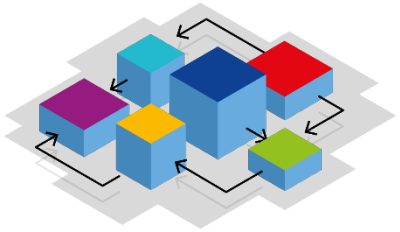

EU Cluster Portal

CLUSTER MAPPING

Cluster Mapping: Creating the Knowledge Infrastructure for Accelerating Innovation and Entrepreneurship

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March 13/14, 2017

Research About Clusters

Case Studies

- Show nature of clusters
- Establish types of linkages that exist within clusters
- Identify patterns of cluster dynamics and their drivers
- Develop hypotheses on the impact of clusters on firms and regions

Cross-sectoral quantitative Studies

- Systematic comparison of clusters across sectors and locations
- Measurement of the overall importance of clusters
- Tracking cluster evolution
- Empirical tests of the impact of cluster presence on regional and firm-level economic performance

“Cluster Mapping”

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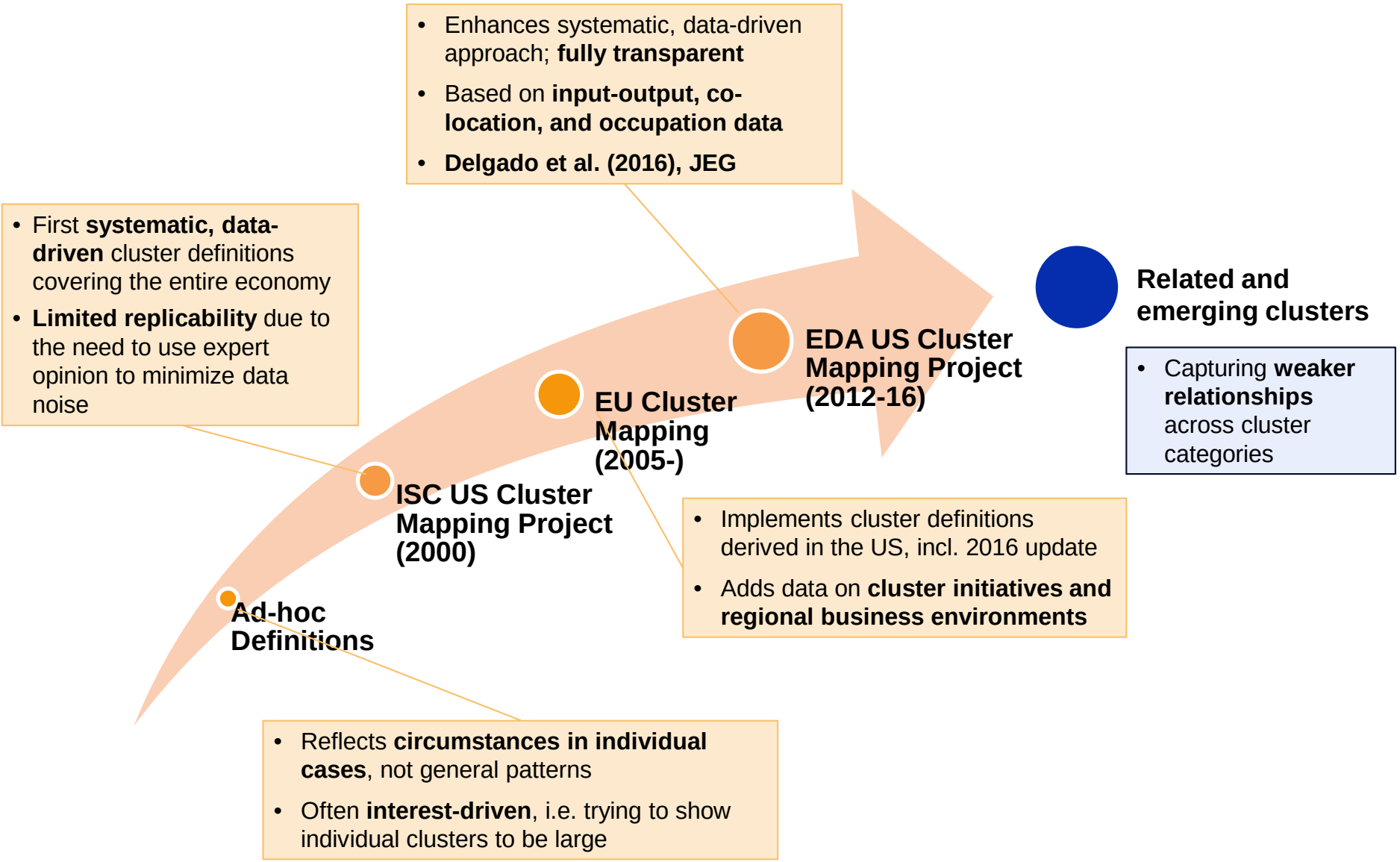
The Evolution of Cluster Mapping



Cluster Mapping: The Method

1. **Classify industries by their geographic footprint**
   - Traded – geographically concentrated
   - Local – present everywhere

- Reflect **fundamentally different competitive dynamics** that matter for policy

2. **Group traded industries into cluster categories**
   - Co-location of employment and establishments
   - Similarities in skill use (national)
   - Input-Output linkages (national)

- Are more **informative on actual economic linkages and similarities** than traditional groupings by technology, policy priority

3. **Group clusters**
   - Data on weaker linkages to track relationships across clusters

- Critical for **development paths**, while clusters are key for current performance

- Unique allocation of all narrow industries to one cluster category
- Aggregation of data into indicators by cluster category and location (establishments, employment, wages, patents, skills,…)
- Can be linked to location-specific outcome data

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51 Traded Clusters, 16 Local Clusters

Source: Delgado et al. (2016)

