

Networks, Clusters and Regional Innovation Policy

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Clusters and Networks

- Clusters are a *geographic* phenomenon
 - Firms operating in close proximity
 - Agglomeration economies
 - Passive involvement
- Networks are a *relational* phenomenon
 - Firms agree to commit joint resources
 - Collective external economies
 - Pro-active involvement
 - Trust

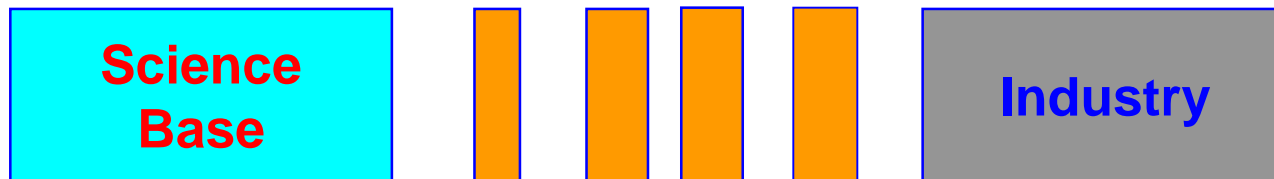
Firms need packages of services to innovate



Investing in Innovation Inputs

- Innovation involves fixed costs which may be prohibitive to individual SMEs
- Networks facilitate joint investment activity
- Joint investment via networks pools fixed costs and allows more investment/projects to go ahead

Basic and Commercial Research



Decline in Innovators in CIS 3

Comparison CIS 2 and CIS 3

- Reference periods: CIS 2 1994 – 1996
CIS 3 1998 - 2000
- Observations: CIS 2 with 2,342 (37% small firms = 877 firms)
CIS 3 with 8,172 (58% small firms = 4,761 firms)
- Stratified sampling: CIS 2 by 5 size bands and the 2 digit SIC
CIS 3 by size bands, SIC and 12 UK regions

Proportion of innovators CIS 2 and CIS 3

Innovation type	CIS 2	CIS 3	Changes	
	(a)	(b)	(c)	(d)
	<i>Per cent</i>	<i>Per cent</i>	<i>Percentage points</i>	<i>Per cent</i>
Product innovation	50	21	-29	-58
Product innovation (West Midlands)	51*	19	-32	-63
Novel product innovation	24	9	-15	-63
Process innovation	37	18	-19	-51

* n = 271

The Impact of Cooperation Agreements on Innovation

Region	Firms with co- operation arrangements (a) <i>Per cent</i>	change in odds; product and/or process innovator (b) <i>Odds ratio</i>
England	11.1	10.2
<i>East Mids</i>	11.2	8.9
<i>Eastern</i>	13.4	7.6
<i>London</i>	10.0	8.5
<i>North East</i>	9.6	14.9
<i>North West</i>	10.1	12.4
<i>South East</i>	12.4	11.3
<i>South West</i>	12.9	11.8
<i>West Mids</i>	10.5	8.9
<i>Yorks & Humbs</i>	9.7	12.9
Northern Ireland	14.9	18.9
Wales	10.6	18.4
Scotland	9.1	9.6
UK	11.0	10.5

Innovation Inputs: Cooperation with the Science Base



	Universities	Government research organisations	Private research institutes
Region	(a)	(b)	(c)
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
England	34.9	13.0	13.2
<i>East Mids</i>	34.7	13.9	15.3
<i>Eastern</i>	26.9	15.1	10.8
<i>London</i>	26.1	6.5	8.7
<i>North East</i>	42.5	-	-
<i>North West</i>	39.0	9.8	18.3
<i>South East</i>	43.5	16.5	10.4
<i>South West</i>	35.1	16.9	16.9
<i>West Mids</i>	38.4	12.3	15.1
<i>Yorks & Humbs</i>	30.0	18.6	15.7
Northern Ireland	50.0	36.4	-
Wales	51.3	-	-
Scotland	38.2	11.8	13.2
UK	36.3	13.4	12.9

