

Communication and knowledge in six Western European industrial clusters

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Globalization, digitalization, and technological innovation are changing the geography of displacement of territorial systems

According to the cognitive approach to industrial clusters, firms' agglomeration is due not only to the local availability of skilled workers, to physical externalities or to low transaction costs, but also to fast and easy circulation of knowledge

Industrial clusters are attacked by the restructuring of global value chain through changes in the distribution of cost, fiscal and institutional advantages and of technological knowledge and key-competencies

For cluster firms these pressures resolve in directly relocating their own full or partial activity elsewhere (often triggering or enhancing other clusters) or in establishing their commercial or innovation relationships (and partnerships) with non-cluster firms

The convenience and the ease to establish relationships with non-cluster firms positively depend to a large extent on:

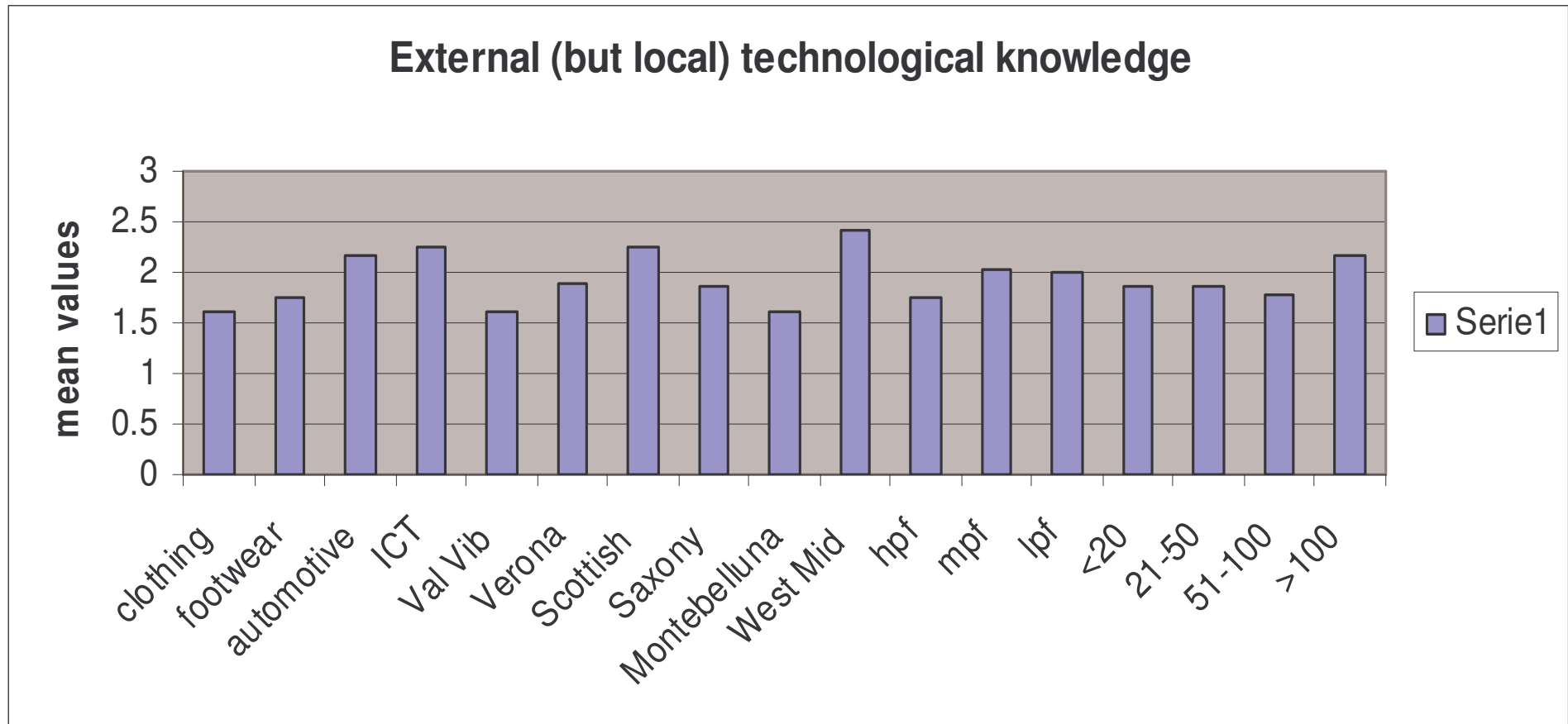
1. as few tacit and much codified knowledge is the technology;
2. as few tacit knowledge can be found locally and much codified knowledge can be accessed elsewhere
3. as effective are the various forms of digitalization (computer-mediated communication)

