Britain catches up with clusters

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• Narrative on clusters as an economic development methodology in the UK

• Introduction to the current UK Cabinet and DTI activity

• Some technical and measurement aspects

leading to general discussion of tools, priorities and agendas
I

Clusters for economic development in the UK

National and Regional streams
Clusters for ecdev: National and Regional streams

- Ancient history: Marshall (1890)
  - basic familiarity, tho' not only lost but rejected in favour of more Fordist/Corporatist models
- UK chapter in CAON (Porter 1990)
  - Enright/Porter
  - Thatcherian rhetoric, *The Economist*, and OIL
- Attempts to engage later Conservative Ministers/Governments were not obviously successful
- Little academic work on clusters and most of that focused away from UK
Things could only get better ...

- Mandelson saw Silicon Valley and it worked
- Competitiveness White Paper
- Ongoing focusing of DTI under Byers
- Sainsbury as New Model Minister, Harvard alumnus ...
- Biotech study
- Oxbridge phenomenon (?Jenkins)
Meanwhile in the Provinces ...

Countries & Regions

Scotland

Political background:

- Widespread and steady devolutionist sympathy, and intermittently Nationalist upsurges

- After Poll Tax fiasco, near-doomsday for UK Conservatives

- A degree of administrative autonomy, and pre-existing (1945/75) economic development institutions with significant resources (1% GDP)
The Competitive Advantage of Scotland - 1991/93

• First rigorous application *anywhere in the world* of Porter below the Nation State

• Enabled a sophisticated multifaceted approach to the development of electronics and related industries

• Proposed an agenda for other clusters
Clusters work for Scotland

Electrical Engineering Value Added

Cluster initiative

FIRST CLUSTER INITIATIVE PAID OFF AT LEAST A HUNDRED FOLD
But it didn’t fit ...

- Even as the approach and the agenda were abandoned for ideological reasons, they enabled a vestige of ‘industrial’ competence to survive in the Development Agency at a time when ‘industry policies’ were *non grata*. 
Parallel game & Canadian interplay

- Very local variants
  (Inverness>Shuswap>Okanagan)
- Methodology and model development
  (GEM, cluster maps, regional a/cs)
- More formal links with innovation systems analysis

*and then, when things got better ...*
post May 1997 ...

- Four formal initiatives
  - semiconductors
  - food
  - biotech
  - oil & gas

- and then
  - optoelectronics
  - chemicals
  - creative industries
  - tourism
  - telecommunications ... ...

- but now (2000/2001) the role and status of Agency changing as Government adjusts to devolution
II
CURRENT UK ACTIVITY

(ie, the Feds)
National activity

• Committee reporting to Cabinet
• DTI cluster mapping
• Competitive funds for New RDAs
• Review meeting on 8/9 March
DTI STUDY

• Political context of English devolution/development agencies

• Formally ‘cluster mapping’
  – LOGICAL maps or
  – GEOGRAPHICAL maps?

• First availability of 5-digit data outside government service (NB Britain’ ONS does not have the analytical resources found in some statistical administrations such as StatsCan, Norway’s SSB)
PORTERIAN DEFINITION - FOUR APPROACHES

• Competitiveness
• Concentration/ co-location
• Linkages
• Administrative/ political
Competitiveness approach

• Identification of UK competitive highspots
  – Updated Porter by 12 IMPORTANT ‘post-oil’ years
  – New measures of competitiveness

• Localisation of those highspots

BUT

• …analytical focus entailed political discomfort
  (not enough UK clusters to go round!)
Concentration/ co-location

- Spatial analysis harder than expected
- Not tractable at 5-digit level
- Results at 4 digit level (= 504 industries) tended to emphasise traditional location patterns

- Counter-intuitives/ oddballs tended to shake laypeople’s faith in data/methods rather than suggest interesting innovations or linkages
LINKAGES - IO tables therefore traded

- Measured distinctiveness
  - REDUCING DENDRITIC ALGORITHM determines cluster structure
- Measured significance for mapping
- Implied tacit linkages from similarities of input/output patterns
- Linkage strength vis-a-vis world (requires ‘world’ IO table)
Generic cluster map

