Boosting India's Global Advantage Through University-Industry Collaboration

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Nehru Professor of Indian Business and Enterprise

Indian Merchants' Chamber

March 12, 2009

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Tough Times Are Upon Us

- US, Japan, Germany, UK in recession
- China and India are not immune: growth forecasts down
- Even the Indian marriage market is taking a hit:

"Because there are no job guarantees for IT people, for the last six months brides' families have not been accepting grooms from this background,"

Jagadeesh Angadi, matchmaker in Bangalore*

*Jermy Kahn in the New York Times/Deccan Herald

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Tough Times Require Leadership

- A time of opportunities and challenges
- The opportunities provided by innovation
- The challenges posed by fostering a culture of innovation

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Competitive Advantage Through Collaboration

- What is innovation? Why does it matter?
- What is open innovation?
- University-Industry collaboration
- Cambridge and Business

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Types of Innovation

- New products or services
- New processes
- New business models

Product/Service Innovation: The iPod

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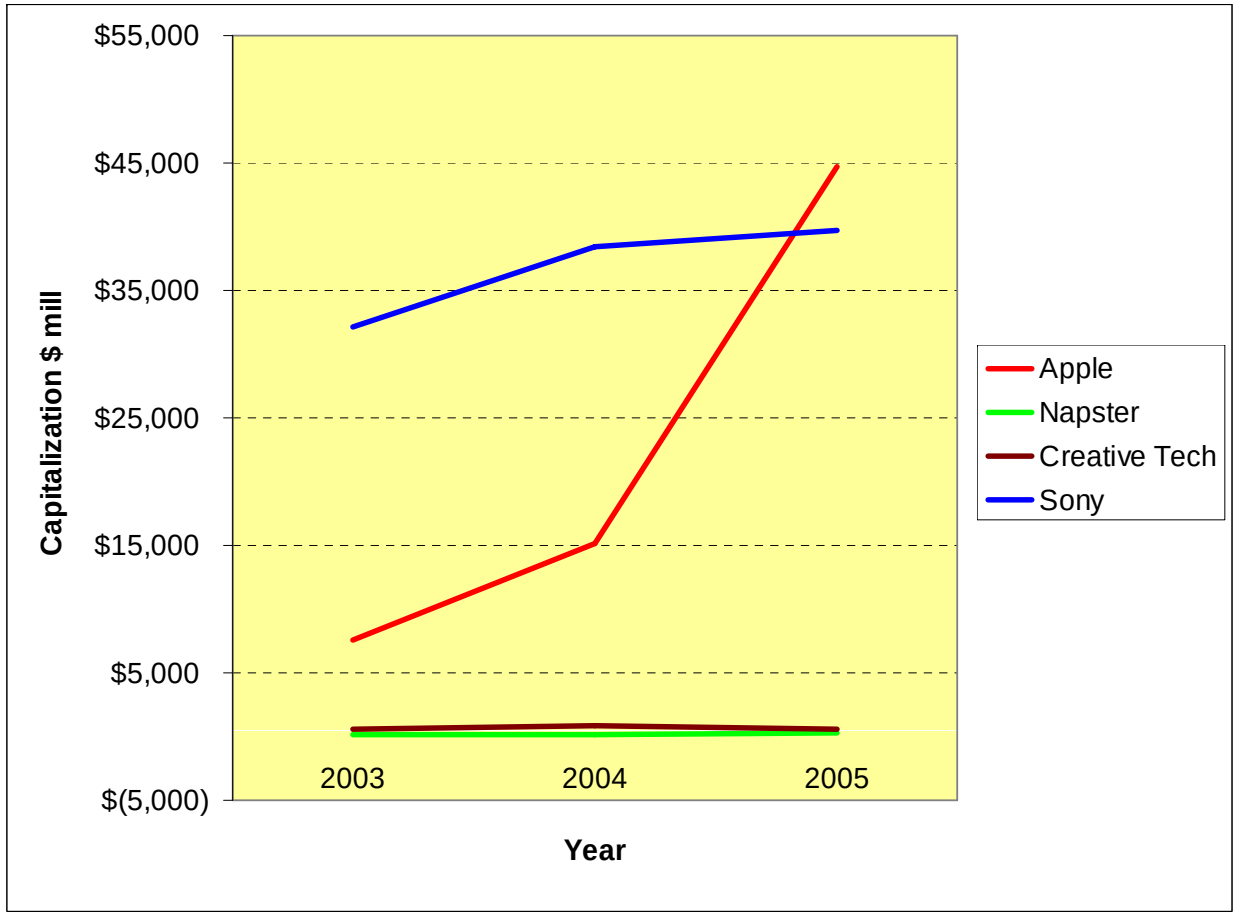
Payoff from the iPod



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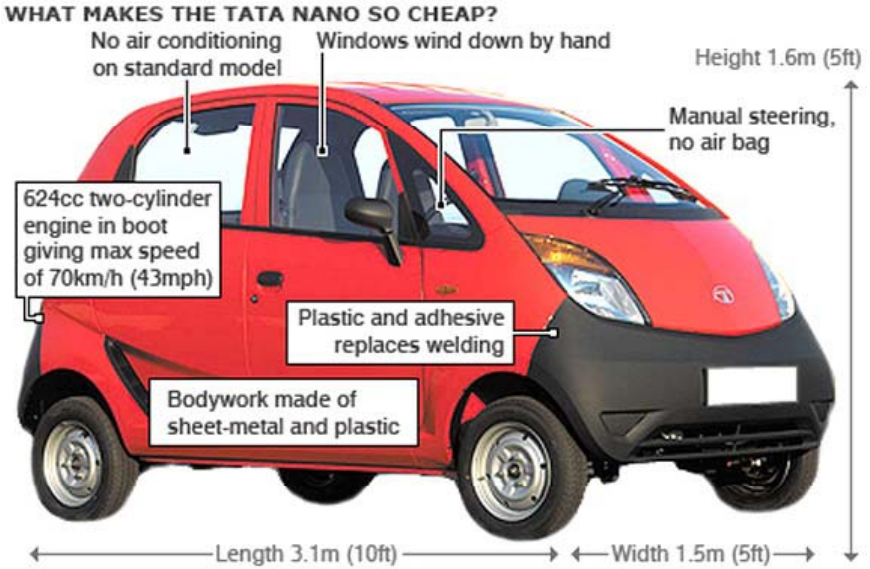
Process Innovation: ICICI and Mobile Banking