The Impact of Co-operation by Type of Partner

	Suppliers, clients or competitors	Universities and/or government research organisations	Consultants or commercial labs
Region	(a)	(b)	(c)
	<i>Odds ratio</i>	<i>Odds ratio</i>	<i>Odds ratio</i>
England	13.8	10.9	11.3
<i>East Mids</i>	9.3	8.5	21.8
<i>Eastern</i>	18.6	14.1	10.4
<i>London</i>	11.0	6.7	11.4
<i>North East</i>	11.4	12.3	9.4
<i>North West</i>	22.1	13.4	7.1
<i>South East</i>	13.1	10.0	10.8
<i>South West</i>	13.5	14.3	10.4
<i>West Mids</i>	9.7	11.6	8.2
<i>Yorks & Humbs</i>	26.8	9.9	36.0
Northern Ireland	7.6	8.4	13.5
Wales	13.0	23.2	8.8
Scotland	13.3	16.2	9.2
UK	13.6	11.5	11.0

Co-operation Agreements: Geographic Spread

Region	Firms with local co-operation partners (a) <i>Per cent</i>	with national co-operation partners (b) <i>Per cent</i>	with co-operation partners in Europe (c) <i>Per cent</i>	with American co-operation partners (d) <i>Per cent</i>	which had other co-operation partners (e) <i>Per cent</i>
England	38.9	75.9	38.8	27.7	15.3
<i>East Mids</i>	37.5	81.9	38.9	27.8	12.5
<i>Eastern</i>	30.1	69.9	46.2	33.3	18.3
<i>London</i>	40.2	75.0	35.9	30.4	14.1
<i>North East</i>	62.5	75.0	30.0	30.0	-
<i>North West</i>	34.1	75.6	47.6	24.4	15.9
<i>South East</i>	35.7	73.0	41.7	32.2	20.0
<i>South West</i>	33.8	87.0	39.0	24.7	11.7
<i>West Mids</i>	53.4	72.6	30.1	26.0	12.3
<i>Yorks & Humbs</i>	38.6	75.7	31.4	17.1	14.3
Northern Ireland	59.1	59.1	40.9	45.5	-
Wales	46.2	84.6	53.8	30.8	20.5
Scotland	48.5	72.1	44.1	30.9	-
UK	40.6	75.6	40.0	28.6	14.8

Impact of Co-operation on Innovation: Odds Ratios By Area

Region	Local enterprise (a) <i>Odds ratio</i>	National enterprise (b) <i>Odds ratio</i>	European enterprise (c) <i>Odds ratio</i>	American enterprise (d) <i>Odds ratio</i>	Other partners (e) <i>Odds ratio</i>
England	8.5	11.7	13.4	13.1	10.8
<i>East Mids</i>	8.5	8.5	14.9	9.5	8.0
<i>Eastern</i>	6.3	9.6	10.1	10.7	18.0
<i>London</i>	7.4	9.7	10.2	10.4	9.0
<i>North East</i>	11.0	14.4	28.4	-	12.3
<i>North West</i>	8.7	11.3	21.1	16.2	33.6
<i>South East</i>	10.0	18.0	10.7	13.3	5.4
<i>South West</i>	9.0	10.5	10.9	11.1	-
<i>West Mids</i>	7.8	11.4	13.3	10.9	22.5
<i>Yorks & Humbs</i>	12.4	17.5	28.0	29.5	23.9
Northern Ireland	6.5	-	-	-	-
Wales	7.9	19.9	21.7	-	-
Scotland	10.5	18.5	18.6	26.3	-
UK	8.6	12.6	14.7	15.6	11.4