Upgrading & innovative institutions

Related and Supporting Industries

Core of cluster

Infrastructure & infraservices

MARKETS

sophisticated

less-sophisticated

DIRECT

FINAL
IMPORTANT ANALYTICAL CONCLUSION from three analytical methods

- There is a clear correlation between competitiveness and degree of linkage within the national economy

BUT

- NO *overall* evidence that geographical concentration within the UK affects performance
122 industries were dichotomised
clear correlation (0.8) between competitiveness and degree of linkage
no obvious correlation between geographical concentration and performance
and even no obvious correlation between geographical concentration and linkage
Administrative/ political

- employment concentrations ‘round the regions’

- Issues of machismo, wishful thinking and local chauvinism enhanced by
- new administrative environment and by
- competitive bidding

  - "If your methodology doesn’t find the five companies and 17 employees in our XXX cluster then it is totally discredited"

  - "Our region’s aim is to house the world’s leading biotech cluster and with the world class work of Prof ZZZZ at the New University of AAAA which began last year we are almost there"
Regions have startlingly **uniform** aspirations ... despite diverse *de facto* starting points ... but nevertheless ...

- Cluster mapping has begun to enable a dialogue on regional industrial priorities

...widening the industrial perspectives of new political entities and ...

... in some regions stressing the useful message that mainstream as well as fashionable industries are important
A hot potato?

- Research funding mechanisms today follow
  - academic tradition
  - an even distribution (bums on seats)
  - stellar individuals/teams

- BUT NOT
  - industrial opportunities or needs
III
Some items from the analytical toolbox ...
• Cluster Maps
• Cluster calibration/GEM
• ‘World’ GDP and IO tables
• Competitiveness on a global scale
• Linkage measurement
• Develop link with innosurvey & patent data
• Role of distance
Generic cluster map

Core of cluster

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MARKETS

sophisticated

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DIRECT FINAL
Generic cluster map

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DIRECT    FINAL
For example: Scotland’s semiconductor cluster strengths - the darker the blue, the stronger in Scotland.

LINKAGES - THE THICKER THE LINE THE STRONGER IN SWCOTLAND. NOTE MISSING LINKS.
Textiles

UPGRADING INSTITUTIONS?

Agriculture
Meat processing
Pulp, paper and board
Industrial gases
Inorganic chemicals
Organic chemicals
Synthetic resins etc
Rubber products
Plastic products
Electricity production and distribution
Gas distribution

INFRASCTURES?

Households & individuals

Motor vehicles
Other specialised industry users
Retail, wholesale/garages
Misc industry

APPAREL

CARPET & RUGS

FURNITURE

MMF

TEXTILE FIBRES

TEXTILE WEAVING

TEXTILE FINISHING

OTHER TEXTILES

MADE-UP TEXTILES

LEATHER

FOOT WEAR

KNITTED GOODS

Made-up textiles

Carpets & Rugs

Furniture

Textile Fibres

Textile Weaving

Textile Finishing

Other Textiles

Made-up Textiles

Leather

Footwear

Knitted Goods

Apparel
Telecommunications
Ottawa

GEM ASSAY = 564
Scotland = 352

MARKETS

outward access

local characteristics

resources

infrastructure

supporting & related firms

enterprise

firm structure & strategy

Best global standard
Good competitive standard
Ottawa
Scotland
Groundings - Enterprise - Markets

- Detailed objective and subjective scoring of GEM (n00 variables)
- Elaborates industry model
- Gives research agenda for benchmarking studies
- Agenda for improvement
- Estimation of impact
Optoelectronics sales from local production/ $gdp and the GEM score
Canadian shares of global value added

WARNING: OLD (1990), DRAFT DATA
World IO tables

- Canadian cluster structures versus global?
- Key links from innovation to market transactions
- From UK spectacles to Canadian
- Relation of US & Canadian innosystems
- Can build on a Canadian statistical strength to develop a Canadian strength in innoanalysis (and, indeed, development analysis)
Agenda items

• **Anchoring**: constancy & progress through changing politics and advancing time

• **Interplay** between
  
  economic analysis : innovation systems analysis
  economic performance: innovation

• **Building** on existing Canadian international leadership - eg statistics and development
no obvious correlation between geographical concentration and performance (or linkage)