- Many new features to mobile phone banking

- Cut transaction costs to far below competitors
- 5 people manage the 250,000 daily transactions processed by ICICI Direct (online share-trading arm)
- Cost of mobile-phone banking in India = 1/3 of the US

Business Model Innovation: Tata Nano

- Entirely new value proposition
- Radically simplified production and design
- New form of distribution: kits assembled and serviced by local entrepreneurs



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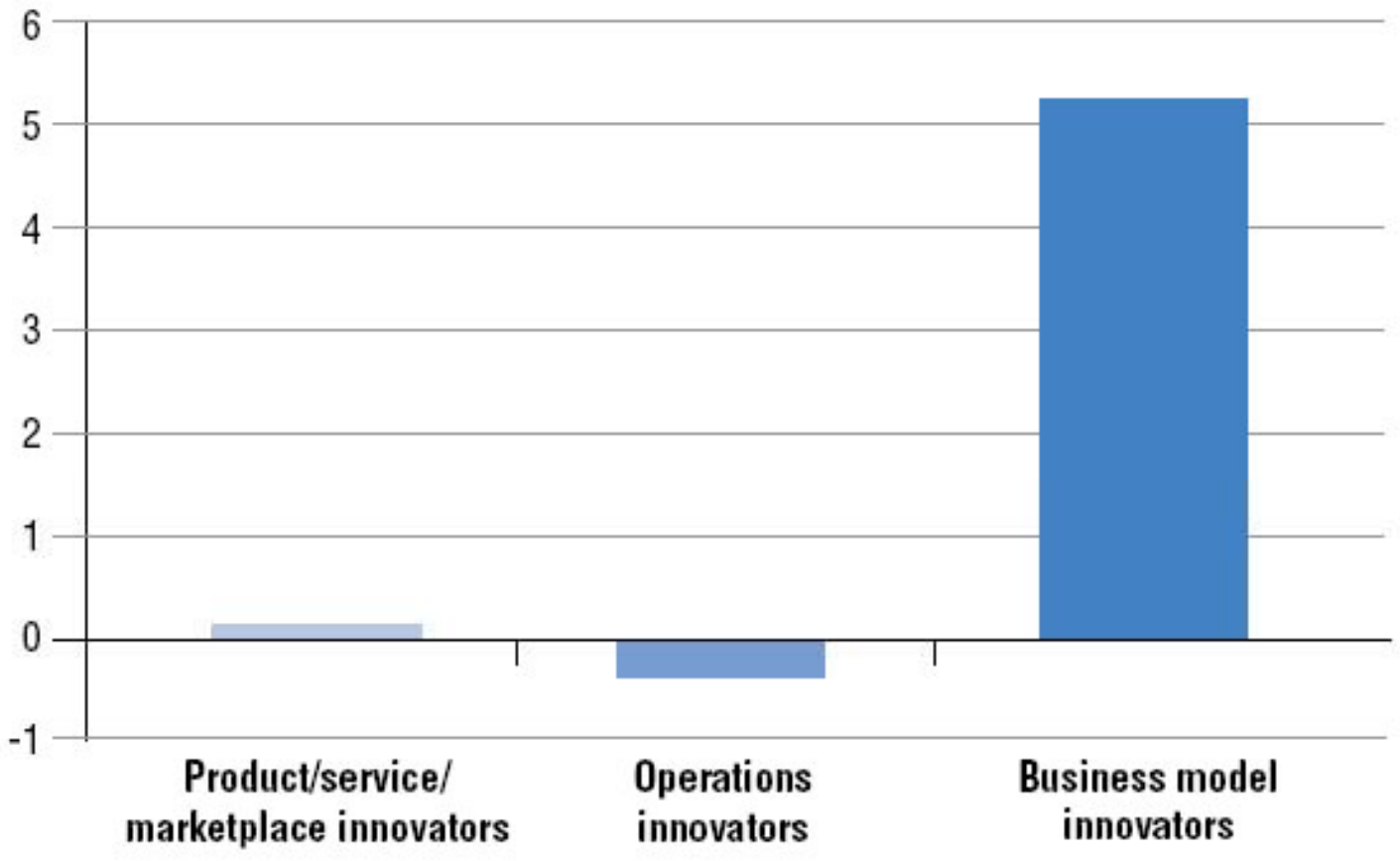
Business Model Innovation and Growth

compound annual growth rate over five years



[Source: IBM, CEOs are expanding the innovation horizon: important implications for CIOs]

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What is Innovation?

