

Introduction and Overview of Open Innovation



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IASP European Division Workshop

“The most efficient way to organize an Open Innovation Marketplace”



**POZNAN SCIENCE
AND TECHNOLOGY PARK**

Adam Mickiewicz University Foundation

*Poznan Science and Technology Park
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Why important?

- “No matter who you are, most of the smartest people work for someone else.”

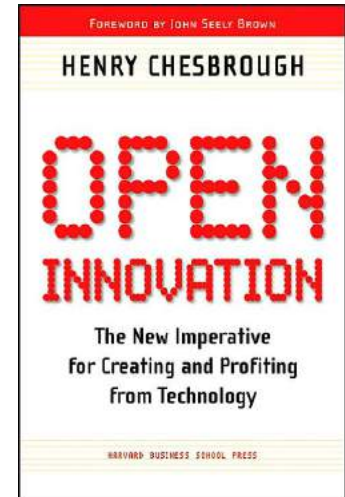


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Where do we come from?

- “Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology”
- “Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.”



Where are we?

- Lots of buzz & fuzz
 - What open innovation is (not)
- Publications
 - Books, articles and special issues
- Job openings
 - Manager/Director/VP of Open Innovation

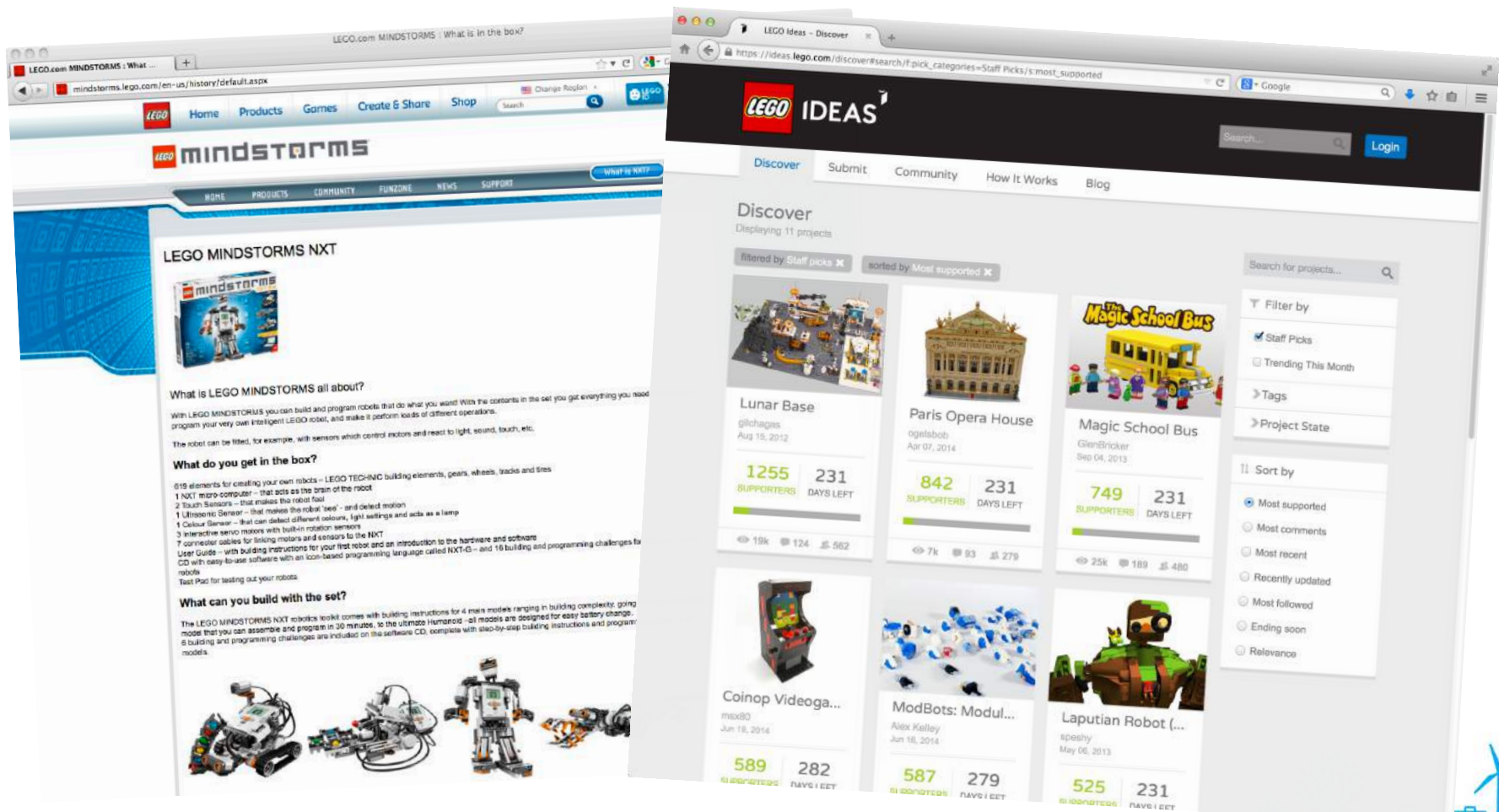


Example of Philips

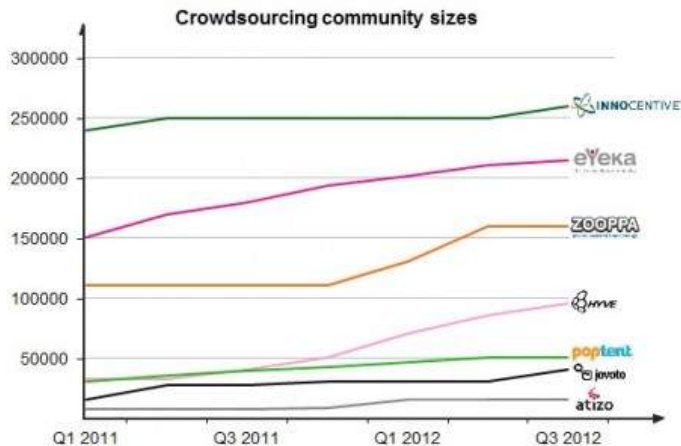
- “We engage in two kinds of Open Innovation.
 - Through “inside-out” innovation, we make our **skills and resources available to the outside world**. For example, we regularly undertake contract research for external parties, provide technical facilities and support, and assist with IP licensing.
 - Through “outside-in” innovation, we **draw on the capacities of individuals, organizations, and even small start-ups from around the globe**. By providing a broader window on the world of health and well-being, these strategic partners help us gain new insights and access to new technologies.”



