Culture for Innovation

Cooperation and Regional Innovation in Southwest Norway

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The Open Port

- Main slogan of Stavanger2008
- Emphasis on international cooperation, openness to foreign cultures and new ideas
- Do these values affect innovation in the Stavanger region?

The region: Southwest Norway

Research Questions

”How do peripheral regions, such as Southwest Norway, manage to remain innovative and competitive?”

”Does collaboration affect innovation, and if so, does the physical proximity of partners affect innovation?”

”Do soft institutional factors (regionalised values and attitudes) affect innovation?”

Agglomeration a driver for innovation

- Agglomeration leads to:
  - Greater externalities
  - Face-to-face interaction (tacit knowledge)
  - Knowledge spillovers
  - Innovation
- Across theoretical strands
  - Endogenous growth theory
  - New Economic Geography
  - Institutional strands (Institutional thickness)
- What are the options for peripheral areas?

Options for peripheral areas

- Overcoming geographical distance
- Different types of distance (Boschma, 2005)
  - Cognitive
  - Organizational
  - Social
  - Institutional
- How can these types of distance be maximized?
  - Through collaboration…
  - But at a distance (geographical)

The role of collaboration

- Collaboration matters for the innovative capacity of firms
  - Open innovation (Chesbrough 2003): External search for technology prior to internal R&D
  - User-driven innovation (von Hippel 1986, 2005)
    - ”Creative Commons”
    - Wikinomics (Tapscott and Williams 2006)
  - Value chains
  - ”The Strength of Weak Ties” (Granovetter 1973)
  - Absorptive capacities (Cohen and Levinthal 1990)

Regional cooperation

- The location of partners matters
  - Differences across regions in levels of economic development and innovation in spite of globalisation and ”the end of territory”
  - Benefits of regional cooperation:
    - Face-to-face contact (Florida 2005)
    - Relational assets, untraded interdependencies (Storper 1997)
    - ”The Associational Economy” (Cooke and Morgan 1998)
    - Non-substitutable locational assets (Brenner 2002)
    - Territorially concentrated clusters (Porter 1990)

Global cooperation

- The location of partners *does not* matter
  - ”The World is Flat” (Friedman 2005): Innovate without having to emigrate
  - Benefits of international cooperation:
    - Knowledge spillovers regardless of national borders (Audretsch and Feldman 2004)
    - Personal networks are increasingly international (Huber 2007)
    - Global value chains and production networks (Gereffi and Korzeniewicz 1994)
    - Regions as hubs

Hypotheses

H_1: Collaboration with a wide range of partners has an impact on the innovative capacity of firms

