Kodak vs Polaroid

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Agenda

- How do small companies compete with bigger companies?
- How can firms compete based on innovation?
- Competition in Technology Intensive Industries
  - To lead or to follow?
  - Who benefits from innovation?

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Tale of 2 firms

turnover ≥ Cash Reserves
$700 mn

Edwin Land.
AGM → misguide.

Polaroid

- Small but immensely successful
- Tried Product Diversification → focussed diff.
- Asset light strategy (R&D)
  - No capex, outsourcing → subcontract ← No licensing.
- Mkt + R&D strength
  - Launch new products.
    - → Gaze pricing → break even fast → We learning curve → Reduce cost → cheaper + better
    - ← Profits into R&D build better version

Kodak

Large vertically integrated.
Diversified → Product / Geographic
Monopoly.
* R&D
  - Constantly upgrading.
* Licensed production
  - → antitrust
  - → earn from film
  - Supplier of film to all competitors.
    - → DuPont

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Chronology of events

Polaroid		Kodak	
1934	Contract with Kodak for Polascreens	1934	Contract with Polaroid for Polascreens
	sunglasses, head lights.	1935	Kodachrome color film introduced, ASA 10
1944	Instant photographic research begun		
1948	Contract with Kodak for negative First camera introduced at $90	1948	Contract with Polaroid for negative

R&D 4 years.

B&W instant film.

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1948	Contract with Kodak for negative First camera introduced at $90	1948	Contract with Polaroid for negative
1950	True B&W film introduced, ASA 100		
		1954	Film and processing sales split apart
1955	ASA 200 and 400 B&W films introduced		
1959	ASA 3000 B&W film introduced		

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Chronology of events

Polaroid		Kodak	
1960	B&W film development time reduced from 60 to 10 seconds First auto-exposure camera introduced		
		1961	Kodachrome II introduced, ASA 25
1963	Contract with Kodak for color negative January, Polacolor film introduced June, ASA 3000 and Polacolor films introduced in pack format for new, $100 auto-exposure pack camera	1963	Contract with Polaroid for color negative February, Instamatic introduced, five models, $20 to $100+ Super 8 introduced Kodachrome-X introduced for 35mm and Instamatic cameras
1964	Cheaper Colorpack camera at $75		
1965	Full line of Colorpacks, $50 to $150 Swinger, $20 B&W roll film camera		
1967	Second-generation Colorpacks, $45 and up		
1968	Big Swinger $25, ASA 3000 in packs		
1969	April, $30 Colorpack camera introduced November, $99 million raised for R&D and total integration of company	1969	Polaroid's basic patents expiring Rumors of Kodak ability to market Colorpack-compatible film by 1975

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Chronology of events

Polaroid		Kodak	
1972	November, SX–70 camera introduced at $180	1972	February, Pocket Instamatic introduced—five models from $25 to $200+ May, XL Super 8 system introduced Fall, Sound XL system introduced, giving company total of five movie cameras priced from $35 to $200
1974	SX–70 Model II introduced at $140		
1975	March, Supershooter introduced at $25 March, Polacolor II introduced May, SX–70 Model III introduced at $99	1975	May, Trimlite series introduced, including telephoto model
1976	January, Pronto! announced March, Pronto! introduced at $66	1976	February, announced April demonstration April, demonstrated and announced May sales in Canada, July sales in United States April, announced folding model at $140 for possible fall 1976 introduction

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What will Kodak do if Polaroid….

- Raises prices of existing film/camera
- Cut prices on existing film/camera
- Brings out more expensive & better models
- Brings out less expensive, simpler products
- Raises dealer margins, promotional expenses

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Competitive Advantage in Technology Based Industries

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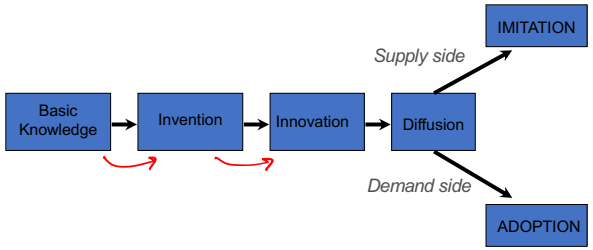
The Development of Technology: from Knowledge Generation to Diffusion



