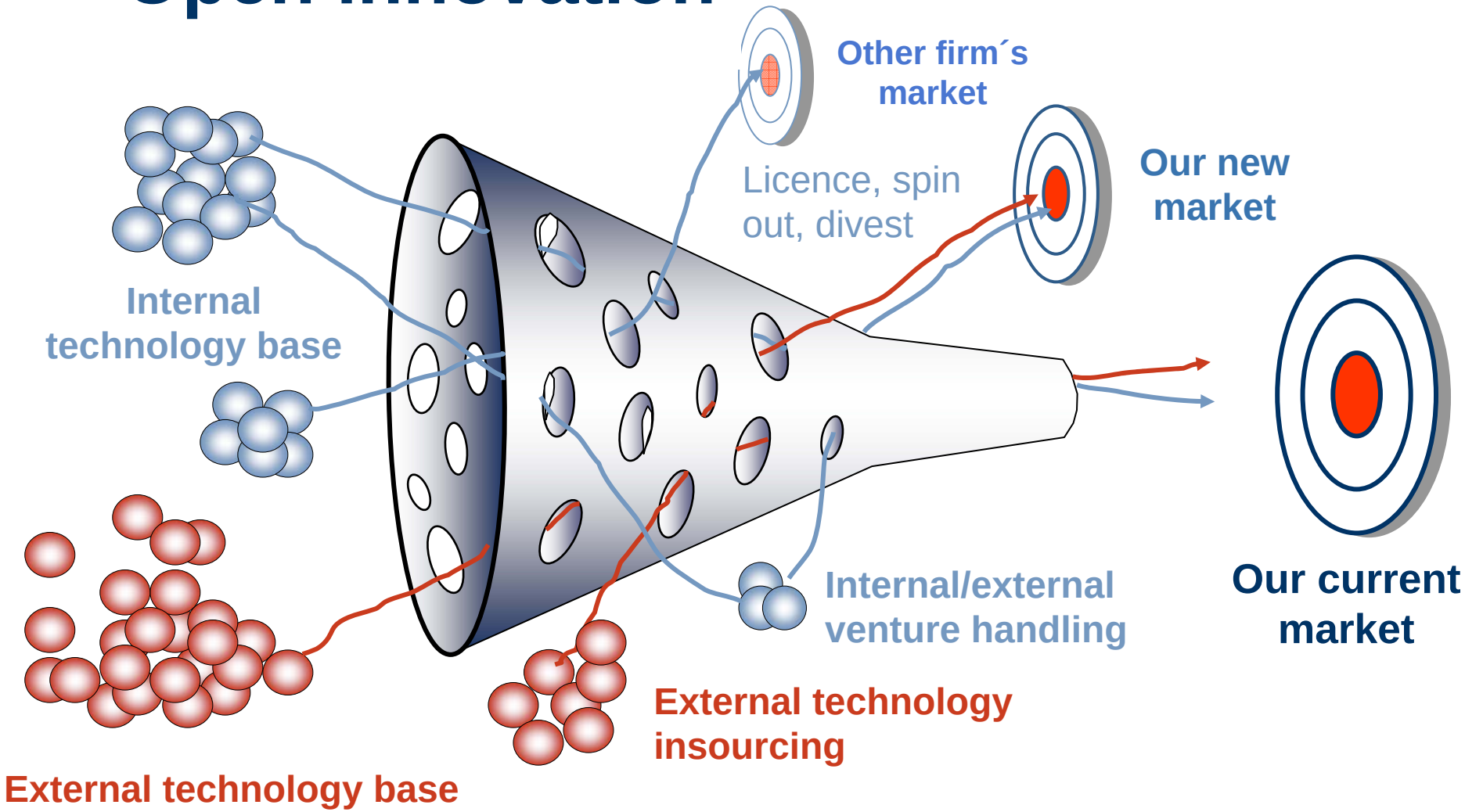


- "The creation of new businesses is a highly dynamic process, best represented as a horizontal funnel" (passed in iterative steps)

