



Open Innovation: The New Imperative For Creating and Profiting From Technology

A Company Perspective

Larry Crane, PhD

Topics

- What is Open Innovation
- Where does Open Innovation Fit
- Implementing Open Innovation
 - Defining needs
 - Starting networks
 - Ongoing activities
- How does Open Innovation affect your organization

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Innovation

- Innovation has many faces
 - Technology
 - Products
 - Marketing
 - Business models

Don't limit your thinking about Open Innovation just to technology. Creative innovation in business processes can also yield significant competitive advantage.

HP's Research Leader -- Prith Banerjee

“Open innovation recognizes that there are people outside your own organization who are as smart as you, or perhaps even smarter. In the past, research labs focused on closed innovation – they did the work on their own and then tried to funnel it to the businesses inside their own companies. The idea behind open innovation is that by working with others – PhD students at universities, entrepreneurs, startups, etc. – you can tap into their ideas.”

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Procter and Gamble

- In 2000, P&G's innovation process was mature, productivity flat, and expenses rising faster than revenue growth
- Couldn't see a way to meet P&G's strategic plan
- CEO A. G. Lafley made a bold challenge;
 - Acquire 50% of technology **outside** P&G
 - 7,500 researchers and **1.5 million *plus* outside resources**

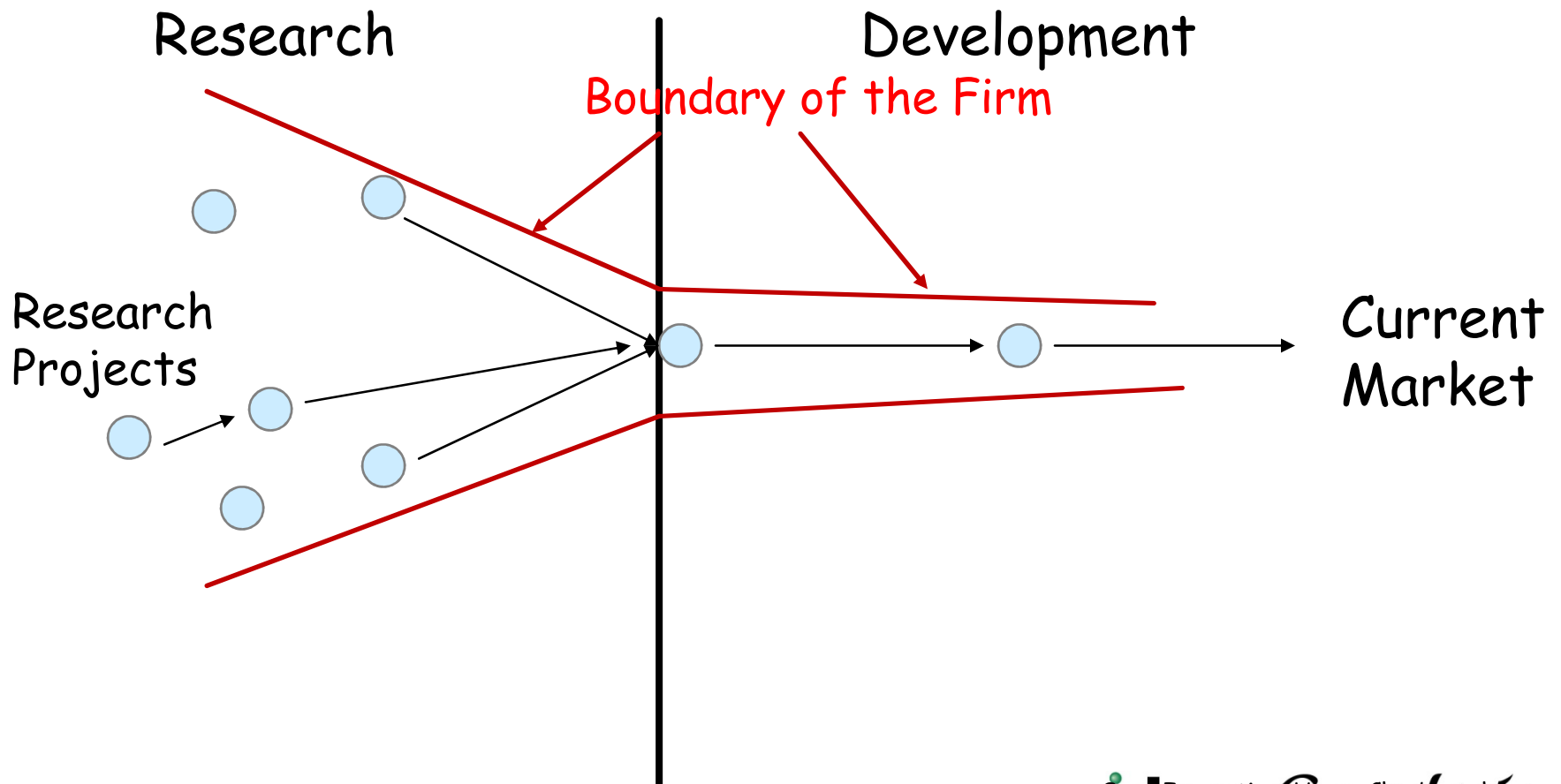
P&G results

By 2006

- 35% of launched new products had outside technology used
- 45% of products in the development pipeline had outside technology
- R&D productivity increased 60%
- R&D as percent of sales decreased
- In 2004-2006 launched over 100 new products

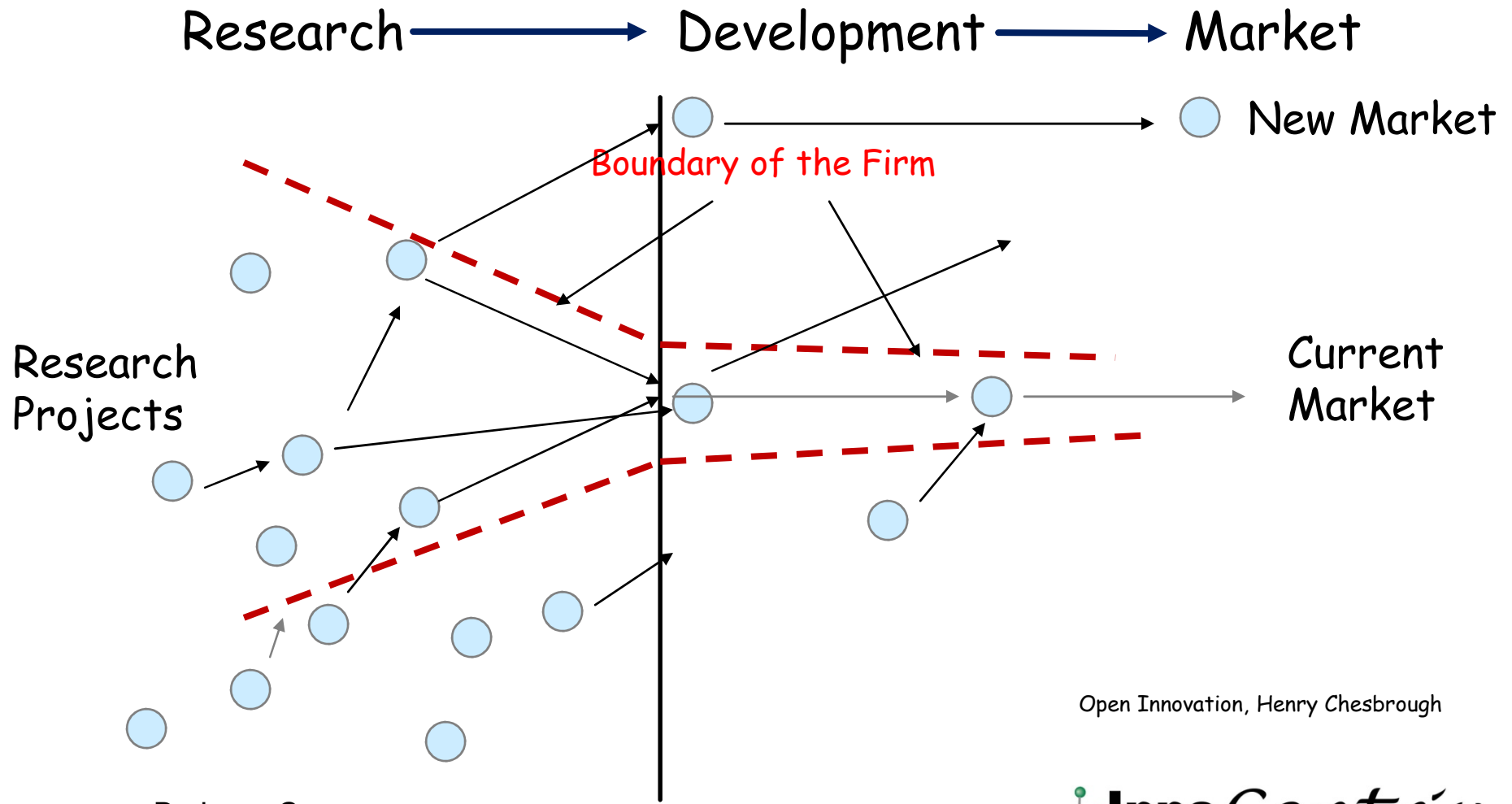
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The Closed Paradigm for Managing Industrial R&D