"The successful commercial exploitation of new ideas"

Types of innovation:

- New products or services
- New processes
- New markets
- New organizational forms

Joseph Schumpeter
(1883-1950)

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P&G Innovation Metrics: 2000

- 9,000 R&D personnel (1,000 PhDs)
- $1.8 Billion in R&D expenses
- ~27,000 patents (10% being used in current products)
- Stagnation of new R&D: only 35% of new products met objectives
- Increasing costs: Always: $10 mn in the 80s, $40-50 mn by 2000

PRODUCT	2000 MARKET SHARE	% CHANGE VS. 1999
ALWAYS Feminine-protection pads	38.6%	-1.1
TIDE Laundry detergent	38.3%	0
BOUNTY Paper towels	39.0%	-1.8
CHARMIN Toilet tissue	29.4%	-0.3
DOWNY Fabric softener	46.4%	-0.1
FOLGERS Coffee	33.0%	-0.1
PAMPERS Disposable diapers	24.5%	-0.7
PANTENE Hair-care products	13.1%	+0.2
PRINGLES Potato crisps	5.4%	-0.9

Source: IRI

BusinessWeek online

MARCH 12, 2001

THE CORPORATION

Table: How Bounty Got Rolled

P&G's Bounty still dominates paper towels, but missteps helped Kimberly-Clark's Scott brand gain market share last year

INNOVATION
Bounty hasn't had a brandwide upgrade since 1994

PRICING
Facing soaring pulp costs, P&G raised Bounty prices 9% last April; Kimberly responded with just a 6% hike

TURNOVER
Bounty has had four brand managers over the past 18 months

ADVERTISING
P&G slashed its advertising spending on Bounty by 31% in the first 10 months of 2000, but Kimberly accelerated its spending on Scott by 16%

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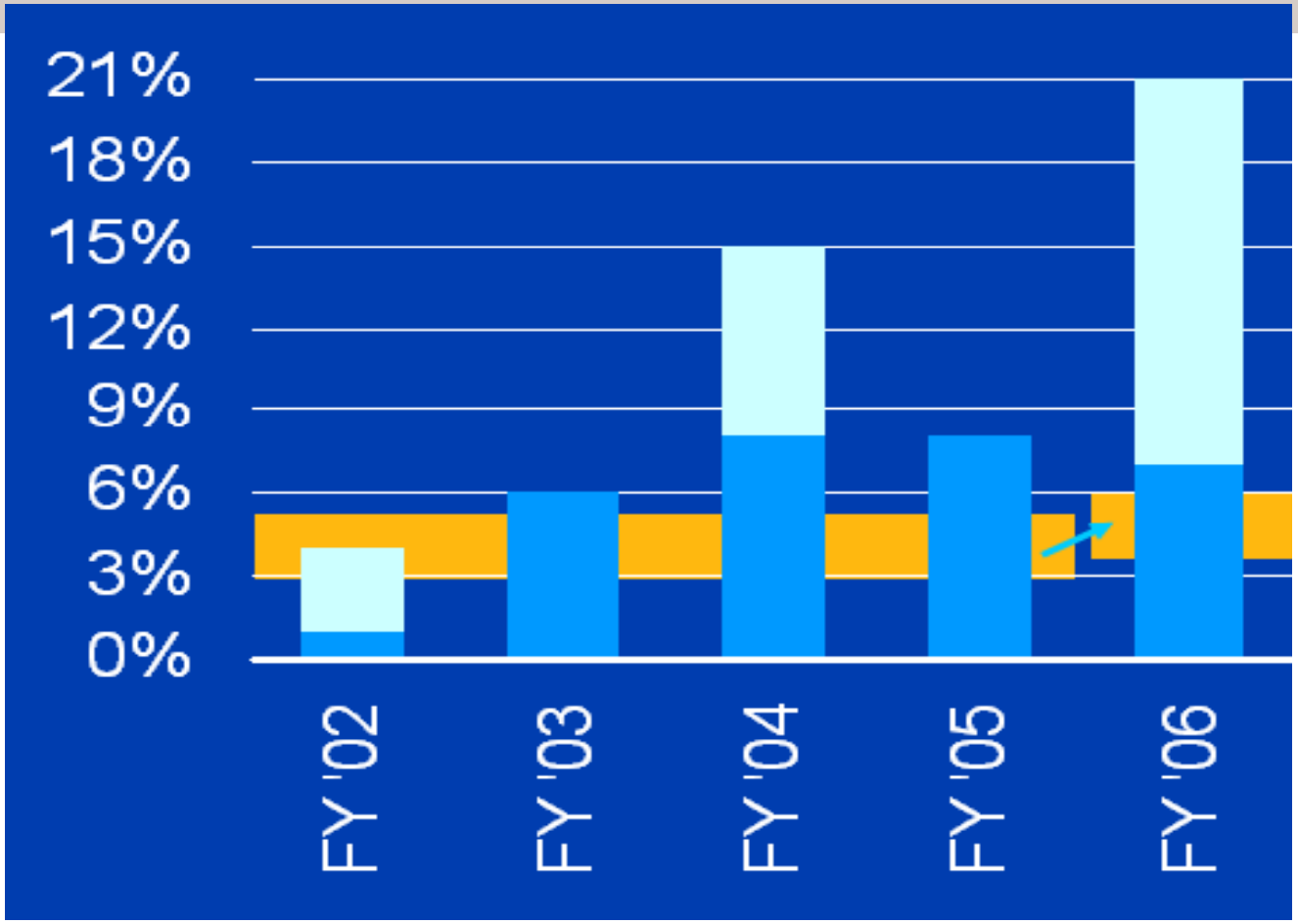
P&G from 2002 Onwards

- Something changed!
- Sales started to grow
- Stock-price improved

Sustained Sales Growth



Organic Target thru FY 2010 +4% to +6

- Acquisitions & Divestitures
- Organic

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P&G vs. Dow Jones

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How?

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A Call to Action . . .