Robert Kirscbaum, DSM: Research & Technology management, July – August 2005

SCA

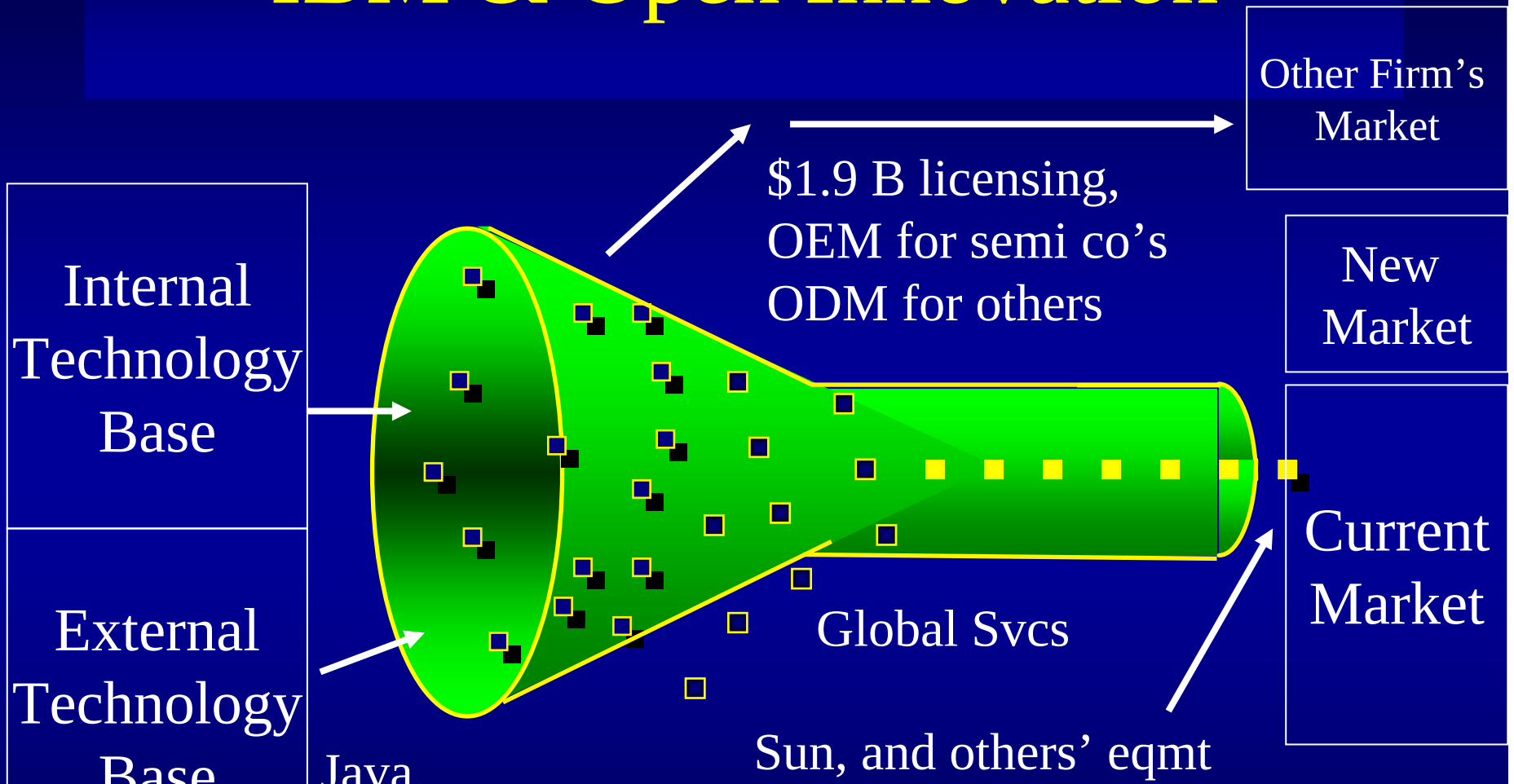
Open innovation



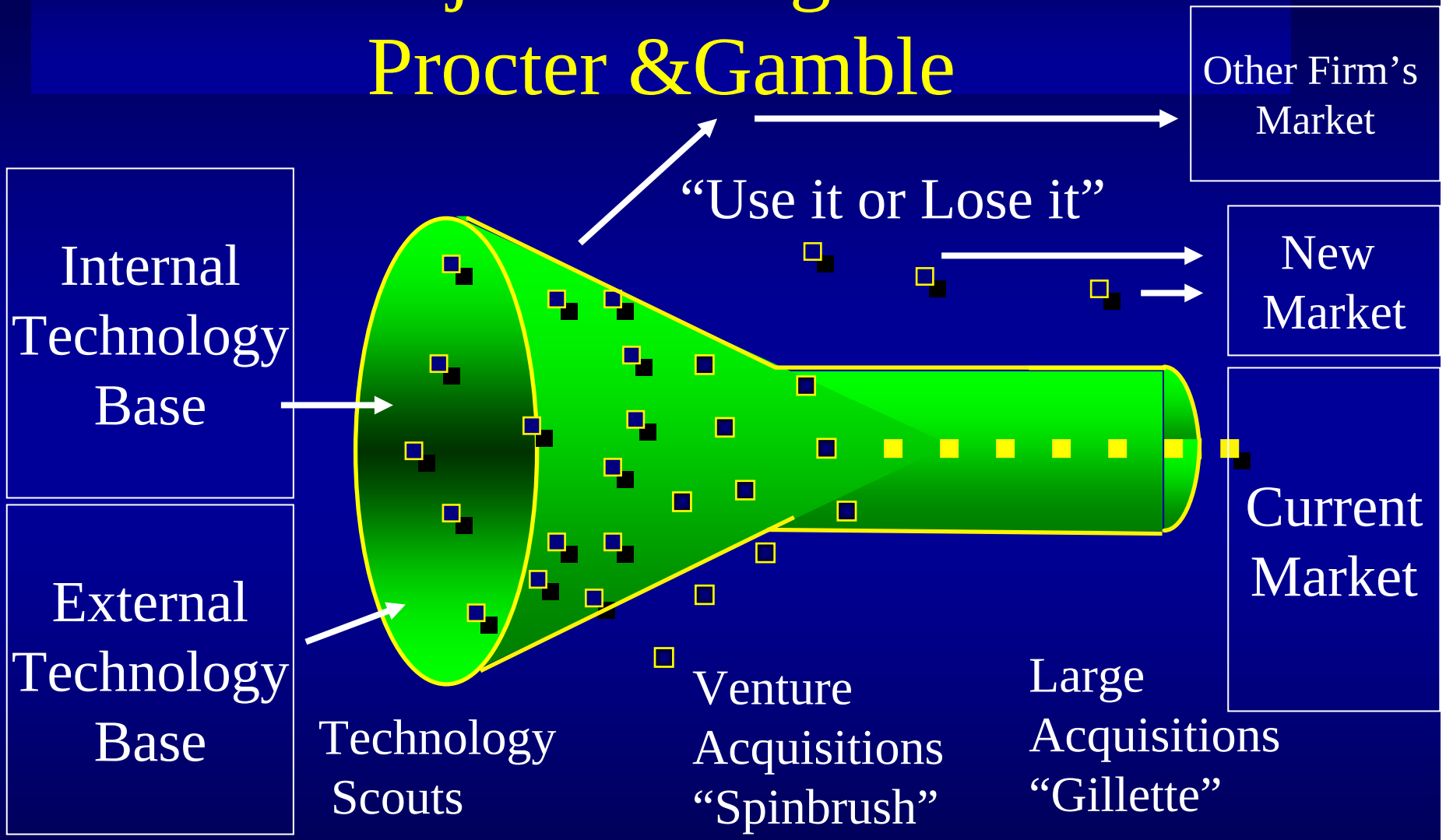
Stolen with pride from Prof Henry Chesbrough UC Berkeley, Open Innovation: Renewing Growth from Industrial R&D, 10th Annual Innovation Convergence, Minneapolis Sept 27, 2004

SCA

IBM & Open Innovation



Is this just for High Tech? Procter &Gamble



The Logic of “Open Innovation”

- Good ideas are widely distributed today. No one has a monopoly on useful knowledge anymore.
- Innovation is now done within networks of firms, rather than within a single firm
- Not all of the smart people in the world work for us.

Agenda

- Open Innovation
- ✓Open Business Models
- Implications for Managing IP
- Policy Implications

Which Would You Rather Have?