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Compressing the Technology Cycle: Less Lag between Invention and Commercialization

	BASIC KNOWLEDGE	*FIRST PATENTS*	*PRODUCT LAUNCH*	*IMITATION*
Jet Engines	17th century Newtonian physics	1930	1957	1959
Xerography	Late 19th, early 20th centuries	1940	1958	1974
Fuzzy logic controllers	1960's	1981	1987	1988
Automobile satellite navigation	Late 1950s	Early 1960s	1998	2002
MP3 players	Early 1990s	1994	1997	1999
Instant messaging	Late 1980s	2002	2008	2009

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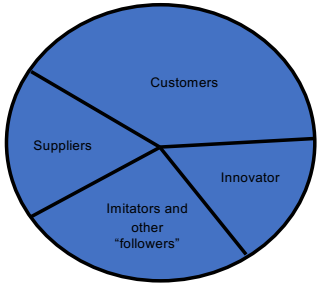
Appropriation of Value: How are the Benefits from Innovation Distributed?



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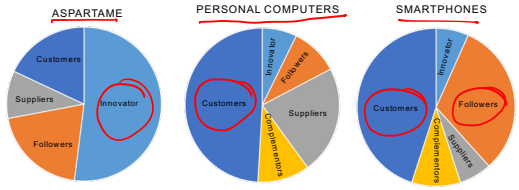
Appropriating Value: Who Gets the Benefits from Innovation?



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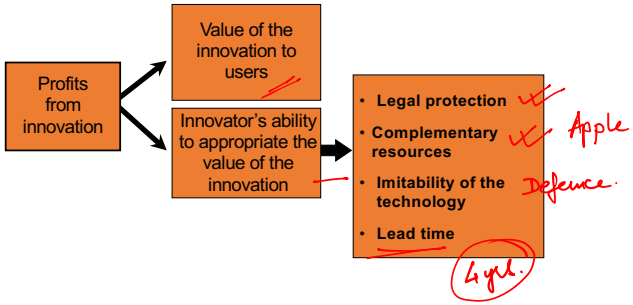
The Profitability of Innovation



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Legal Protection of Intellectual Property

- **Patents** — **exclusive rights to a new product, process, substance or design.**
- **Copyrights** — **exclusive rights to artistic, dramatic, and musical works.**
- **Trademarks** — **exclusive rights to words, symbols or other marks to distinguish goods and services; trademarks are registered with the Patent Office.**
- **Trade Secrets** — **protection of chemical formulae, recipes, and industrial processes.**

Also: employment contracts may restrict employees' freedom to transfer technology and know how.

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Alternative Strategies for Exploiting Innovation

	Licensing	*Outsourcing certain functions*	*Strategic Alliance*	*Joint Venture*	*Internal Commercial-ization*
Risk & Return	Low risk, but limited returns (unless patent position very strong	Reduces investment, but means dependence on suppliers & partners	Benefits of flexibility and speed, but coordination risks	Reduces investment and risk, but partner disagreement likely	Biggest risks and benefits. Allows complete control
Competing Resources	Few	Allows outside resources & capabilities To be accessed	Permits pooling of the resources/capabilities of more than one firm		Substantial resource requirements
Examples	ARM licenses its micro-processor designs to several semi-conductor	Apple outsources manufacture to Foxconn	Apple and Nike collaborate to develop intelligent footwear	Tesla and Panasonic jointly build gigafactory for lithium ion batteries	Page and Brin establish Google Inc. to commercialize their search algorithm

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The Timing of Innovation: To Leader or to Follow?

Product	Innovator	Follower	The winner
Jet airliner	De Havilland (Comet)	Boeing (707)	Follower
Float glass	Pilkington	Corning	Leader
X-ray scanner	EMI	General Electric	Follower
Office PC	Xerox	IBM	Follower
VCRs	Ampex/Sony	Matsushita	Follower
Instant camera	Polaroid	Kodak	Leader
Microwave oven	Raytheon	Samsung	Follower
Video games player	Atari	Nintendo/Sony	Followers
Disposable diaper	Procter & Gamble	Kimberley-Clark	Leader
Compact disk (CD)	Sony/Philips	Matsushita, Pioneer	Leader
Web browser	Netscape	Microsoft	Follower
Web search engine	Lycos	Google	Follower
MP3 music players	Diamond Multimedia	Apple (iPod)	Follower
Operating systems for mobile devices	Symbian, Palm OS	Apple, Google	Followers
Cryptocurrencies	Bitcoin	Etherium, Ripple	Leader
Flash memory	Toshiba	Samsung, Intel	Followers
E-book reader	Sony (Digital Reader)	Amazon (Kindle)	Follower
Social networking	SixDegrees.com	Facebook	Follower

