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How the globalisation of R&D is
challenging national and regional
innovation policies?

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MNEs, geography & innovation

- Change in MNEs faster and deeper than in other firm types - SMEs or large multi-plant uni-national firms: more intense interaction with global institutional, organisational and technological changes

At the same time.....

- Geography increasingly important for MNEs, and in turn MNEs progressively more important for geography. The pivot on which this relationship turns is the creation, diffusion and management of new knowledge (Iammarino & McCann, 2013)

MNE networks for innovation

- MNE international networks of technological activity represent the strategic integration of geographically distinct paths of innovation (e.g. Cantwell & Iammarino, various; Cantwell & Piscitello, 2005; Castellani & Zanfei, 2006). Two kinds of networks:
 - Intra-firm networks of international production and R&D – not necessarily co-located (e.g. Defever, 2006; Caselli & Castellani, 2013): **geographical dispersion**
 - Inter-firm networks: localised and place-based networks that link MNE subsidiaries with their suppliers, customers, competitors (e.g. Athreye et al., 2013; Li et al. 2013): **geographical concentration**

Implications:

Hymer and the changing geography of MNEs

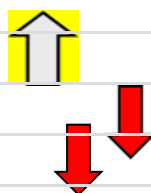
Stephen Hymer's 'Law of increasing firm size',
'Correspondence principle', 'Law of uneven development'
OR the 'spatial dimension of the corporate hierarchy':

- ❑ ***Hierarchical structure of geographical locations across and within countries.*** Some of these locations heavily dependent on others: this dependence relation underlies the uneven spatial structure of economic development
- ❑ Highest level functions of the MNEs (HQs, R&D) almost all located in the **world's major global cities**, which themselves are "surrounded by regional subcapitals" (Hymer 1970, 446)...like "New York, London, Paris, Bonn, Tokyo, Moscow and Beijing" (Hymer 1972, 124)

The changing geography of MNEs

CITIES WITH 5 OR MORE FORTUNE GLOBAL 500 COMPANIES' HEADQUARTERS (WORLD'S LARGEST CORPORATIONS)

City Rank 2009	City	No. of Global 500 Companies	City Rank 2006	City	No. of Global 500 Companies
1	Tokyo	51	1	Tokyo	52
2	Paris	27	2	Paris	27
3	Beijing	26	3	New York	24
4	New York	18	4	London	23
5	London	15	5	Beijing	15
6	Seoul	11	6	Seoul	9
7	Madrid	9	7	Toronto	8
8	Toronto	7	8	Madrid	7
8	Zurich	7	8	Zürich	7
8	Osaka	7	9	Houston	6
8	Moscow	7	9	Osaka	6
8	Munich	7	9	Munich	6
9	Houston	6	9	Atlanta	6
10	Mumbai	5	10	Rome	5
10	Atlanta	5	10	Düsseldorf	5
Total		208			206



