

# Four Dimensions of Clusters and Cluster Policy

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PhD – Economic Geography  
Lecture at Uppsala University - August 31, 2007



Center for Strategy  
and Competitiveness – CSC

# Clusters and Cluster Policy

**1 Agglomeration**

**2 Dynamics**

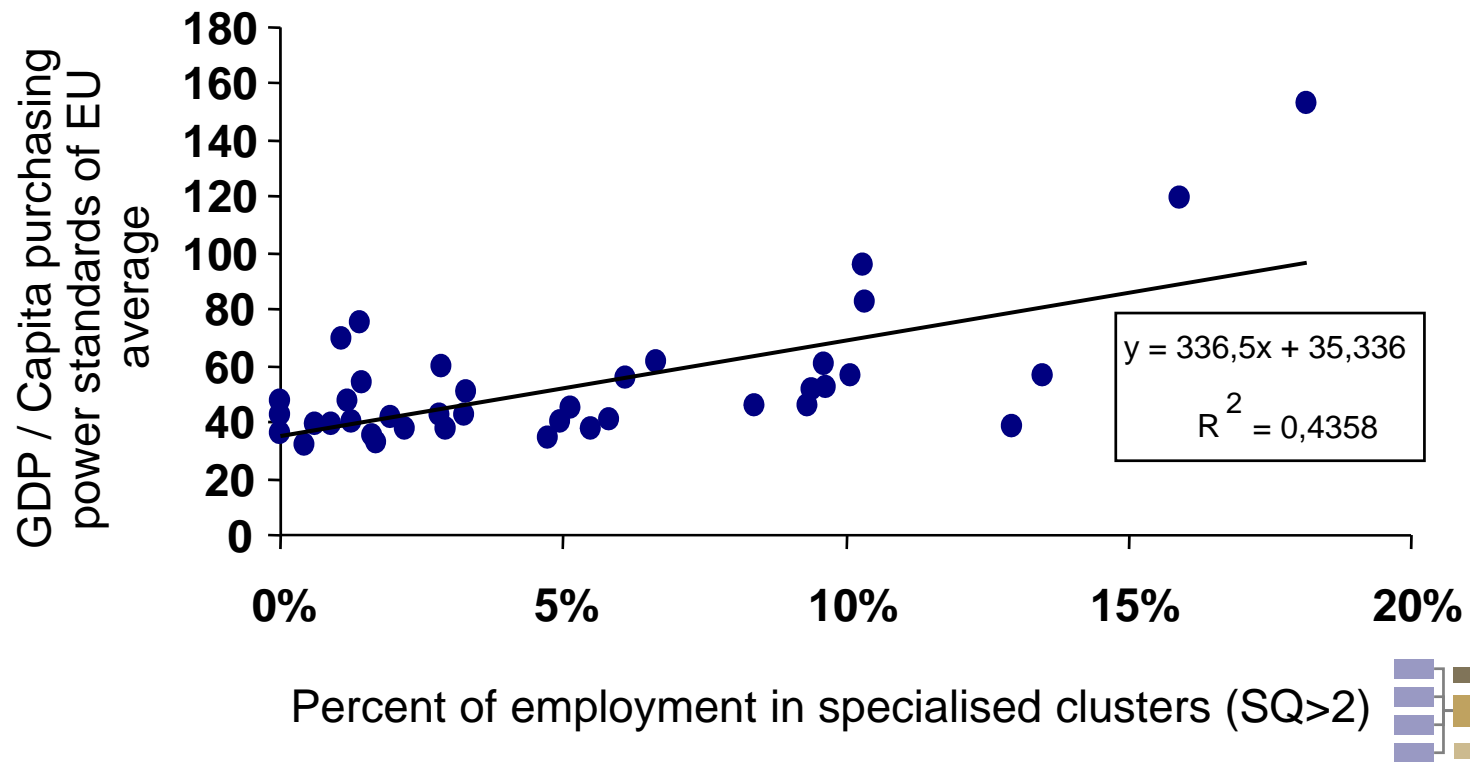
**3 Life Cycle**

**4 Policy**

# Clusters, so what?

Clusters = Innovation = Competitiveness

## Clustering and GDP / Capita 41 NUTS 2 Regions in EU-10 (2004)



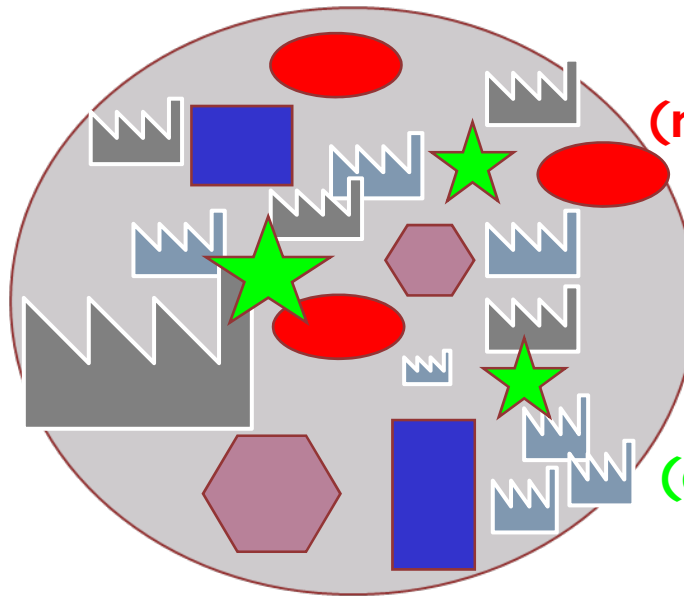
Source: Sölvell, Ketels, Folkesson. (2005) *Entrepreneurial Innovation in the New Member States: Challenges and Issues at stake for the Development of Clusters of Innovative Firms*. EU Commission, DG Enterprise.

# Clusters 1 - Agglomeration



**Co-location of linked industries and organisations within a region**  
**- breadth and depth, history**

**Industry**  
(suppliers, buyers,  
service providers,  
large firms, SMEs...)



**Public organisations**  
(ministries, agencies...)

**Organisations for  
collaboration**  
(cluster org, networks,  
chambers...)

**Financial institutions**  
(banks, VC firms, angel networks...)

**Academic institutions**  
(universities, R&D labs...)

# GAMING IN LAS VEGAS

## Supported & Related Industries

Clubs & Bars

Dining

Conventions

Shopping

Shows / Events

Music Performances

Golf Courses  
Adult Industry

Wedding Chapels

Sightseeing

## Suppliers

Consumables Producers

Gaming Machines

Table Game Mfgs

Real Estate Developers

## Infrastructure

McCarran Int'l Airport

Ground Transportation

End Users

Casinos / Resorts

## Education Institutions

University

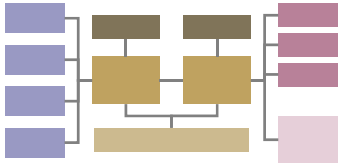
LV Chamber of Commerce

LV Visitors & Convention Authority

Source: MOC – MBA Class 2007

Alexander Wilson  
Daniel Blomquist  
Håkan Andersson  
Michael Lindskog  
Nahila Justo  
Per Helgesson

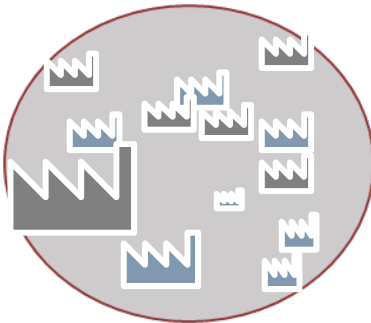
# Clusters 2 - Dynamism



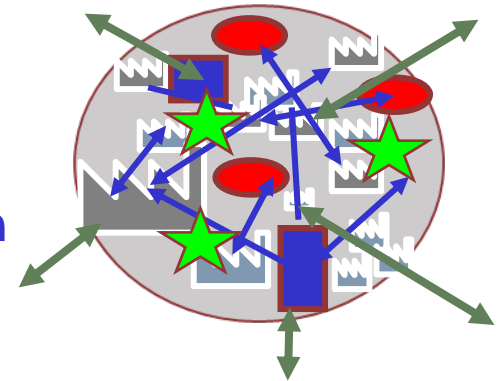
## Level of cluster dynamism and networking

Static cluster

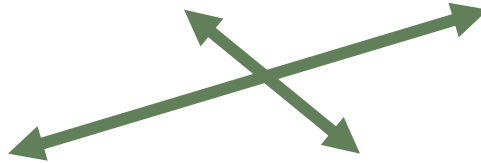
Dynamic cluster



Labor mobility  
Technological spillovers  
Formal and informal personal networks  
Organizations for collaboration  
Spin-off firms  
Local and global linkages  
("Greta Garbo effect")