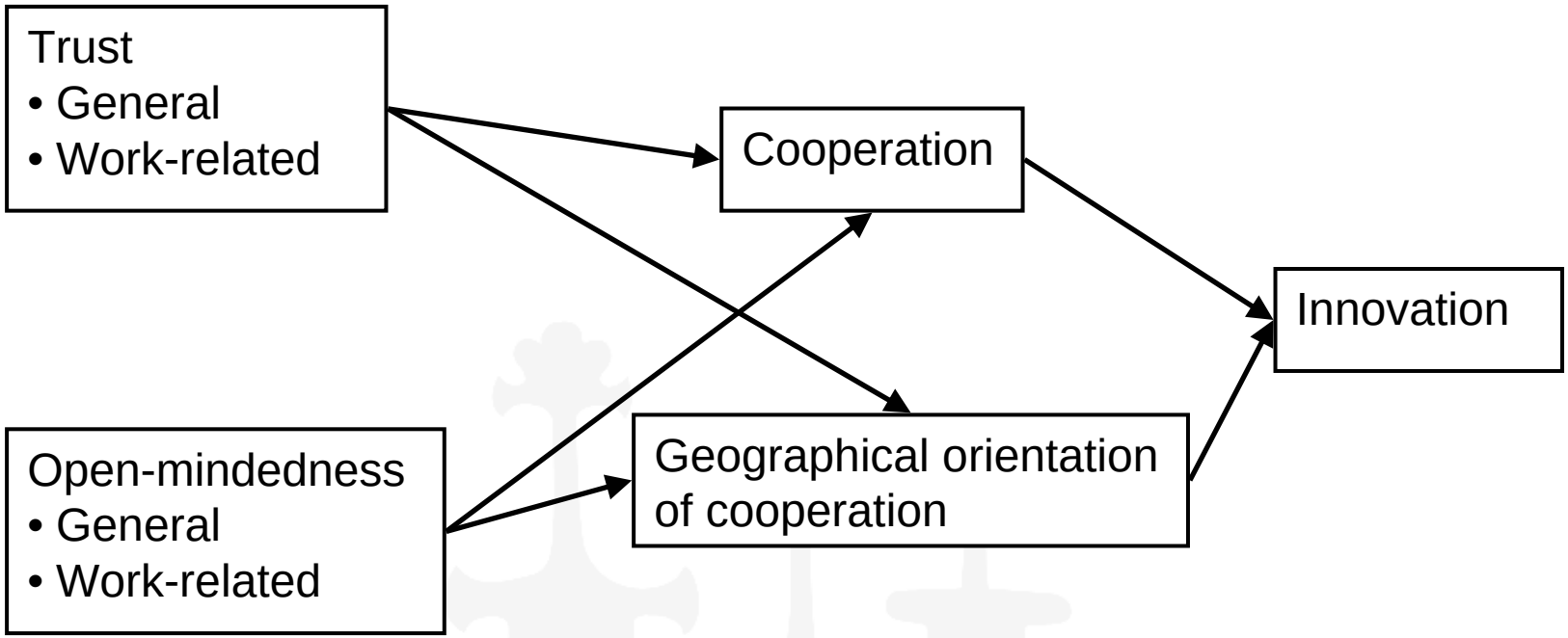
H_{2A}: Collaboration within the region is most important

H_{2B}: Collaboration with international partners is most important

Trust and open-mindedness

- Trust
  - Important for cooperative interaction (Fukuyama 1995)
  - Promotes mutual assistance and diffusion of technical innovations (Putnam 1993)
- Open-mindedness
  - Important for allowing ideas to develop
  - Realising potential in unexpected places
  - Accepting diversity of opinions and ideas
- This affects capacity for
  - Product innovation
  - Radical product innovation
  - Engaging in collaborative innovation networks

Analytical Model



Hypotheses (cont.)

H_3: Trust and open-mindedness of the manager affects firm's propensity to collaborate with external partners

H_4: Trust is more important for collaboration within the region, while open-mindedness is more important for collaboration with international partners

Data

- Case study of southwestern Norway
  - Coastal region encompassing Rogaland, Vest-Agder and Aust-Agder counties, as well as Sunnhordland district
  - City regions of Haugesund, Stavanger and Kristiansand
  - Population 700,000
  - Petroleum most important industry
  - High level of GDPR and registered patents
  - Low rate of R&D expenditure and education
  - An innovation prone region?

Data (cont.)

- Managers' Attitudes Survey
  - Indicators of values, attitudes and innovative practice among regional managers
  - Sample of 436 CEOs of businesses with more than 5 employees
  - Conducted autumn 2007
  - Telephone interview measuring key values and attitudes
  - Follow-up online questionnaire focusing on innovative practice and social networks

Operational variables

Dependent variables

- Product innovation
  - Has your company during the past 3 years introduced into the market new or significantly improved products (goods or services)?
- Radical product innovation
  - Were any of these product innovations new to the market?

Measures of Regional Innovation

	New products in the last 3 years	**Radical product innovation**
Yes	227 (52.7 %)	85 (19.7 %)
No	204 (47.3 %)	346 (80.3 %)
N	431	431

Regional Innovation Forms

- Dominant forms of innovation
  - Innovation in-house
    - New products and processes are developed within individual businesses in the region
  - Innovation in collaborative networks
    - New products and processes are developed in cooperation between multiple partners
  - Innovation through adoption or assimilation
    - New products and processes are developed through copying and/or improving on someone else's innovations
- What is the dominant form in SW Norway?