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To Lead or to Follow? Some Key Considerations

Can the innovation be protected by intellectual property rights or lead-time advantages? → If so, advantages in leadership

How important are complementary resources? →
- Followers can avoid investing in complementary resources by using better-established industry infrastructure
- Firms possessing complementary resources have the luxury of waiting

Is there potential to establish an *industry standard*? → If so, advantages in leadership

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Uncertainty & Risk Management in Tech-based Industries

Sources of uncertainty
- Technological uncertainty → Difficult to predict the evolution of Technology or which standards and designs will emerge is dominant
- Market uncertainty → Customer adoption of innovations notoriously difficult to predict

Strategies for managing risk
- Cooperate with lead users
  —early identification of customer needs
  —assistance in new product development
- Limit risk exposure
  —avoid capital commitments
  —outsource
  —use alliances to access other firms' resources & capabilities
  —keep debt low
- Flexibility
  —keep options open
  —adapt quickly to new information
  —learn from mistakes

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Disruptive Innovation

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Impact of Innovation

- ***Sustaining*** – better products that can be sold with higher margin to demanding customers; incumbents win
  - focused on demanding customers; both incremental and radical. Incumbents have resources and motivation.
- ***Disruptive*** – commercialization of simpler, more user-friendly products, which are cheaper and targeted to new or less demanding customers; new entrants win
  - introduce products and services not as advanced as existing ones, but offering other advantages (simpler, cheaper, more user friendly, ...) and focus on new or less demanding customers.

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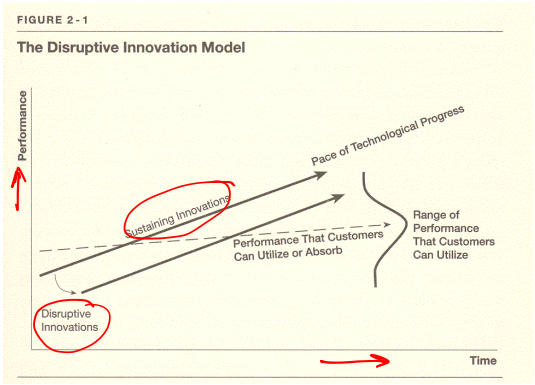

Clayton M. Christensen: The Innovator´s Solution, Harvard Business Press, 2003

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Conditions of success

- Good managers are expected to continuously improve products to target upper market tiers and attain higher margins
  - Each company therefore prepares its own disruption.
  - This is the ***innovator´s dilemma***, but also the start of innovator´s solution.
- The advice to new, growing firms: focus on products and markets ignored or neglected by incumbents.

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Two types of disruption

- ***New markets***: compete with non-consumption: simpler, more user friendly, can be used by less sophisticated customers (PC, transistor radio, desk copiers).
- ***Low-end***: focus on lower tiers of main markets (minimills, discount stores, Korean auto-makers); motivate incumbents to leave the market

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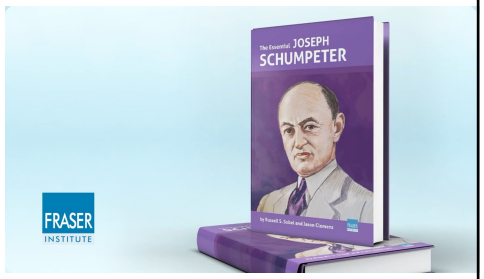
Dethroning the leader

- Creative destruction
  - Inevitable destruction of the leader's position due to the creative new actions of challengers
  - Discovery of a new profit opportunity through differences in knowledge / views
  - Behavior of customers removes information asymmetry
  - Higher the creativity higher will be the imitation lag



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Summary

- Competition as a tennis match
- Disruptive innovation
- Creative destruction
- Competitive Advantage in Technology based Industries

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Thank You

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