Geography and open innovation: Recent findings, open ends and new departures

Keld Laursen
Department of Innovation and Organizational Economics
Copenhagen Business School
http://www.druid.dk/laursen/
E-mail: kl.ino@cbs.dk
Open Innovation (i)

• The early Schumpeterian model of the lone entrepreneur bringing innovations to markets has been superseded…
• …by a rich picture of different actors working together in iterative process of trial and error to bring about the successful commercial exploitation of a new idea
• These newer models of innovation have highlighted the that the innovators rely heavily on their interaction with lead users, between different functional departments within the firm and with a range of institutions inside the broader innovation system
Open Innovation (ii)

• A recent example, Chesbrough (2003):
  • The advantages that firm’s gain from internal R&D expenditure have declined.
  • Accordingly, many innovative firms now spend little on R&D
  • Yet they are able to successfully innovate by drawing in knowledge and expertise from wide range of external sources.
What is new?

- Schumpeter mark I (1912) — probably the only “closed” innovation model!
- Schumpeter mark II (1942)
- Earlier contributions:
  - Nelson (1959);
  - Linder (1961);
  - Rosenberg (1963);
  - Rothwell et al (1974);
  - von Hippel (1976, 1988, 2005);
  - Rosenberg (1982);
  - Lundvall (1984, 1988);
  - Pavitt (1984);
  - Cohen & Levinthal (1990);
  - Baum, J., Calabrese, T., & Silverman, B. S. (2000)
- + literally hundreds of additional contributions in innovation studies, strategic management and in economics.
What is new?

• So the idea of the importance of “distributed” or “open” innovation processes is certainly not new.

• What is new is:
  • That there are drivers (stronger labor mobility, “software movements” & venture capital) that accelerate the process at this point in time.
  • That a firm should think about its degree of openness not only to specific external sources of innovation, but has to manage a portfolio of external sources (Laursen & Salter, 2006, SMJ).

• A recent literature in management looks at external knowledge sourcing and geography
The “geography turn” in management research

Geography and open innovation


• Laursen, Masciarelli & Prencipe (2010), Regions matter: how regional characteristics affect innovation and external knowledge use.

• Laursen, K., T. Reichstein and A. Salter (forthcoming), 'Exploring the Effect of Geographical Distance and University Quality on Industry-University Collaboration in the UK', Regional Studies.
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- Geography may have a number of effects on knowledge exchange between firms:
  - Knowledge gain ("inward spillover")
  - Knowledge loss ("outward spillover")
- Alcácer and Chung (2007)
  - Finds that geography in the form of location choice matter in this regard.
  - They differentiate between three knowledge sources—industry, academia, and government. They produce technical knowledge and associated innovations that vary in two dimensions—basicness and appropriability.
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• Looking at first-time entrants into the United States from 1985 to 1994, Alcácer and Chung find differences in firms’ location strategies:
  • While on average firms are indifferent to governmental and industrial activity, and attracted to locations with academic activity, more nuanced and distinct results emerge when firm heterogeneity is introduced:
    • Less technically advanced firms favor locations with any level of academic activity and high levels of industrial innovative activity
    • Technically advanced firms are attracted only to locations with high levels of academic activity but avoid economic areas with industrial activity. Given that laggards also like academia, by only choosing locations thick with academic activity, leaders can get the greatest possible gains for themselves. By steering away from industrial activity, leading firms avoid competitors.
  • These differences in strategies suggest that firms consider net spillovers—not only gains from inward knowledge spillover but also the potential cost of outward spillovers.
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• Unanswered questions:
  • What about location close to suppliers and users?
  • The interaction between geography and appropriability mechanisms, such as patents?
  • Licensing behavior and location choice?
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- Most studies infer spillovers but do not address the mechanism by which spillovers occur.
- The recent paper by Laursen, Masciarelli & Prencipe suggests that a key mechanism is social capital—particularly in the form of social interaction.
- Regional social capital is defined as the localized norms and networks that enable people to act collectively within a region (cf., Woolcock and Narayan’s 2000: 226).