“We will acquire 50% of our innovations from outside P&G”

A.G.Lafley

President and Chief Executive
The Procter & Gamble Company

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connect & develop

C&D vs R&D…

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50% from own labs

P&G

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50% through own labs

P&G

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Larry Huston:
VP of Innovation & Knowledge

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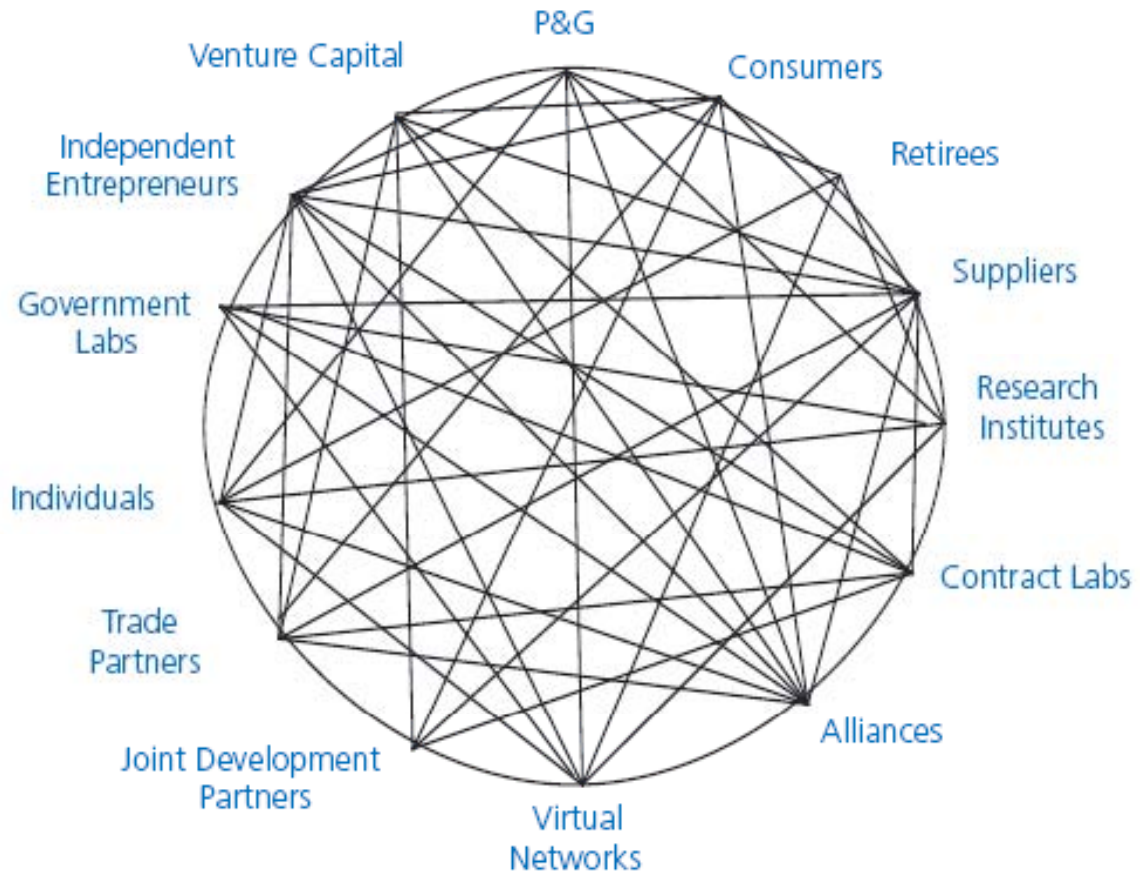
P&G's R&D Strengths

- Enzymes
- Polymers
- Surfactants
- Chelators and builders
- Bleach
- Perfumes and flavors
- Manufacturing and processes
- Product design
- Structural substrate, structured papermaking

Ecosystem



Source: P&G

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Chart does not include > 400 additional companies covered under CDAs.

P&G and China

- $10 million R&D facility in Beijing (1998)
- 180 local Chinese scientists
- Three floors of a building adjacent to Tsinghua University (China's best in science and technology)
- R&D mission: "to form mutually beneficial relationships with top institutions in China to gain access to Chinese problem-solving and research opportunities"

P&G and Pringles

- In 2002, brainstormed ways to make Pringles novel and fun
- Traditionally would have spent budget on developing a workable process, in-house plus ink-jet printer company
- Instead, created a technology brief that defined the problem and circulated throughout the global network
- Small bakery in Bologna run by a university professor
- Double digit growth for Pringles US

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Examples of C&D . . .

Mr. Clean Magic Eraser


Pringles Dips

SK-II Facial Mask

Swiffer Duster

Crest Scratch N Sniff Pkg.


Clean Autodry


SK-II Airtouch Foundation


Metamucil Capsules

Olay Vitamins


Pantene Sonic Comb


Tide Stainbrush

Crest New Tubes

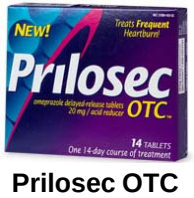

Kandoo Wipes

OTC Drug Registrations


Charmin Fresh Mates

Glad Press N Seal

PuR / Whirlpool Refrigerator Filters



Prilosec OTC

Clairol In-Store Shade Selector

Olay White Radiance Facial Mask


Pantene Hair Styling Products

Olay Daily Facial Pillows


Old Spice Shave Gel


Visia Beauty Imaging

Olay Regenerist

Crest Liquid Dentifrice

Open Innovation: Implementation

- Mindset
  - “Not invented here” to “Proudly found elsewhere”
- People
  - Idea scouts: technology entrepreneurs
- Tools
  - InnoCentive, YourEncore