# Processes at Work in Dynamic Clusters



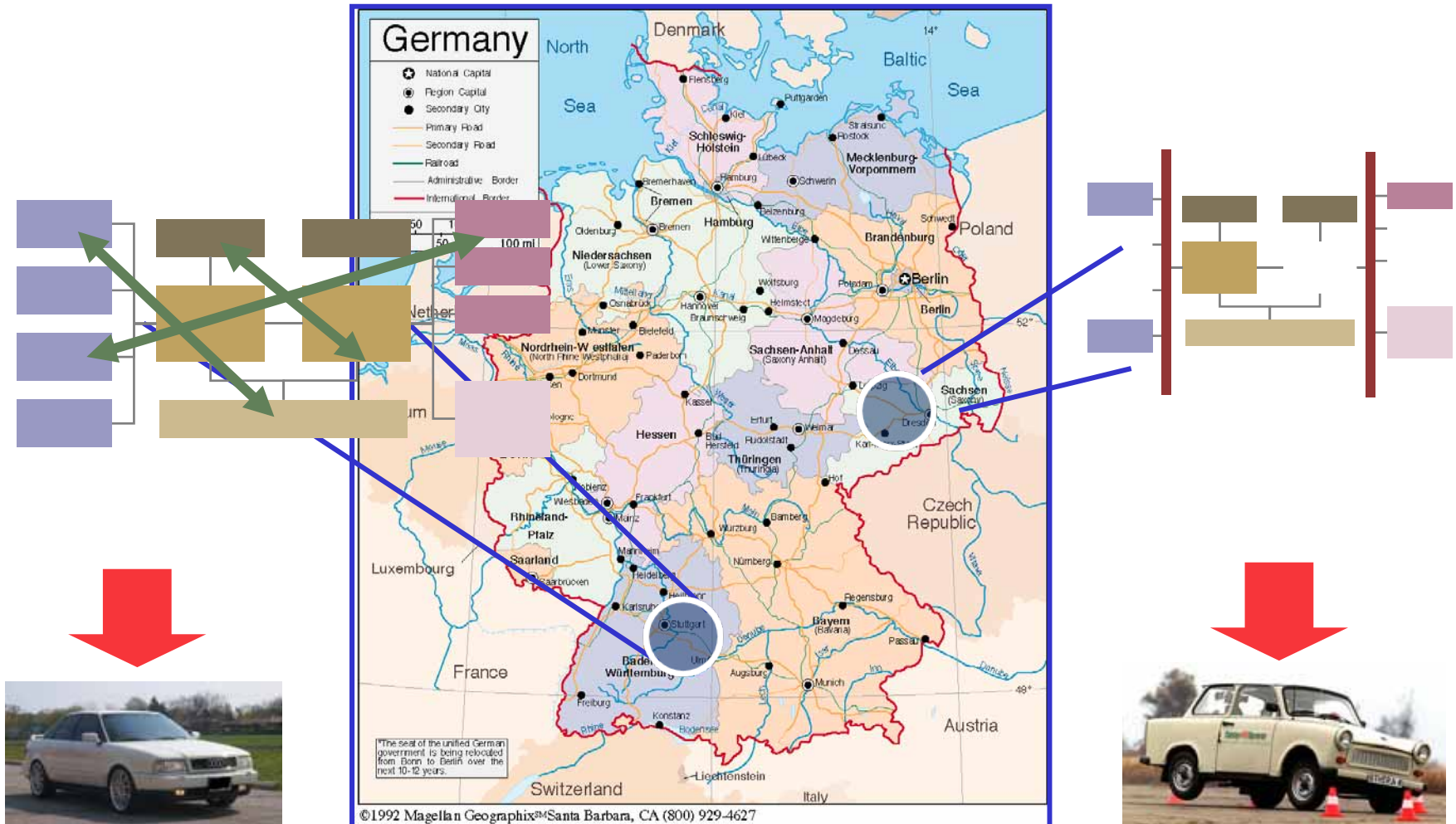
1. Trial-and-error of new methods of production, new technologies
2. Pluralism leads to experimentation and testing
3. Role models inspire followers
4. Information intensity – voluntary/involuntary dissemination of skills, technology
5. Buyer-supplier interaction, joint product-process innovation, resource dependency
6. Cross-linkages between industry, finance, research, education, public organizations
7. Apprenticeship training, “watch and learn”
8. Shared language (trade language), formal and informal networks, trust, social capital
9. Culture and historical norms, sense of belonging
10. Knowledge about the cluster (“who-is-who”), cluster vision
11. Spin-off firms dispersing skills within the cluster