Source: <http://money.cnn.com/magazines/fortune/global500/2011/>

The changing geography of MNEs: *dispersion*

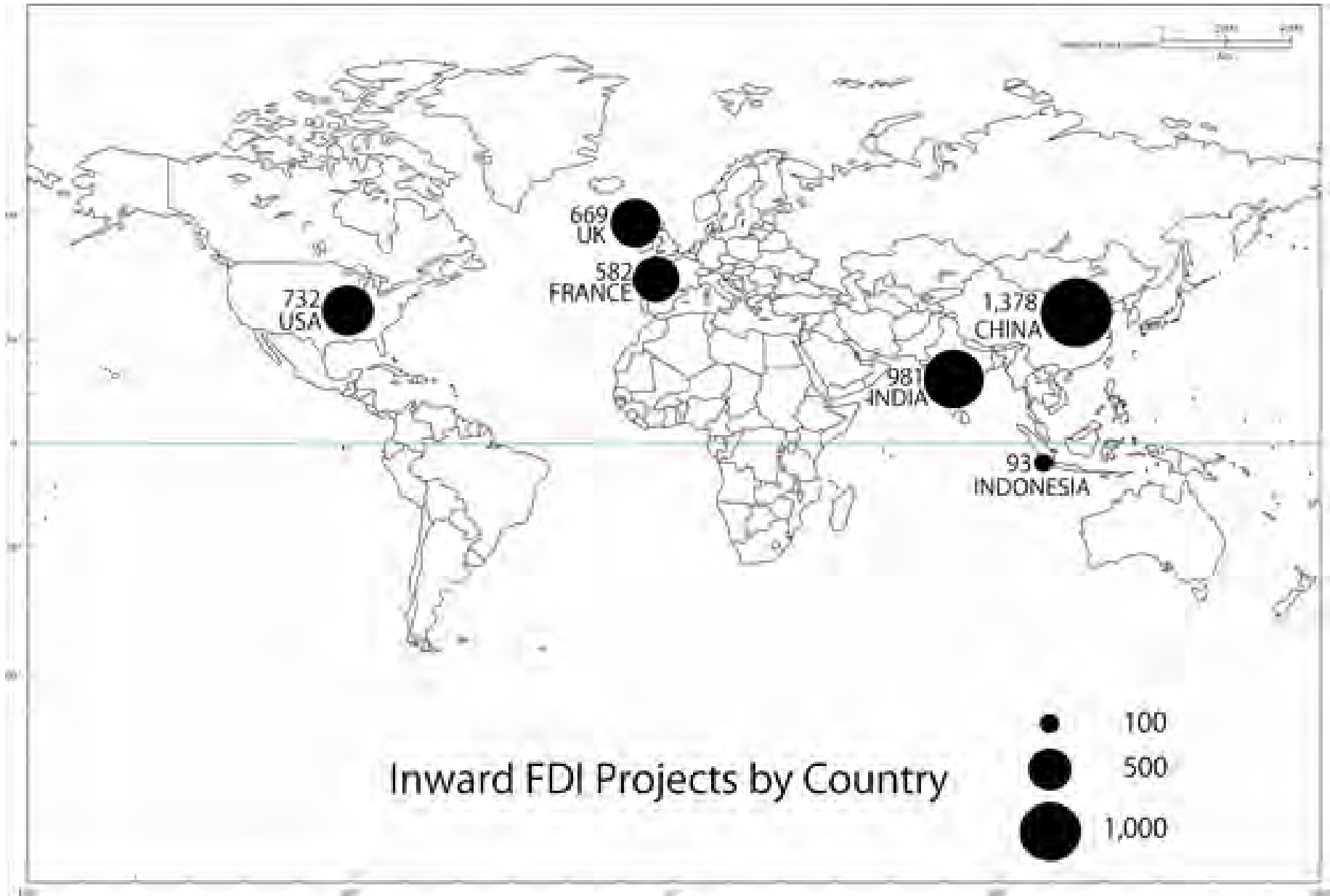
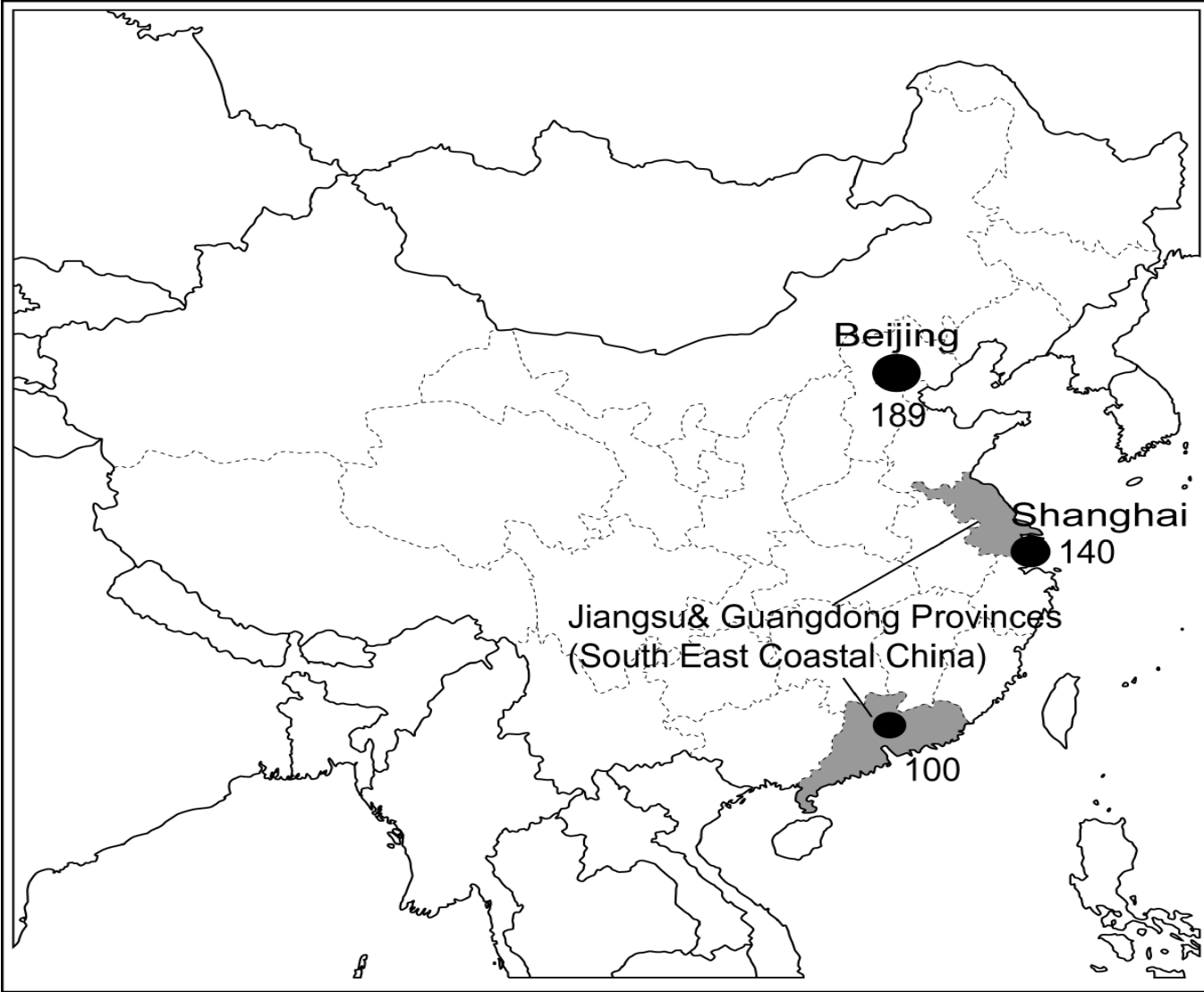