Innovation Forms in SW Norway

	Products developed...
mainly by our company	118 (53.4 %)
in cooperation with other companies	81 (36.7 %)
mainly by other companies	22 (9.9 %)
N	221

(Innovative companies only)

Operational variables (cont.)

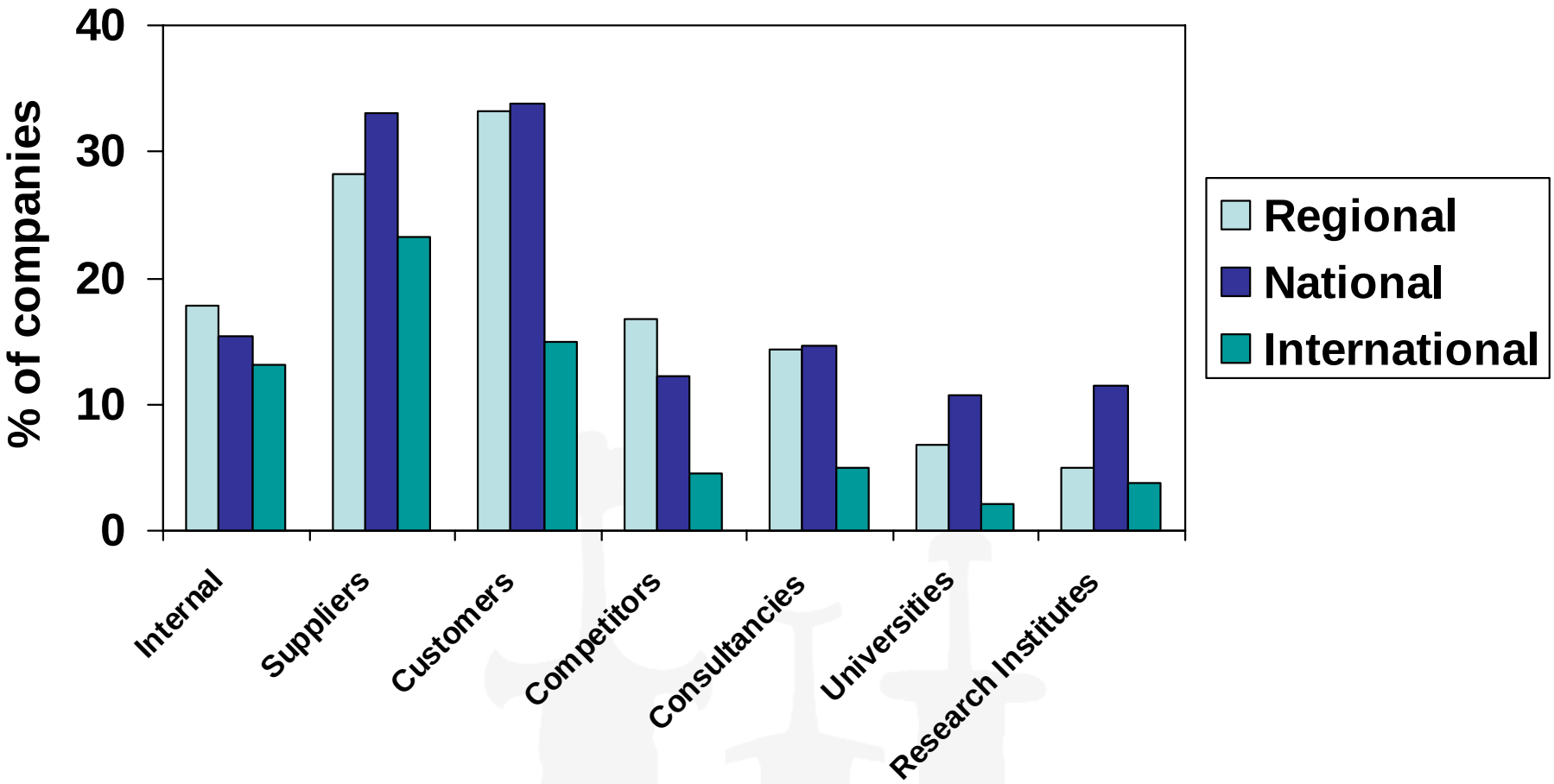
Cooperation variables

- Has your company cooperated with other companies and/or organisations on innovations over the last 3 years? If so, what kinds of partners have you used and where were they located?
  - Three location types: Local/regional, national and international
  - Seven partner types: Other companies within the conglomerate, suppliers, customers, competitors, consultancies, universities and research institutes