# Clusters look similar from high altitude

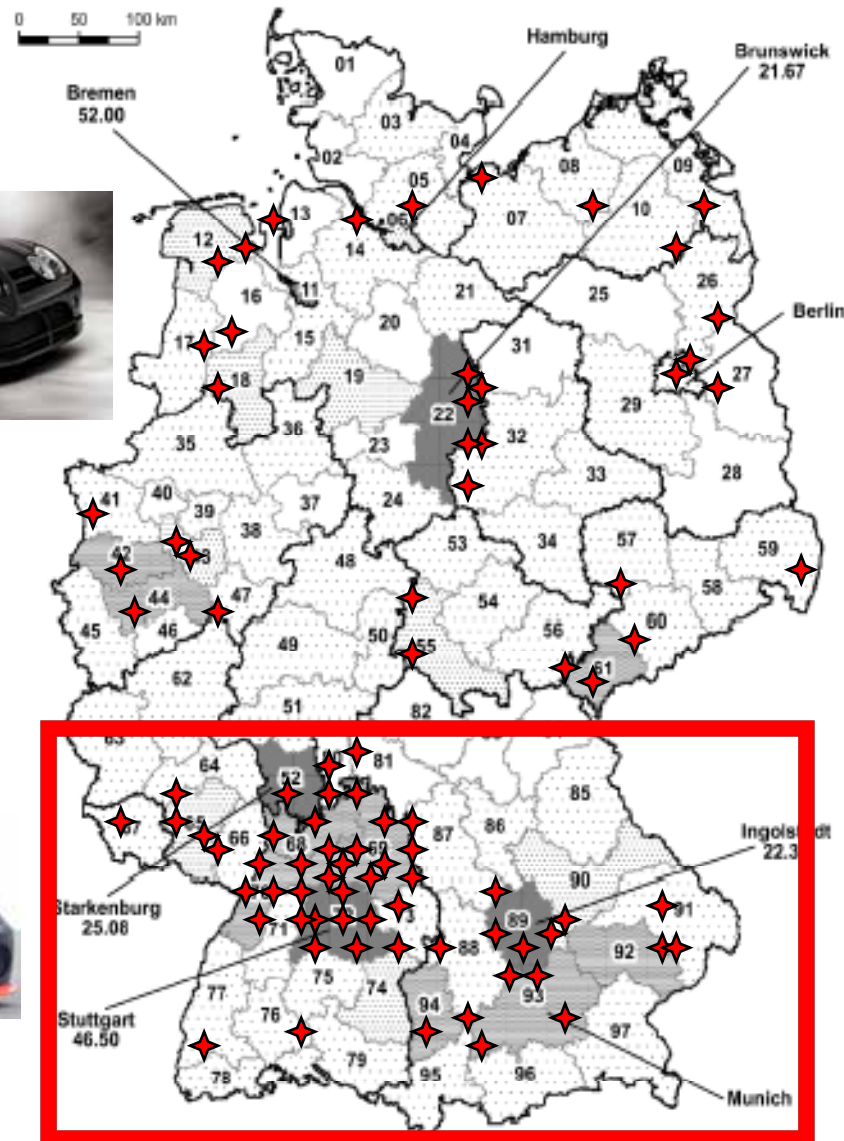




# ...but not when you magnify the picture



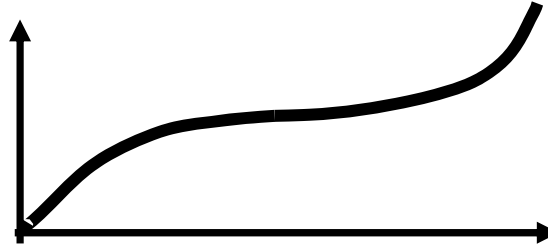
# Car Tuning in Southern Germany



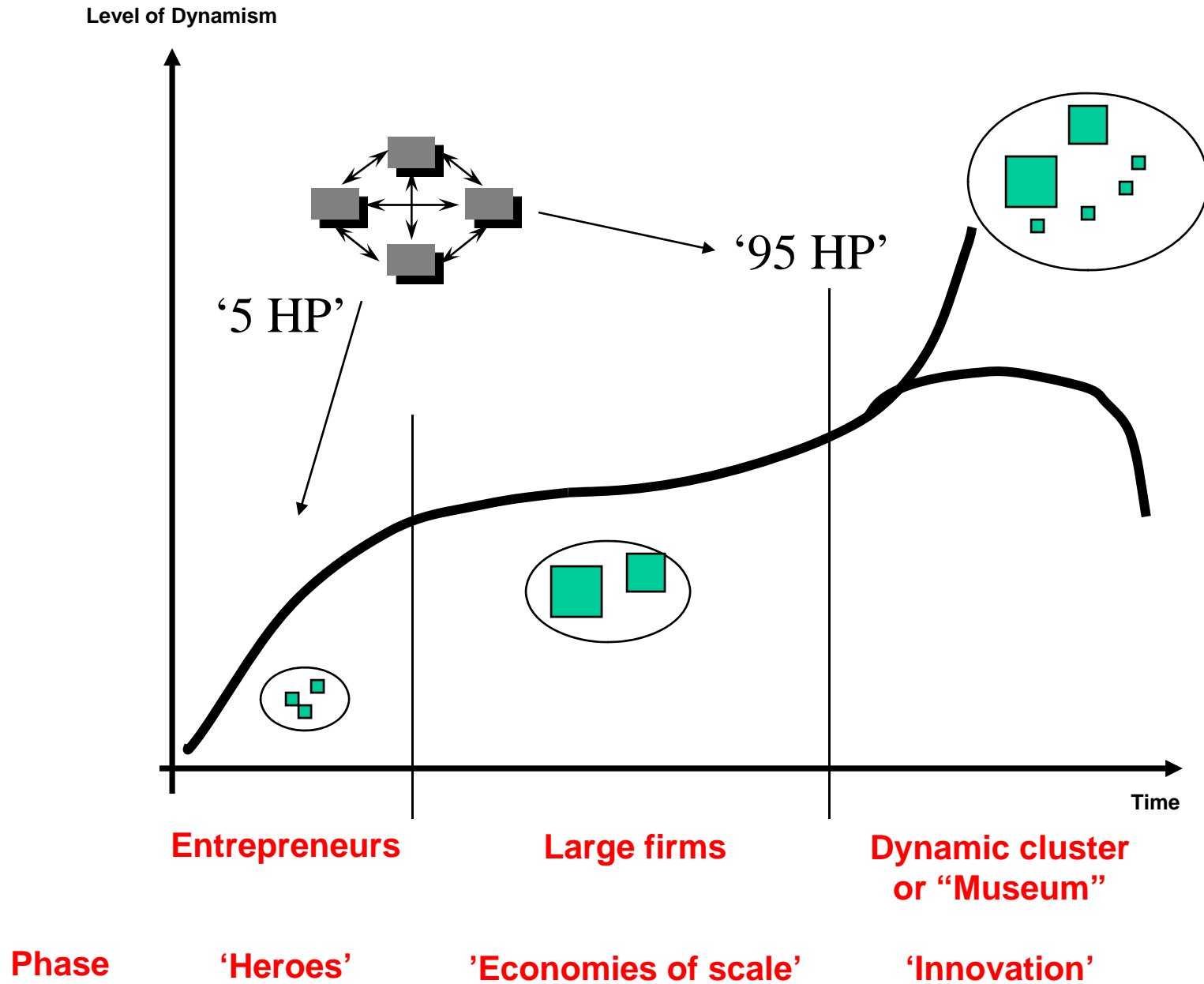
Source: MOC Student Project 2007

SSE MBA: Aivars, Alexandra,  
Flávio, João, Mark, Matt, Vincent

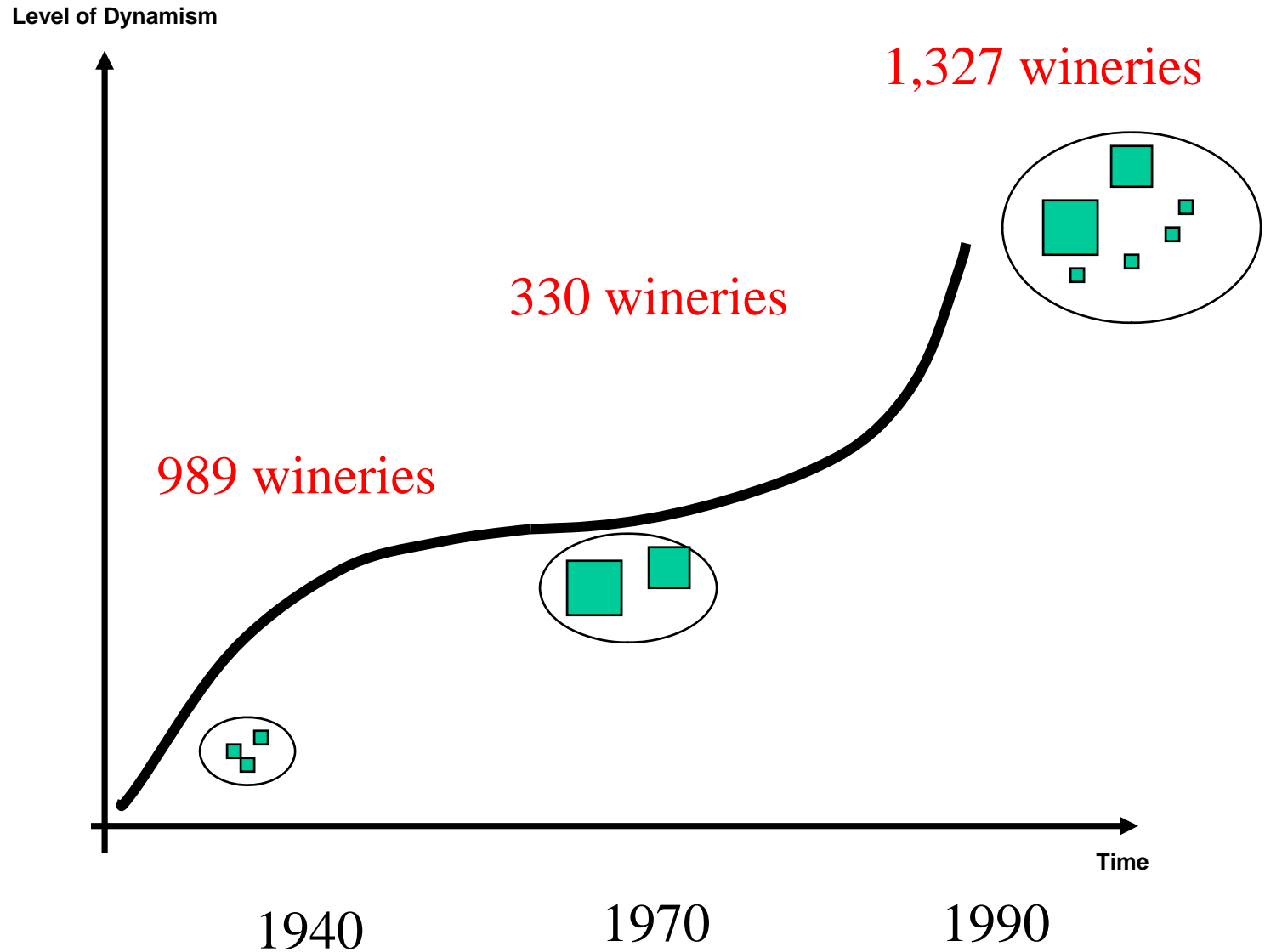
