

# Work organisation, skills and 'openness' in small firms

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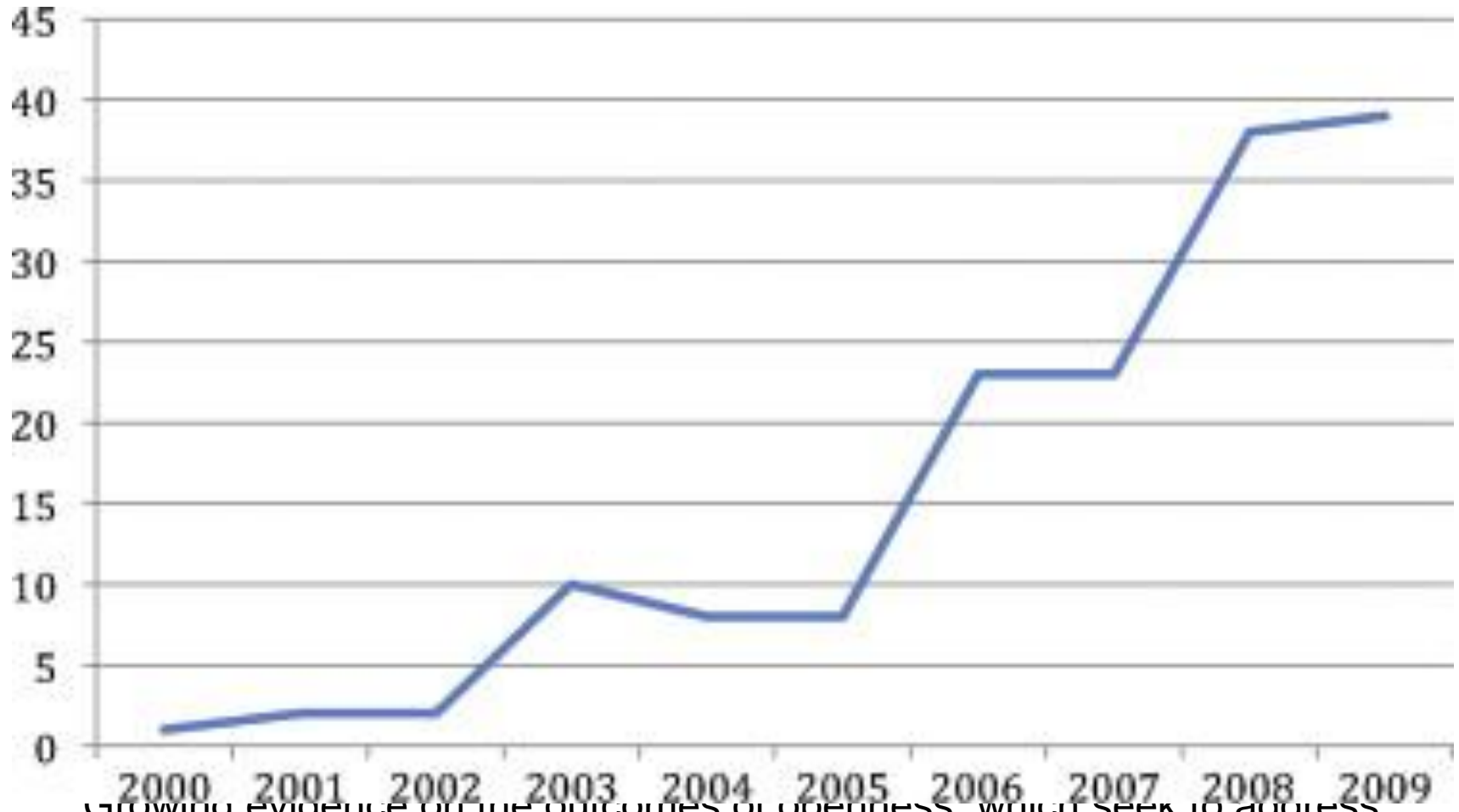
# Open Innovation

“Valuable ideas can come from inside or out of the company and can go to the market from inside or outside the company as well. This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths in the Closed Innovation model”  
(Chesbrough, 2003)