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The Open Innovation Paradigm for Managing Industrial R&D



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Open Innovation, Henry Chesbrough

Sources of Innovation

- Internal
 - Research and Development
 - Marketing, Sales
- External
 - Start-up companies
 - Universities
 - Consortia
 - Consultants

What Departments are Affected

- Research
 - Early stage technology
- Product Development
 - Converting technology to products
- Marketing
 - Finding ready to go technology
 - Finding new homes for internal technology
- Sales
 - Non-traditional products

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First Steps

- Assess technology/product needs
 - Define current areas of technical expertise
 - Define current market areas
- Establish Scientific Network
 - Experts in gap areas
 - Experts in current markets
- Develop Scientific Advisory Board
 - Assess state of current work
 - Suggest new areas of work

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Stimulating Open Innovation in Internal Research and Development

- New Hires
 - Different experiences
 - No prejudice on approaches
 - Stagnant staffing leads to less ideation
- Outside speakers
 - Technical talks/forums from leading experts
 - Direct and indirect topics
 - Stimulate thinking, cross fertilization

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Scientific Activities

- University Engineering Centers
 - Good sources of collaborative research
 - Often have programs from multiple universities
 - Input from competitors, customers and unrelated companies
 - Input into platform work
 - Directed research
 - Free non-exclusive license

Working with Universities

- Join consortium
 - Long term technology development
 - Influence, not dictate direction of work
 - Relatively low cost
 - Access to new graduates
 - No fee non-exclusive license to patents
- Directed research
 - Still longer term technology, but with specific targets added
 - Can negotiate exclusive license

Working with Start-ups

- Technology can be in different phases
 - Very early development-just founded, more a technology than a product
 - Early product-partially tested product, will still need significant work
 - Ready to sell
- Funding
 - Venture capital
 - Take direct stake in company
 - Collaborative development-fund a directed program, much like a university
 - IP needs to be worked out
 - Purchase specified product

Benefits of Open Innovation

- New source of technology
 - Directly through license
 - Indirectly through inspiration
 - Directly through contracted development of new products
- Access to new markets
 - New products to sell
 - Sell through other companies

Scientific Advisory Board Model



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Scientific Advisory Board-Responsibilities

- Provide general advice and support for R&D activities
- Advise about universities, institutes, professors and scientists, who have expertise in areas of interest
- Advise and provide contacts to companies with interesting technical profile with goal of adding new market areas
- Advise and provide contacts to companies with interesting technical profile as potential future supplier
- Inform about major trends in Science community and report in SAB
- Participates about 2 times/year in Scientific Advisory Board meetings

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Examples of Engineering/Materials Centers

- University of California, Santa Barbara
 - Materials Research Lab
- Northwestern University
 - NSF Materials Research Center
- Virginia Tech
 - Macromolecules and Interfaces Institute
- University of Minnesota
 - IPRIME

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Lead Customers

- Customers that lead technology/market
 - Help define roadmaps
- Collaborative research
- Cost is part of “normal” development
 - Assign dedicated resources to project

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Example 1

Process for PCB Fabrication

- Primarily patents covering methods and structure
 - Process based
 - Patents cover process
 - No materials covered
- High internal cost
 - Needs process development for customers
 - Materials development
 - Requires some capital investment, significant investment in manpower

Example 2

Self Repairing Coatings/Adhesives

- University based technology
 - Just incorporated-very early stage
 - Materials based
 - Not currently looking for funding
- Work collaboratively to develop early products
 - First to market with technology
 - No IP ownership for investing company
 - Purchase materials

Established Companies

- Fill in product line
 - Bring developed products into portfolio
 - May need some further development to optimize
 - Low overall investment
- License to small company
 - Source of revenue for unused technology
 - Generally not a competitive situation
 - Outlet to test new markets

Open Innovation and Your Organization

- Not Invented Here
 - Strongest impact on research and development organization
 - Fear of losing job
 - Why is outside better than inside
 - Make finding OI part of daily routine
- Long term commitment
 - Milestones are okay
 - Expecting results in a year is not
- Need to have committed source of funding
- Need to have stakeholder in the outcome

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What Does it Take to be Successful

- Upper Management Support
 - Commitment to making cultural change
 - Manage NIH factor
- Dedicated Personnel Assigned
 - Best done with as unique assignment
 - Cultivate stakeholders within existing organization for any work started
 - Success needs someone to be vested in outcome
- Dedicated source of Funding
 - Venture Capital
 - Directed research money

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