- A Better Technology

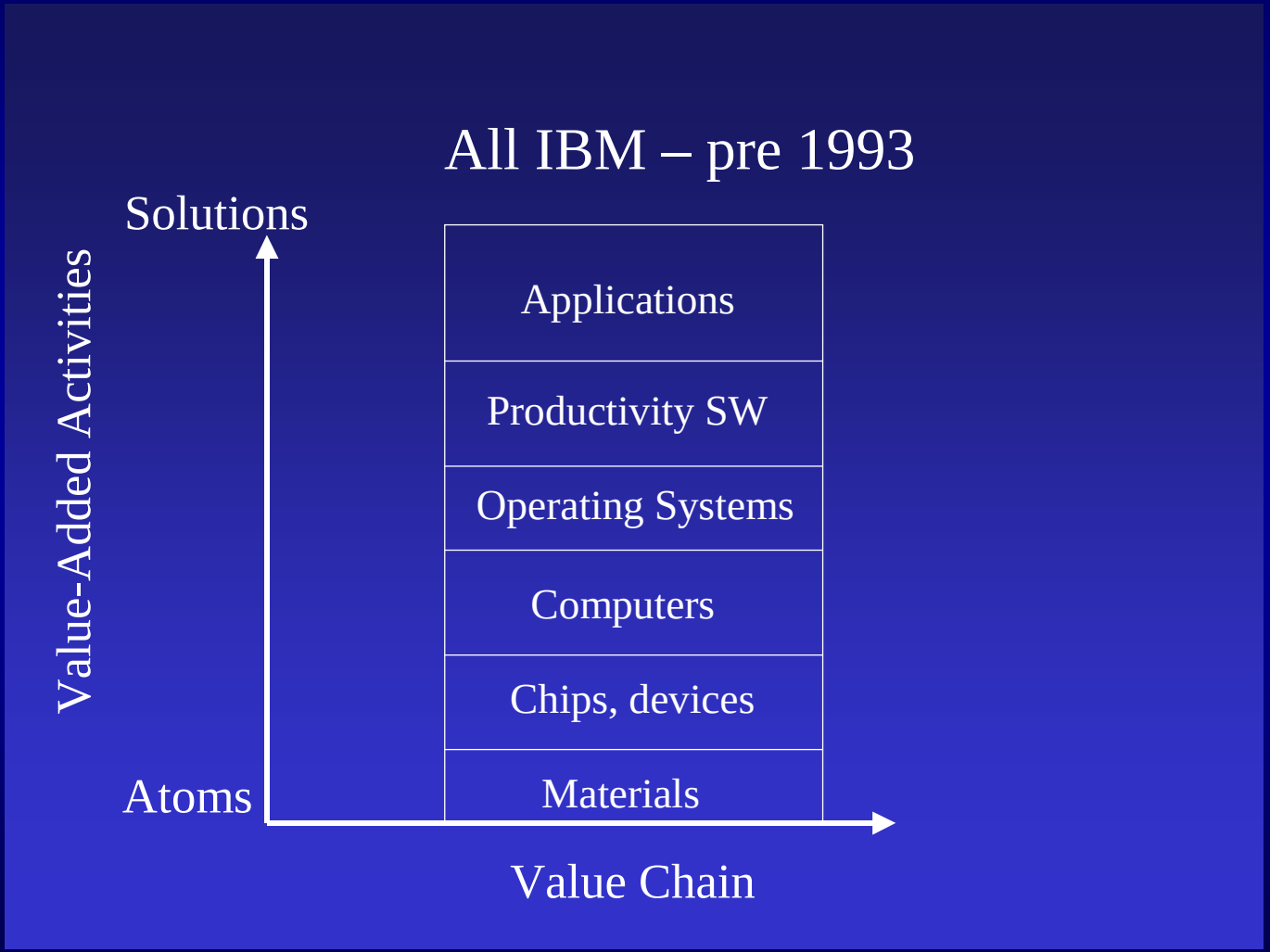
Or,

- A Better Business Model

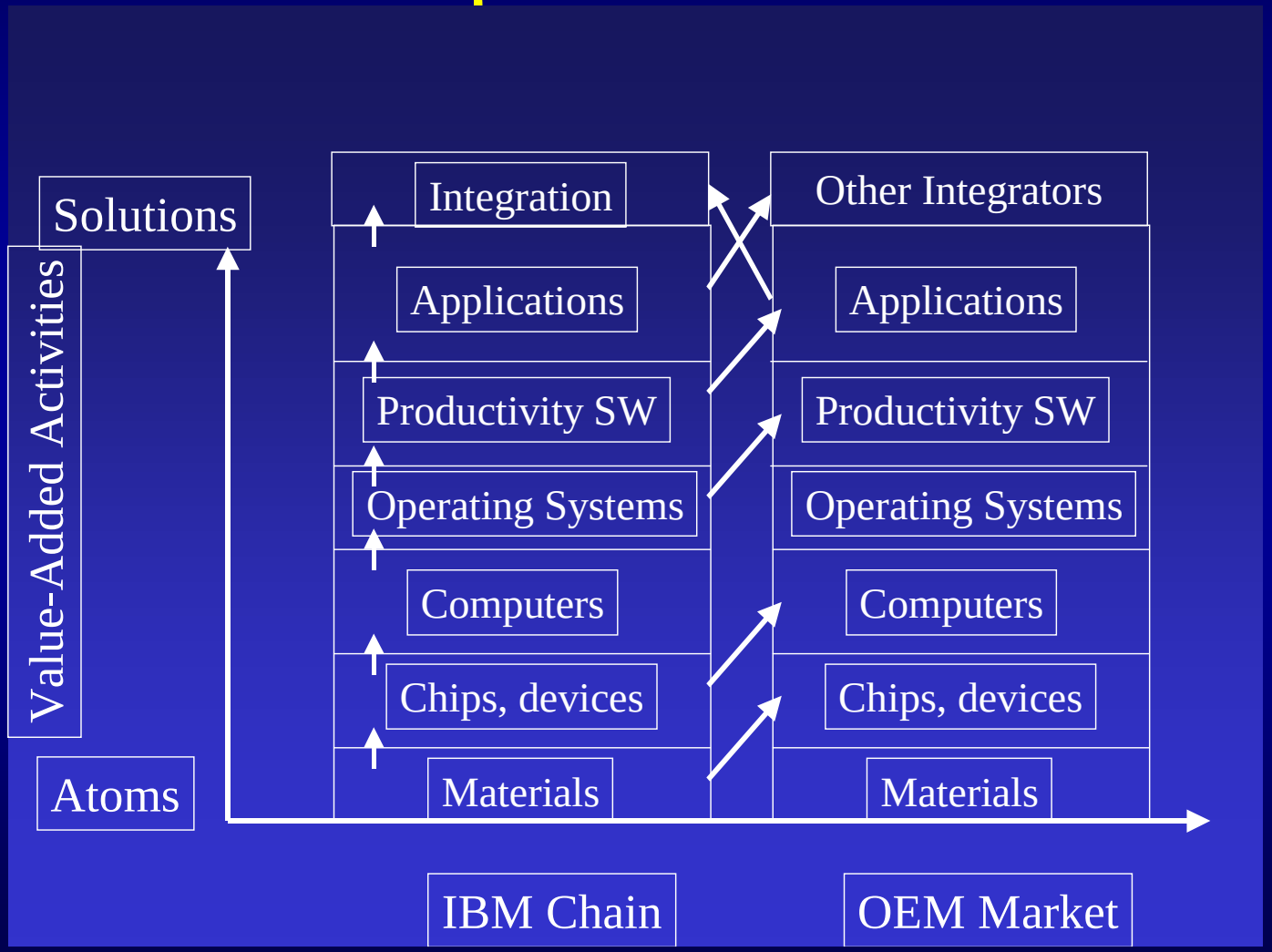
Go with the Business Model

- Business Model > Technology
  - Ability to profit from technology
  - Ability to scale technology
  - Ability to continue innovating technology
  - Ability to acquire technology

IBM: Its Closed Value Chain



IBM's Open Business Model



IBM's Open Source Business Model

- Spends about $100M each year on Linux
  - 50% for general improvement
  - 50% for specific improvements for IBM gear
- Others spend another $800M a year
- IBM creates value through Linux
  - Also donates development tools, patents
- IBM captures value through value-added services and software "up the stack"