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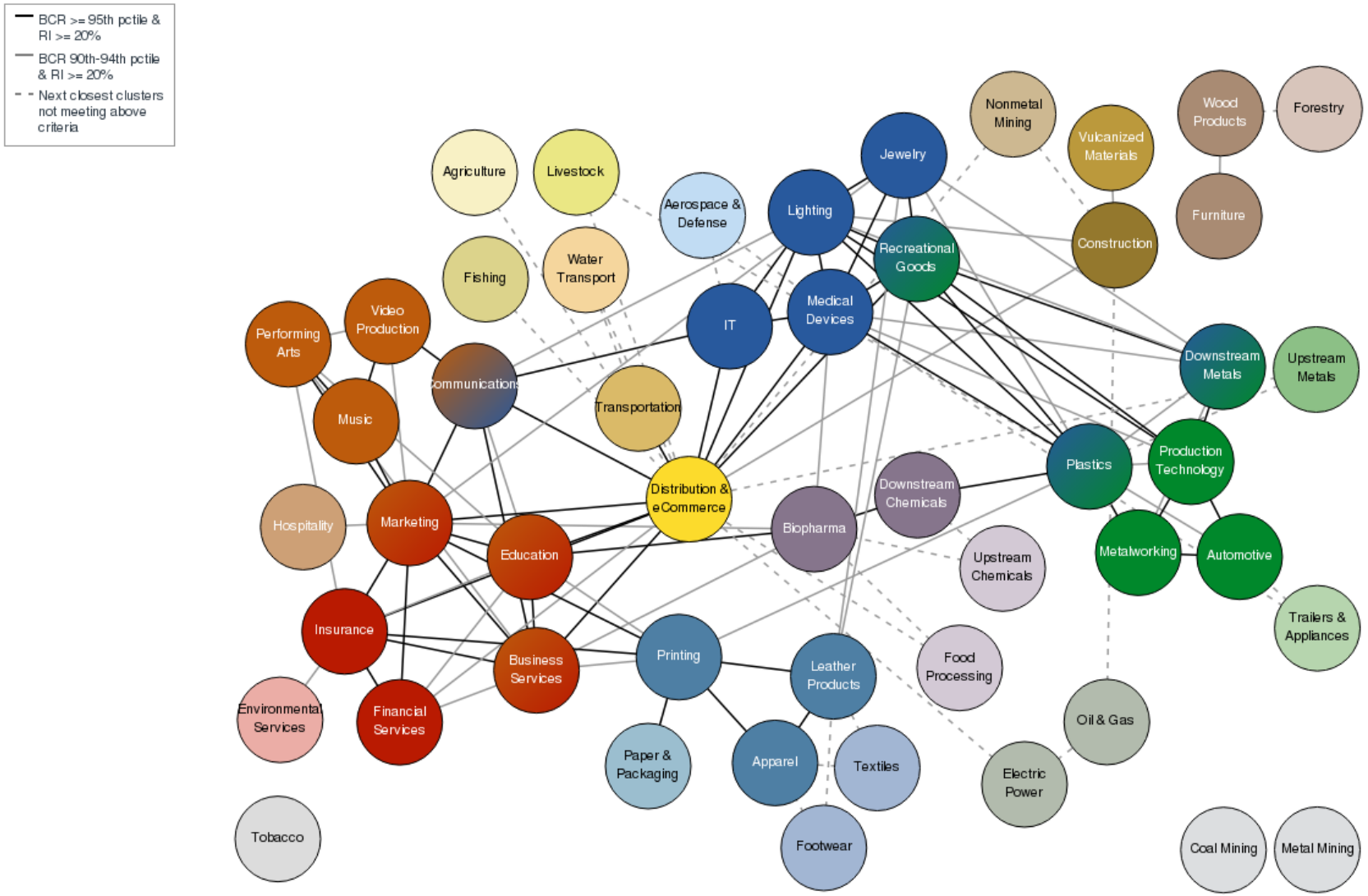
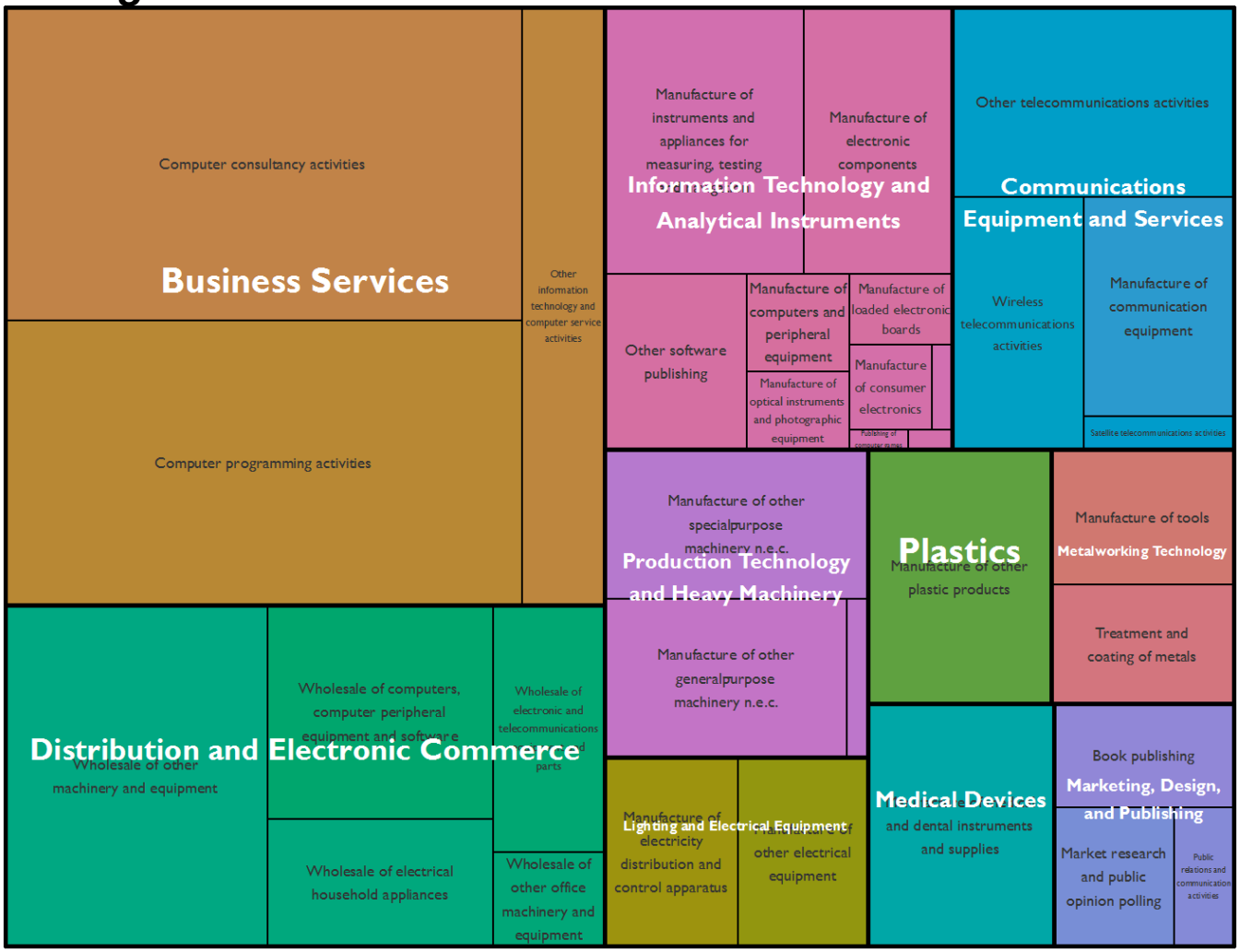
Linkages across Cluster Categories