P&G Technology Entrepreneur Network

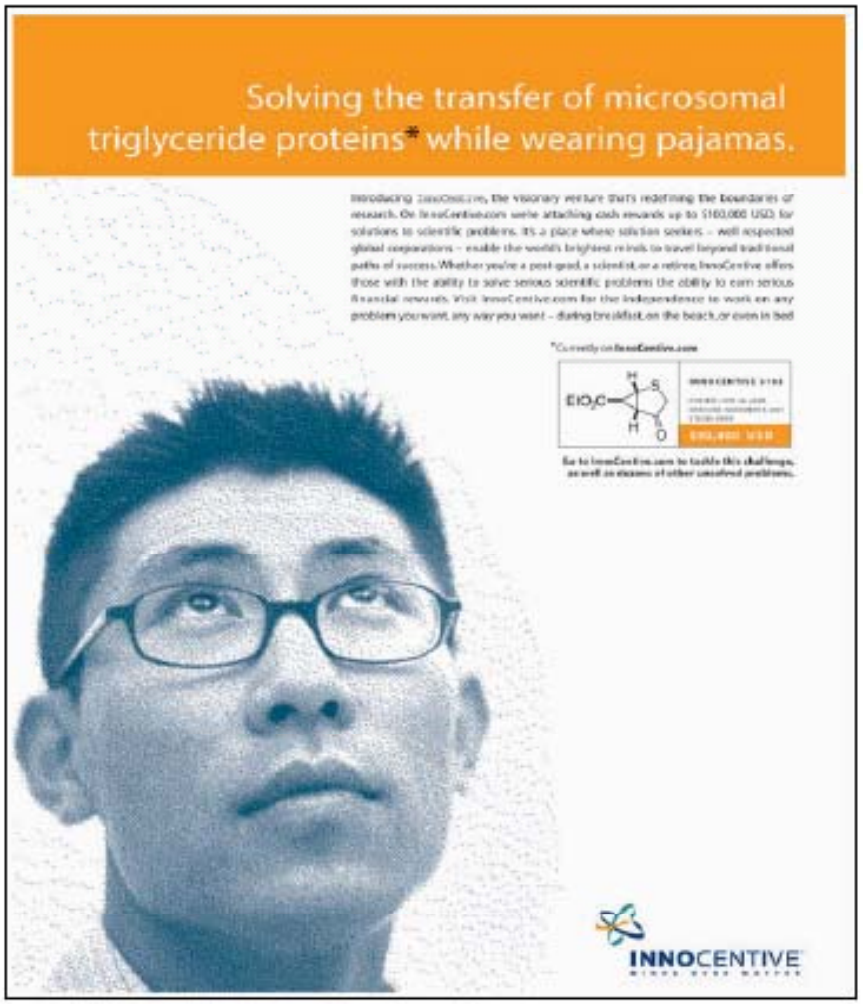
- >60 Technology Entrepreneurs Worldwide
- 1,100 Leads in the First Year
- 18,000 Fairs
- Product Pickup in 126 Countries

Connecting

- Six C&D nodes: China, India, Japan, Western Europe, Latin America and the US
  - 10,000 products identified
- Suppliers: 50,000 R&D staff at suppliers
  - Collaboration on solutions

InnoCentive

Reach the "Prepared Minds" Problem Solving e-R&D Network



- Proposal driven
- Access to new external solutions for P&G
- Access to 27,000 global chemistry problem solvers
- A source of new ideas and insights

Opportunities

Experts

FAQs

Member Companies

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How It Works

your encore™

People don't retire anymore,
they just go on to do other things.

Accelerating **Innovation**
Through **Proven** Experience

"Innovation happens through people...
whoever has the best people wins"

Brad Lawson
President & CEO
YourEncore™

Results of C&D

- By 2006, 52% of products had elements from external sources: up from 15% in 2000
- R&D productivity increased 60%; R&D spending down from 4.8% of sales in 2000 to 3.4% in 2005
- P&G launched 5 of the top 10 consumer products in the US in 2005
- Doubled share price

Not Just P&G

- Goldcorp: a mining company
  - Shared geological data for $575,000 prize money
  - 2 weeks, over 1,000 ideas, 80% yielded gold
  - $100 million business to $9 billion

- BBC backstage
  - Developer network uses BBC content feeds
  - Create new prototype services

Larry Huston's Words of Warning!

- Know what you're looking for
- External ideas need to fit internal strengths
- Never assume outside ideas are ever "ready to go"
- Don't underestimate internal resources needed
- Never launch without mandate from CEO

Competitive Advantage Through Collaboration

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Role of Universities in their Links with Business

- Provide education
- Increase the stock of codified knowledge
- Solve problems through contract research, technology licensing and faculty consulting
- Help form networks and gain legitimacy

Would You Have Invested in This Firm?

Microsoft Corporation, 1978

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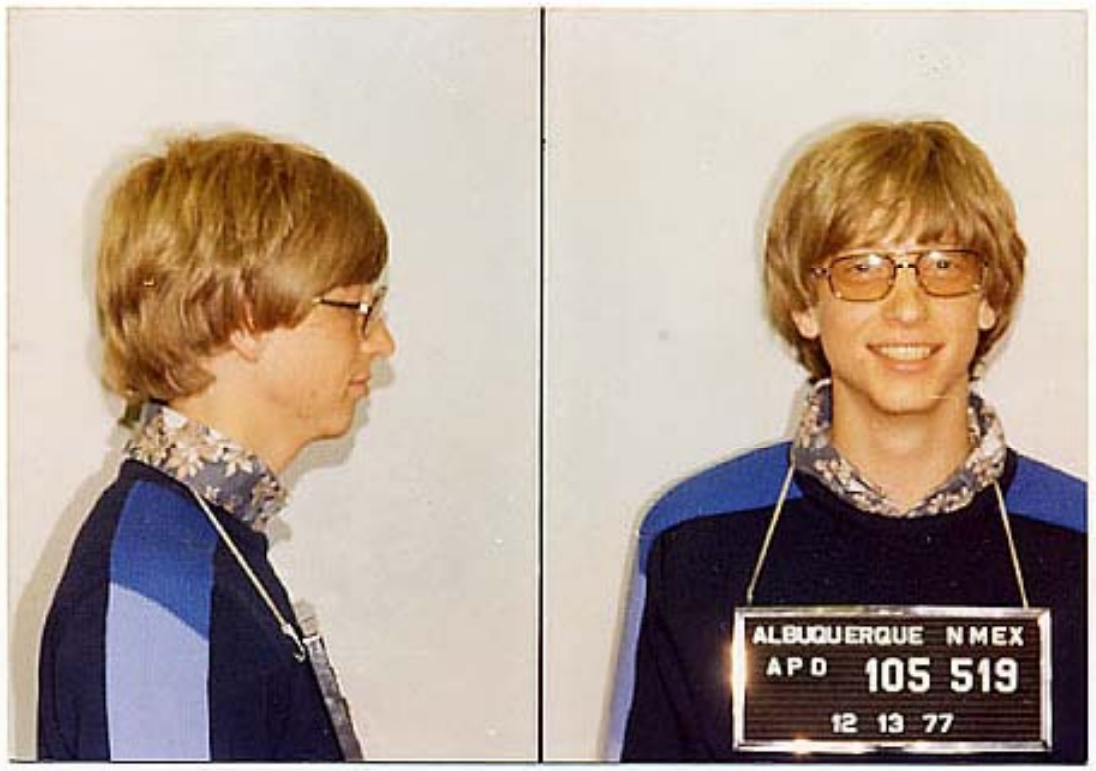
Especially if You'd Seen This?