Example of LEGO



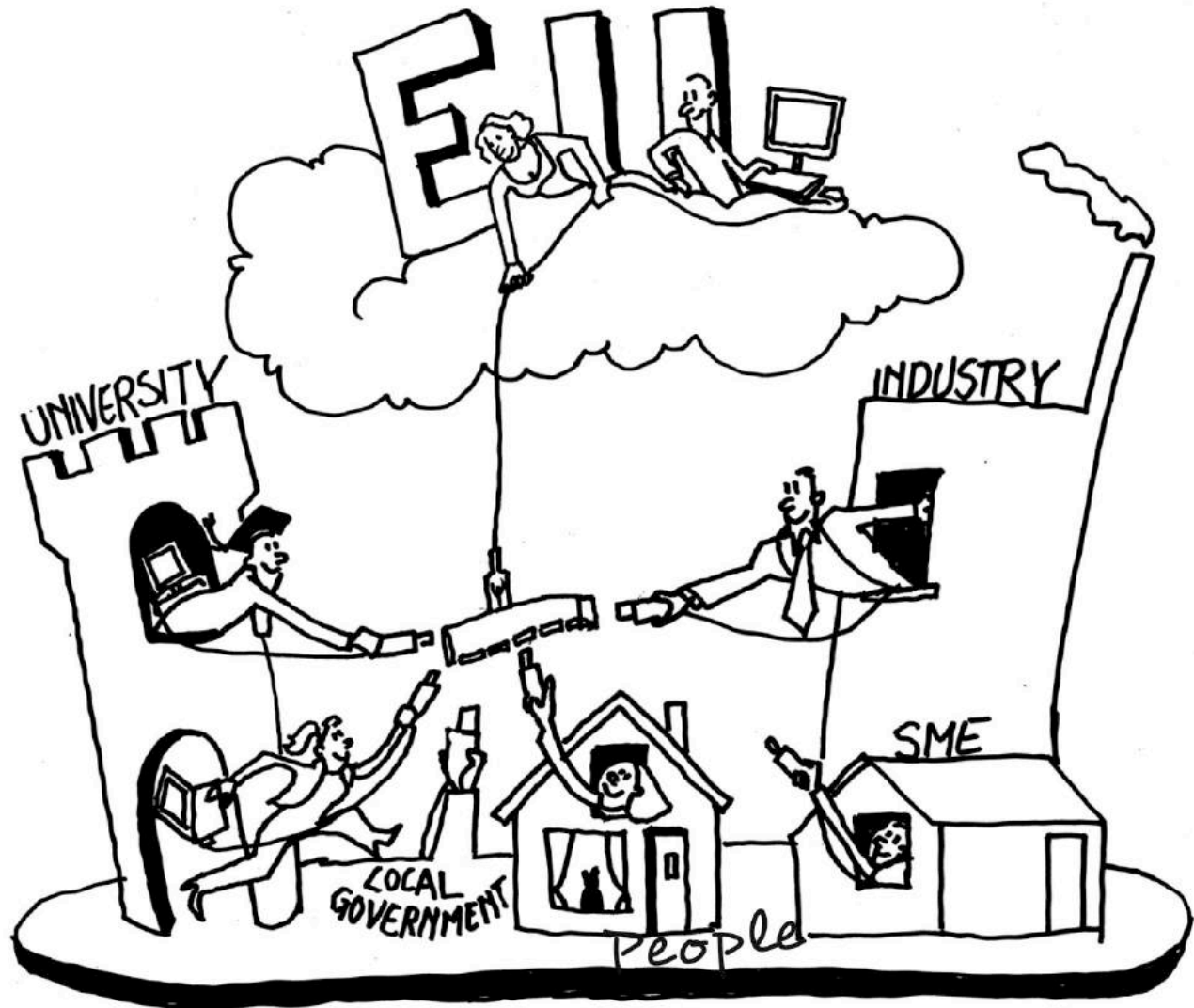
Crowdsourcing & intermediaries



InnoCentive

- 300,000+ Solvers
- Nearly 200 countries
- 13+ million Solver Reach
- Challenges: 1,650+
- Total Solution Submissions: 40,000+
- Awards Given: 1,500+
- Total Award Dollars Posted: \$40+ million
- Range of awards: \$5,000 to \$1+ million
- Premium Challenge Success Rate: 85%