The Prevalence and Impact of Public Support

Region	which received any support	Odds ratio Product and/or process innovation
	(a) <i>Per cent</i>	(b) <i>Odds ratio</i>
England	7.7	4.5
<i>East Mids</i>	7.9	4.5
<i>Eastern</i>	8.5	4.0
<i>London</i>	5.6	4.6
<i>North East</i>	10.8	6.4
<i>North West</i>	7.8	4.0
<i>South East</i>	6.8	4.9
<i>South West</i>	7.6	4.3
<i>West Mids</i>	7.4	5.5
<i>Yorks & Humbs</i>	8.6	3.8
Northern Ireland	23.2	19.5
Wales	13.2	4.7
Scotland	11.6	10.1
UK	8.6	5.1

Networking and Innovation

- Firms that are networked in inter-firm networks are 13 times more likely to innovate
- Firms that are networked with the science base are 12 times more likely to innovate
- Networks can be *both* inter-firm and inter-organizational e.g. firm-university

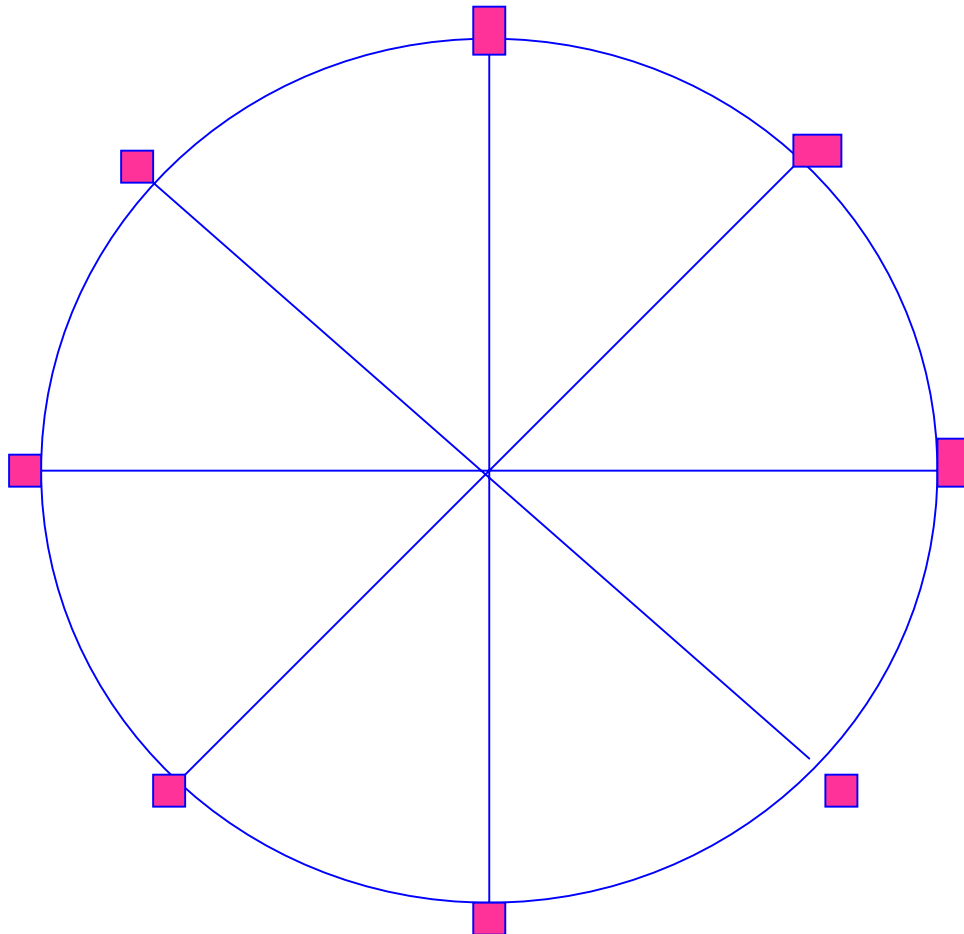
From Clusters to Networks

- Networks are a powerful driver of innovation
- How to catalyse networks?