“...open innovation is a paradigm that assumes that firms can and should [my emphases] use external ideas as well as internal ideas, and external as well as internal paths to market, as firms look to advance their technology”  
(Chesbrough, 2003)

# The motivation

Number of papers published on open innovation over time (Dahlander and Gann, 2010)



Growing evidence on the outcomes of openness, which seek to address the should

# The motivation

Some suggestion of diminishing returns as a caveat to should

Less evidence on could – on the antecedents to openness

Less focus on smaller firms:

“NESTA’s Corporate Connect programme recognises that big business, though its relationships with myriad suppliers customers and consumers, is vital to the UK’s economic health. Each enterprise sits at the centre of its own ecosystem, producing new value from its links with others. Open innovation is a new way of strengthening these links, making them more productive, efficient and long-lasting.” (again, NESTA, April, 2010)

And on quantitative methodologies

# Different 'types' of openness

Structure of our different forms of openness.

	Inbound innovation	Outbound innovation
Pecuniary	Acquiring	Selling
Non-pecuniary	Sourcing	Revealing

Source: Dahlander and Gann, 2010

# Old wine in new bottles?

ACAP as the antecedent of open innovation

ACAP proxied by stocks of certain resources

Empirical studies typically concerned with the competitive benefits of ACAP, organisational antecedents have largely been ignored

How resources are organised and directed are likely to influence how the firm positions itself to interact with external agents

“...we conclude that many barriers for open innovation in SMEs are related to corporate organization and culture, no matter which type of open innovation is pursued” (Van de Vrande *et al*, 2009)

# The CKI survey

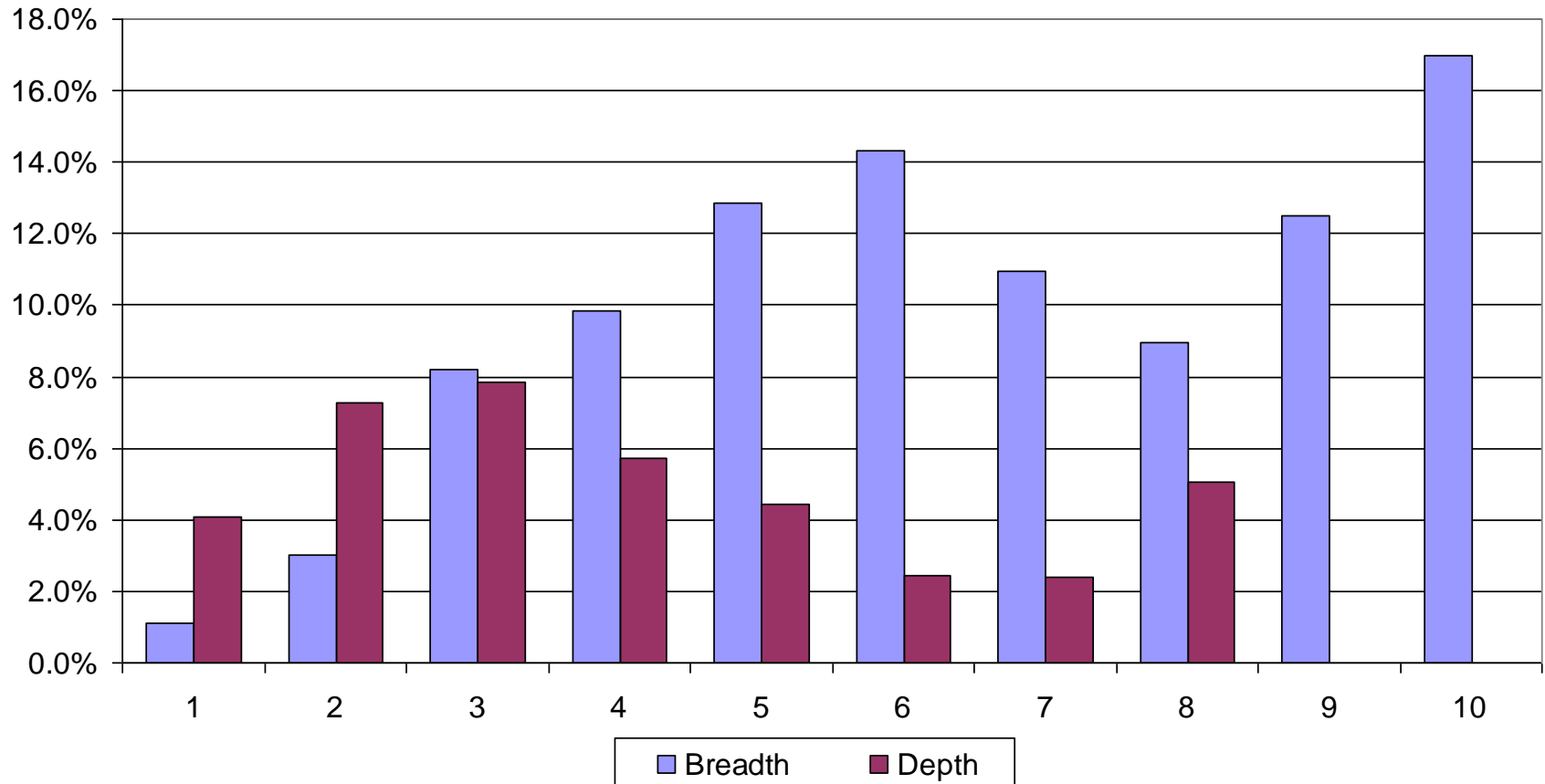
Part of the project: “City-regions, knowledge bases and innovation support systems” (CKI), funded by the Research Council of Norway