Source: US Cluster Mapping Portal

Linkages Across Clusters / Emerging New Clusters

Digital Industries



Source: European Cluster Panorama, 2014

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What data is now available?

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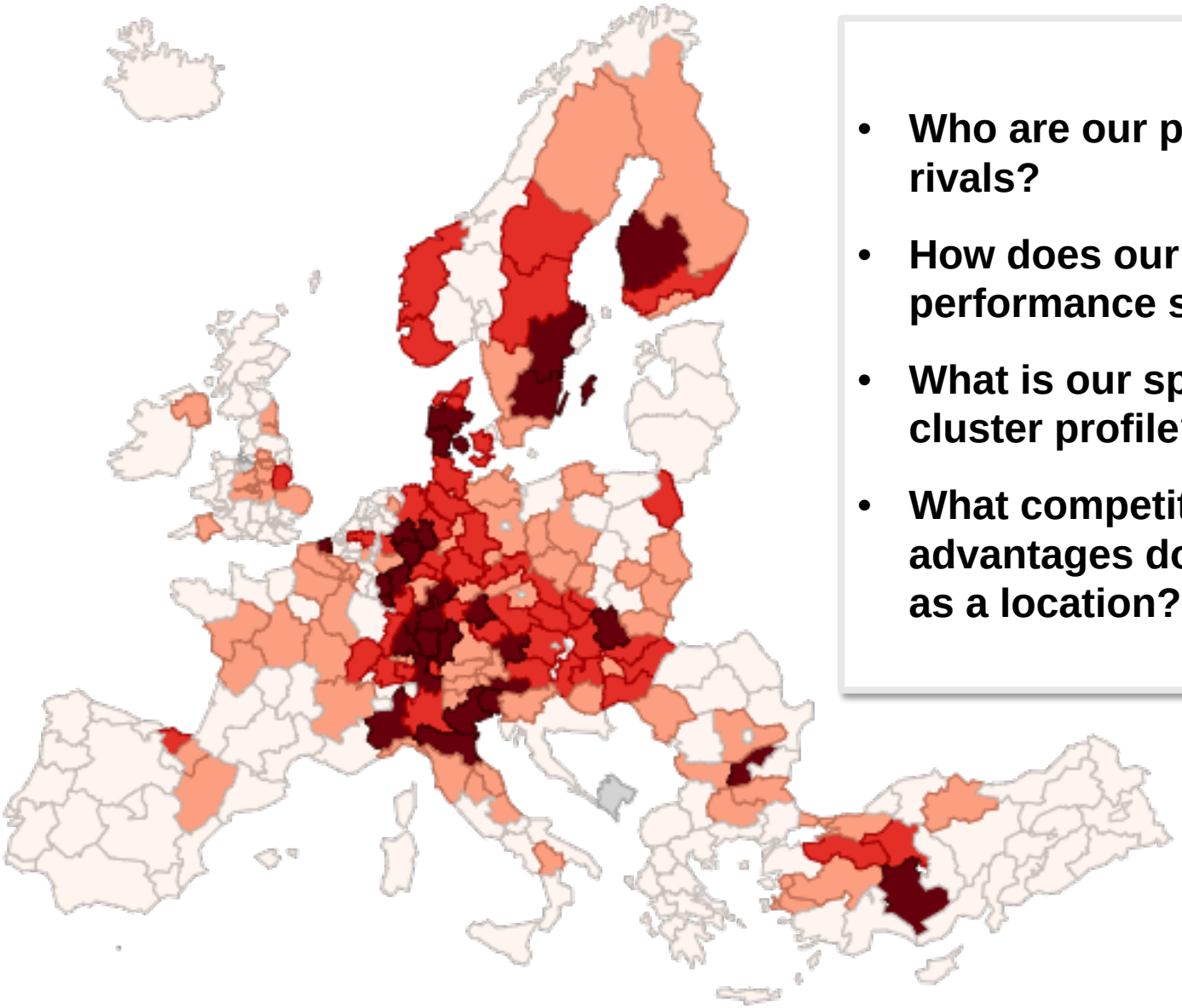
Production Technology Clusters in Europe

Relative Employment Specialization



- **Who are our peers and rivals?**
- **How does our performance stack up?**
- **What is our specific cluster profile?**
- **What competitive advantages do we offer as a location?**