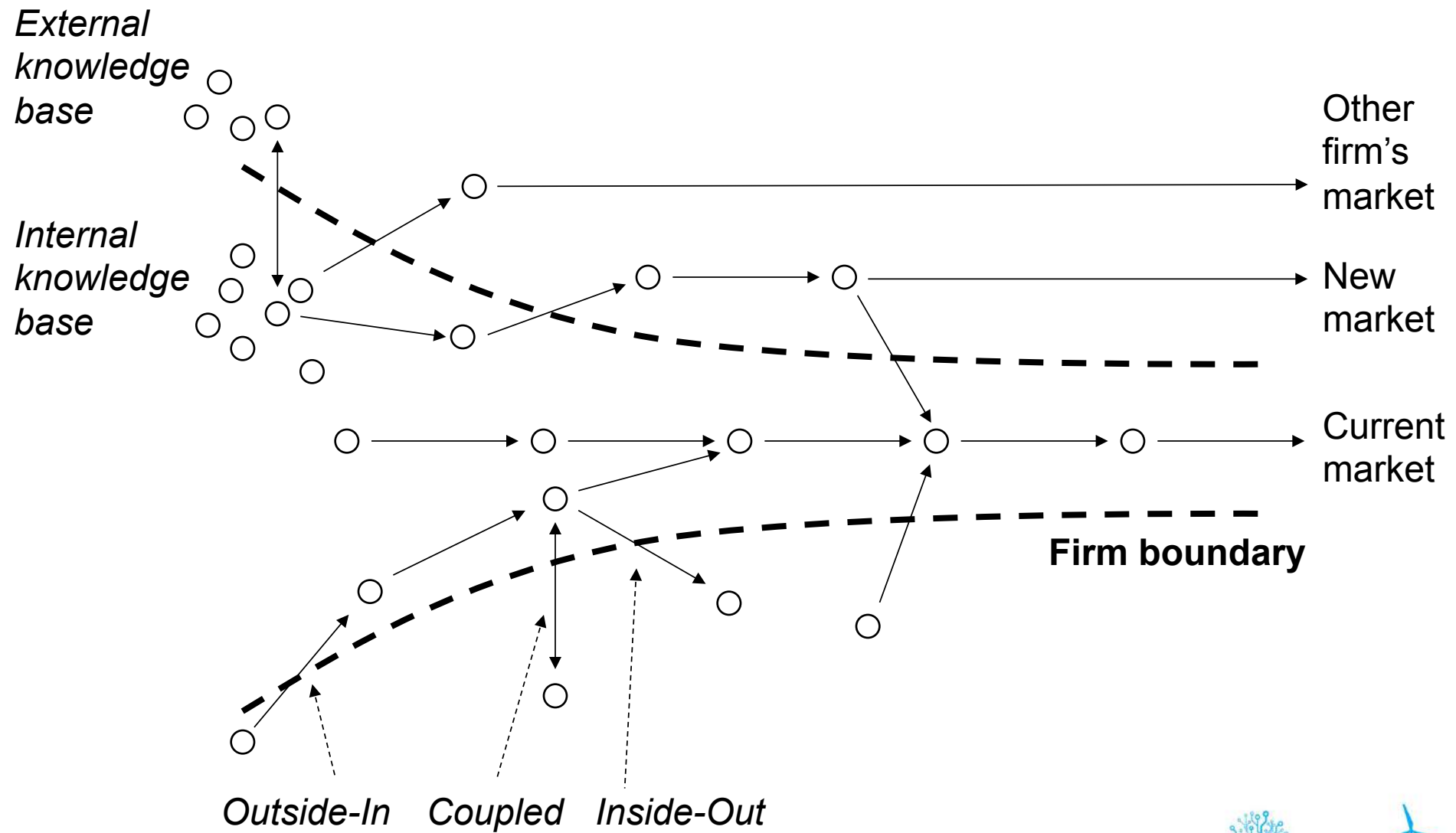




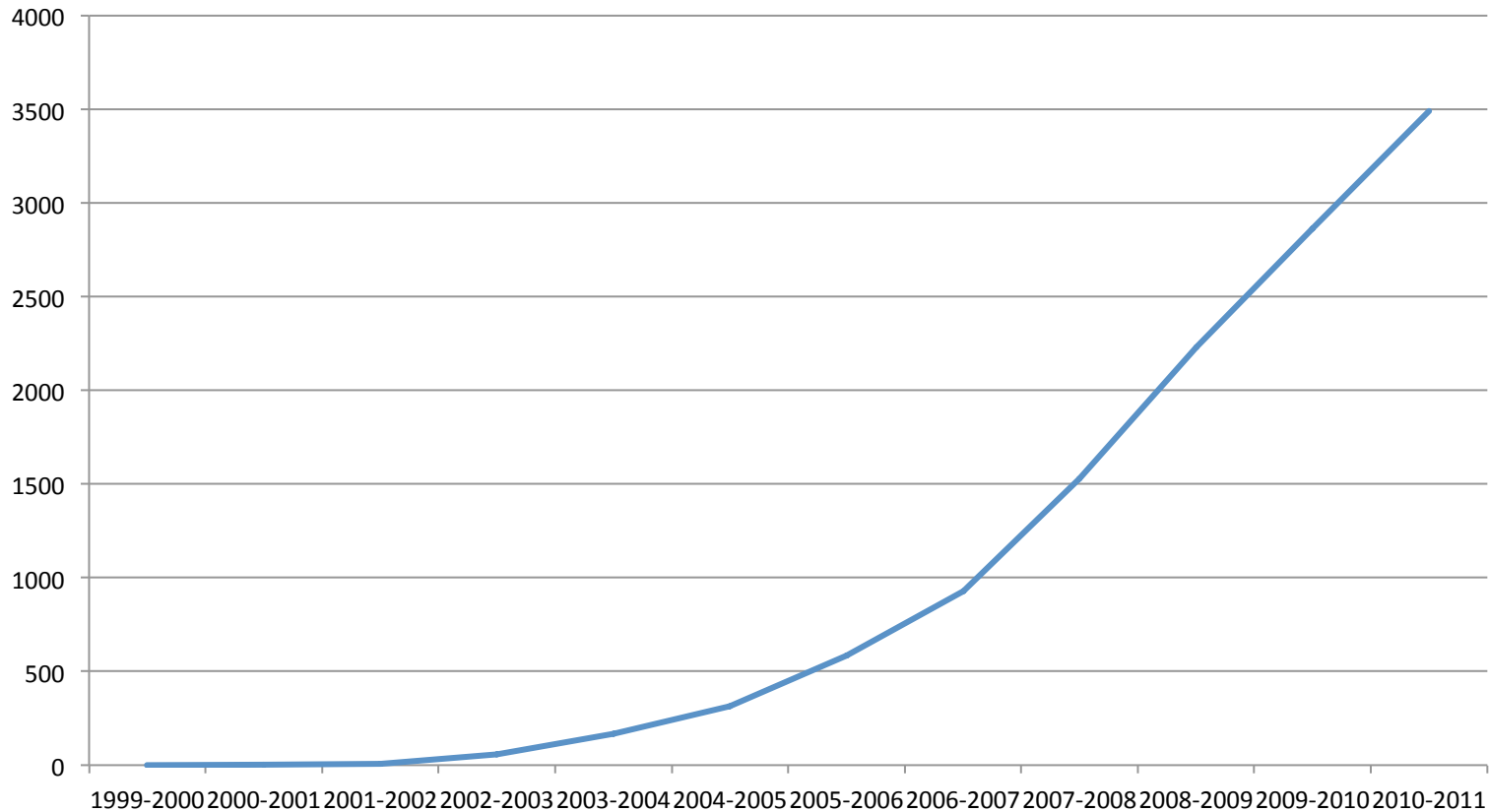
Defining open innovation