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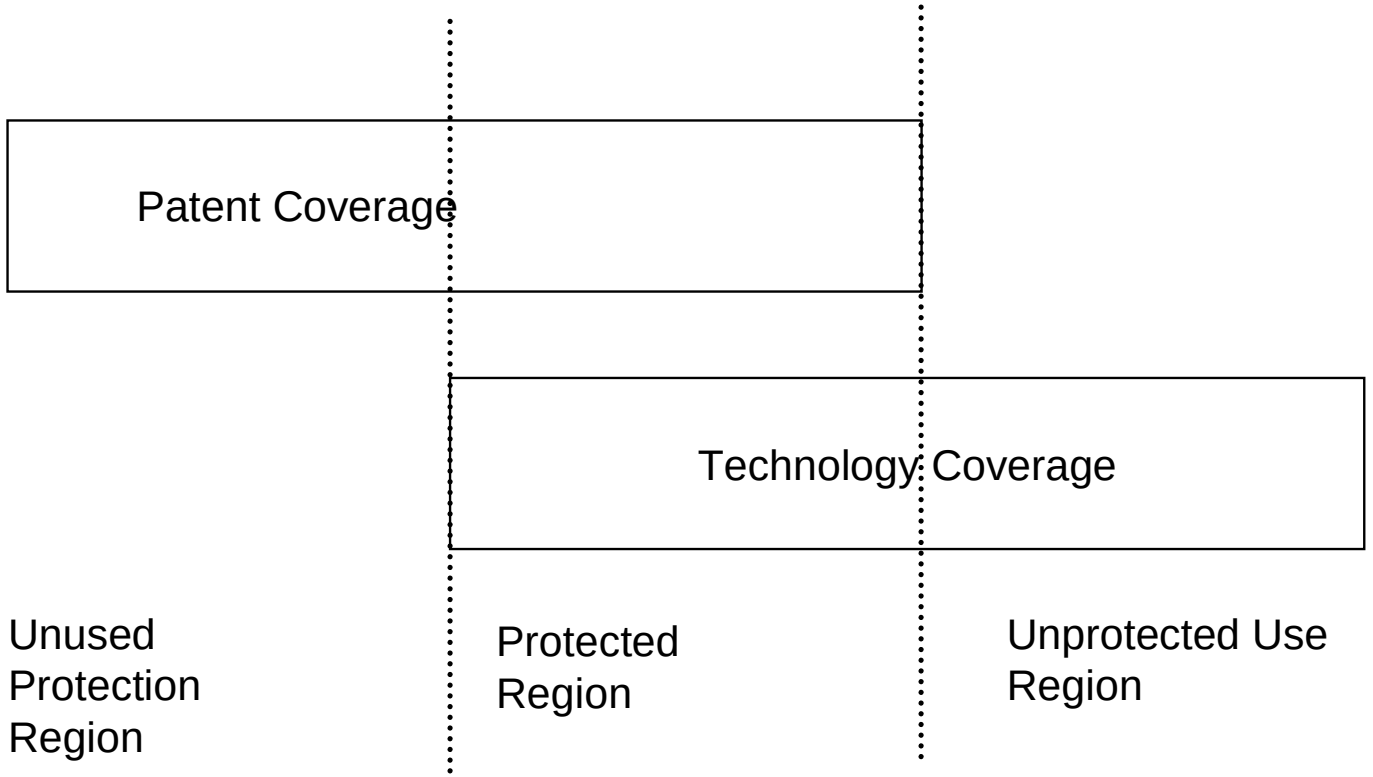
The Role of IP in the Business Model

- A business model has two functions:
  1. Value creation
  2. Value capture
- IP is critical for *value capture* in many business models
- IP can also be valuable in *creating value*
  - Setting standards
  - Intellectual commons
  - Defining the space for the innovations of others

Fig. 4.1
Evaluating Technology Alignment with Patent Coverage



Party 1

Fig. 4.2
Complex Technology Alignment with Patent Coverage, when Two Parties Have Conflicting Claims

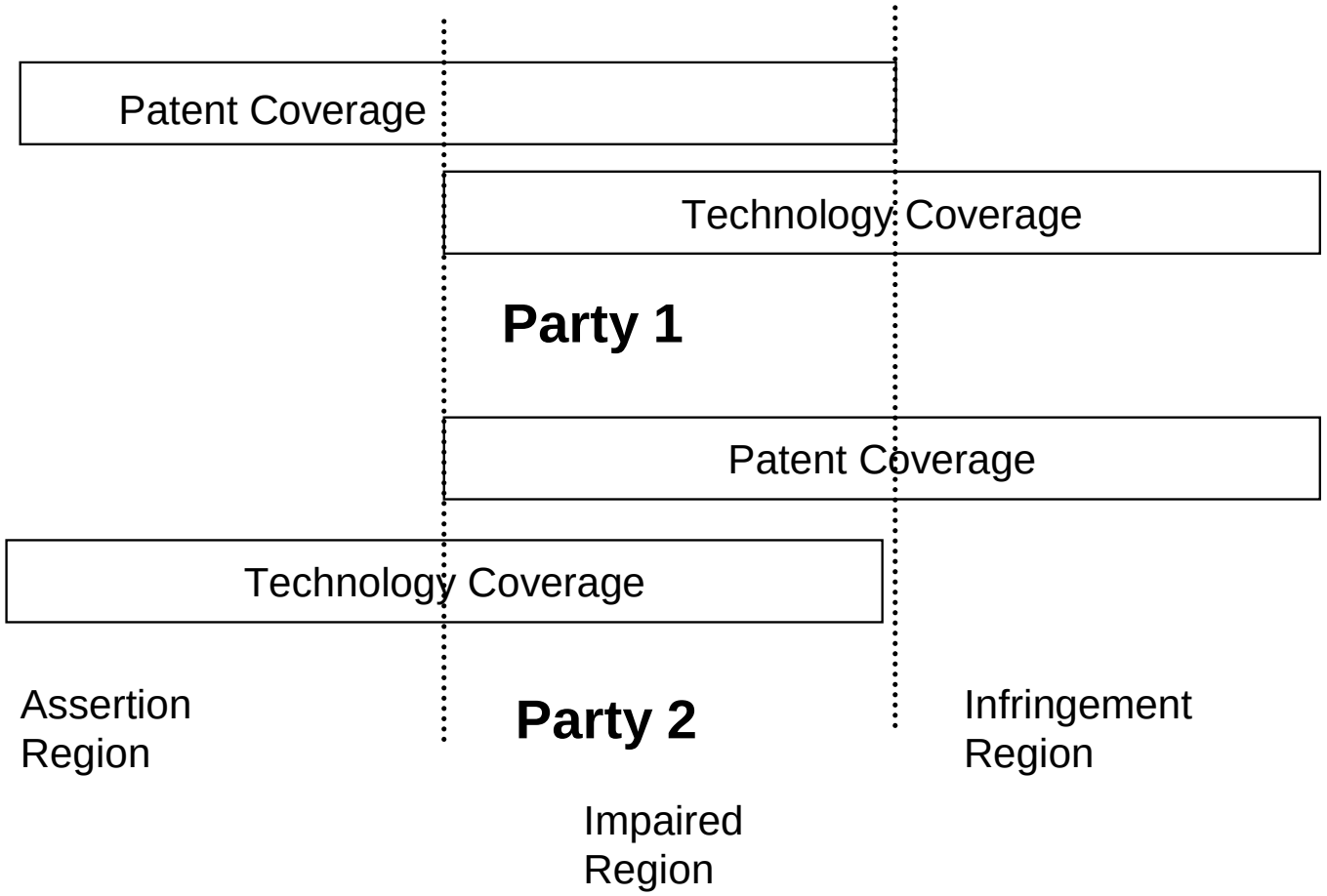


Fig. 4.3
Complex Technology Alignment with Patent Coverage, when Second Party does not Practice Technology