Source: European Cluster Portal

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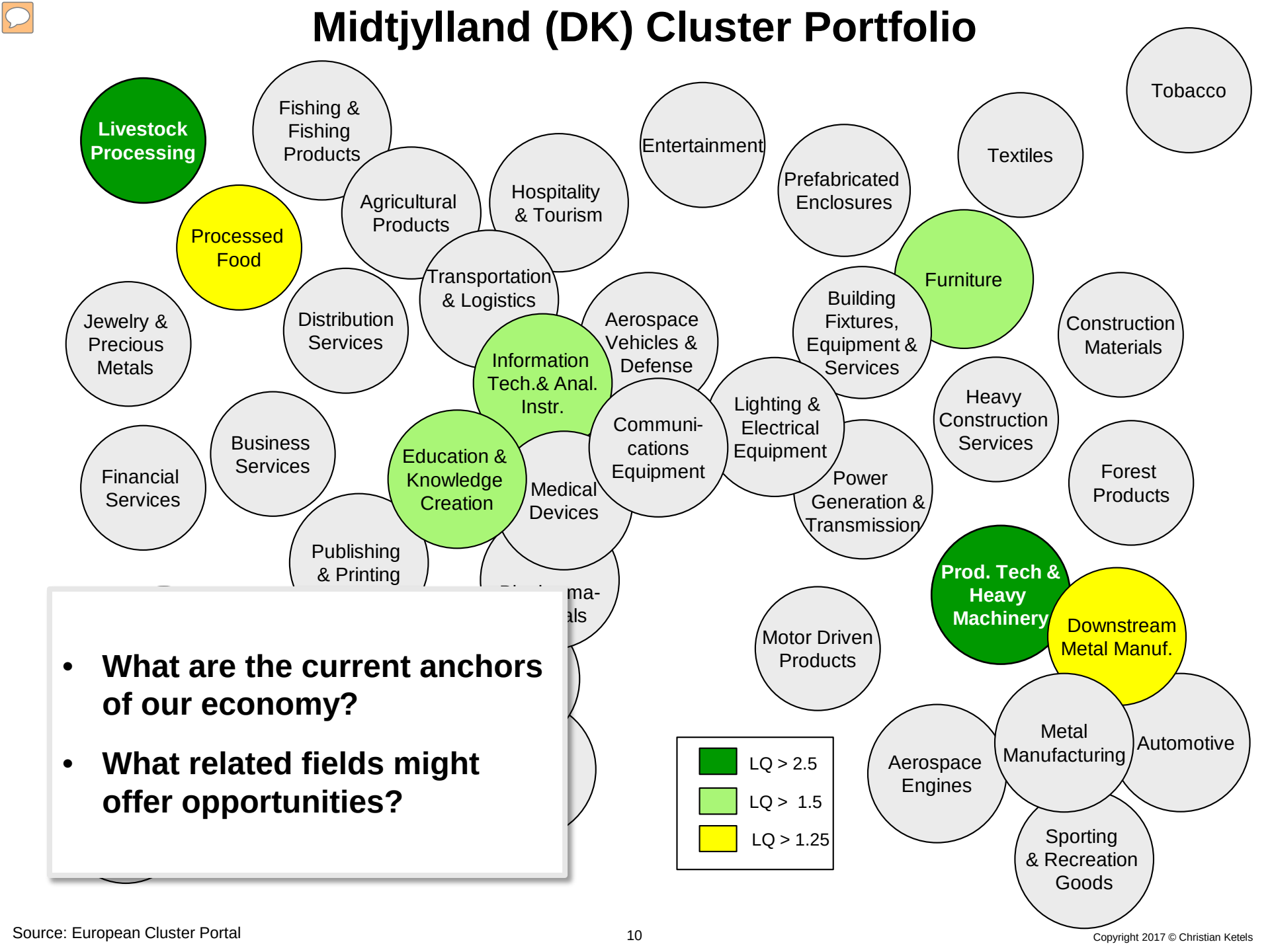
Midtjylland (DK) Cluster Portfolio



- **What are the current anchors of our economy?**
- **What related fields might offer opportunities?**

Source: European Cluster Portal

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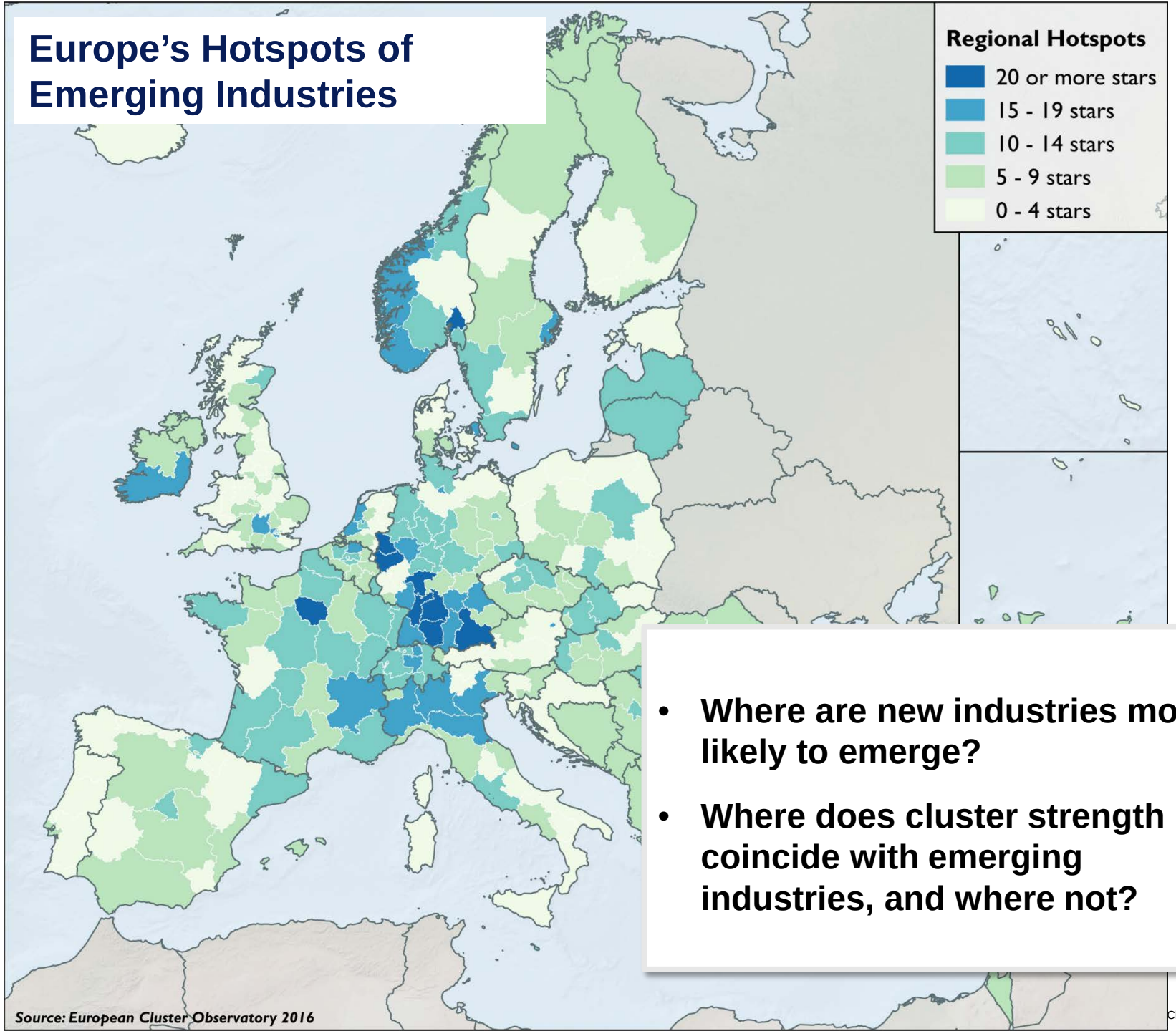
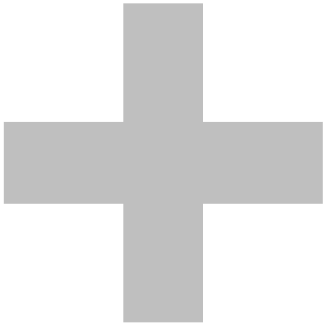
Europe's Hotspots of Emerging Industries