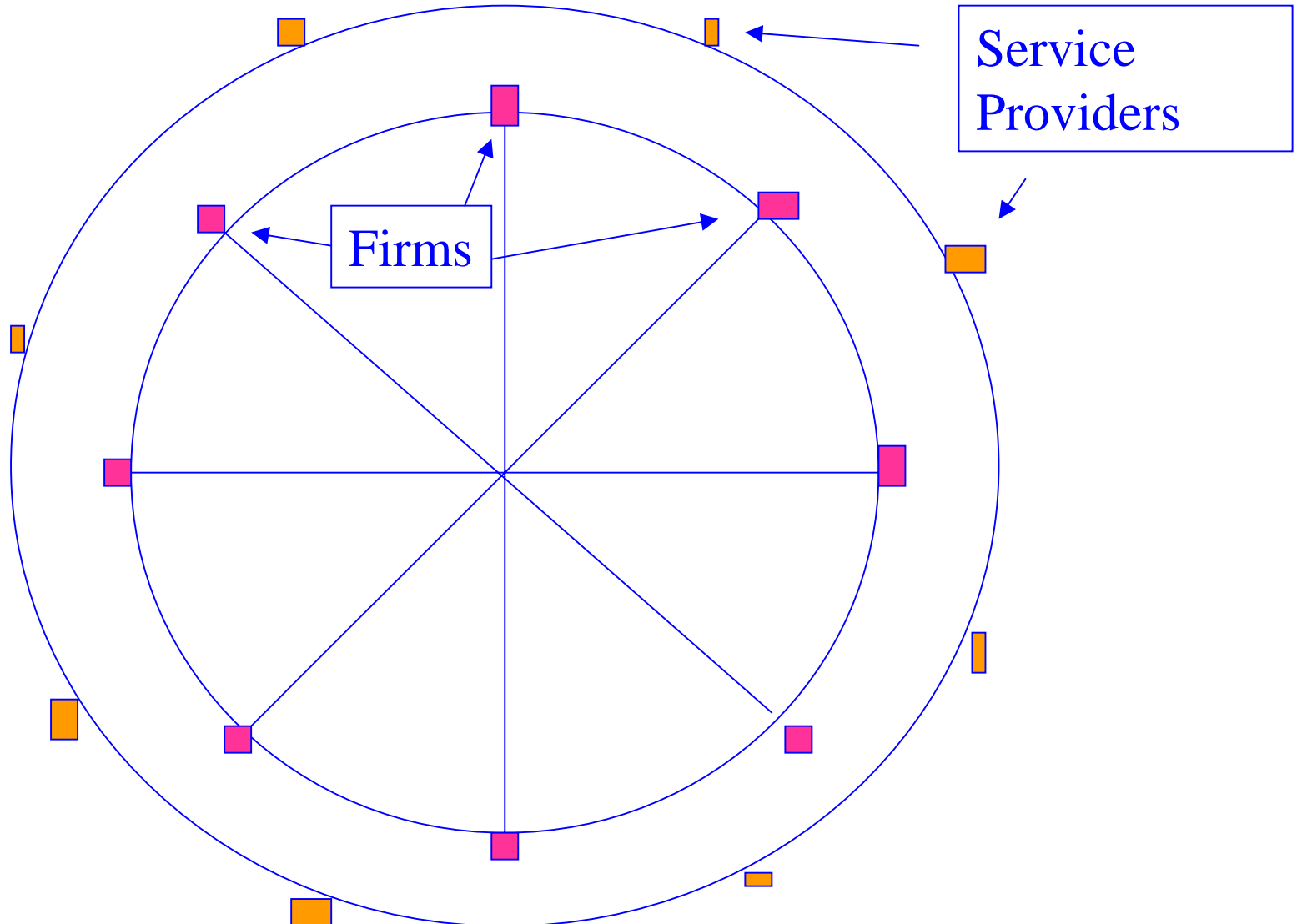
Three Step Procedure to Networking for Innovation