Dataset & methodology

- 20614 employees in 163 firms distributed over 6 industrial clusters: 3 IT, 1 GE, 2 UK
- IT: Montebelluna (sportswear), Verona (footwear), VVTV (clothing)
- UK: West Midlands (car manufacturing), Scottish (ICT)
- GE: Saxony (car manufacturing)
- Hpf: Montebelluna and Verona
- Mpf: VVTV and West Midlands
- Lpf: Saxony and Scottish

<i>RIS-IC-ID</i>	<i>COUNTRY</i>	<i>GEOGRAPHICAL SCALE (KM²)</i>		
Herford Kitchen furniture	Germany	Sub-regional	Small	450
Saxony automotive	Germany	Region/Land	Very large	18,413
Verona Shoes	Italy	Sub-regional	Small	625
Montebelluna sportwear	Italy	Sub-regional	Small	553
Vibrata-Tordino-Vomano	Italy	Sub-regional	Small	628
Rome film ¹	Italy	Sub-regional	Medium	1,290
West Midlands automotive	UK	Regional	Large	13,000
Scotland ICT	UK	Regional	Large	5000/8000
Mlada Boleslav automotive	Czech Republic	Sub-regional	Medium	1,058
Liberec automotive	Czech Republic	Sub-regional	Medium	~ 925
Praga Film	Czech Republic	Sub-regional	Small	496
Kalwaria-Zebrydowska kitchen furniture	Poland	Sub-regional	Very Small	75
Banat-Crisana clothing	Romania	Regional	Very large	23,995
Banat-Crisana shoes	Romania	Regional	Very large	23,995
Slovenia Automotive	Slovenia	Country-region	Very large	20,273
Slovenia Furniture	Slovenia	Country-region	Very large	20,273

Perceived importance assigned to external technological knowledge is very low, because no any value reaches the mean (1-5 scale)



The perception of the importance of external technological and organizational knowledge is *not correlated* to geographical proximity neither to firm size

Non-digitized firms are small and not Hpf
Digitized firms are large and not Lpf

Digitized and non-digitized perceive the relevance of the various knowledge types in opposite ways

Contributions of the various sources of knowledge to the constitution of components of technological knowledge

Main types of knowledge in each component	value
Component 1 – Knowledge coming from the interactions with public or semi-public institutions	
Interactions with public institutions	0,82
Interactions with semi-public institutions	0,76
Interactions with consultants or private research centres	0,74
Fairies or other sources of data and information	0,62
Component 2 – Knowledge coming from cooperation and technology	value
Interactions with clients or suppliers	0,85
Interactions with competitors	0,49
Technology-embodied (patents, licences, etc.)	0,5
Others	-0,49
Component 3 – Human-related knowledge	value
Embodied in newly recruited staff	0,86
Interactions with competitors	0,57
Others	-0,52
Component 4 – Codified knowledge	value
Product-embodied	0,87
Technology-embodied (patents, licences, etc.)	0,55

CATEGORIZATION ACCORDING TO COMMUNICATION MEANS

Type 1: companies that are strong communicators between organizational units via email or other types of CMC;

Type 2: companies that are strong communicators by CMC with other companies (suppliers, customers or competitors);