- “A distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization’s business model.”





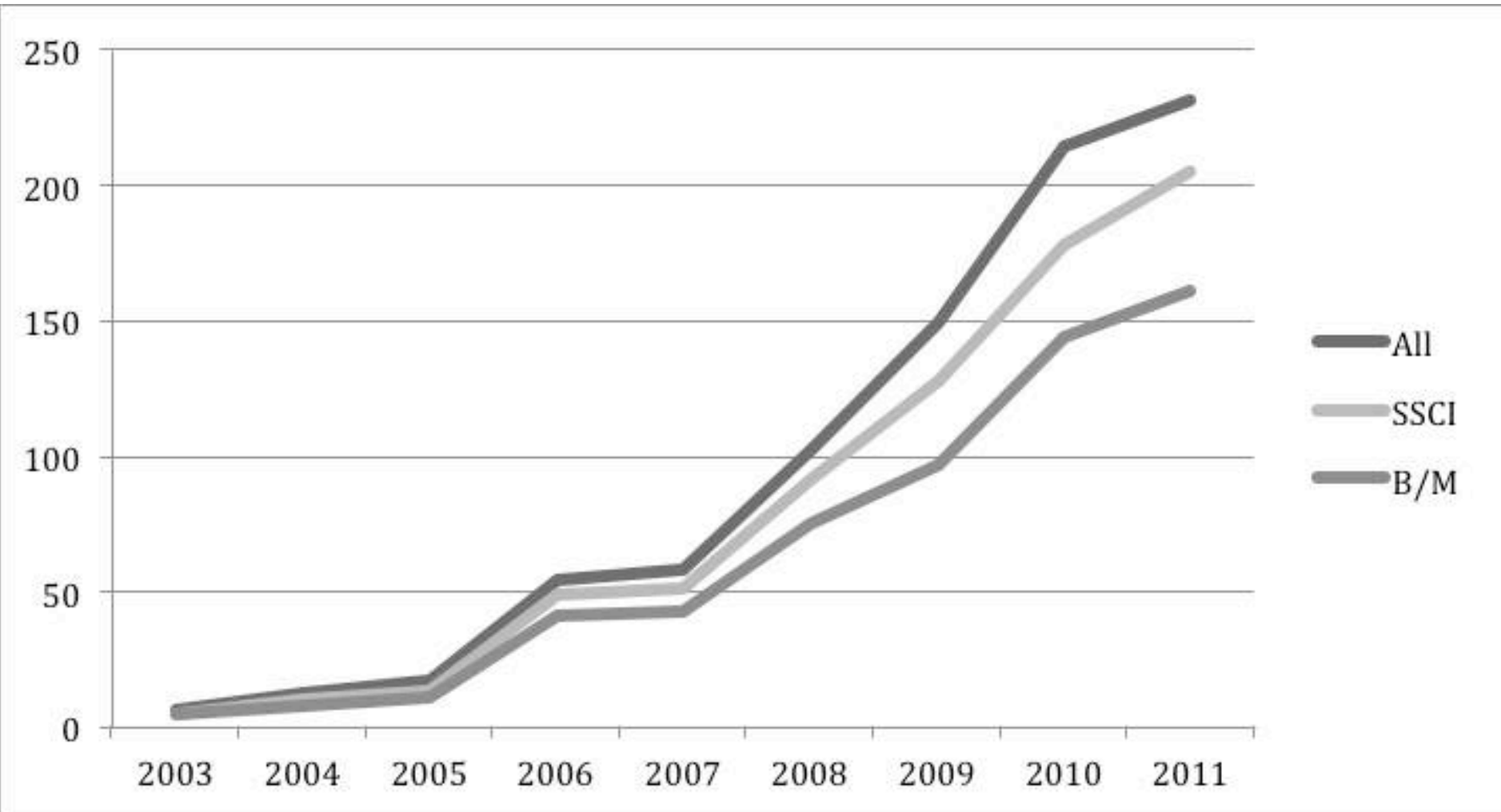
Open innovation in Google Scholar



Note: search criterion = "open innovation" OR cite Chesbrough (2003)