Fig. 8.1 The Number of Greenfield Inward FDI Projects by Country in 2005 . Source: Iammarino & McCann, 2013., chapter 8.

The changing geography of MNEs: *concentration*



Foreign-Owned
R&D Centers

● 100

● 200

Fig. 8.3 The Spatial Distribution of China's R&D Centres. Source: Arita et al. 2010, in Iammarino & McCann, 2013., chapter 8.

BUT
STILL...

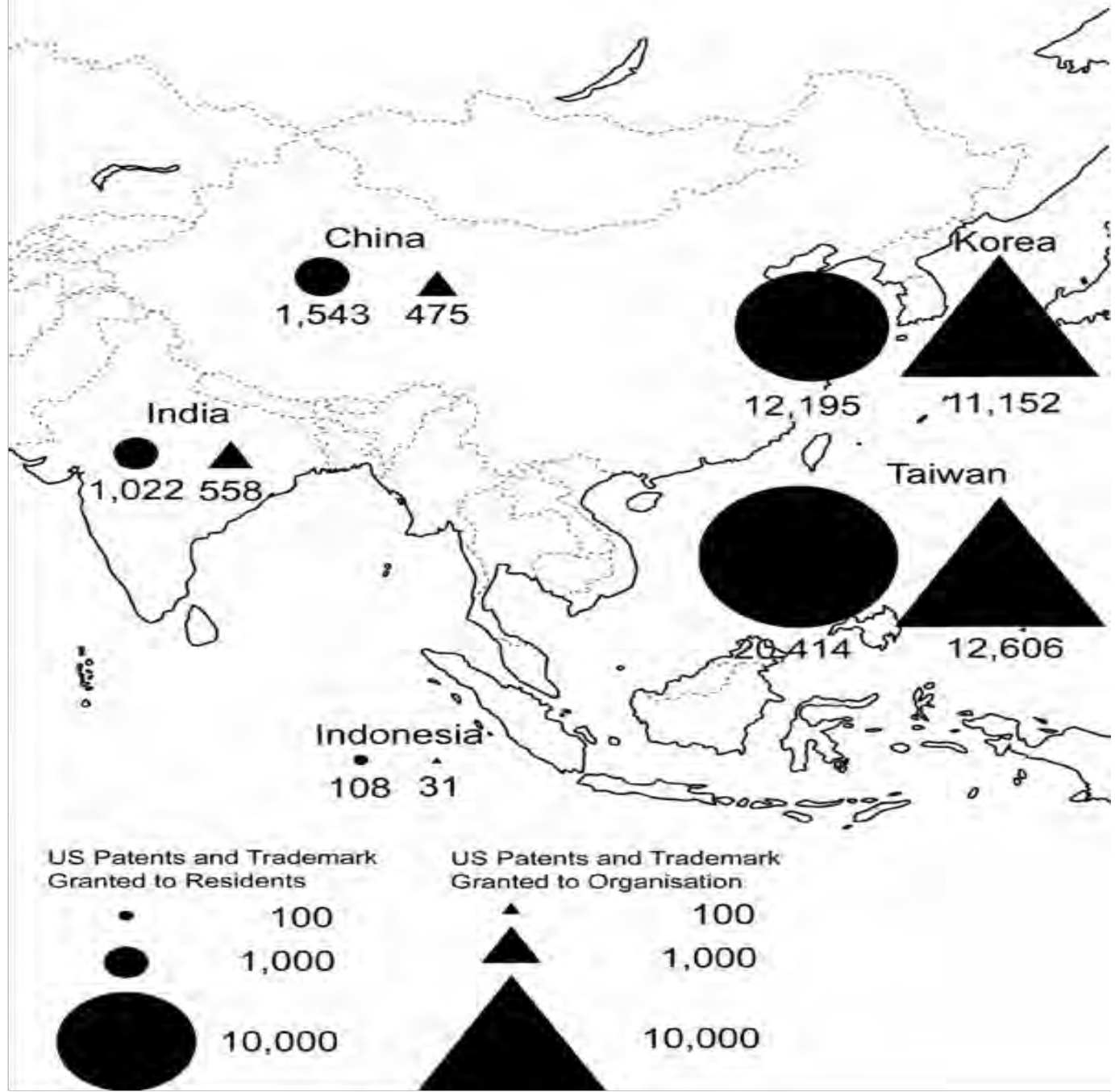


Fig. 8.2 Asian Knowledge Indicators: Patents. Source: Arita et al. 2010, in Iammarino & McCann, 2013., chapter 8.

Changing policy strategies

1. For R&D **hot spots** (e.g. global city-regions): **specialisation** in cutting edge technological and scientific fields

- Focus on strengthening cross-country collaboration between private and public actors
- Need to know more about intra-MNE networks for innovation

2. For **lagging behind regions: diversification** based on complementarity (*related variety*) of activities and capabilities (the new ones stem from those already existing in the territory)

- Focus on strengthening local capabilities
- Need to know more about inter-firm (MNEs and other organisations) networks for innovation