- **Where are new industries most likely to emerge?**
- **Where does cluster strength coincide with emerging industries, and where not?**

Combining Core Cluster Data with Other Indicators



- Patents by clusters
- Gazelles by cluster
- Occupational profiles of clusters
- Profile of cluster portfolios in specific types of regions
- …

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What do we learn from the data?

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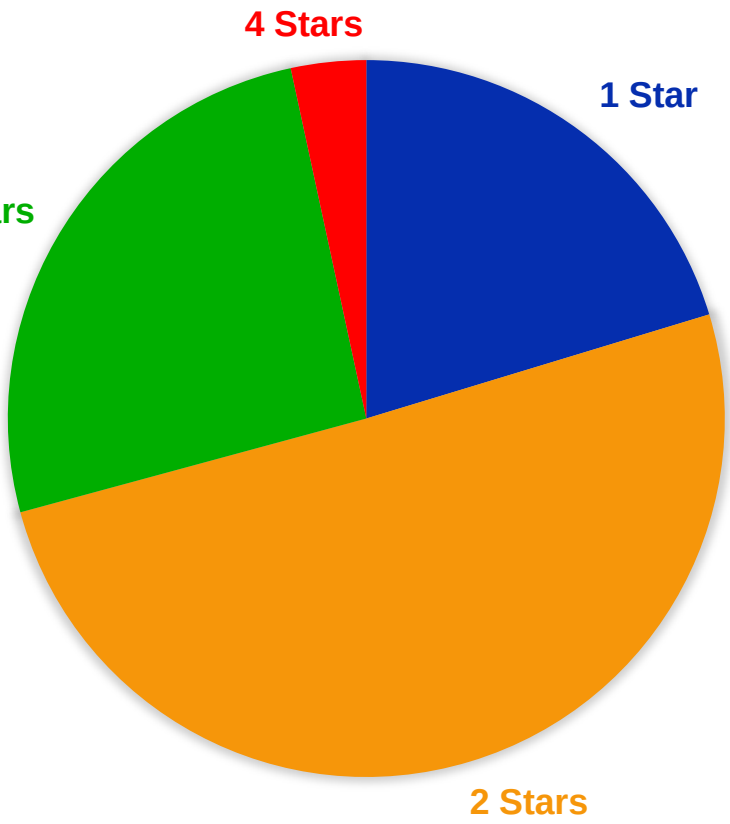
3000 Strong Clusters Across Europe

NUMBER OF STRONG CLUSTERS BY PERFORMANCE STARS



46% of traded industry jobs…

50% of traded industry payroll…

Stars for

- Specialization
- Size
- Wage/productivity
- Growth/Entrepreneurship

Source: European Cluster Panorama, 2016

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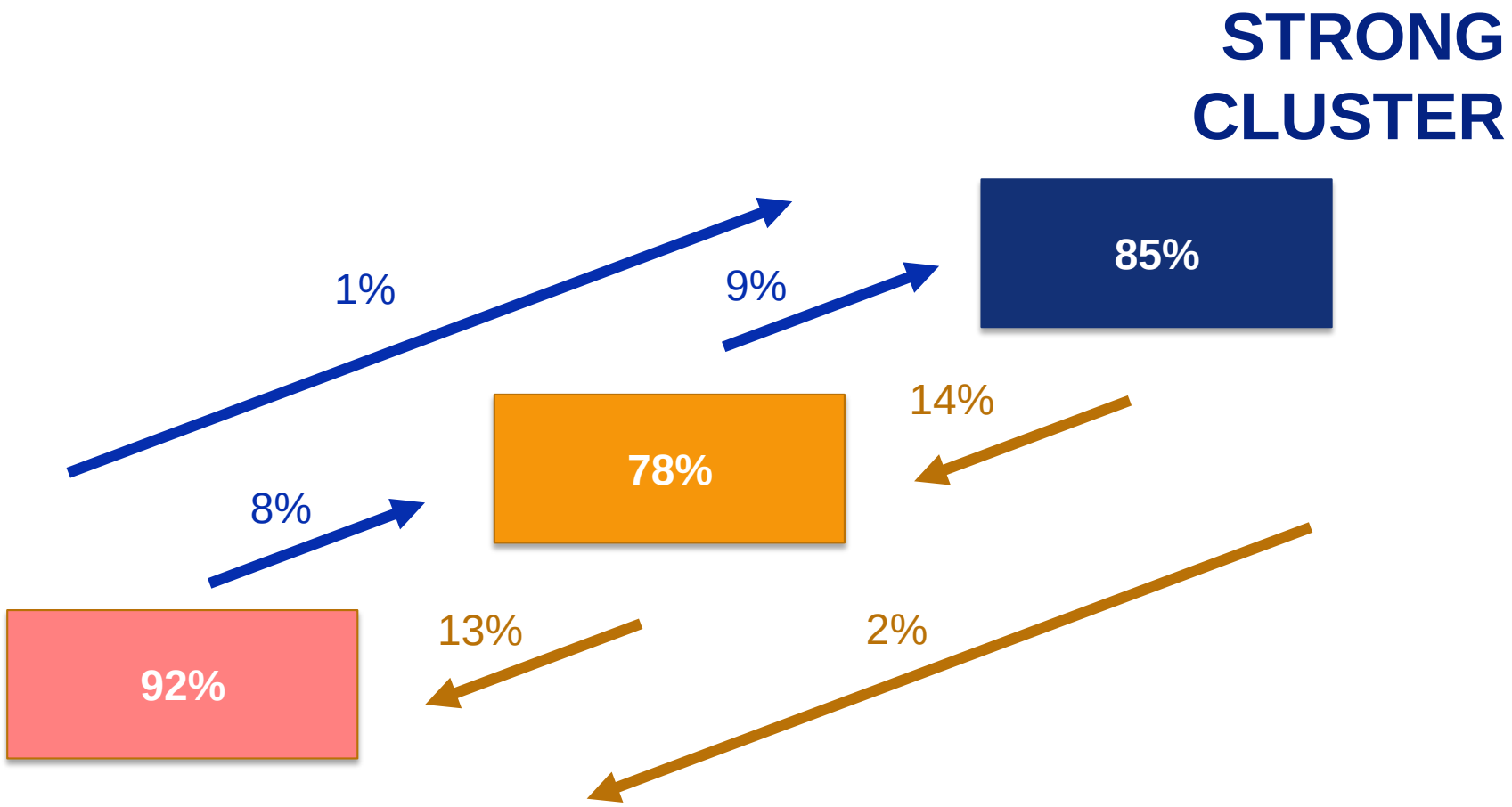
Cluster Churn