Open innovation in Web of Science



Notes: search criterion = "open innovation" in title, abstract or keywords OR cite Chesbrough (2003);

Total=941; SSCI=828, B/M=659

SSCI=Social Science Citation Index; B/M=Business & Management

Chesbrough & Bogers (2014)

Field (Web of Science Category)	Number of articles
Management	603
Business	338
Industrial Engineering	173
Operations Research & Management Science	129
Planning & Development	123
Economics	72
Engineering, Multidisciplinary	47
Information Science & Library Science	43
Geography	32
Environmental Studies	29
Computer Science, Information Systems	26
Urban Studies	22
Chemistry, Multidisciplinary	20
Multidisciplinary Sciences	20
Engineering, Electrical & Electronic	15
Computer Science, Software Engineering	14
Public Administration	14
Computer Science, Interdisciplinary Applications	13
Pharmacology & Pharmacy	13
Computer Science, Artificial Intelligence	11
Engineering, Manufacturing	11
Chemistry, Medicinal	10
Computer Science, Theory & Methods	10
Biotechnology & Applied Microbiology	9
Food Science & Technology	9
Telecommunications	9
Education & Educational Research	8
Social Sciences, Interdisciplinary	8
Applied Psychology	7
Sociology	7
Art	5
Biochemistry & Molecular Biology	5
Engineering, Chemical	5
(Fields with 1-4 publications)	(105)
Total	1965

Scientific fields
where open
innovation
research has been
published



Example: Pharmacology & Pharmacy

- Nature Reviews Drug Discovery:
 - Is open innovation the way forward for big pharma?
- Drug Discovery Today:
 - The role of users in innovation in the pharmaceutical industry
 - Open Innovation: share or die ...
- Clinical Pharmacology & Therapeutics:
 - Can Open-Source Drug R&D Repower Pharmaceutical Innovation?
 - Open-Minded to Open Innovation and Precompetitive Collaboration
- European Journal of Pharmaceutical Sciences:
 - Current trends in the pharmaceutical industry - A case study approach
- Acs Medicinal Chemistry Letters:
 - An Invitation to Open Innovation in Malaria Drug Discovery: 47 Quality Starting Points from the TCAMS
- Future Medicinal Chemistry:
 - Open innovation: an answer for neglected diseases



Keywords in open innovation research



Word cloud based on author keywords, top-50 words excluding “open” and “innovation”