End of 2007: random stratified sample of 5200 firms (with more than 1 employee), complete responses from 1302 firms (~25%)

Questionnaire included 20 questions on different topics regarding the firms' establishment, knowledge bases, innovation forms, networks and barriers

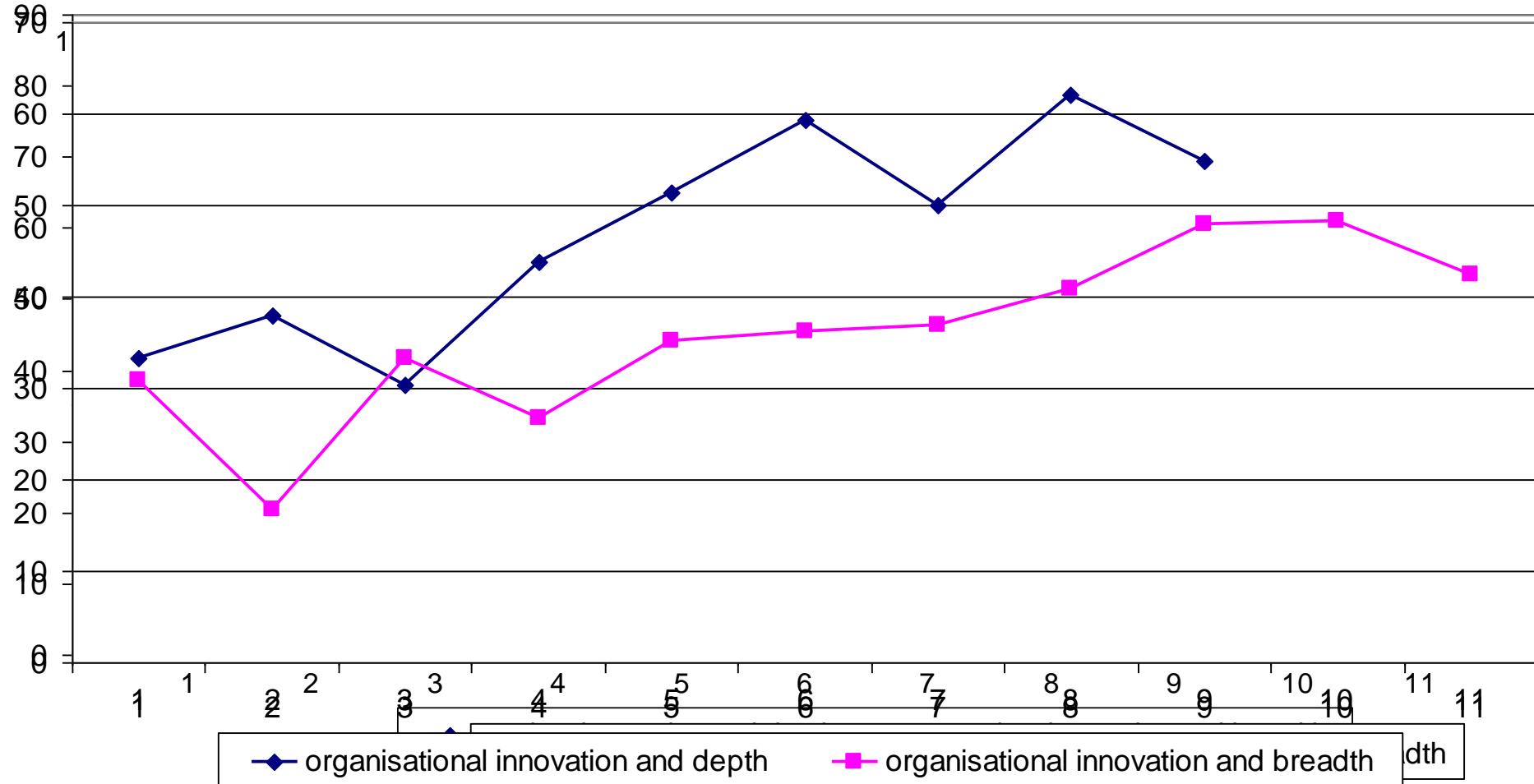
The current analysis is concerned only with SMEs (n=1222)