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New Ventures and Product Innovation

- New ventures face a “liability of newness”
  - 20% of new ventures die within 1 year
  - Less than 50% survive more than 5 years

- Product innovations are an important way to reduce mortality

- Catch-22: product innovation needs resources; but to get resources, new ventures need products

The Fruits of Legitimacy: Why Some New Ventures Gain More From Innovation Than Others Do

Jaideep Prabhu
University of Cambridge

with

Raghunath Rao
University of Minnesota

Rajesh Chandy
University of Minnesota

Journal of Marketing (2007)

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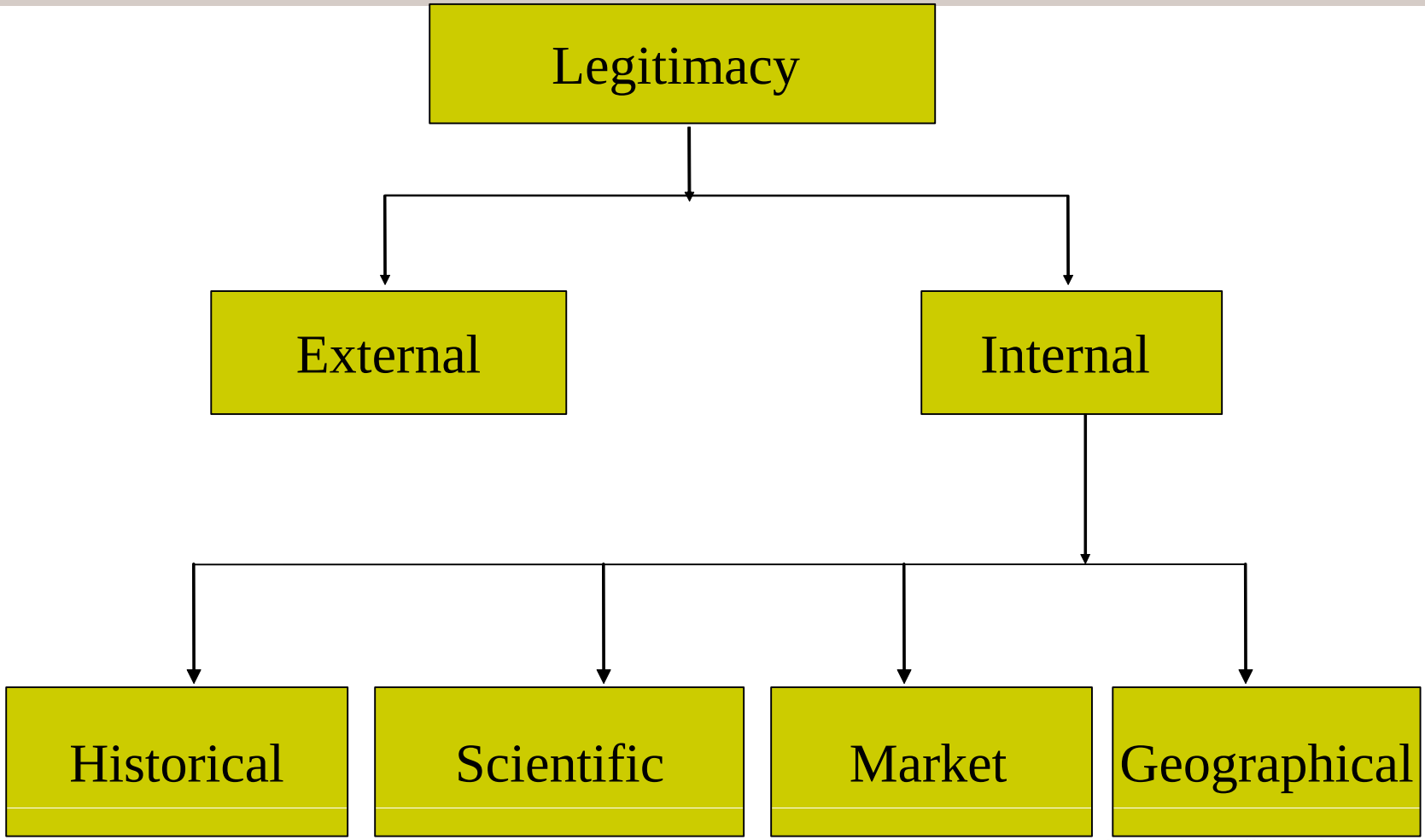
Types of Legitimacy



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Data

- Biotech drug introductions in the US
- Value added to firms' market capitalisation
- Estimated the impact on value added of different types of legitimacy

Findings

- Collaboration in general confers legitimacy
- Scientific legitimacy is an important source of legitimacy for new ventures
- New ventures with scientific legitimacy (star scientists on their boards) gain more from their new products than those without

India’s Performance on Tech Transfer?