Share of clusters keeping/changing performance group, 2008-2014



Source: European Cluster Panorama, 2016

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Clusters and Economic Performance

Presence of Strong Clusters

Prosperity

- Wages
- Productivity
- Job growth
- Resilience
- Patenting

Entrepreneurship

- New business formation
- Survival of new firms
- Job growth in new firms

Structural Change

- Path of structural change (emergence of new clusters)

Source: Delgado et al. (2010, 2014, 2017), Ketels/ Protsiv (2013), European Cluster Panorama 2016

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Clusters and Entrepreneurship

- **67 700 gazelles** in traded industries in Europe employ 1.9 million workers or 1.6% of all employees

- 25 000 or **38% of all trade industry gazelles are located in strong clusters;** gazelles are as concentrated geographically as overall employment

- **Gazelles in strong clusters account for 46% of all gazelle employment**; they employ 35 employees on average compared to 24 in gazelles elsewhere

Source: European Cluster Panorama, 2016

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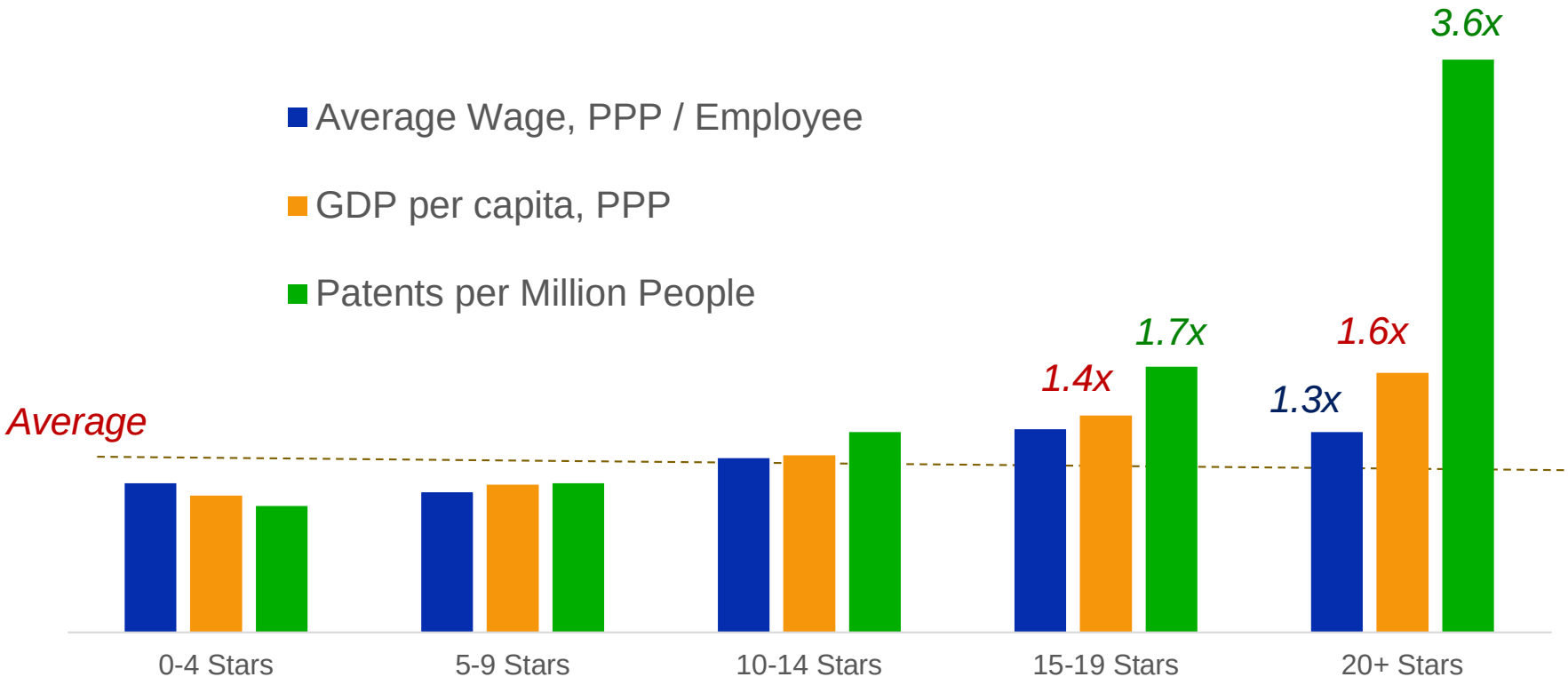
Profile of Regions by Emerging Industry Strength



Source: European Cluster Panorama, 2016

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Putting Clusters into Context

Framework Conditions

Innovation Systems

(Creative) Skills

Clusters

Entrepreneurial Ecosystems

Social Capital

Complexity

Urbanization

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How does it matter for policy?