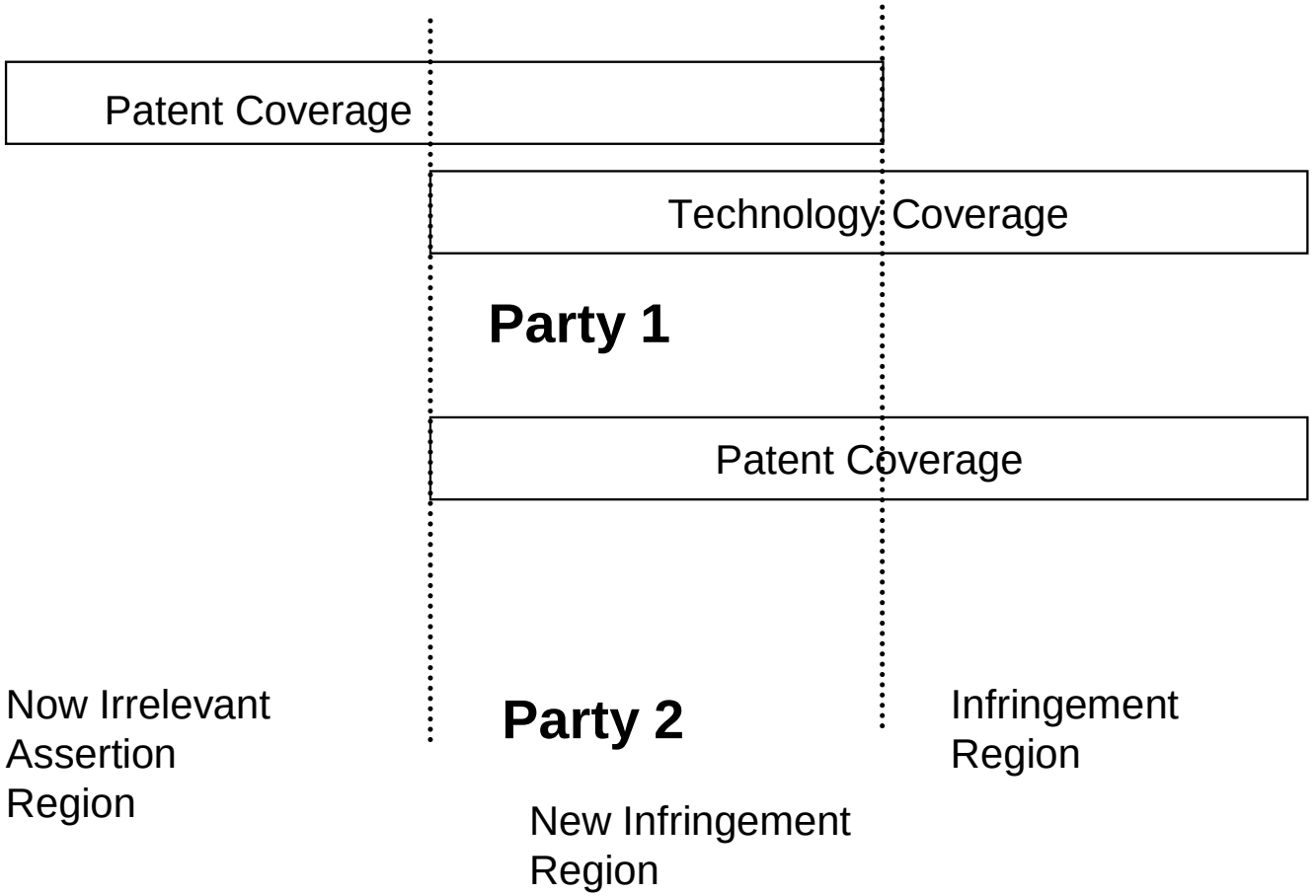
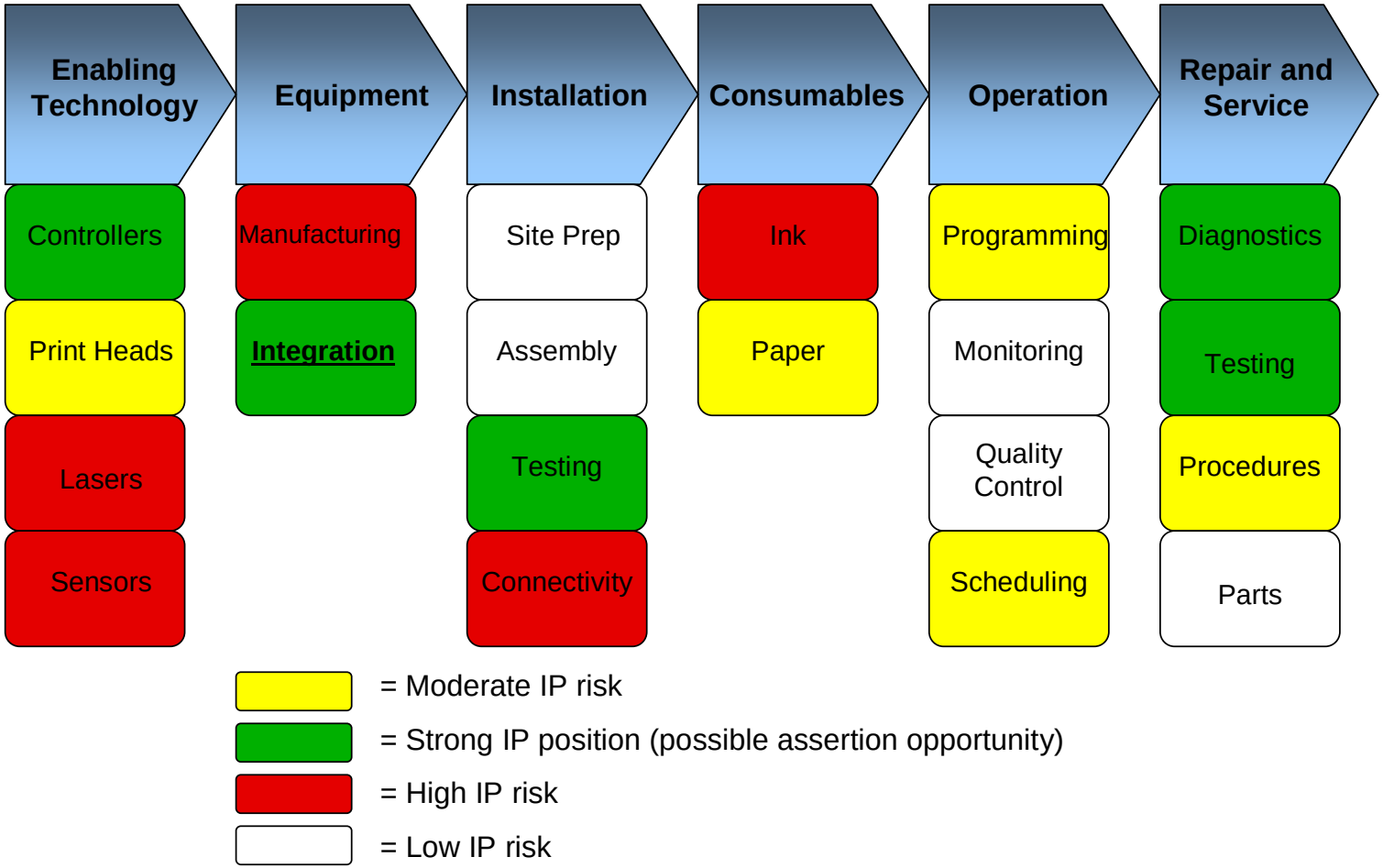
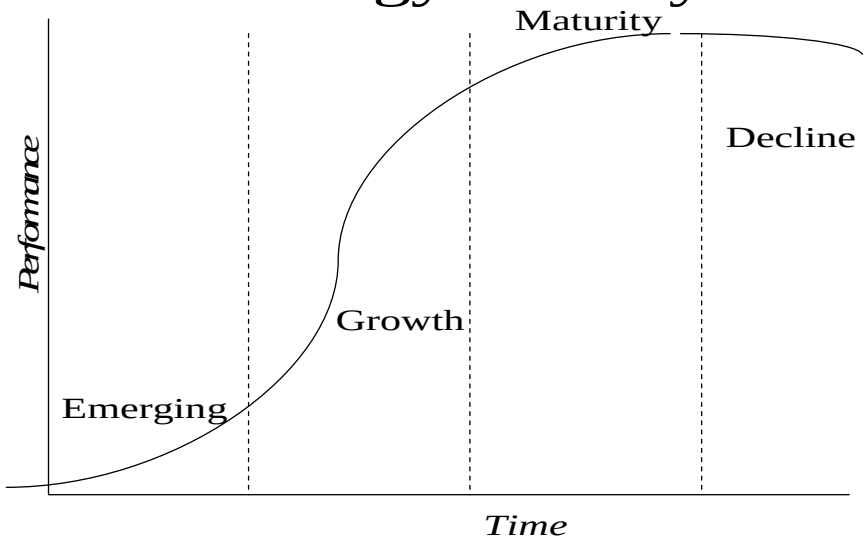