# Clusters 3 – Life Cycle



# The Inverted S-model

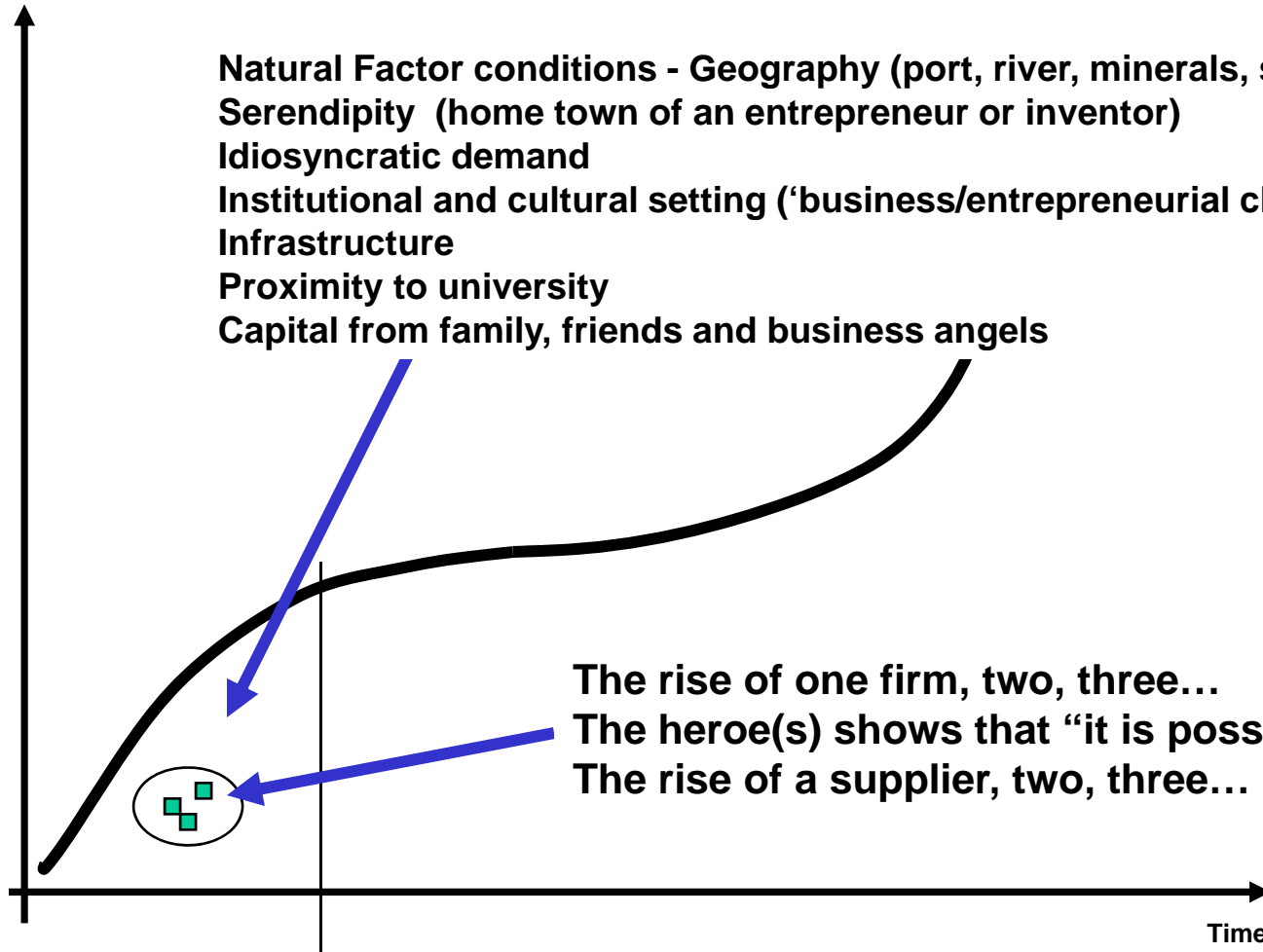


# Californian Wine Cluster



# The Rise of Clusters – The Early Heroes

Level of Dynamism

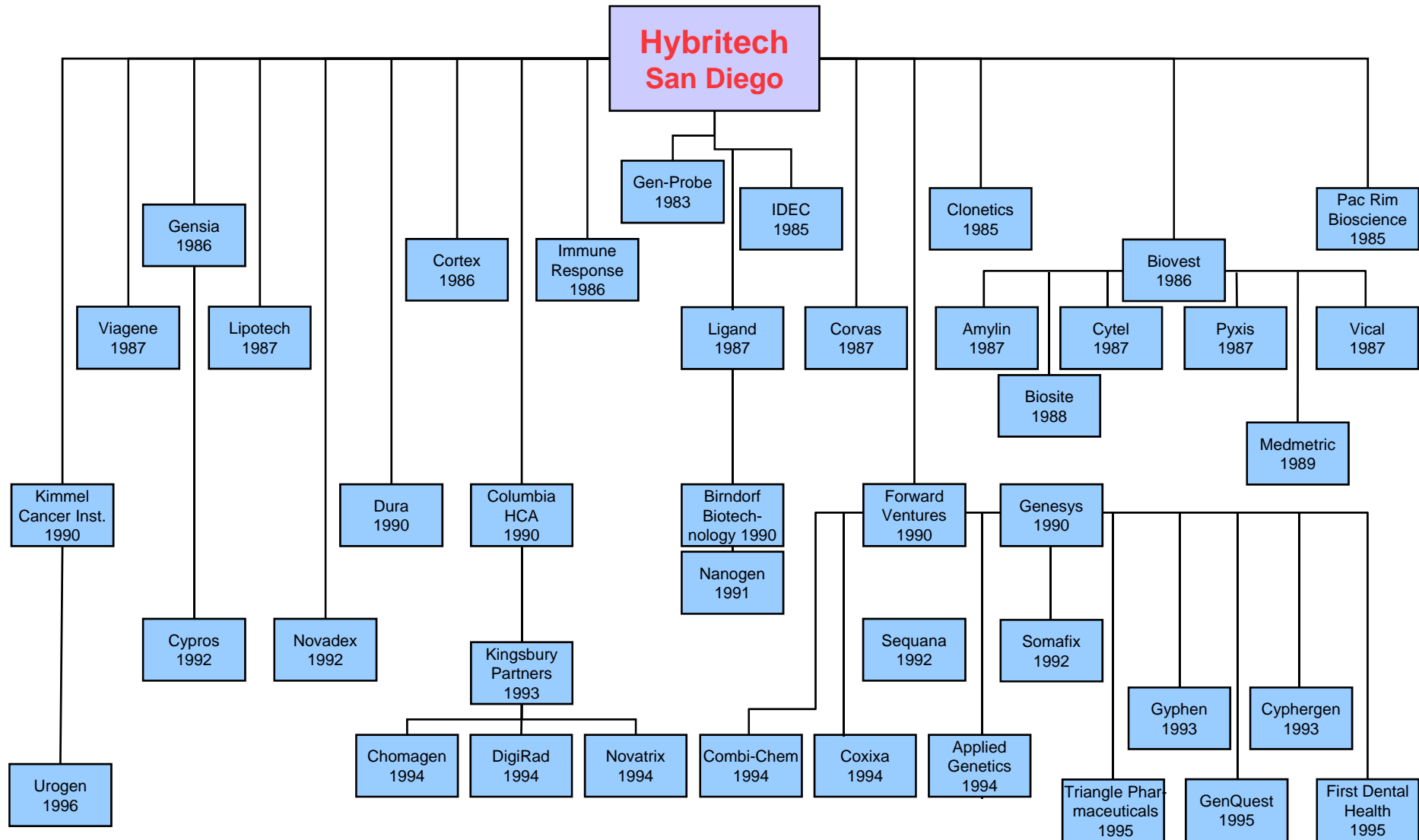


**Entrepreneurs**

**'Heroes'**

# The Process of Cluster Development

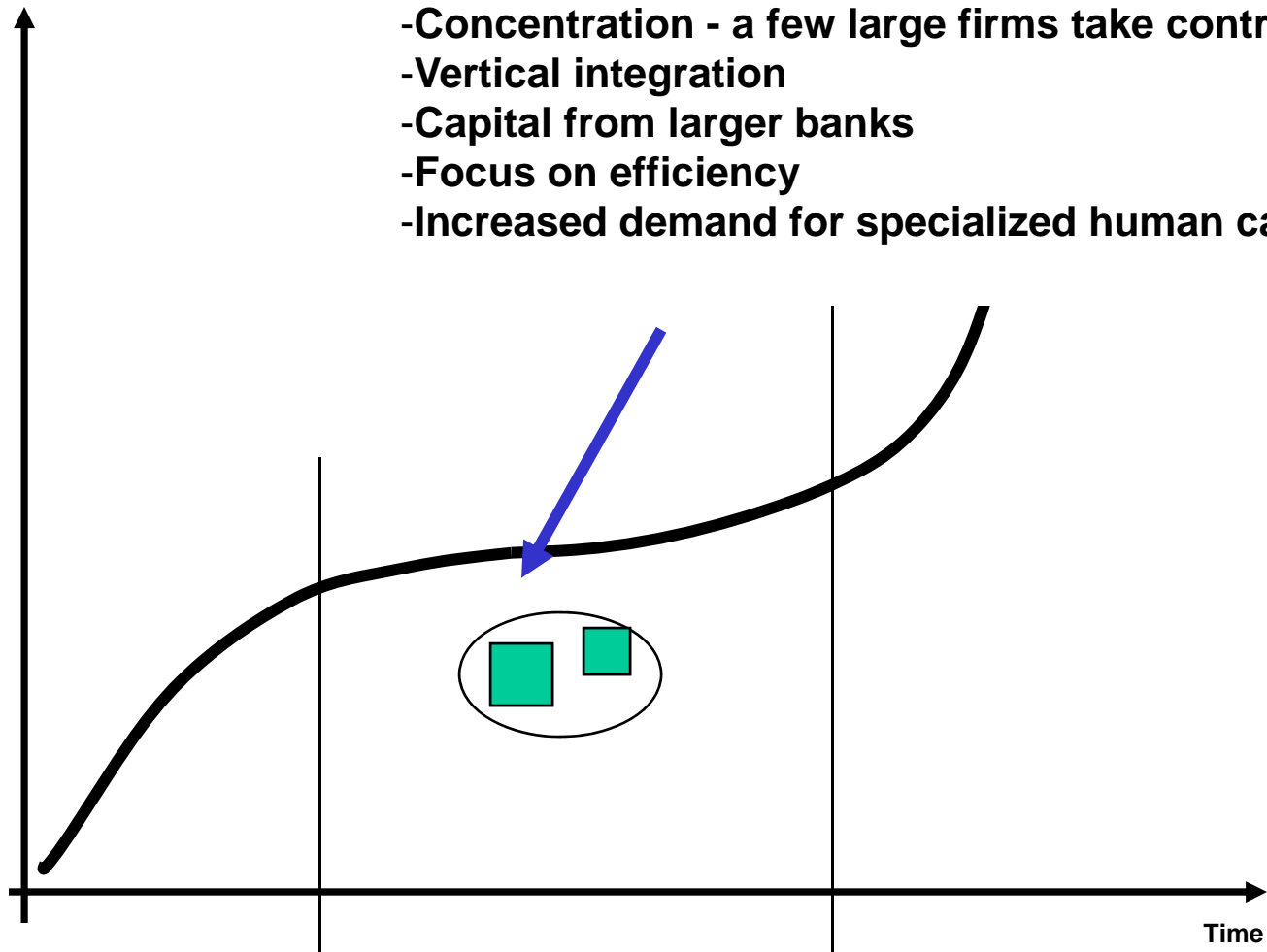
## The Role of Anchor Companies and Spin-offs