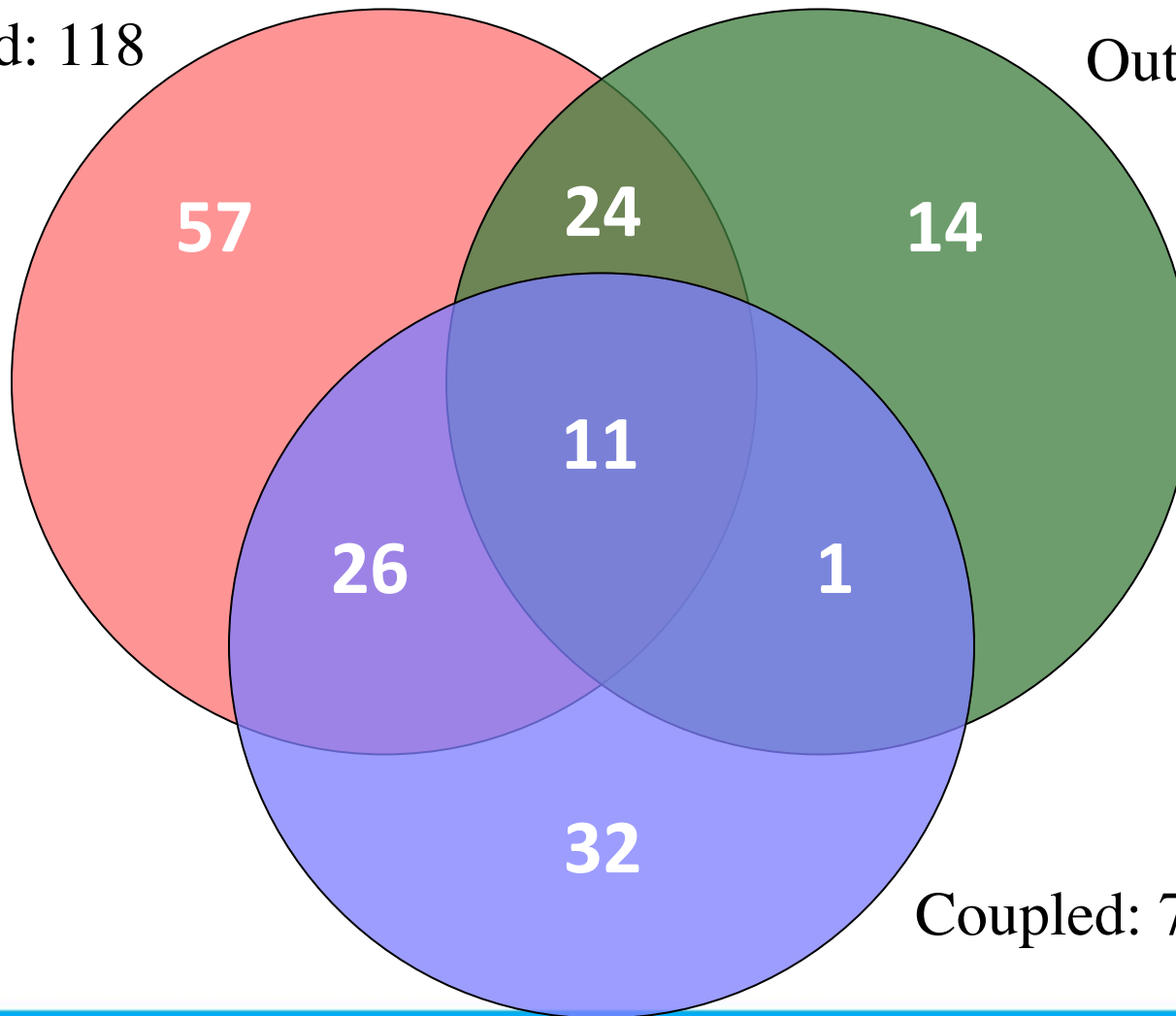
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UNIVERSITY OF SOUTHERN DENMARK.DK

Chesbrough & Bogers (2014)

Systematic review of open innovation

Inbound: 118

Outbound: 50

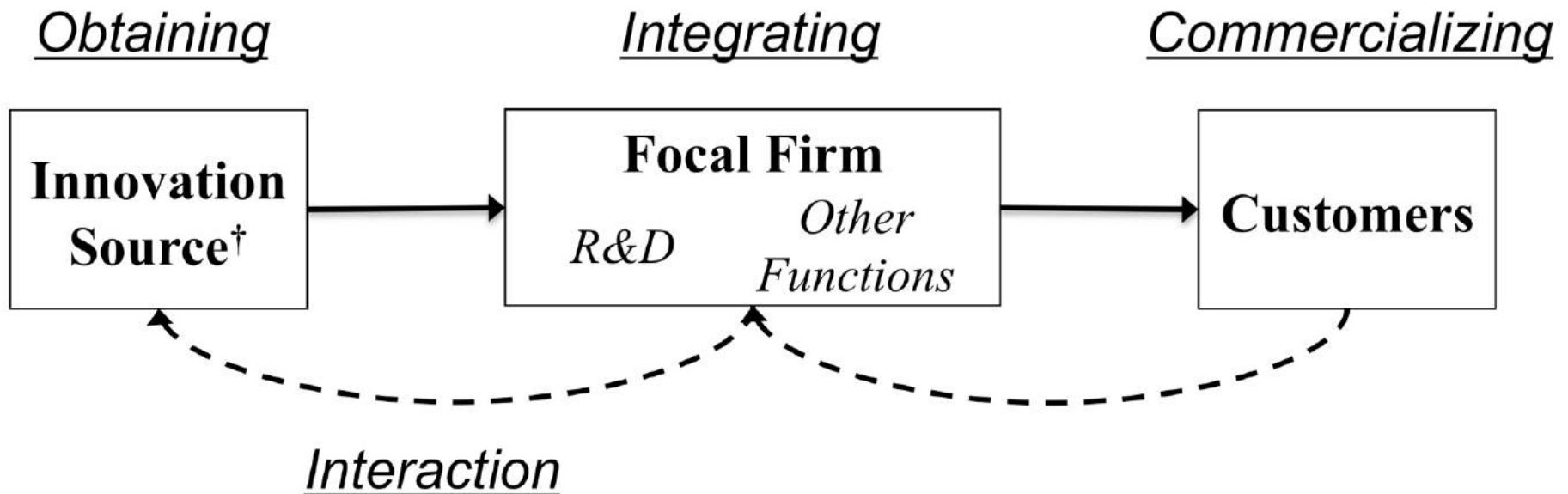


Coupled: 70



Process model

A four-phase process model for profiting from external sources of innovation



† Sources may include suppliers, rivals, complementors and customers.