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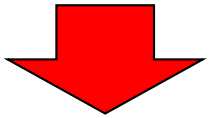
- Clusters **emerge naturally**

- Clusters emerge and develop in a **context deeply affected by policy choices**

- **Collaboration** within clusters provides benefits but requires purposeful collective action

- Policies for **upgrading business environment conditions** can be more effective if they are cluster-specific but require information sharing and collective action



- **Cluster-based policies** enable informed decision making and collective action

From Cluster Mapping to Cluster-Based Policies

- Cluster mapping data provides **critical intelligence** to guide policy action

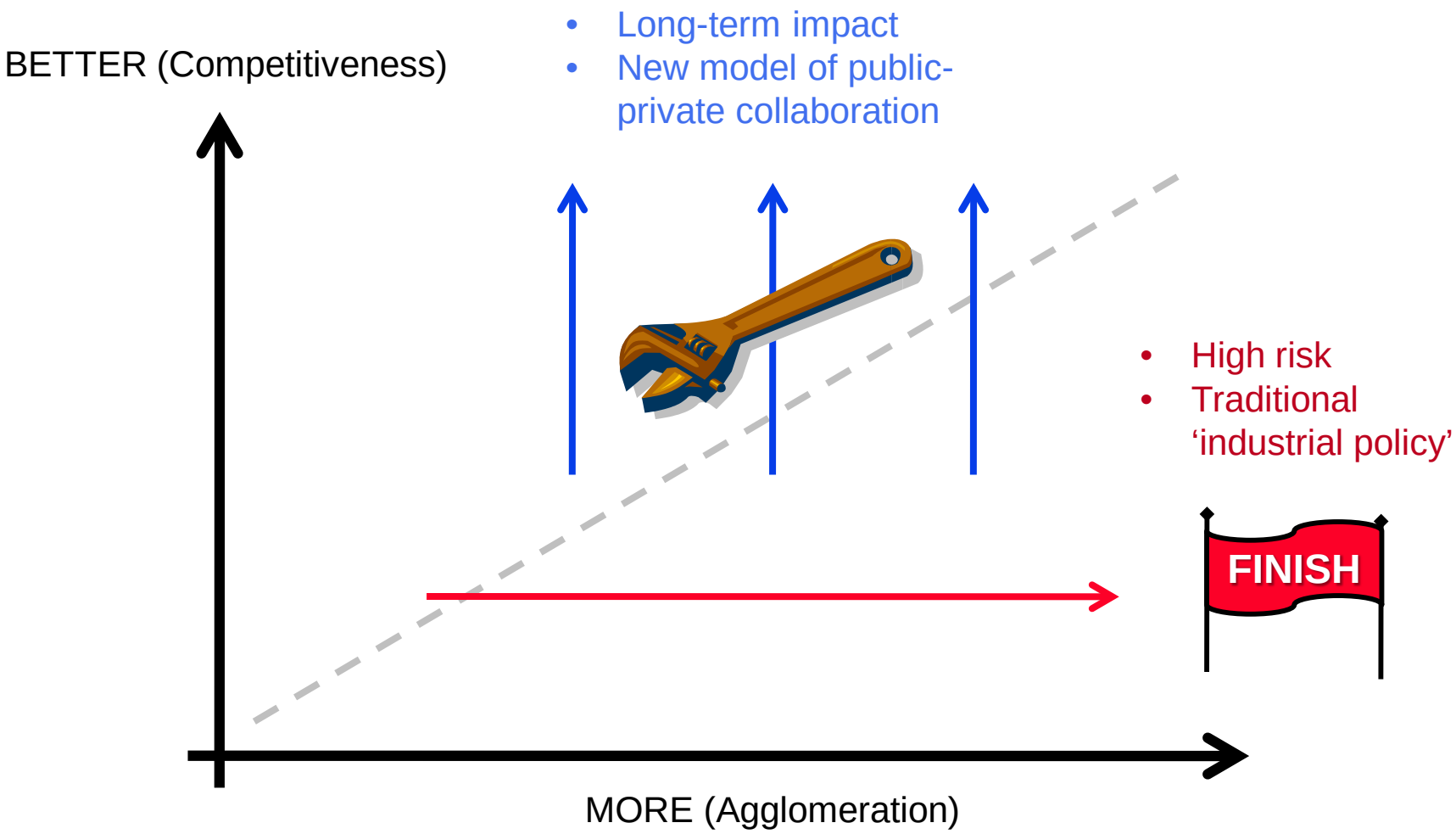
- How does **industrial composition** (what) and **performance within specific industries** (how) contribute to a location's overall economic performance?

- What **clusters can specific policy programs**, for example on entrepreneurship, **leverage in a given location** to enhance impact

- What **opportunities for industrial upgrading do specific locations have** given their unique cluster portfolio and neighboring locations?

- Where are the hotspots of specific industries, clusters, or groups of related clusters that make them **the most suitable locations for cluster-specific programs**?

Two Opposing Approaches to Cluster Policy



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Types of Government Interventions in Clusters

- Direct intervention at the **firm level**
  - Attraction of firms
  - Subsidies, directed credit
- Investments in the **cluster-specific business environment**
  - Specific to the cluster
  - Benefiting the cluster but part of a general upgrading strategy

- Intervention into the **market**
  - Provision of monopoly rights; Entry/trade barriers
  - Demand subsidies
- **Enable collaboration** with and within the cluster
  - Support for cluster initiatives
  - Active engagement with the cluster in setting and implementing policies

CREATE CLUSTERS?

LEVERAGE CLUSTERS!

