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# **How do new complex clusters emerge? The role of related variety, networks and policy**

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## how do clusters emerge?

- new clusters are **no random events**: they are often strongly embedded in **territorial capabilities**
- **relatedness** key for emergence of **new clusters**: new specializations grow out of related activities, in which new activities combine and exploit capabilities drawn from local related activities
- Neffke, Henning and Boschma (Economic Geography, 2011): new industries that are technologically **related** to pre-existing sectors in a region had a higher probability to enter the region
- **related regional diversification** is the rule





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## emergence of clusters: related and unrelated

region A



region B



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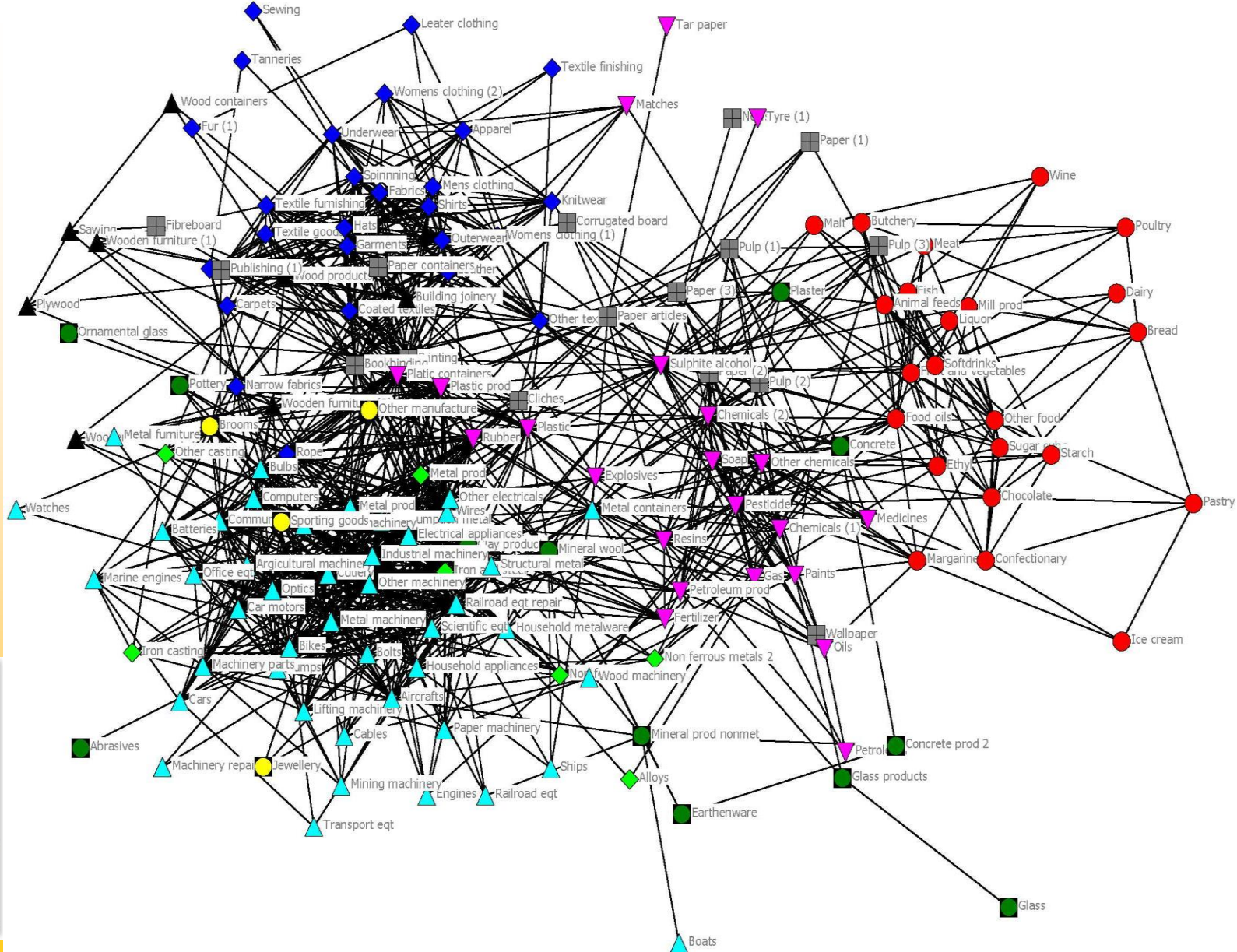
## related variety in regions

- **which regions** are more favorable to develop new clusters?: a range of activities that are **related**: share similar capabilities (knowledge, skills, etc.)
- **related variety**: the higher the number of related activities in a region, the more learning opportunities are locally available, the higher the local pool of potential new combinations that give birth to **new clusters in a region**





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## emergence of complex clusters

- new clusters in regions that are unique in the world:  
**complex clusters**
- **complex clusters** are sophisticated and **exclusive**: cannot be produced by everyone: non-ubiquitous: (Hidalgo and Hausmann 2009)
- complex clusters require a wide range of **capabilities** (knowledge, institutions, etc.)