# Economies of Scale

Level of Dynamism

- Concentration - a few large firms take control
- Vertical integration
- Capital from larger banks
- Focus on efficiency
- Increased demand for specialized human capital



**Large Firms**

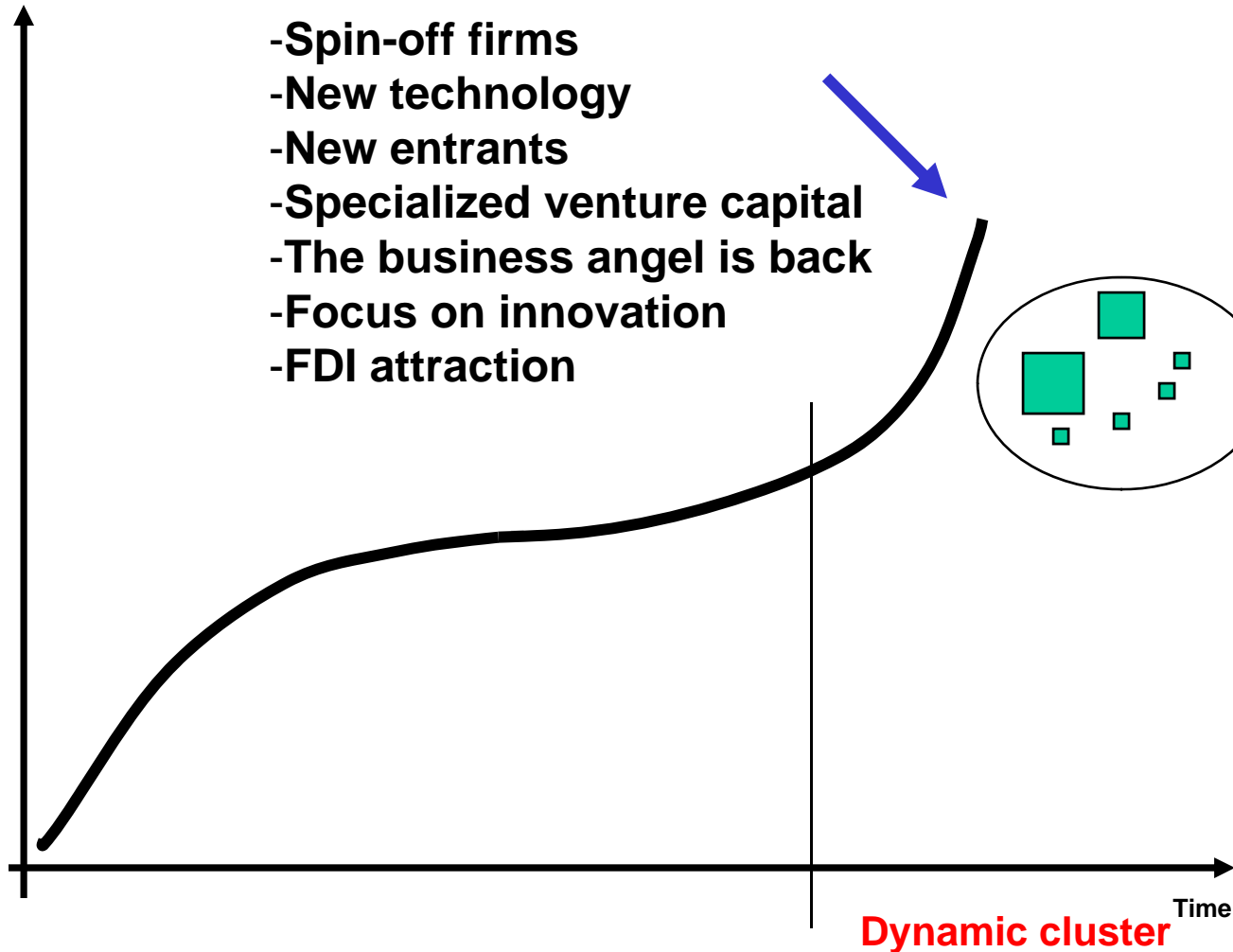
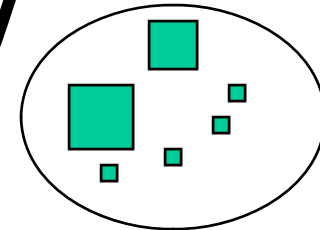
**'Economies of Scale'**



# Renaissance

Level of Dynamism

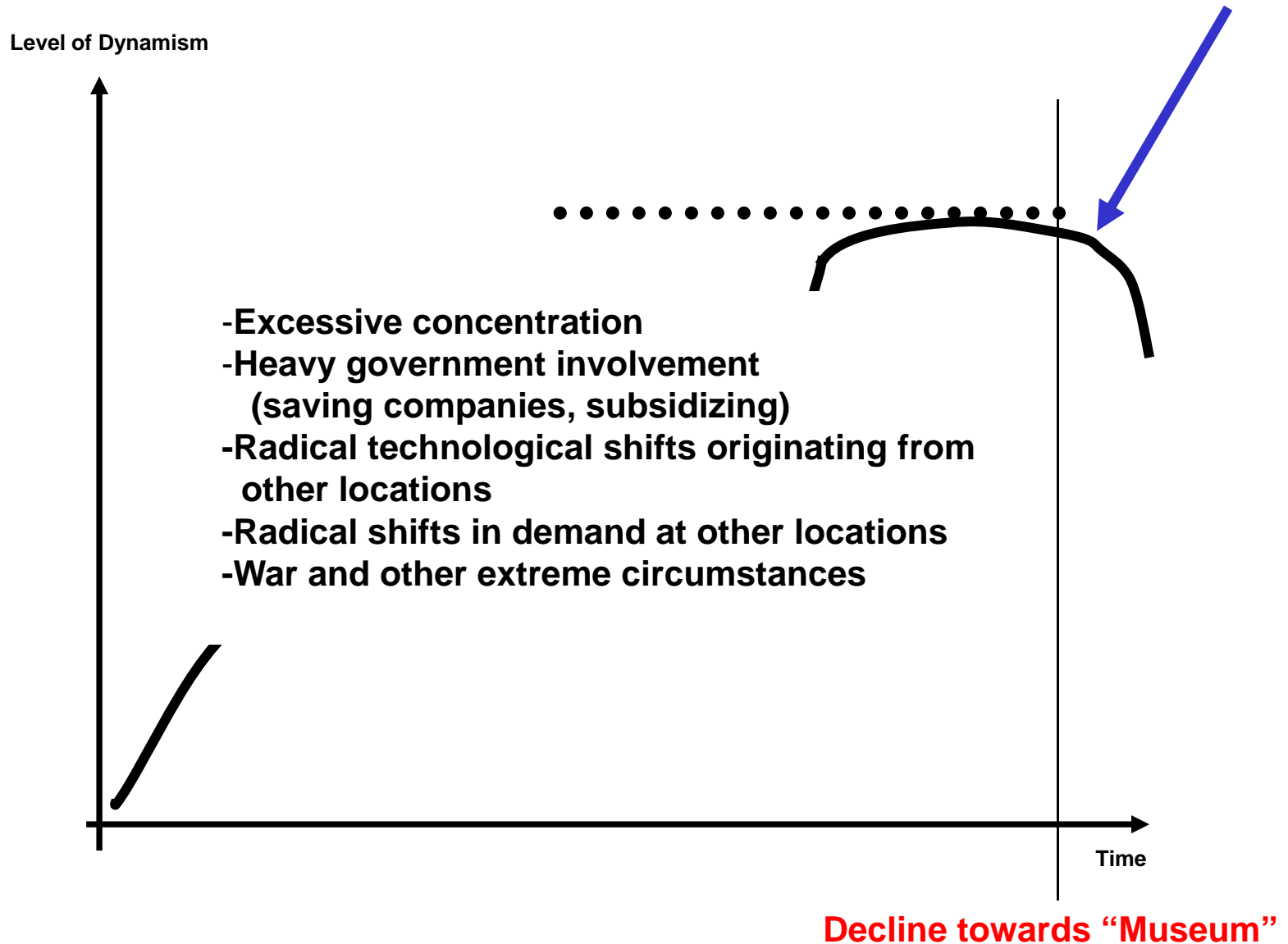
- Spin-off firms
- New technology
- New entrants
- Specialized venture capital
- The business angel is back
- Focus on innovation
- FDI attraction



Dynamic cluster

'Renaissance'