Cooperation at different geographic levels

Geographical location of partner	*Used at least one partner*	*Median no. of partners*	*Mean no. of partners*	*Std. dev. from mean*
Regional	55 %	1	1.22	1.50
National	61 %	1	1.31	1.43
International	35 %	0	0.66	1.12

Use of partner types by geographical location



Trust – dimensions created through PCA

General	Eigenvalue: 1.67	Rho: 0.56
	Factor loading	*Unexpl.*
Most people can be trusted	0.34	0.80
I trust public officials in this region	0.66	0.26
I trust politicians in this region	0.66	0.26

Work-related	Eigenvalue: 1.22	Rho: 0.41
	Factor loading	*Unexpl.*
I trust other business managers in this region	0.44	0.76
Right to include employees in dec-making	0.66	0.47
Right to let employees get their way	0.61	0.55

Open-mindedness – dimensions created through PCA

General	Eigenvalue: 1.75	Rho: 0.58
	Factor loading	*Unexpl.*
Most comf around people open to change	0.52	0.52
Improve understanding of foreign cultures	0.57	0.43
Wish Norwegians were more open to world	0.63	0.30

Work-related	Eigenvalue: 1.36	Rho: 0.68
	Factor loading	*Unexpl.*
Work is what gives meaning to life	0.71	0.32
Work provides identity and belonging	0.71	0.32

Control variables

- Manager's level of education
- Manager's age
- Company size
- No. of company directorships held by manager
- Share of company held by foreign owners

Models of Product Innovation

N = 376, controls included	**Model 1**	**Model 2**	**Model 3**
Diversity of info sources	0.22*** (0.07)		
Diversity of partner types		0.12* (0.07)	
Diversity of local partners			-0.03 (0.08)
Diversity of national partners			0.14 (0.08)
Diversity of international partners			0.30** (0.13)
-2 log L	487.25	495.11	488.64

* p < 0.10, ** p < 0.05, *** p < 0.01

Models of Radical Prod. Innovation

N = 376, controls included	**Model 1**	**Model 2**	**Model 3**
Diversity of info sources	0.16** (0.08)		
Diversity of partner types		0.13 (0.08)	
Diversity of local partners			0.06 (0.10)
Diversity of national partners			0.01 (0.10)
Diversity of international partners			0.42*** (0.14)
-2 log L	356.82	358.74	352.01

* p < 0.10, ** p < 0.05, *** p < 0.01

Innovation Networks at Different Levels

N = 355	Total	Regional	National	Int'nat'l
General trust	-0.11	-0.00	-0.10	-0.06
Work-related trust	0.18**	0.16**	0.03	0.05
General open-mindedness	0.21***	0.01	0.14**	0.09**
Work-rel open-mindedness	-0.07	-0.08	-0.03	0.06
Education	0.07	-0.27***	0.18*	0.15**
Age	-0.00	0.00	-0.00	-0.00
Company size	0.15***	0.11**	0.17***	0.10***
No. of directorships	0.08*	-0.03	0.07*	0.04
Foreign-owned share	0.01**	-0.01***	-0.00	0.02***
Adjusted R^2	0.08	0.05	0.08	0.32

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Conclusion

- Nearly half the businesses in SW Norway involve external partners in new product development processes
- Face-to-face contact with partners is not necessarily helpful: Cooperating with international partners is most helpful to the development of new products, as well as for radical product innovation
- General open-mindedness of the manager is important when building an international network
- Work-related trust is important for building regional networks, but does not make a difference for long-distance cooperation