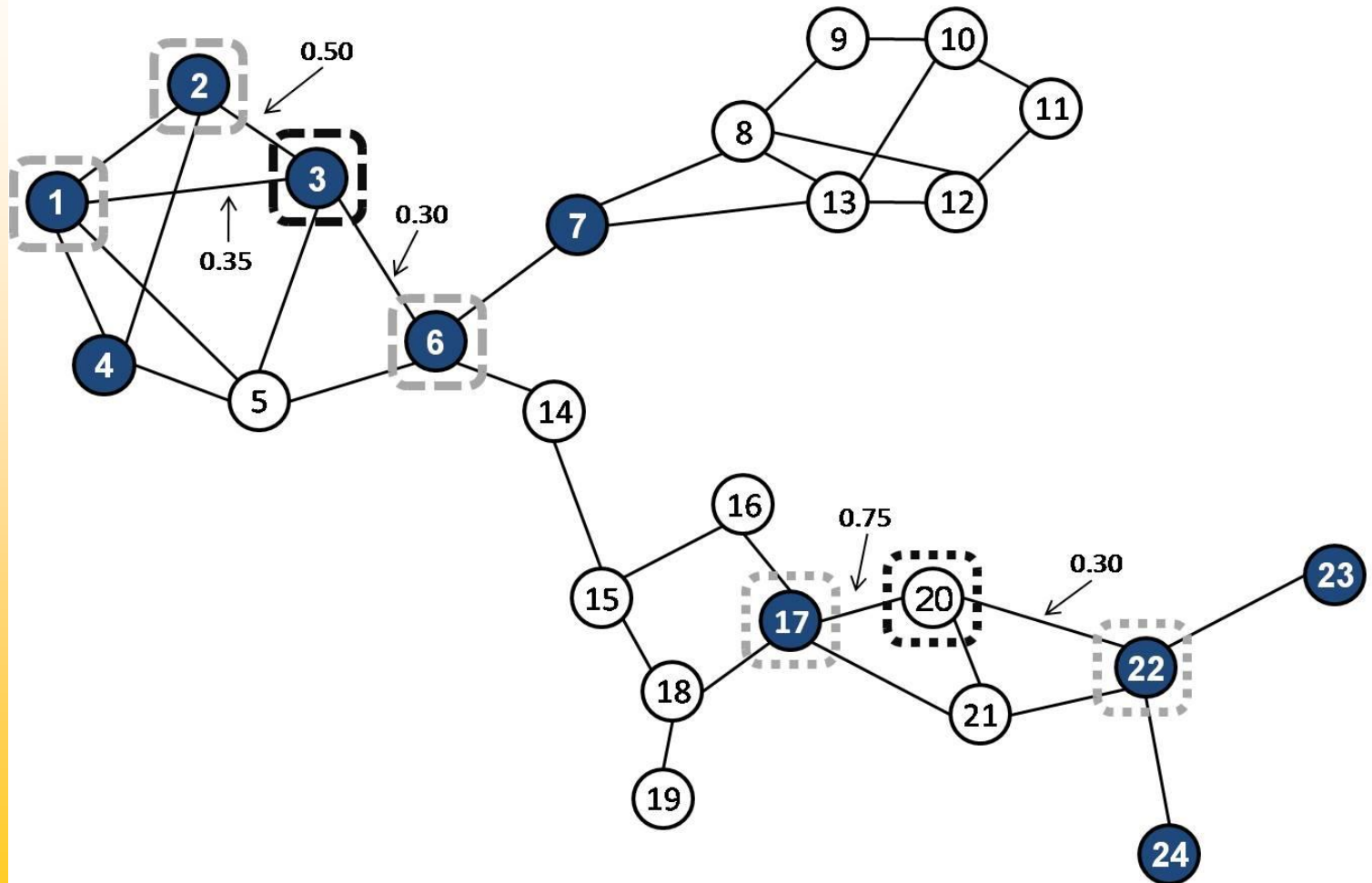
## networks: local and non-local

- **relatedness** requires **network connectivity** to induce **new clusters**: effect of related variety in a region is low when related industries are poorly connected
- **new complex cluster** also requires **connectivity**: complex activities combine many capabilities
- **connectivity**: also access to **non-local resources**
- role of **brokers** crucial: MNE's / universities / migrants / policy programs / political leadership
- role of **local institutions**: like quality of government and bridging social capital (Cortinovis et al. 2017)





## (related) variety and networks: new clusters







## some implications for cluster policy

- identify regional potentials to develop new clusters: **relatedness** and **network connectivity**
- **entrepreneurial discovery process** in smart specialization: “... largely about the policy process to select and prioritise fields or areas where a cluster of activities should be developed, and to let entrepreneurs discover the right domains of future specialization” (Foray et al. 2011, p. 7)
- **bottom-up policy (no ‘one-size-fits-all’)**: “entrepreneurs ... are in the best position to discover the domains of R&D and innovation in which a region is likely to excel given its existing capabilities and productive assets” (Foray et al. 2011, p. 7)
- some regions have more **capabilities** and **related variety**, and thus more opportunities to develop new clusters
- some regions have **institutions** and governance structures that facilitate activities to make crossovers and new combinations





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**thank you for your attention!**



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