# Or....decline...



# Arsenale in Venice

## Downhill since the 17th century



Naval Museum

# Göteborg Shipyards

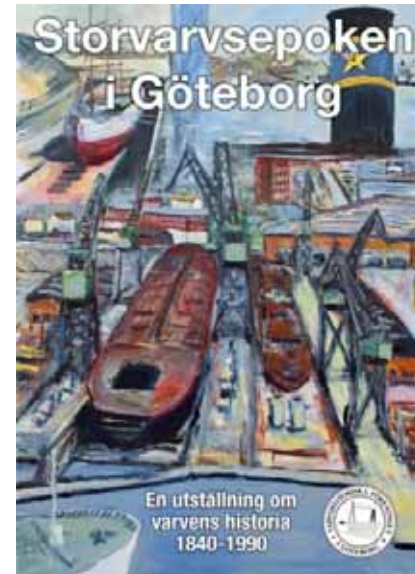
## 16th century - 1988



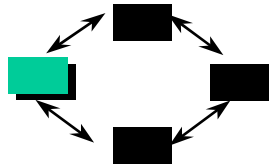
1971



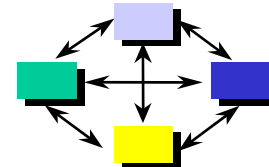
Oden



# Cluster Life Cycle



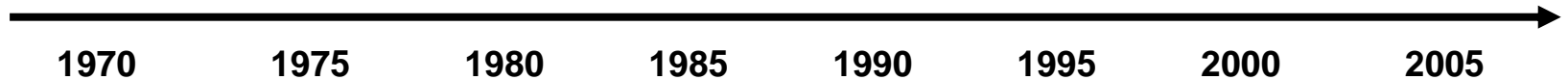
**Diamond evolution**



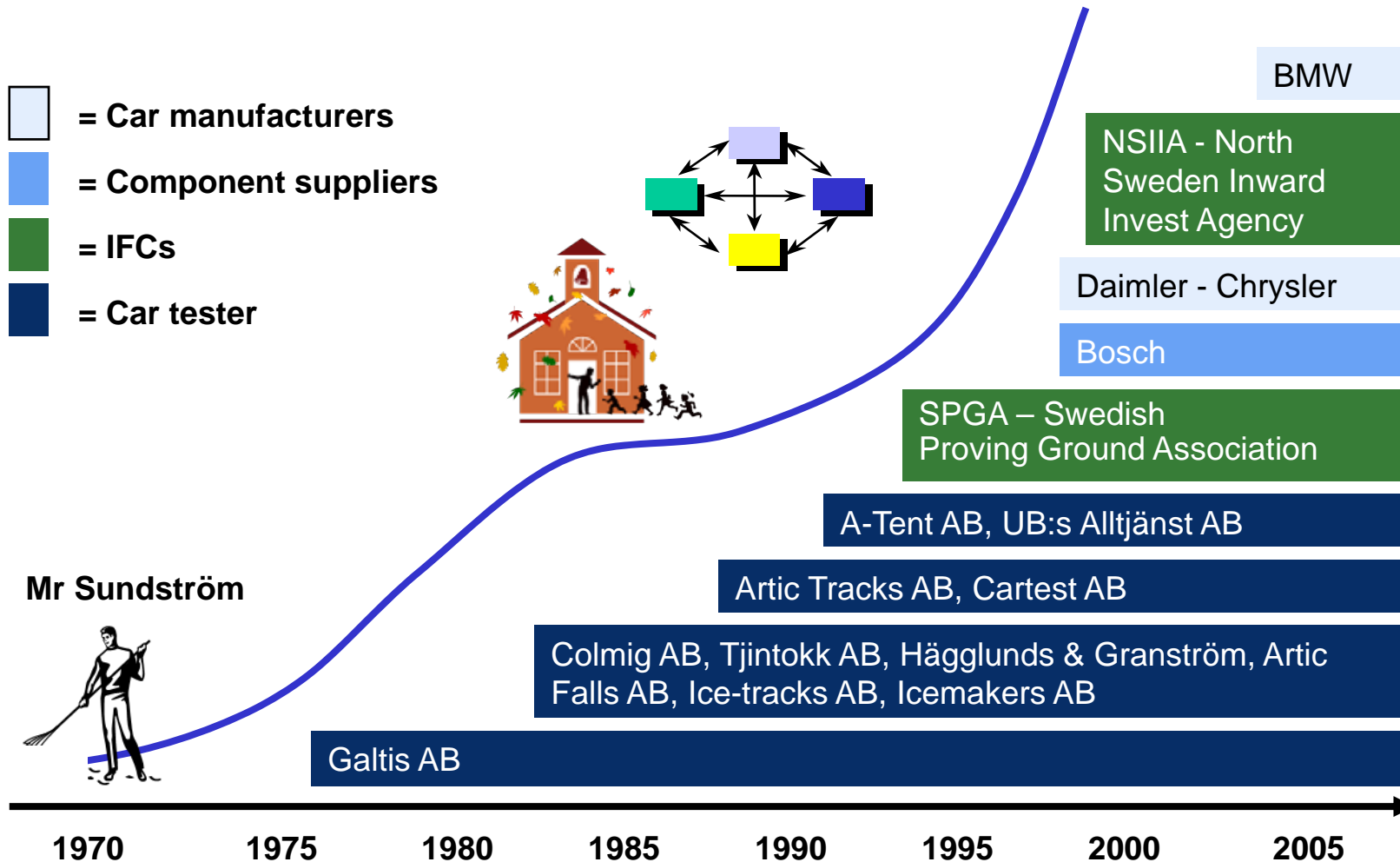
**Community, networks and social capital**



**Entrepreneurship**

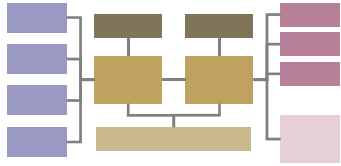


# Arjeplog Winter Car Testing

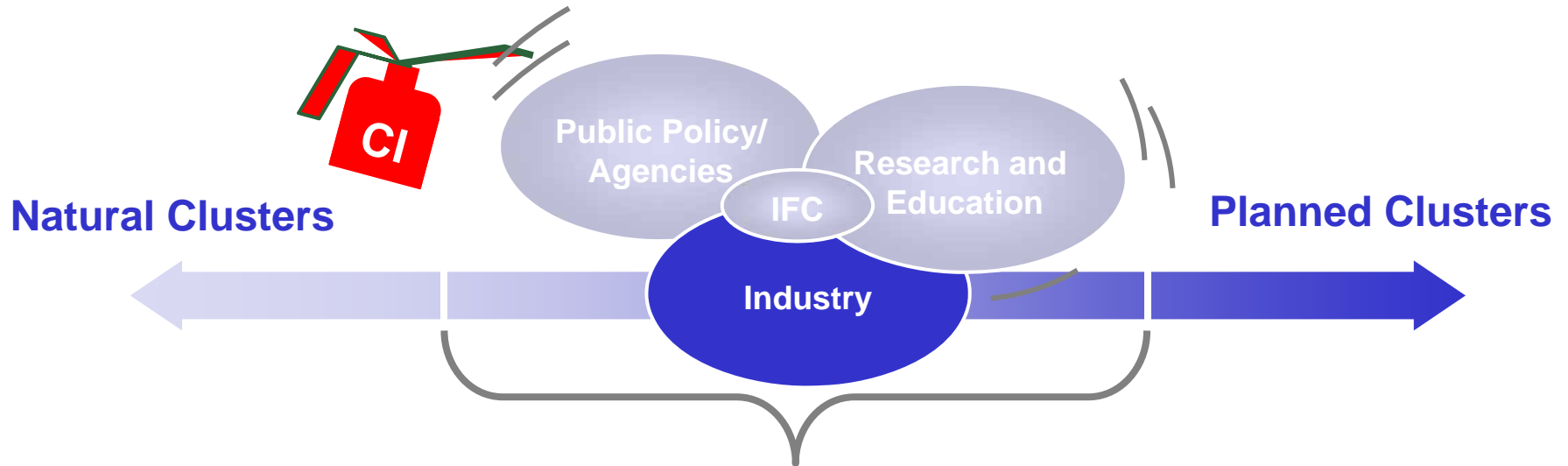


Source: Student Project MOC at SSE 2004 - Patrick Jonsson, Christina Lindberg, Marcus Lindén, Erik Mossberg, Andreas Öhrnberg