Changing policy principles

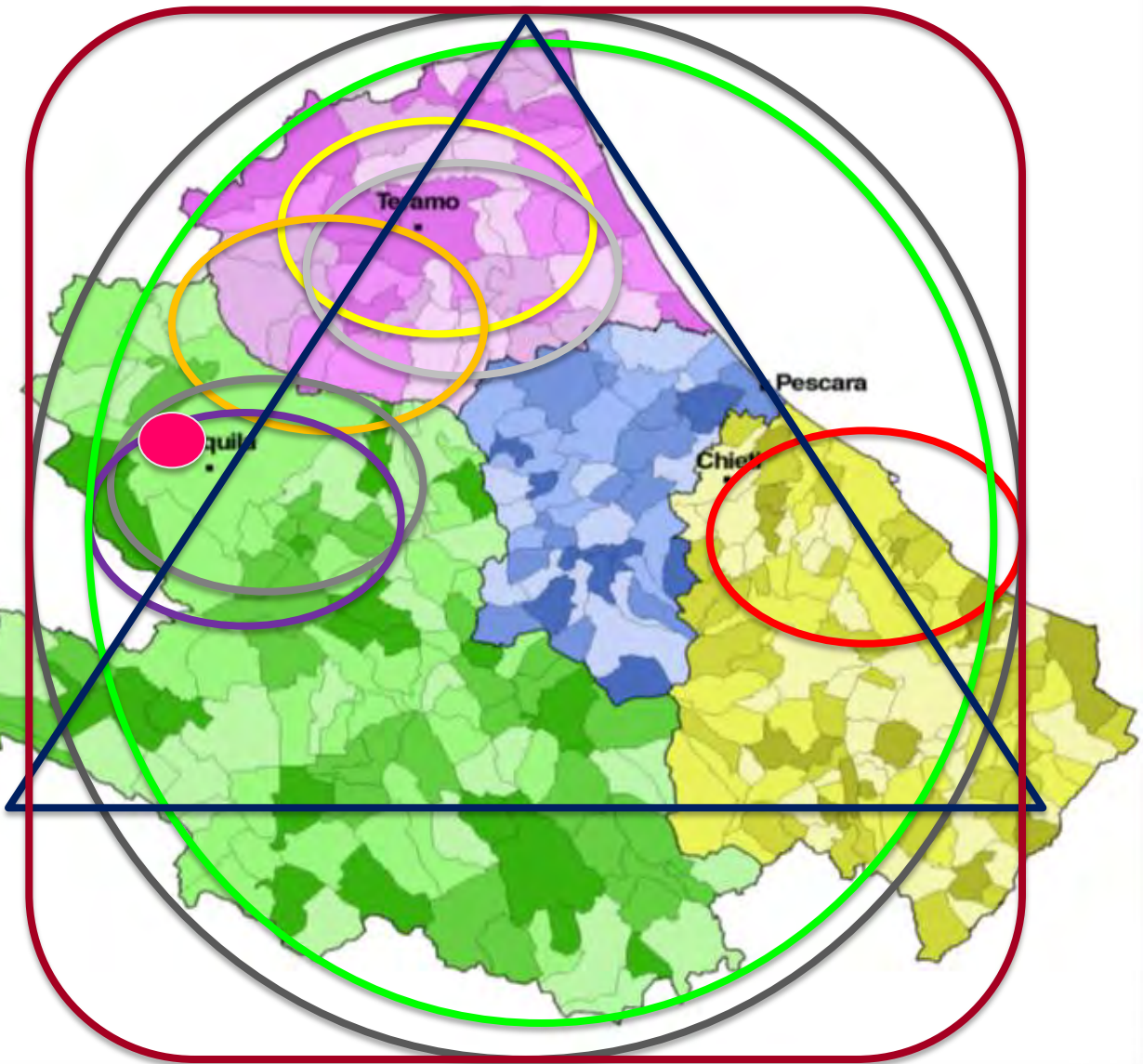
Regional/local integrated policy platform (Cooke, 2007, 2009, etc.)