Fig. 4.5
IP Mapping Value Chain Analysis: Printers



The IP Management Life Cycle

Figure 4.6
Stages in the
Technology Life Cycle



Become the standard	Grow the standard	Compete within the standard	Harvest the standard

Managing IP for MS Windows

Mature market in US

- Windows has won the war to be the standard
- So strongly enforce copyright to prevent piracy
- Every illegal copy of Windows is money lost

Growing market in China

- Windows and Linux still battling
- So do NOT enforce copyright (not yet)
- Every illegal copy of Windows is one less for Linux

- IP Management Must be Driven by the Business Model

The IP Management Life Cycle

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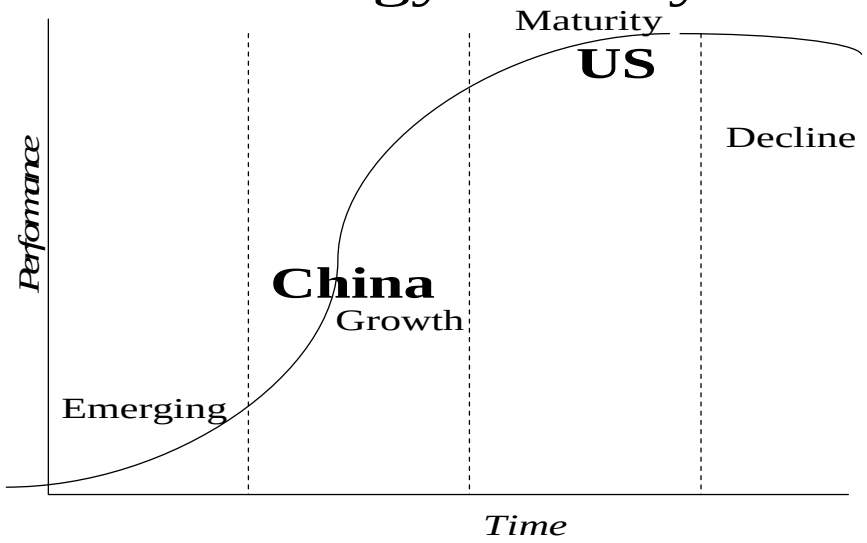
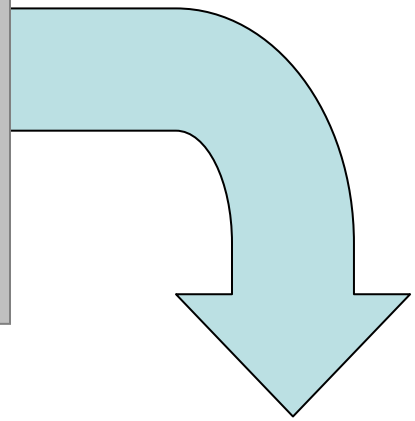


Become the standard	Grow the standard	Compete within the standard	Harvest the standard

Example of recorded reassignment:

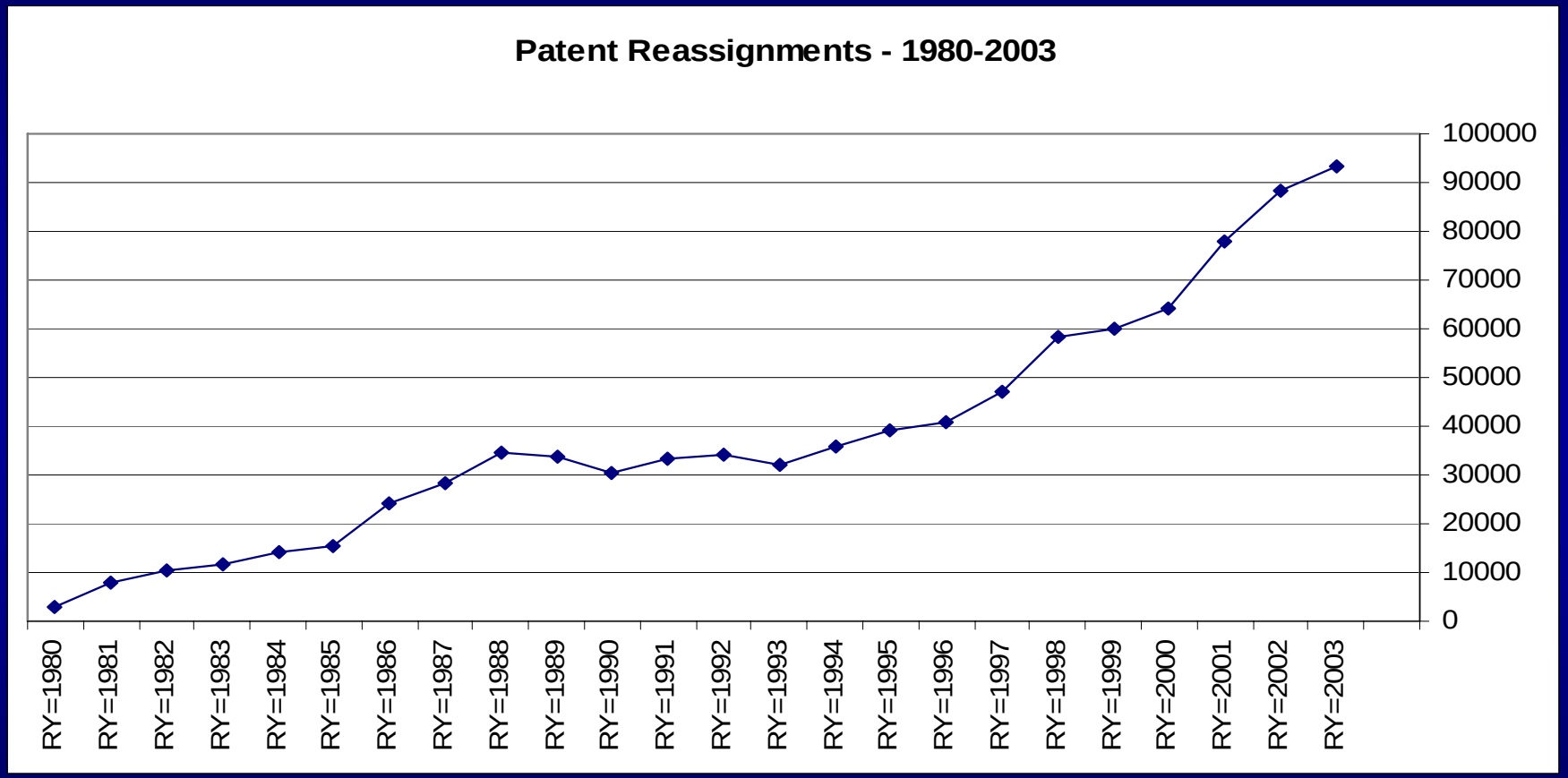
"**Intellectual Ventures** LLC, a technology development and licensing start-up formed by Microsoft veterans Nathan Myhrvold and Edward Jung, has won the bidding for **General Magic** Inc's portfolio of patents and other intellectual property, paying $300,000."
(Wall Street Journal, May 29, 2003)



REASSIGNMENT INFORMATION

Date Recorded: July, 25 2003
Assignor: General Magic Inc. (Date signed 04/23/2003)
Assignee: Intellectual Ventures Patent Holding
Reassignment Kind: Assignment of Assignor Interest
Number of Patents reassigned: 20

USPTO Patent Reassignment Data



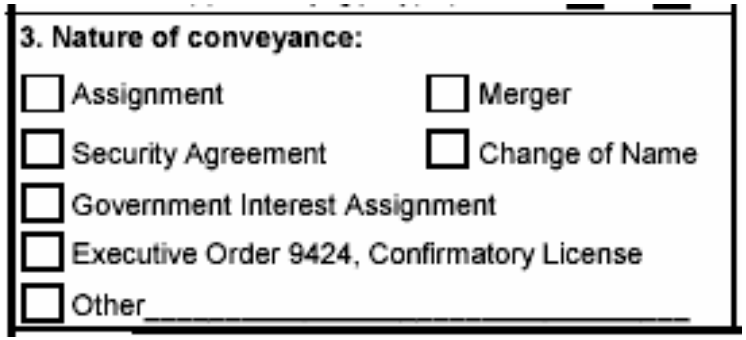
- Rising faster than base of patents itself, from 0.1% to 4.0%

Main Reassignment Kinds

- Assignment (of assignors interest)
- Security agreement/termination

- Government interest assignment
- Executive order 9424, confirmatory license
- Merger
- Change of Name
- "Other"

Offered as an option in the PTO 1595 form


3. Nature of conveyance:

☐ Assignment ☐ Merger

☐ Security Agreement ☐ Change of Name

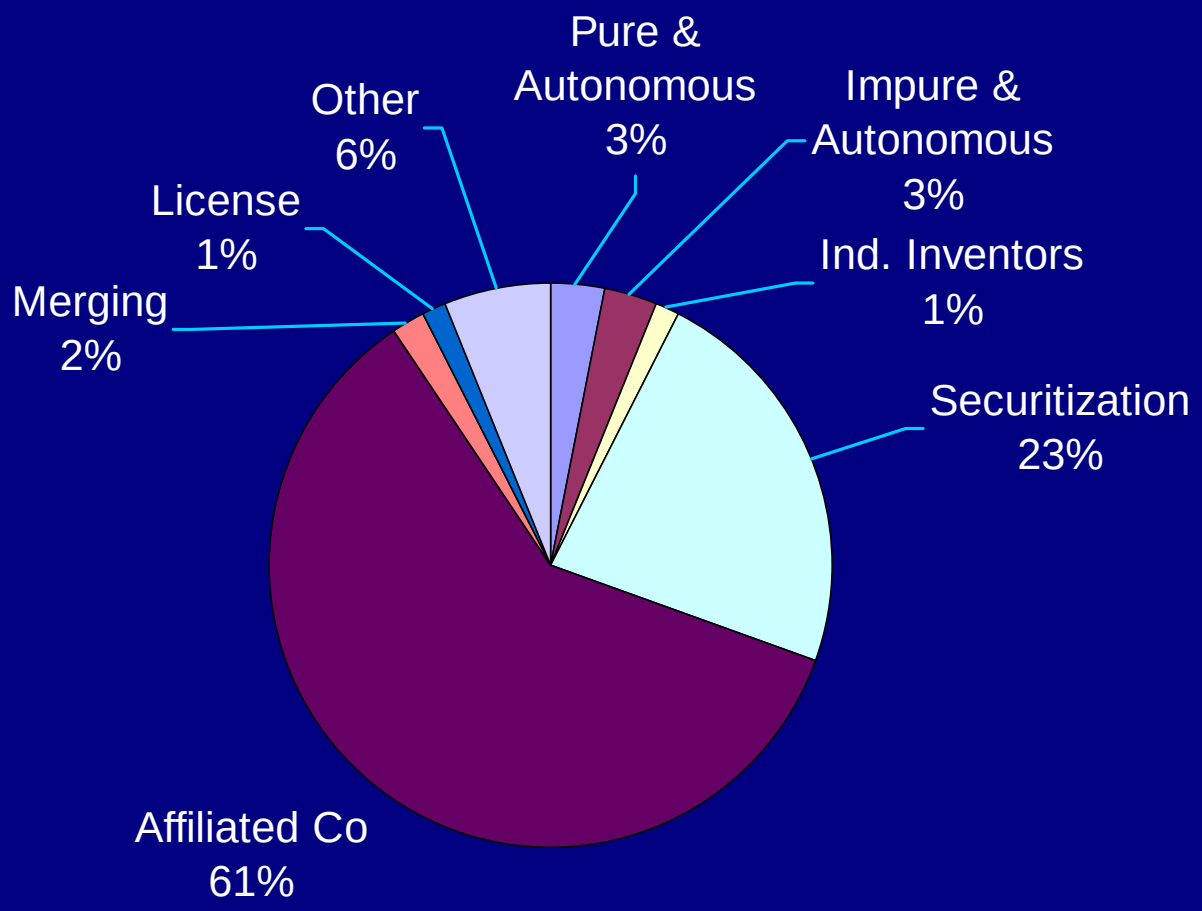
☐ Government Interest Assignment

☐ Executive Order 9424, Confirmatory License

☐ Other_____

- From the examination of semiconductor class:
  - Change of Address
  - License
  - Confirmatory license
  - Conveyance of patent & trademarks
  - Correction to an error in the patent number
  - Release by secured party
  - Release of security interest in patents and tradem
  - Release of security interests
  - Security interest
  - Termination and release of assignment of security
  - Transfer by operation of law
  - Amended and restated patent and security agreement and mortgage