# Clusters 4 - Policy



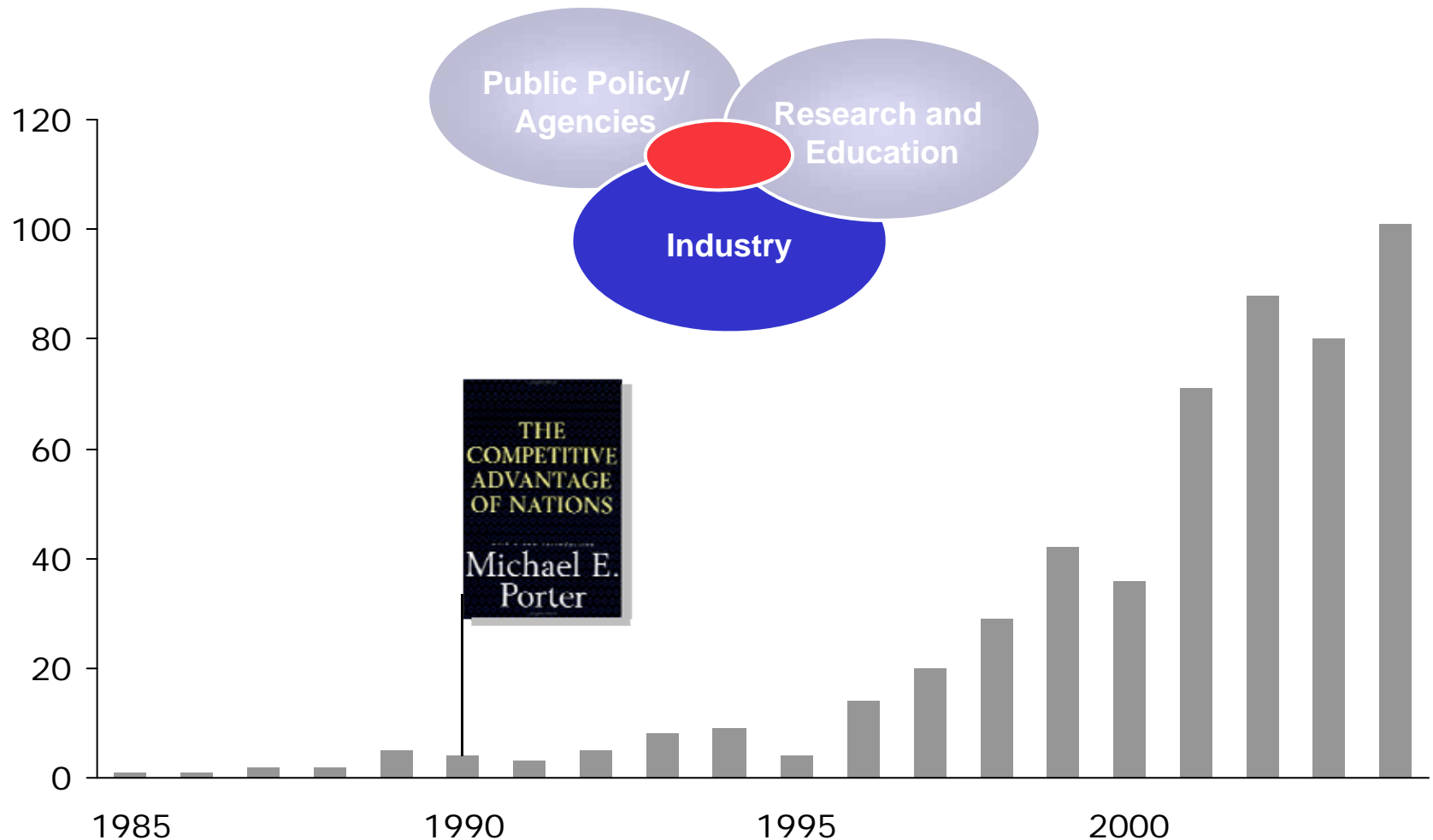
## Natural vs planned/organised clusters



**Policies to boost old and emerging clusters:**

**Cluster Programs**  
**Cluster Initiatives**  
**Cluster Organisations**  
**Cluster Networks**

# Emergence of Cluster Organisations



Source: GCIS 2005 (Ketels, Lindqvist, Sölvell), [www.sse.edu/csc](http://www.sse.edu/csc)



# Cluster organizations

## ACstyria Autocluster

- Steiermark, Austria
- Automotive industry
- About 370 companies, and government agencies
- Improve image, increase co-operation, joint development, education



## Uppsala Bio

- Uppsala city, Sweden
- Biotech
- About 90 participating academic institutions, gov't agencies and companies
- Support innovation, attract investment

## East Africa Fine Coffee Ass.

- Ten East-African countries
- Coffee
- About 120 farmers, roasters, exporters, importers, transporters, policy makers
- Export promotion; training

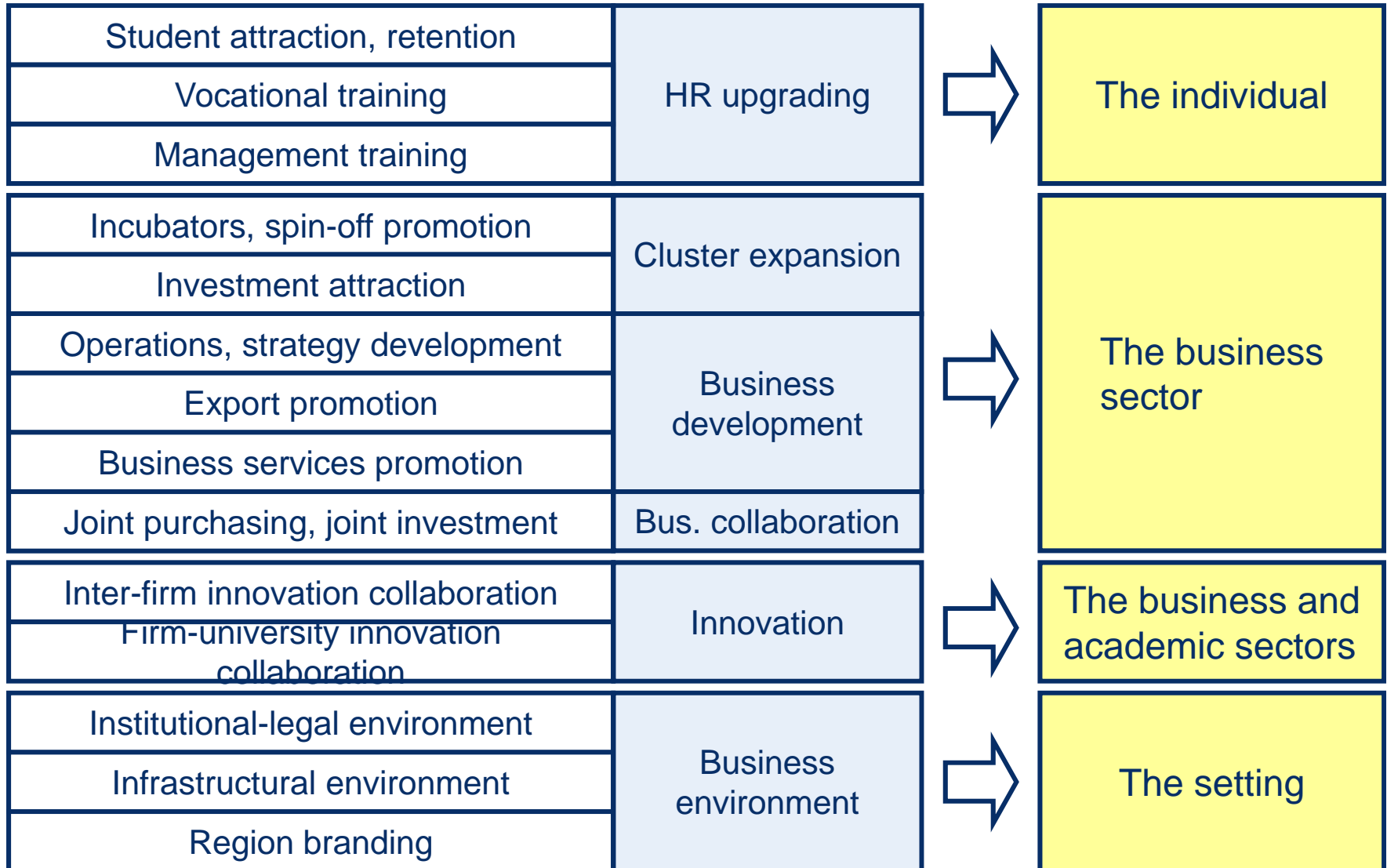


## Food Hawke's Bay

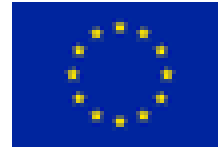
- Hawke's Bay region, NZ
- Wine, dairy products, meat, seafood, bakeries, etc.
- About 100 participating companies, agencies, universities
- Export promotion, investment attraction



# Cluster initiative objectives



# EU – Innovation and Clusters in Focus



- DG Enterprise  
Luxembourg conference

2003



- Sectoral Innovation watch
- Innovation panels (8)
- Cluster networks (11)
- Financing networks (10)
- Standards networks (7)
- Europe INNOVA Forum
- Cluster mapping

2004



8 modules in three pillars:

- Policy analysis
- Policy learning
- Policy development:  
BSR InnoNet  
CEE-Cluster Network  
CLUNET  
INNET



# Cluster Mapping

[www.clusterobservatory.eu](http://www.clusterobservatory.eu)

## Selection by:

- Europe/country (32) /region (259)
- cluster category (38)
- number of stars (1-2-3)