Phase	Category	Open Innovation Topic
1. Obtaining	Searching	<ul style="list-style-type: none"> • Sourcing • Technology scouts
	Enabling/ Filtering	<ul style="list-style-type: none"> • Limits • Brokerage • Contests • Intermediaries • Toolkits • Platforms • Gatekeepers
	Acquiring	<ul style="list-style-type: none"> • Incentives to share • Contracting • Nature of the innovation
2. Integrating		<ul style="list-style-type: none"> • Absorptive capacity • Culture and “Not Invented Here” • Incentives to cooperate • Competencies
3. Commercializing		<ul style="list-style-type: none"> • Commercialization process • Value creation • Value capture
4. Interaction	Feedback	<ul style="list-style-type: none"> • R&D feedback • Customer/market feedback
	Reciprocal	<ul style="list-style-type: none"> • Co-creation • Communities • Value networks



1. Obtaining innovations

- Best covered of the phases
 - Searching, enabling, filtering, acquiring
 - Sourcing particularly well covered
- Most popular area: sources of innovation
- Often about external *knowledge* and not external *innovations*
- Limited focus on limits/costs



2. Integrating innovations

- Considers organizational capabilities and culture
 - Absorptive capacity
 - Over-researched, ill-measured?
 - NIH is mentioned, not well measured
 - Implicit assumptions
- Integration seems to be a black box
 - Are new competencies needed?
- Limited discussion of open innovation as substitute for R&D



3. Commercializing innovations

- Lots of value creation
 - Often measured using NPD metrics
 - Not as much value capture
 - Cf. business model
- Assumes similar commercialization process for external and internal innovations
 - How do firms differ in external innovation commercialization capabilities?



4. Interaction mechanisms

- Beyond the linear model
 - Reverse paths
 - Feedback mechanisms
 - Information flow upstream
 - Reciprocal processes
 - Ongoing interactions
 - Includes co-creation, networks, communities
- Research relatively scarce



Gaps and opportunities (1)

- Use of business model
 - Particularly value capture
 - Measure strategic objectives/success
- Examining the entire process
 - More on back end of process
 - Consider process end to end



Gaps and opportunities (2)

- Clarity of innovation construct(s)
 - Antecedents, processes & outcomes
 - “Innovation” not same as antecedents
- Move beyond linear model
 - Cf. “outbound” & “coupled”
- Limits and moderators
 - Decreasing returns, costs & risks (failures?)
 - Interaction effects
 - Within-firm processes/effects/decisions



Unit of analysis	Possible research object
Intra-organizational	Individual Group/Team Project Functional area Business unit
Organizational	Firm Other (non-firm) organization Strategy Business model
Extra-organizational	External stakeholders: individual, community, organization
Inter-organizational	Alliance Network Ecosystem
Industry	Industry development Inter-industry differences
Regional innovation systems	Local region Nation Supra-national institution
Society	Citizens Public policy



The most efficient way to organize an Open Innovation Marketplace?

- It is complicated!
- How to (purposefully) manage knowledge flows for successful open innovation?
 - Antecedents, processes & outcomes
 - Contingencies & moderators
 - More attention to costs & downside
 - Interactions & feedback loops
 - Multi-level framework
 - Need to for better measures





Thank you for your attention!

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 @bogers



Reference List

- Chesbrough, H. 2003. ***Open Innovation: The New Imperative for Creating and Profiting from Technology***. Boston, MA: Harvard Business School Press.
- Chesbrough, H. 2006. Open innovation: A new paradigm for understanding industrial innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), ***Open Innovation: Researching a New Paradigm***: 1-12. Oxford: Oxford University Press.
- Chesbrough, H., & Bogers, M. 2014. Explicating open innovation: Clarifying an emerging paradigm for understanding industrial innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), ***New Frontiers in Open Innovation***: 3-28. Oxford: Oxford University Press.
- West, J., & Bogers, M. 2014. Leveraging external sources of innovation: A review of research on open innovation. ***Journal of Product Innovation Management***, 37(2): 814-831.
- West, J., Salter, A., Vanhaverbeke, W., & Chesbrough, H. 2014. Open innovation: The next decade. ***Research Policy***, 43(5): 805-811.