# The incidence of extents of 'openness'



60.7% of sample firms have no depth; 1.2% of sample firms have no breadth

# Innovativeness and 'openness'



Axis scales misaligned, 1 should be read as 0 and so on

# Modeling 'Openness'

Openness = f(firm size, age, R&D expd, level of employee skills, innovativeness, skill type, work organisation, sector)

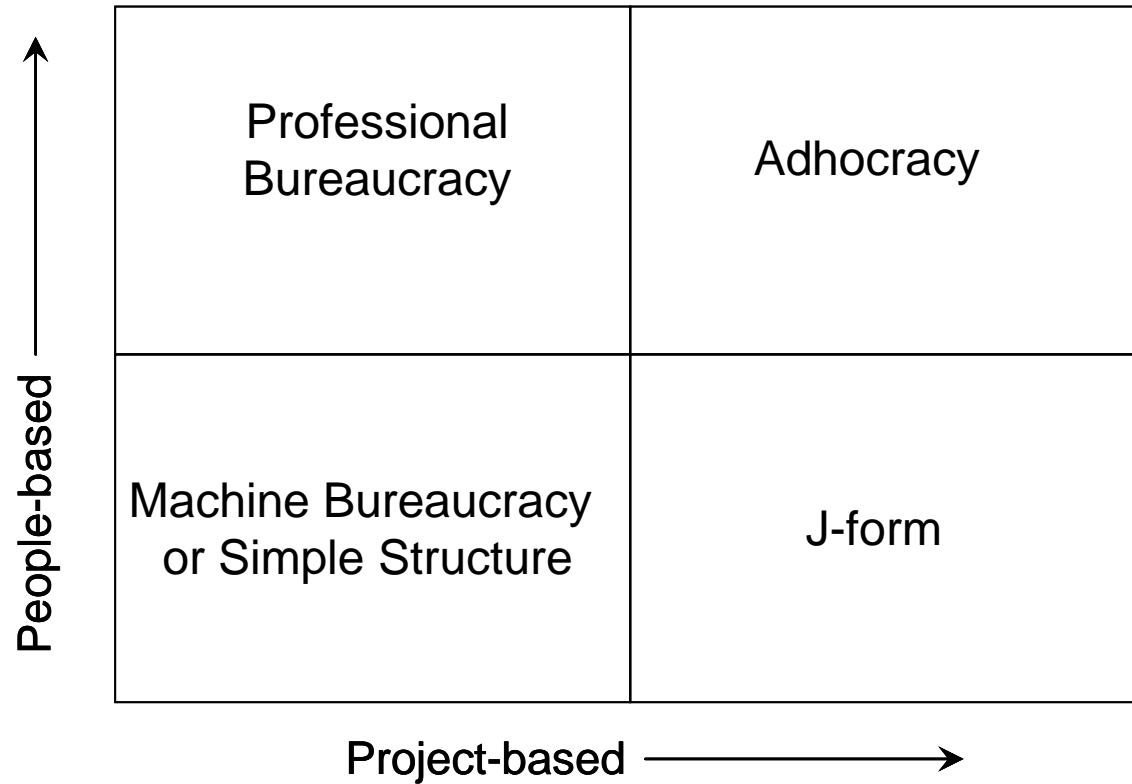
How important are different competencies among employees of the company's innovation ability? (1-4)?