Region	Cluster category	Filter
Germany, all » Select country/region	Automotive » Select cluster category	All » Select filter

table	map	graph
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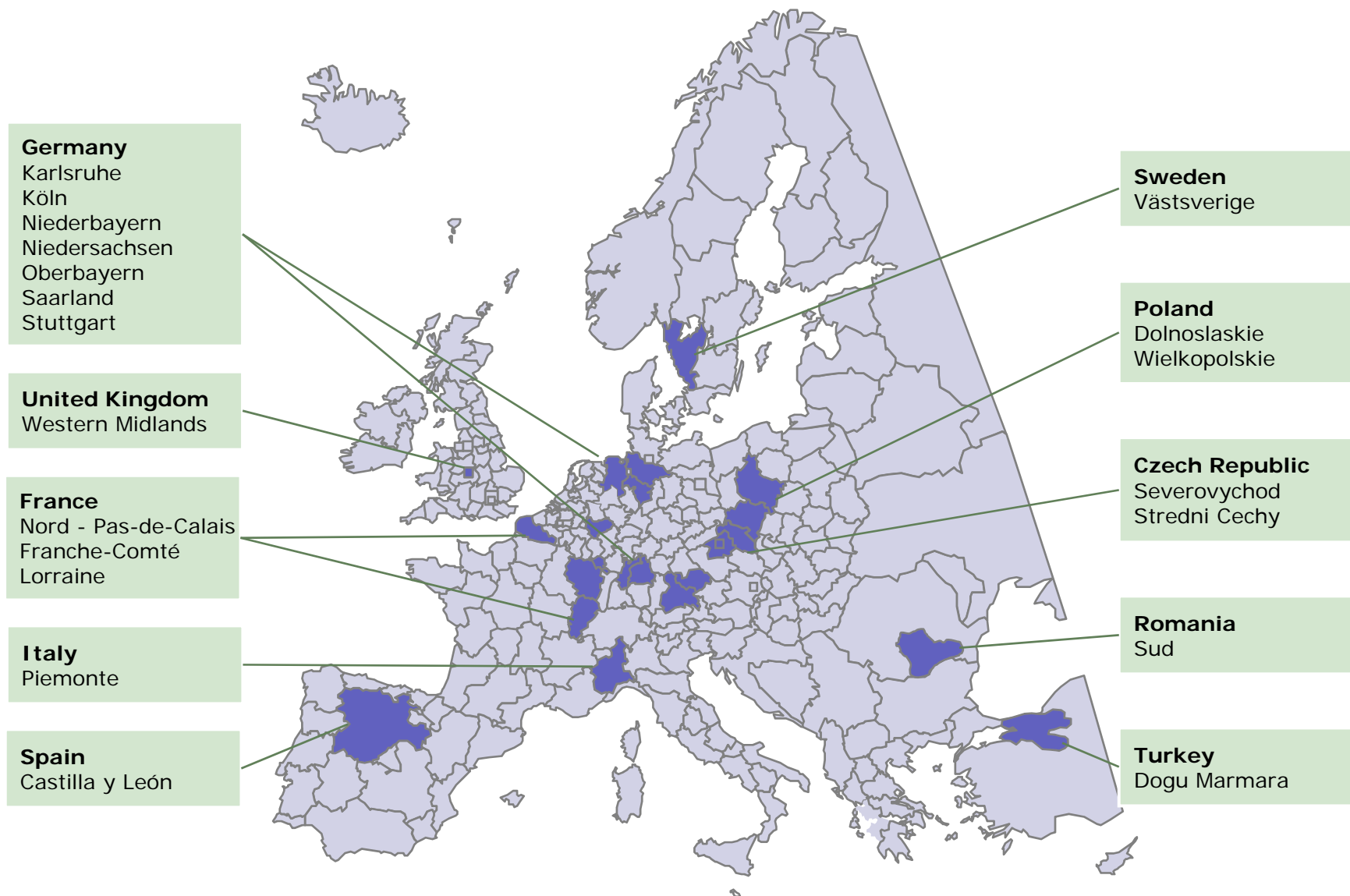
Automotive regional clusters in Germany								
Region	Employees	Size	Specialisation	Focus	Stars	Innovation	Exports	Note
Stuttgart, DE	136 353	5.08%	6.54	9.35%	***			
Oberbayern (München), DE	82 339	3.06%	3.65	5.21%	***			
Braunschweig, DE	79 996	2.98%	10.61	15.15%	***			
Karlsruhe, DE	40 694	1.51%	3.00	4.28%	***			
Niederbayern (Landshut), DE	37 960	1.41%	7.36	10.51%	***			
Hannover, DE	25 979	0.96%	2.69	3.84%	***			
Saarland (Saarbrücken), DE	25 123	0.93%	5.29	7.55%	***			
Köln, DE	36 986	1.37%	1.94	2.77%	**			
Weser-Ems (Oldenburg), DE	21 465	0.80%	2.18	3.11%	**			
Kassel, DE	21 080	0.78%	3.96	5.66%	**			
Rhein Hessen-Pfalz (Mainz), DE	18 491	0.68%	2.20	3.14%	**			
Oberpfalz (Regensburg), DE	16 938	0.63%	3.36	4.80%	**			
Bremen, DE	16 280	0.60%	4.22	6.03%	**			
Chemnitz, DE	15 216	0.56%	2.31	3.30%	**			
Unterfranken (Würzburg), DE	14 210	0.52%	2.32	3.31%	**			
Darmstadt (Frankfurt am Main), DE	33 828	1.26%	1.69	2.42%	*			
Düsseldorf, DE	18 956	0.70%	0.80	1.14%				
Arnsberg (Dortmund), DE	17 787	0.66%	1.14	1.63%				
Thüringen (Erfurt), DE	14 555	0.54%	1.48	2.11%				
Schwaben (Augsburg), DE	11 269	0.42%	1.40	2.00%				
Detmold, DE	11 198	0.41%	1.18	1.69%				
Tübingen, DE	10 271	0.38%	1.22	1.75%				
Freiburg, DE	7 792	0.29%	0.78	1.12%				
Mittelfranken (Nürnberg), DE	7 228	0.26%	0.80	1.15%				
Münster, DE	6 967	0.25%	0.69	0.99%				
Koblenz, DE	6 924	0.25%	1.19	1.69%				
Schleswig-Holstein (Kiel), DE	6 798	0.25%	0.62	0.88%				
Oberfranken (Bayreuth), DE	6 421	0.23%	1.26	1.80%				

Source: European Cluster Observatory. ISC/CSC cluster codes 1.0, dataset 20070510

Download as: [pdf](#) | [csv](#)

# 3-star Automotive Clusters in Europe

[www.clusterobservatory.eu](http://www.clusterobservatory.eu)



# The European Cluster Observatory



1

- Cluster Mapping



2

- Cluster Organisations



3

- Cluster Policy



4

- Cluster Case Library

# Clusters and Cluster Policy

**1 Agglomeration**



**2 Dynamics**



**3 Life Cycle**



**4 Policy**



















# Extra Slides



# Clusters vs Cluster Initiatives – Limited Overlaps

## West Sweden 2004

### Statistical Industry Cluster

	HEAVY CONSTRUCTION SERVICES	23857
	METAL MANUFACTURING	14861
	EDUCATION & KNOWLEDGE CREATION	14276
	BUSINESS SERVICES	13886
	FOREST PRODUCTS	12935
	HOSPITALITY & TOURISM	12793
	PRODUCTION TECHNOLOGY	11486
	DISTRIBUTION SERVICES	10121
	FISHING & FISHING PRODUCTS	1987
	APPAREL	1704
	TOBACCO	502
	AUTOMOTIVE	43168
	TRANSPORTATION & LOGISTICS	27137
	PROCESSED FOOD	15750
	TEXTILES	4343
	OIL & GAS PRODUCTS & SERVICES	1358

### Cluster Initiative

Organized clusters

IVSS

Statistical clusters

Industriellt Distrikt Skaraborg  
(Automotive, Distribution Services, SME Sub -Contractor)  
Sweden Logistics  
(Transportation and Logistics)  
Networking Companies  
(Transportation and Logistics)  
Livsmedel i Väst  
(Processed Food)  
Sweden Technical Textile  
(Textile, Apparel)  
Samväte i Väst  
(Oil & Gas Products and Services)

PLUS (Plastics)  
Polymertekniskt Centrum (Plastics)  
Teknocenter (High -Tech)  
Hälsoteknikalliansen (Health)  
Film i Väst (Film, Entertainment)  
Brewhouse Innovation (Entertainment, Media)  
Innovatum (Engineering and Creative Industries )  
Köksriket (Hospitality and Tourism, Processed Food)  
Lindholmen Science Park ( Information Technology )  
Microwave Road (Microwave Technology)  
Microbind House (Telematics and Microwave Technology)  
Telematics Valley (Telematik )  
Göteborgs Visualiseringskluster (Visualisering )  
Automation Technology Cluster of West Sweden  
(Automation)  
SIAQ (Sustainable Indoor Air Quality Cluster)  
Båtklustret (Boats)  
Biomedicinsk Utveckling i Västsverige (Biopharmaceuticals)

# Mapping Statistical Clusters in Europe