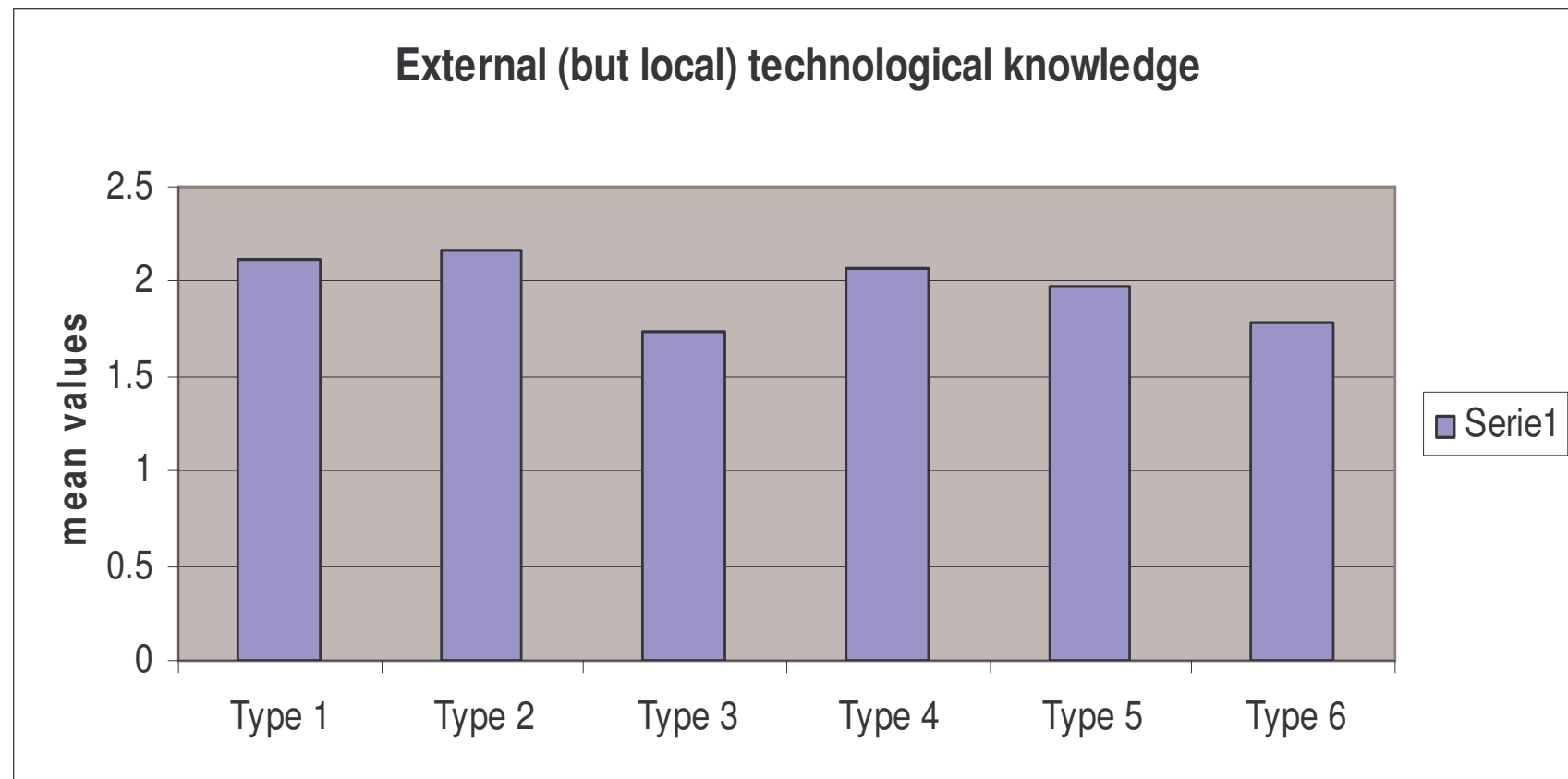
Type 3: enterprises that, although familiar with CMC (why use it internally), for communication with other companies choose instead F2F, and relatively little CMC;

Type 4: firms that, although familiar with CMC, for communication with other companies choose other traditional means, and tend to limit the F2F;

Type 5: firms that, although familiar with CMC, for communication with other companies choose traditional means irrespective of whether or not F2F;

Type 6: not digitized firms, namely those not familiar at all with CMC

Though all values are quite low, the highest ones are assigned by categories of mostly digitized firms



Conclusions

- 1. confirmation of digital divide between small and large firms
- 2. fourfold knowledge categorization is effective
- 3. high geographical proximity firms do not perceive local knowledge to be important
- 4. small firms do not perceive local knowledge to be important
- **The socio-cognitive approach is problematized**

How important are the following as sources of technical knowledge for your company?

Knowledge embedded in experts hired on the labour market

Knowledge derived from interactions with clients and/or suppliers

Knowledge derived from cooperation with other companies

Knowledge derived from imitation of products

Knowledge embedded in technologies, licenses, components, etc.. acquired from outside (technological innovation)

Knowledge gained from interactions with public institutions (e.g., universities; public research centres; local government; etc.)

Knowledge gained from interactions with semi-public institutions (e.g., chambers of commerce; industry associations, trade unions, etc.)

Knowledge provided by consultants and private research centres

Knowledge gained from publicly available information (e.g., trade fairs, publications)

others