- **Diverse knowledge base:** identification of the knowledge base according to the origin of the main input for the generation of new ideas (i.e. science-, engineering-, design- and cultural/arts-based)
- **Related variety and forward/backward linkages:** consideration of both economic and cognitive dimensions of inter-firm linkages to reconcile vertical business networks and horizontal knowledge networks, whether they coincide or not
- **Inter-firm and inter-industry networks:** support the co-evolution of local and global networks, improve attractiveness not only towards foreign capital but also towards in-migrants with new competencies
- **Platform policy framework:** targeting linkages and flows across the whole local economy, inserting it in its wider socio-cultural regional context

Changing policy principles (2)

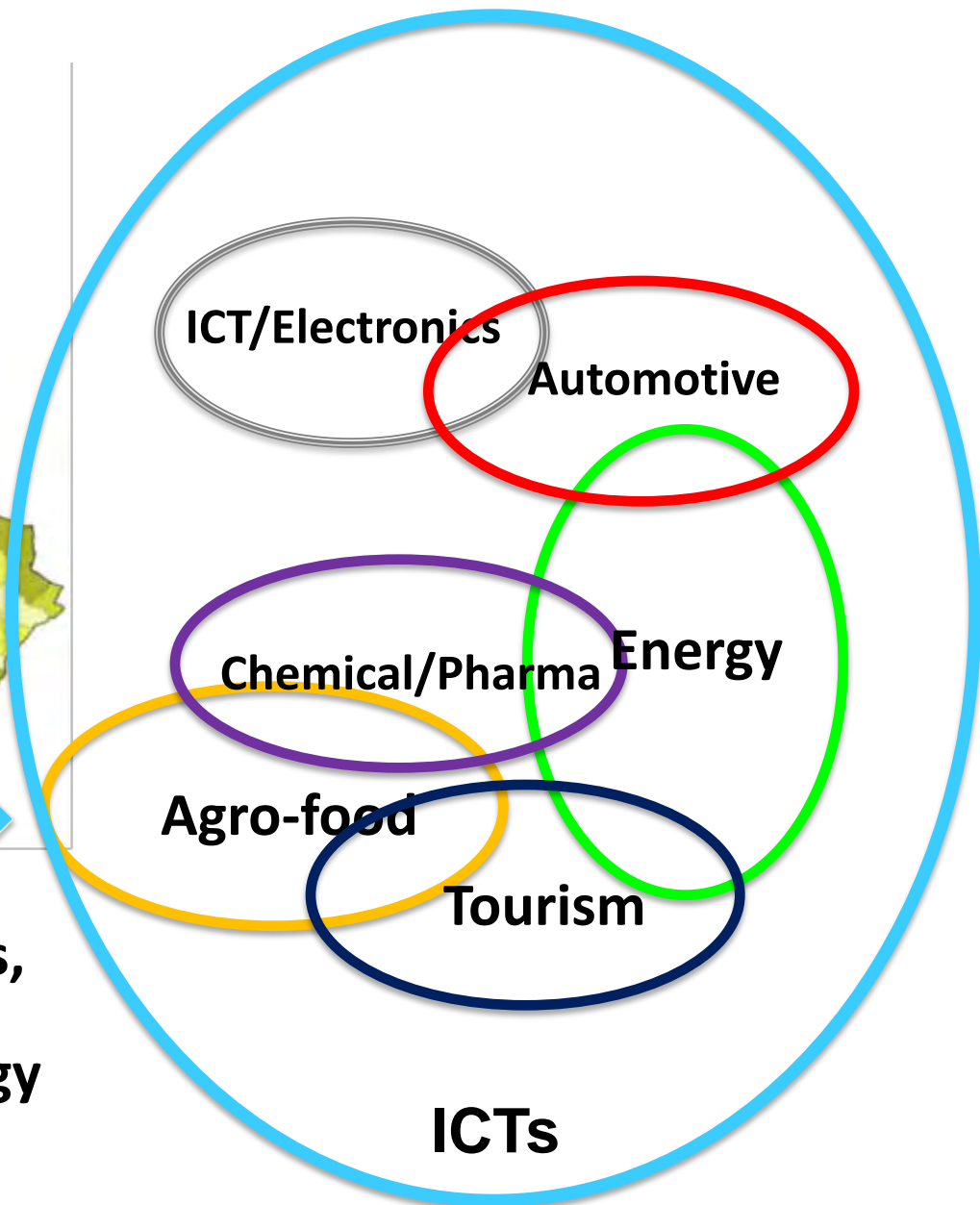
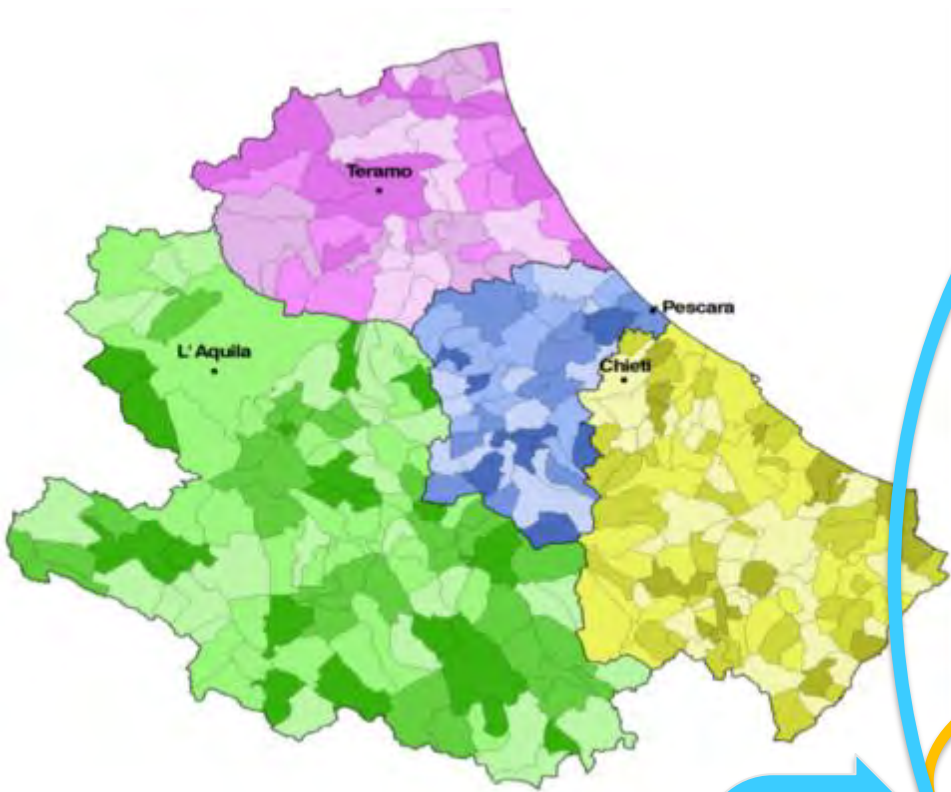
- RIS in a dynamic and global perspective: building/renewing local assets following mainly (but not exclusively) a bottom-up model of governance and the organisational form of innovation systems
- Regional platforms comprise industry, knowledge and contextualisation in, for example, techno-economic **paradigm change or 'global megatrends' of consequence** to the specific region (Cooke, 2009, p. 21)
- Increasing emphasis on quality, authenticity and sustainability – **with the selection of the 'valuable' linkages instead of 'any' linkage** – applicable to cases of rural economic development as well as to declining industrial regions or high technology/university focused economic development

Example: Abruzzo in Italy



- Automotive ●
- Textile/Cloth/Leather ●
- Furniture ●
- ICT/Electronics ●
- Agro-food ●
- Chemical/Pharma ●
- Energy ●
- Construction ●
- Advanced services ●
- Tourism ▲
- IRENE ■

**Regional
integrated
platform?
Economic
geography +
networks**



But also GPT like:
microelectronics, new materials,
biotech, clean technologies,
renewable and alternative energy

....towards related variety and knowledge complementarity