1. identify clusters and existing networks
2. network innovation service providers (finance, technology, universities, research and training organizations)
3. integrate these two sets networks to ensure business needs are met and regional capability is fully exploited (formalise in IPS)

Networking Firms



Networking Firms and Service Providers



How Networks Work I

Investment in R&D

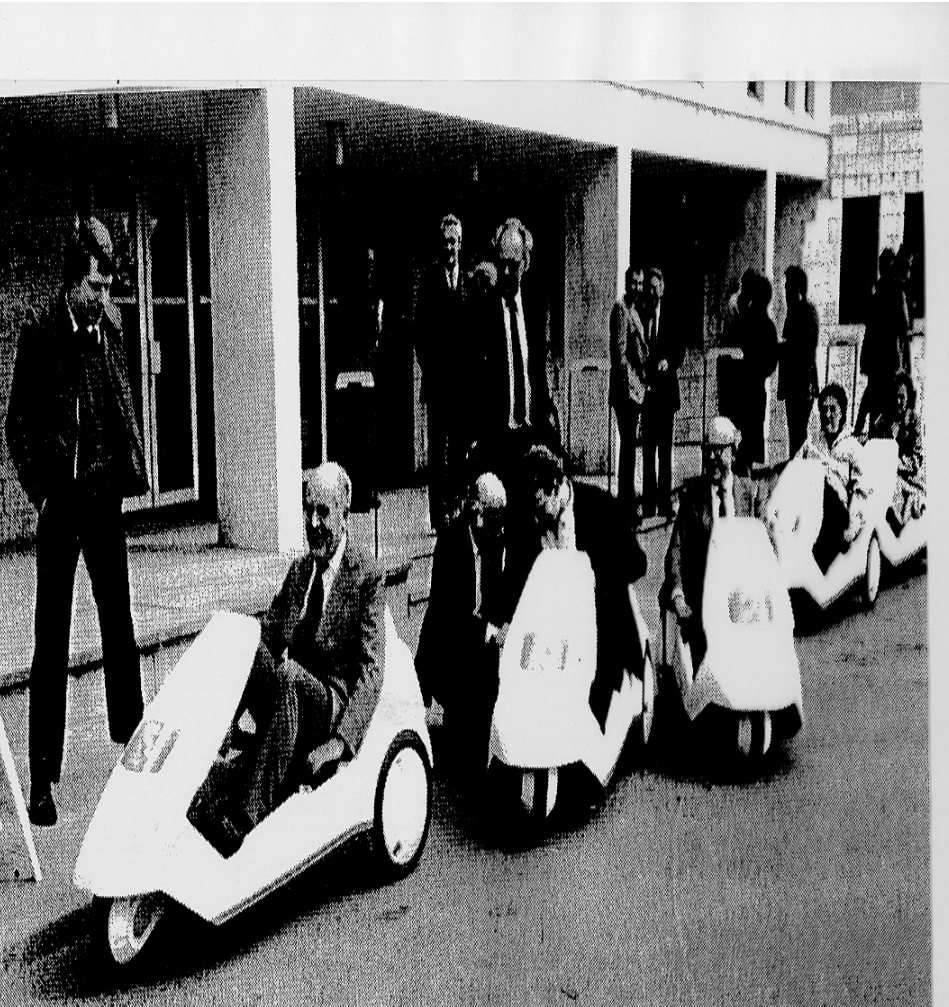
- Cost of R&D lab is prohibitive to many SMEs
- Networks involving firms and science base players allow firms to pool fixed costs
- Such joint investments can be extended to other areas, such as, training, design.

How Networks Work II

Finance

- Firms rely heavily on short-term finance
- Main barriers are:
 - difficulties validating technology
 - difficulties assessing risk/returns
 - difficulties providing adequate collateral

Validating Technology Assessing Risk/Returns



Solving the Finance Problem

- Sector-based networks comprising:
 - managers/businesspeople
 - researchers and design experts
 - marketing experts
- Informed vetting of applications for regional investment funds