



15.965 Technology & Strategy

# Technology and Strategy

Polaroid

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## Even when incumbents anticipate disruption and respond, *cognitive* limitations may doom them

- Polaroid was the leader in instant photography
  - 23% pa sales, 17% profit growth late '40s to late '70s
- A technology-driven company
  - belief that long-term, large-scale research enables great products, great products create their own market
  - endogeneous demand, little need for or value in conventional market research
- Believed in consumables
  - “*What’s the business model? It’s the razor/blade ... so we make money with the film*”
  - “*... in the photographic business, all the money is in the software [film], none of it is in the hardware...*”

Mary Tripsas and Giovanni Gavetti “Capabilities, Cognition and Inertia: Evidence from Digital Imaging”,  
Strategic Management Journal, 2000, pages 1147-1161



## **SX-70: eight and half years, \$500 million**

- Launched in 1972
- First instant SLR (Single Lens Reflex) camera
- new integral print film
- Later models had sonar autofocus, the first autofocus SLRs available to consumers
  
- (Film discontinued in early '06)
- (Austrian firm now makes film)



## Strong intellectual property position protected value capture

- Monopoly until '76
- Kodak enters
- Polaroid forces Kodak out by '85
- Kodak pays \$925 million in damages in '91



## Polaroid is initially successful at developing technologies, but fails at product development

- '81 digital imaging group
- '86 microelectronics lab
- “..orientation was ‘technical challenge’ – we can do it.”
- By 1989 >40% of R&D spend on digital imaging
- Major technological breakthroughs
- By '96, 66% of R&D
- '93 sells microelectronics lab to MIT
- BUT few successful new products
  - Helios
  - Printer in the Field
  - PDC-2000 not 'til '96
- As of 1997, >90% of revenue from established products
- Digital imaging has lost \$120-130 million



### PDC-2000

- Price ~\$3,000 to \$5,000
- *“...a new breed of digital camera that combines professional quality and affordability. ... If you've been waiting for digital cameras to mature, the PDC-2000 marks a clear jump from infancy to adolescence...”*



## The latest installment in the story...

- *“Polaroid wants to conjure up its golden analog days of vast sales and instant gratification — this time with images captured by digital cameras and camera phones. This fall, the company expects to market a hand-size printer that produces color snapshots in about 30 seconds.*
- *Inside, a new kind of paper embedded with microscopic layers of dye crystals, the creation of former Polaroid employees ...spun off as a separate company, Zink Imaging in 2005”*





**...but success depends not just on the  
technology, but the system and the ecosystem**

<http://www.zink.com>





## Response to transition – whether you survive or thrive – ultimately depends on four key factors

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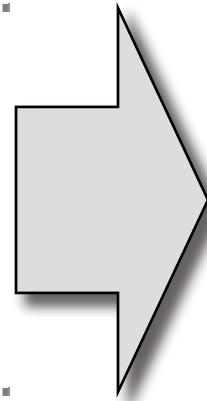
*Demand opportunity* -  
who your customers are and  
what they want

.....

*Business model and  
business ecosystem* -  
your chosen niche and target  
customers, its business model  
and hence how you make  
money

.....

*Technological infrastructure  
and innovation* –  
explicit and tacit component  
and architectural knowledge



Your *mental models*  
- beliefs about the  
future, about how to  
make money,  
reflected in your  
communication  
channels,  
information filters  
and search and  
problem-solving  
strategies

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15.965 Technology Strategy for System Design and Management  
Spring 2009

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