Reassignments in Semiconductors (H01L): 2003



Security: US 5149397

- Two reassignments for this patent:

Date	Assignor	Assignee	Reassignment Kind
06/21/2002	Xerox	Bank One	Security Interest
06/25/2003	Xerox	JPMorgan Chase Bank	Security Interest

Patent: “Fabrication methods for micromechanical elements”, originally assigned to Xerox corporation. Application date: 1991.07.03. Date issued: 1992.09.22

What's Going On?

- "Your findings are consistent with what I have seen. That is, I have seen more security interests being taken in a company's patent rights (typically to collateralize debt). "
- The beginnings of a secondary market for IP.

IP Secondary Markets in the Future

- Orphan recovery programs
- Failed Startup IP auctions
- “Use It or Lose It” corporate policies
- Bounties and Finders’ Fees
- Sale-Leaseback programs
- Patent roll-up strategies
- Patent commons areas

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Policy Implications

- Case Study: US economic malaise in the 1980s
  - Auto's
  - Steel
  - Consumer electronics
  - Shipbuilding
  - semiconductors

US Resurgence in the 1990s

- New companies, new industries
  - PCs, networking, software
  - Internet
  - Biotechnology
  - New kinds of semiconductors
- Note that the troubled firms in the troubled industries did not improve much

Closed v. Open Policies

- Focus on expanding domestic market
- Protect local champions from foreign competition
- Subsidize largest domestic firms
- Limit foreign students and foreign direct investment

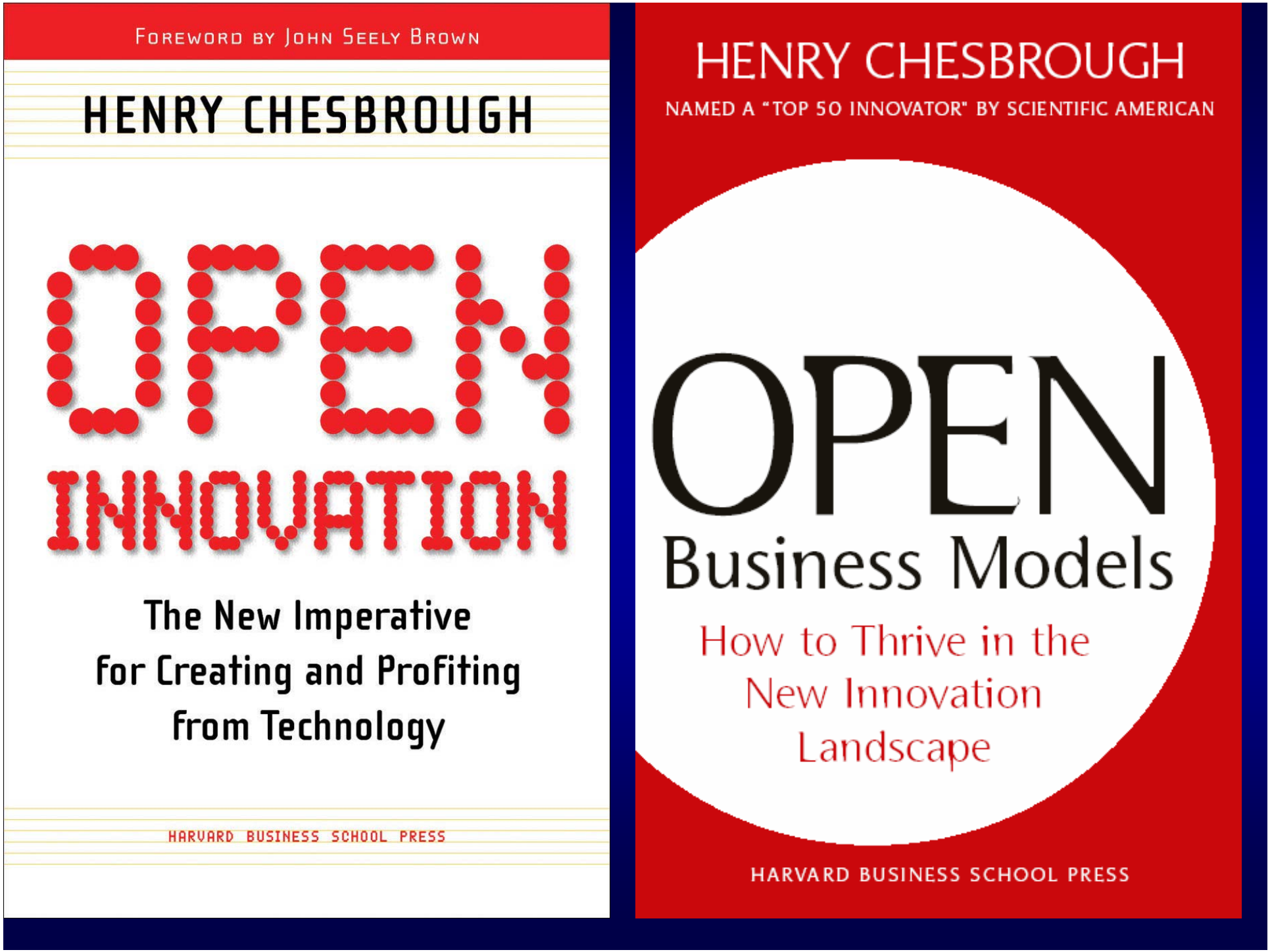
- Focus on SMEs
- Focus on universities
- Focus on IP policies
- Stimulate greater competition among largest firms
- Stimulate greater information exchange and coordination

Getting the Institutions Right

- Public research funding
  - The foundation of the innovation system
  - Focus on excellence, meritocratic award criteria
- IP
  - Clear, effective, but limited protection
- Universities
  - Meritocracy in research funding
  - Allow professors to engage with industry
  - Compete for “best and brightest” students
  - Enable research to move into industry

The Challenge of Indirect Policies

- No clear constituency
- Time delay from policy change to results
- Interaction among institutional factors, not a single factor solution
- We underestimated strength of US innovation system in 1980s
  - We may be underestimating its weaknesses today
- Note that Japan has regained ground, with a very different institutional structure than US
- Note that OECD estimates China's R&D > Japan


Foreword by John Seely Brown
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