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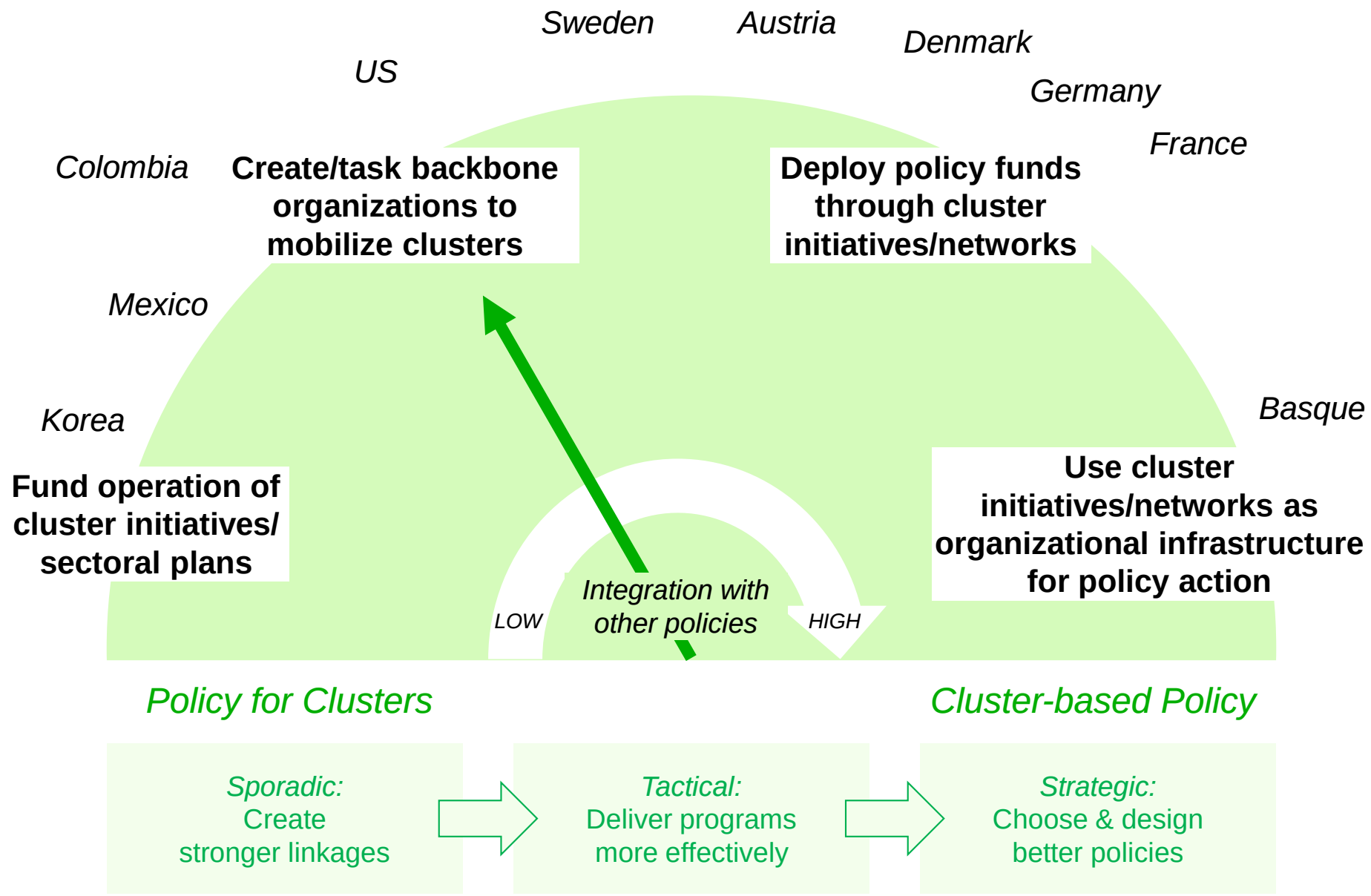
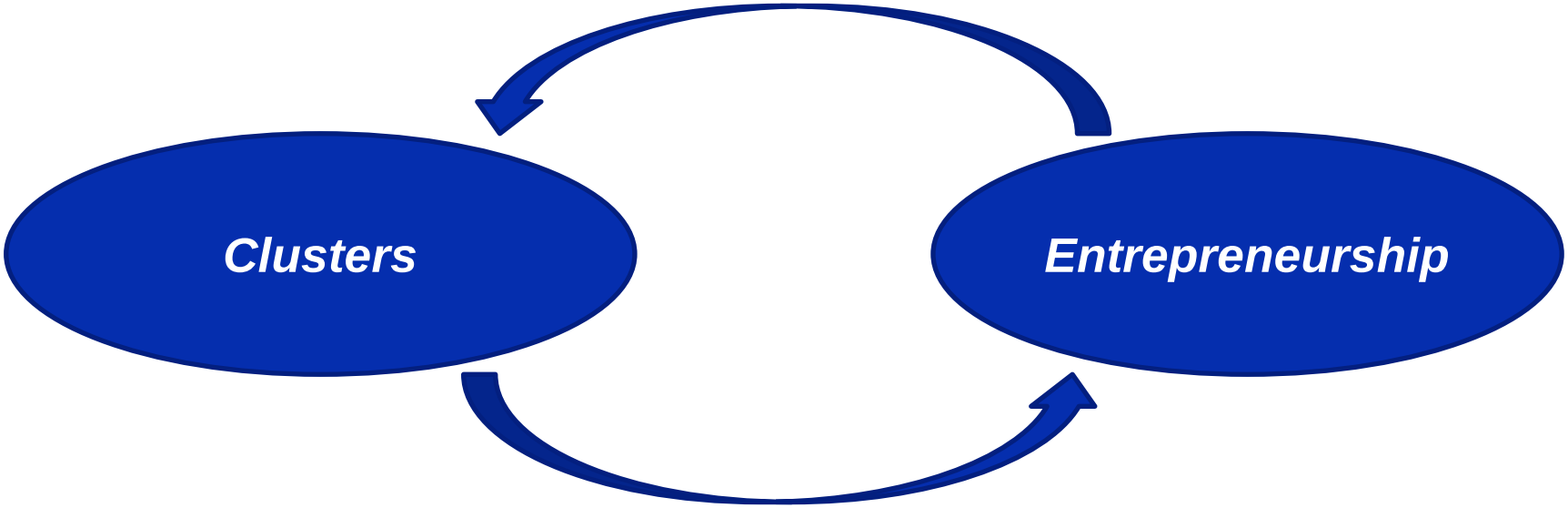
Modes of Cluster Policy



Clusters and Entrepreneurship

- Encourage upgrading within clusters by introducing new approaches and ideas
- Push the emergence of related new clusters



- Enabling entry, and help start-ups to scale-up
- Critical for new knowledge to turn into innovation and economic value

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Policies for Entrepreneurship and Innovation: What Role for Clusters?

- Cluster data as a key part of the **diagnostics** to identify locations and fields of economic activities that promise the highest returns for policy action

- Clusters as an **organizing principle** to bundle traditional entrepreneurship and innovation programs with other complementary policy tools for strengthening firm level performance

- Cluster organizations as **key partners** in designing and delivering entrepreneurship and innovation programs

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