	Soft skills	Hard skills
Research and Development expertise	0.066	<b>0.738</b>
Engineering expertise	0.043	<b>0.828</b>
Production expertise	0.165	<b>0.747</b>
Supplier capability	0.535	0.457
Customer and market knowledge	<b>0.831</b>	0.032
Marketing and sales skills	<b>0.834</b>	-0.026
Logistics and distribution expertise	<b>0.591</b>	0.376
Leadership and management skills	<b>0.670</b>	0.126

# What characterises the organisation of work in your company (1-4)?

Work is organized in projects	0.375	<b>0.681</b>
The company employs short-term/project dedicated approach	0.352	<b>0.406</b>
Work is organized in autonomous work groups	<b>0.881</b>	0.082
Responsibility for the work is delegated to working groups	<b>0.893</b>	0.055
Employees will rotate between different tasks	<b>0.511</b>	0.081
The work is organized in the scheduled tasks in the production line	0.218	<b>-0.777</b>

# Organisational configurations



# Count Regression models for Openness Breadth and Depth

Variable	Openness – Breadth		Openness - Depth	
	$\beta$	Wald $\chi^2$	$\beta$	Wald $\chi^2$
Log Employment	0.006	0.370	0.047	1.841
Age (bin)	-0.015	0.302	-0.13	0.018
R&D (% of T/O)	<b>0.001</b>	<b>3.162<sup>c</sup></b>	<b>0.11</b>	<b>18.536<sup>a</sup></b>
Graduate employment (%)	0.000	2.393	0.00	0.007
Doctoral employment (bin)	0.001	0.001	-0.218	2.404
Product innovation	-0.041	1.880	<b>0.869</b>	<b>57.930<sup>a</sup></b>
Process innovation	<b>0.053</b>	<b>3.831<sup>b</sup></b>	0.137	2.158
Organisational innovation	0.036	1.941	<b>0.224</b>	<b>6.609<sup>a</sup></b>
Hard skills	<b>0.027</b>	<b>3.410<sup>c</sup></b>	<b>0.354</b>	<b>45.594<sup>a</sup></b>
Soft skills	<b>0.070</b>	<b>25.772<sup>a</sup></b>	<b>0.268</b>	<b>29.033<sup>a</sup></b>
People-based	<b>0.051</b>	<b>14.465<sup>a</sup></b>	0.049	1.056
Project-based	0.014	1.007	<b>0.158</b>	<b>10.313<sup>a</sup></b>
N	1074		1118	
LR $\chi^2$ (df = 18)	<b>99.113<sup>a</sup></b>		<b>388.316<sup>a</sup></b>	

Industry dummies included, which suggested some small industry effects. With low-tech manufacturing as the reference category there was some indication that high-tech manufacturers were less likely to be open (breadth). No industry effects apparent for 'depth'.

## Initial findings

Openness – Breadth	Openness - Depth
R&D (% of T/O)	R&D (% of T/O)
Process innovation	Product innovation
	Organisational innovation
Hard skills	Hard skills
Soft skills	Soft skills
People-based	Project based

# What characterises the organisation of work in your company (1-4)?

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# Closing thoughts

Jansen *et al*, 2005:

Participation in decision making increases knowledge acquisition, but has no effect on assimilation, transformation or exploitation

Exploitation requires more stable and densely connected structures

# Closing thoughts

Lee *et al*, 2010:

Intensive use of external information seems to be more related to major product innovation than minor product innovation – whilst searching is the reverse

Tentative evidence of a +ve relationship between searching and process innovation

## Concluding remarks

“Being more involved in open innovation can therefore create tensions with other practices within the organization. This begs the question of how firms might operationalize strategies to enable them to benefit from more open approaches, what mechanisms might be implemented and how resources and capabilities should be deployed to support them”

(Dahlander and Gann, 2010)