- Only 0.8% of GDP on R&D (1.2% in China; upto 3% in developed countries)
- State-run labs account for 80% of total R&D spend (30% in the US and China and 12% in Japan)
- State-run labs: an insular culture and a rigid hierarchical structure?
- Indian universities less likely to systematically patent or transfer technology through spin-offs: archaic laws prevent academy-industry partnerships?

ICICI and IIT Chennai

- Low-cost biometric ATM:
  costs about Rs. 50,000

- Uses customer's fingerprints:
  user-friendly for rural India

- Developed over 18 months by IIT's Computer Science and Electrical Engineering Departments in association with Vortex India

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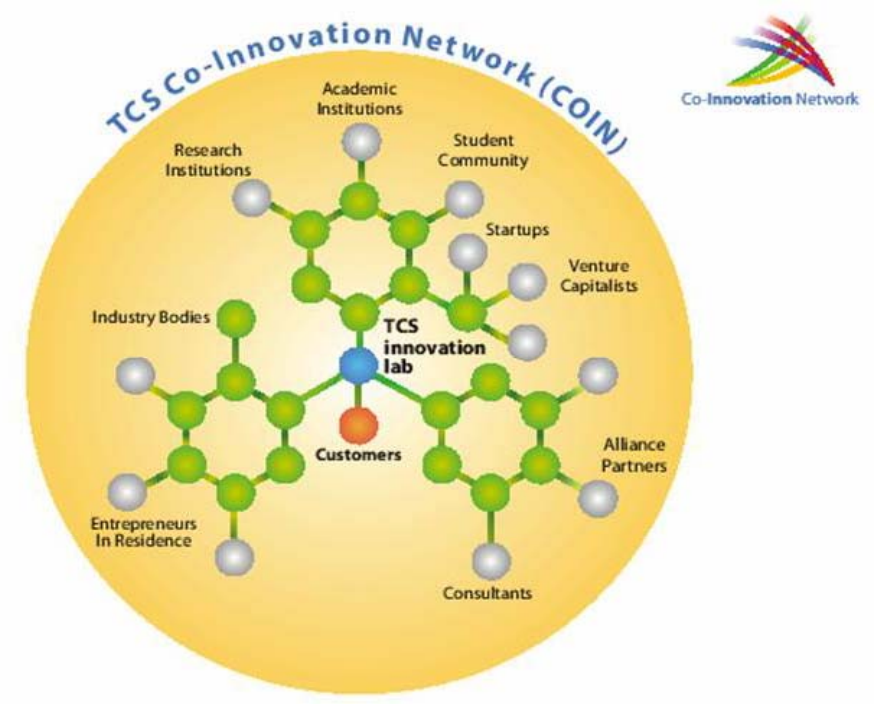
TCS' Co - Innovation Network (COIN)™



- COIN is anchored at TCS Innovation Labs
- Leverages shared synergies of internal & external expertise
- Ecosystem perspective to innovation

COIN™ – Some Examples

COIN ™Academic Alliances

- University of Wisconsin, Milwaukee
- University of Massachusetts, Amherst
- Georgia Tech, Atlanta
- MIT Sloan School, Cambridge, Massachusetts
- Stanford University
- IIT Bombay
- IIT Kharagpur
- IIT Madras
- IIT Delhi

COIN ™ VC Alliances

- US
  - Kleiner Perkins Caufield & Byers (KPCB)
  - Sequoia Capital
  - Norwest Venture Partners (NVP)
  - New Enterprise Associates (NEA)
- UK
  - Amadeus Capital Partners
  - Index Ventures
- Israel
  - Gemini Israel Funds
  - Pitango Venture Capital
- India
  - Helion Venture Partners
  - IDG Ventures India

COIN ™Strategic Partner Alliances

- Intel
- CISCO

Pipeline of Discussions –

- HP
- SAP
- EMC²

COIN ™ Startup Alliances

- Airtight Networks- *Infrastructure 2.0*
- Cassatt- *Utility Computing*
- Collabnet- *Virtual Collaboration*
- Data Synapse- *Grid Computing*
- Digite- *Collaboration Platform*
- Fortify- *Software Code Review*
- Intersystems- *Object Oriented Database*
- Optra- *Bio-Tech Image Processing*
- *iRise- Application Simulation*
- Jaczone- *Requirements Mapping*
- Kalido- *Data warehousing and management*
- Metricstream- *Enterprises Compliance*
- Oblicore- *Service Delivery Management*
- Olive- *Optical Character Recognition*
- Polaris Wireless- *Location Based Mobility*
- Device Anywhere- *Remote Mobile Application Testing*
- Kinaxis- *Response Management*

Forms of University-Industry Collaboration

- Single company, single university
- Consortium of companies and a university
- Hiring academics as consultants
- Funding employees on PhD or engineering programmes
- Networks or the licensing of technology

Guidelines for Partnering with Universities

- Be clear about your goals and expectations
  - Identify how a particular university can help you
  - Establish how the knowledge transfer will happen
- Choose appropriate brokers on both sides
  - People who are bilingual
  - Who understand how research outcomes will be embedded in your company
- Never assume that “applied research” will lead to business use

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Cambridge University Nobel Prizes

	Oxford	*Stanford*	*Cambridge*
Literature	5	2	2
Peace	5	0	2
Economics	9	11	7
Physics	5	3	29
Chemistry	10	3	19
Medicine	14	0	23