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• Insights from the relational view of the firm and social capital theory is used to advance the thesis that social capital is a geographically-constrained phenomenon that enhances firms’ abilities to introduce innovations.

• The distributed or open (Chesbrough 2003) nature of the innovation process derives from its information and knowledge requirements: innovation requires combinations of a variety of new and existing knowledge bases located inside and outside the focal firm.

• We develop the hypothesis that high levels of geographically bounded social capital, in terms of social interaction in the home region.
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• Hypotheses:
  • H1: Firms operating in regions with high levels of social capital in terms of social interaction are more likely to introduce product innovations (through the localized connectivity and trust effects).
  • H2: The effectiveness of internal R&D spending on the likelihood of introducing product innovation is higher for firms operating in regions associated with high levels of social capital.
  • H3: The effectiveness of externally acquired R&D on the likelihood of introducing product innovation is higher for firms operating in regions associated with high levels of social capital.
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• Data
  • The firm level data on innovation come from Capitalia. 2,410 usable observations
  • Data social capital variables from the Italian National Institute of Statistics (Participation in cultural associations; Participation in voluntary associations; Participation in non-voluntary organizations; Number of voluntary associations per region; Meeting friends regularly; Social meetings; Satisfaction as to relationships with friends).
  • Dependent variable product innovation yes/no
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- The three hypotheses are largely confirmed, but significance plots reveals that the effects are not equally distributed across firms:
The significance of the interaction between social interaction and R&D intensity

89.3 percent of cases at the two-sided 10 percent level ~5 percent negative and significant
Significance of the interaction between social interaction and external R&D acquisition

95.2 percent of observations significant
The “geography turn” in management research

• Unanswered questions:
  • How does social capital interact with different external knowledge sources?
  • What about the interplay between intra and extra-region knowledge sourcing?
  • Does regional geographically bounded social capital influence internationalization? To what extent will such SC enable and constrain firms?
Geography and open innovation: University-industry interaction

• Laursen, Reichstein & Salter (2010), Regional Studies
• In the paper it is argued and substantiated empirically, that the relationship between geographical proximity to a university and a firm’s propensity to collaborate with a local university in the innovation process, is influenced by both physical distance and the research quality of the local university.
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Fig. 1. Nested decision tree for university collaboration
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• We posit that a firm’s decision to collaborate with its local university is more likely if this is one of the top tier universities.

• Accordingly, is conjectured that geographical distance to the nearest top tier university is positively related to the firm’s propensities to collaborate with a local university, and that there is no or even a negative relationship between geographical distance to the nearest low tier university and the propensity to collaborate locally.

• Based on three ‘classes’ of universities in terms of research quality, this paper provides overall empirical support for these ideas.
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• Yet, while our findings indicate that the first-best choice—from the firms’ point of view—is to collaborate with a local, top-tier university, in the absence of a high-quality local university, the second-best choice would seem to be collaborating with a non-local (presumably high-quality) university rather than cooperating with a local, lower-tier university.

• The study also shows that firm-university relationships are moderated by research and development (R&D) intensity: firms with above-average R&D intensity are less prone to collaborate with (high-quality) local universities compared to firms with below-average R&D intensity.

• In other words, geographical proximity matters more for firms with lower absorptive capacity.
The “geography turn” in management research

• Unanswered questions:
  • Will “matching” explain U-I interaction? [high-quality—high-quality and low-quality—low quality].
  • How is the interaction shaped by the movement of individuals between U and I?
  • How is the interaction shaped by the firms’ strategy in terms of exploration/exploitation? (see Salter & Tartari, 2009)
The end of the route…

Keld Laursen
DRUID,
Department of Innovation and Organizational Economics,
Copenhagen Business School
http://www.druid.dk/laursen/
E-mail: kl.ino@cbs.dk