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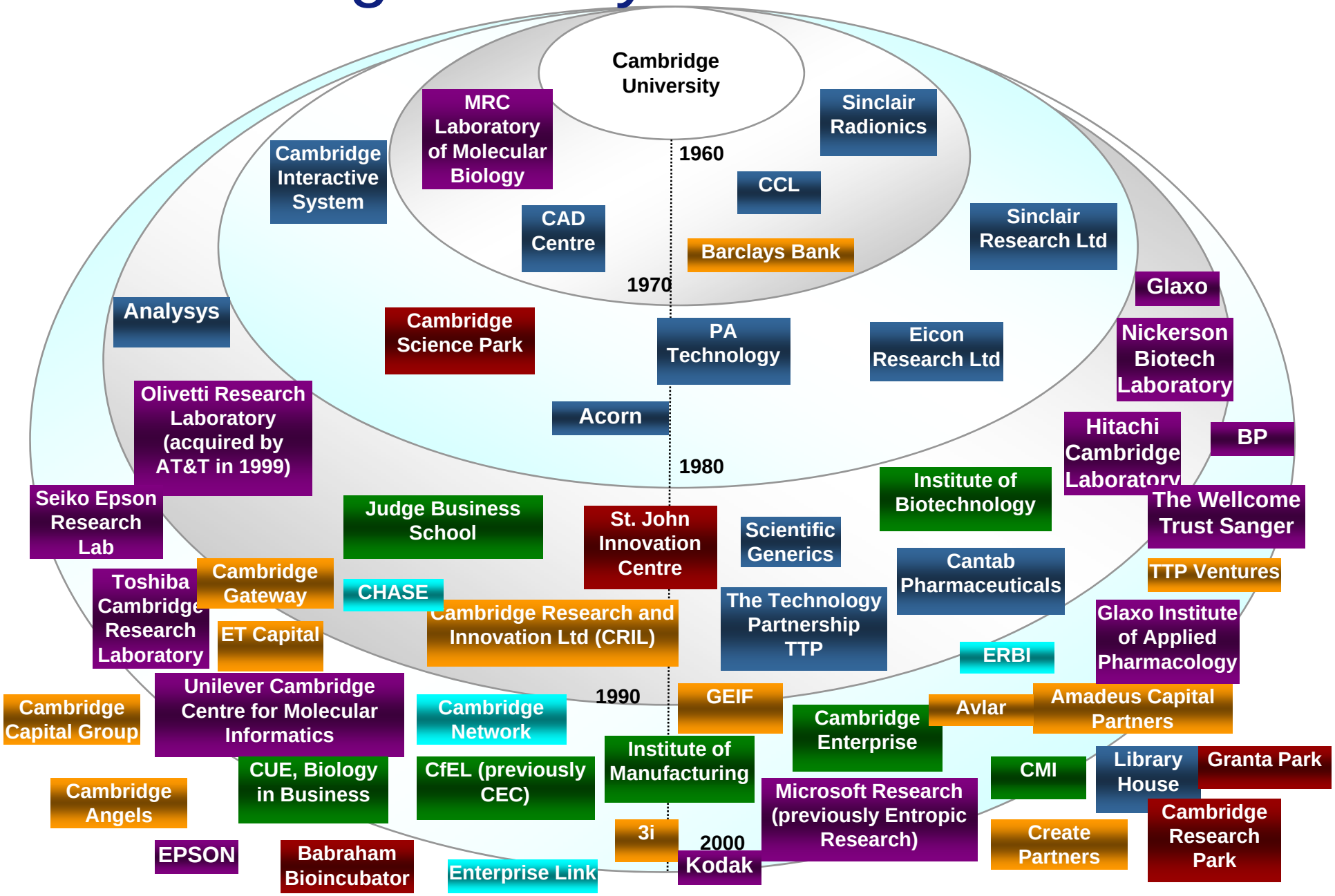
Discoveries and Inventions

- 1687 - Newton – fundamentals of nuclear physics and gravity
- 1812 - Babbage – first calculating machine
- 1897 - Thomson – electron – underpins electronics
- 1932 - Cockroft et al – atom first split
- 1934 - Whittle/von Ohain – jet engine – flights in 1939-1941
- 1949 - Wilkes – first stored programme computer
- 1953 - Watson and Crick – DNA structure
- 1958 - Sanger – Structure of insulin
- 1960 - Oatley – Scanning electron microscope
- 1984 - Milstein – Pioneered work on monoclonal antibodies

Cambridge Ecosystem



Centre for India & Global Business

- Based at Judge Business School
- At the heart of Cambridge University
- Vision: to become a Global Knowledge Platform on India and Innovation

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Goals

- Generate thought leadership
- Bring together business, academic and policy leaders from around the world
- Understand, promote and engage with innovators on India’s role in the global economy
- Three themes

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India as a Global Innovation Hub

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Indian Firms Going Global

Scott Eells for The New York Times

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Co-innovation with the Bottom of the Pyramid

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Summing Up

- What is innovation? Why does it matter?
- What is open innovation?
- University-Industry collaboration
- Cambridge and Business

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Take Aways

- Innovation is important to firms and economies
- Open innovation is a radical and powerful way to innovate
- Universities are an important component of open innovation networks
- Cambridge University has a rich tradition of working with industry: the Centre for India & Global Business

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Centre for India & Global Business

The Centre for India & Global Business at Judge Business School, University of Cambridge, acts as a platform for research and engagement with key partners in industry, academia and policy in India, the UK and across the world. Its primary focus is to understand, promote, and engage with innovators on India's leading role in the global knowledge economy.

The Centre is a wonderful example of the University of Cambridge's growing engagement with India. It plays a central role in enabling and sustaining links between business, academic and policy leaders from around the world...

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Research Update

BP PhD Scholar Sourindra Banerjee offers a counter-intuitive explanation for why some firms from emerging markets like India succeed at international expansion while others fail

Learn more about Sourindra's research

Latest News & Forthcoming Events

Innovation in India and China: How to Create Value from Emerging Markets
18-20 May 2009, Judge Business School, University of Cambridge
The Centre for India & Global Business is proud to partner with MSI to host a seminar that explores the rise of India and China as both fast-growing global markets and world-class sources of innovation.

Read the event agenda and registration details

http://www.india.jbs.cam.ac.uk/