



# The spatiality of SMEs' cooperation for innovation in the digital age: A mixed-method study

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# Research motivations

Cooperation can be highly beneficial SMEs in order to innovate.

Cooperation can be set up with multiples types of partners that are not necessarily spatially proximate, involving remote interactions

(Freel 2003, Lorentzen 2007, Doran et *al.* 2012).

Research topics :

**Characterizing SMEs' cooperation partners**

**Studying how location and ICTs affect the spatiality of innovation cooperation**

We use a mixed-method methodology, based on quantitative investigations (typology) then qualitative investigations (illustration).

# Background

Cooperation helps to compensate for a lack of internal resources, favors costs sharing and risks reduction (Tether, 2002, Bjerke and Johansson, 2015).

**Cooperation partners are diverse:** competitors, suppliers, customers, consultants, or research organizations...

Cooperation requires the innovative firm to turn to the outside.

Several factors facilitate or limit the external collaborations.

We focus on two factors: the **geographical location** of the firm and **its digital resources** to interact.

Research Question:

**What are the forms of cooperation for innovation in SMEs with regard to the stakes of location and the digital resources?**

# Background

**Location.** In the classical view, firms located on in agglomerations access more easily to innovation resources (Glaeser, 2011; Hervas-Oliver et al, 2017). But, the locational advantages of clustering would not always play out (Shearmur, 2012) :

- interactions with distant partners (Fitjar and Rodriguez-Pose, 2011)
- relations with proximate actors are not mandatory (Bathelt et al., 2004)
- other forms of proximity count (Boschma, 2005).
- cooperation can be on multiple scales (Lorentzen, 2007, Vissers & Dankbaar, 2016)

**Digital resources.** They can be lever of innovation in SMEs (Higón, 2012). ICTs are changing the way innovation management is conducted (Yoo et al., 2012) and make firms more "extroverted" (Tambe et al., 2012). ICTs are challenging the traditional spatial constraints of firms involved in collaboration to innovate.

# A mixed method research

## Quantitative investigation

Data collection

1,469 SMEs investigated in a regional survey + location data



Data selection

269 innovative and cooperative firms



Data analysis

5 patterns of cooperation to innovate

## Qualitative investigation

Data collection

13 innovative and cooperative SMEs investigated



Data selection

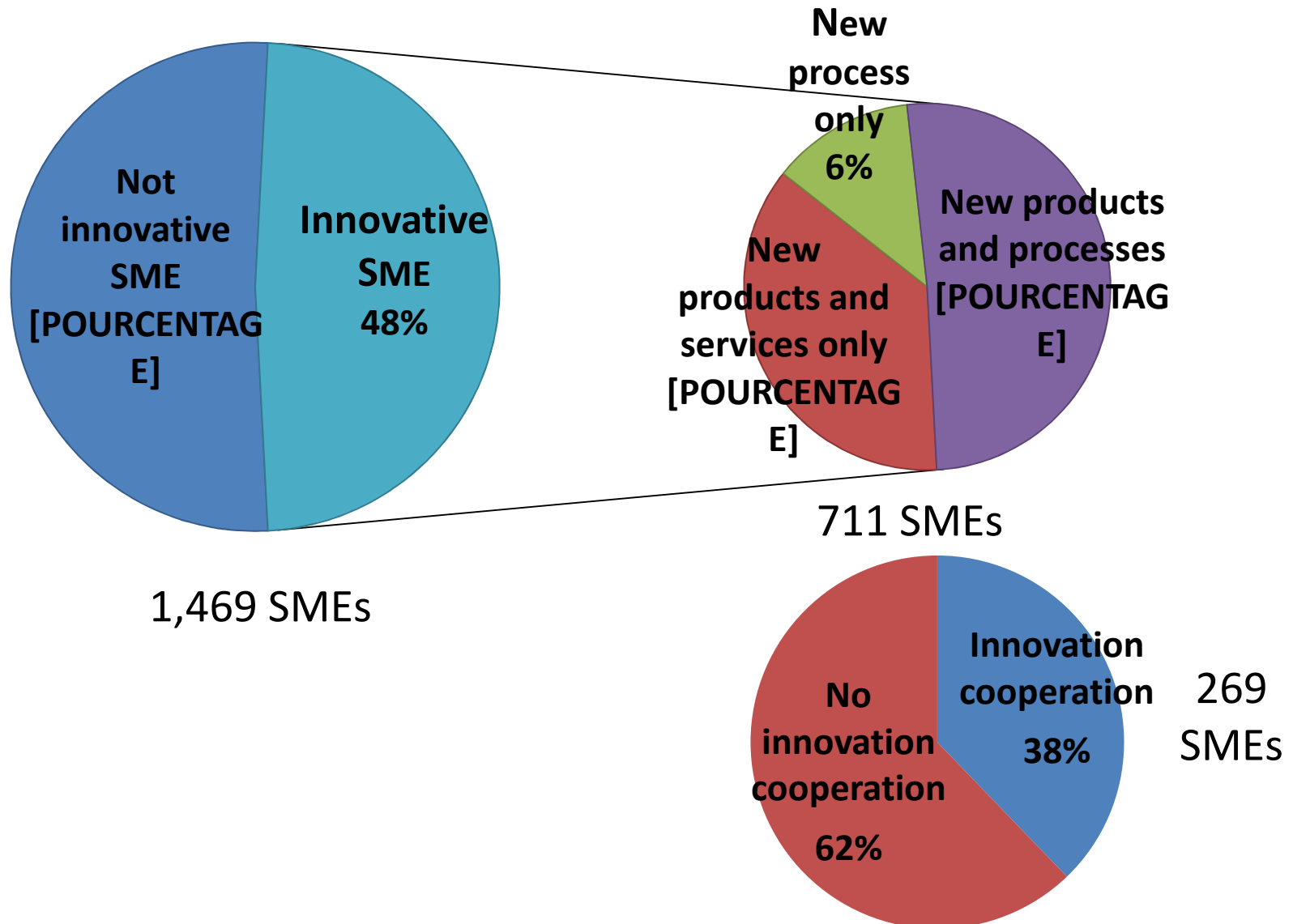
5 most representative firms



Data analysis

Illustration of the 5 patterns of cooperation

## Descriptive results (1)



## Descriptive results (2)

### What cooperation partners?

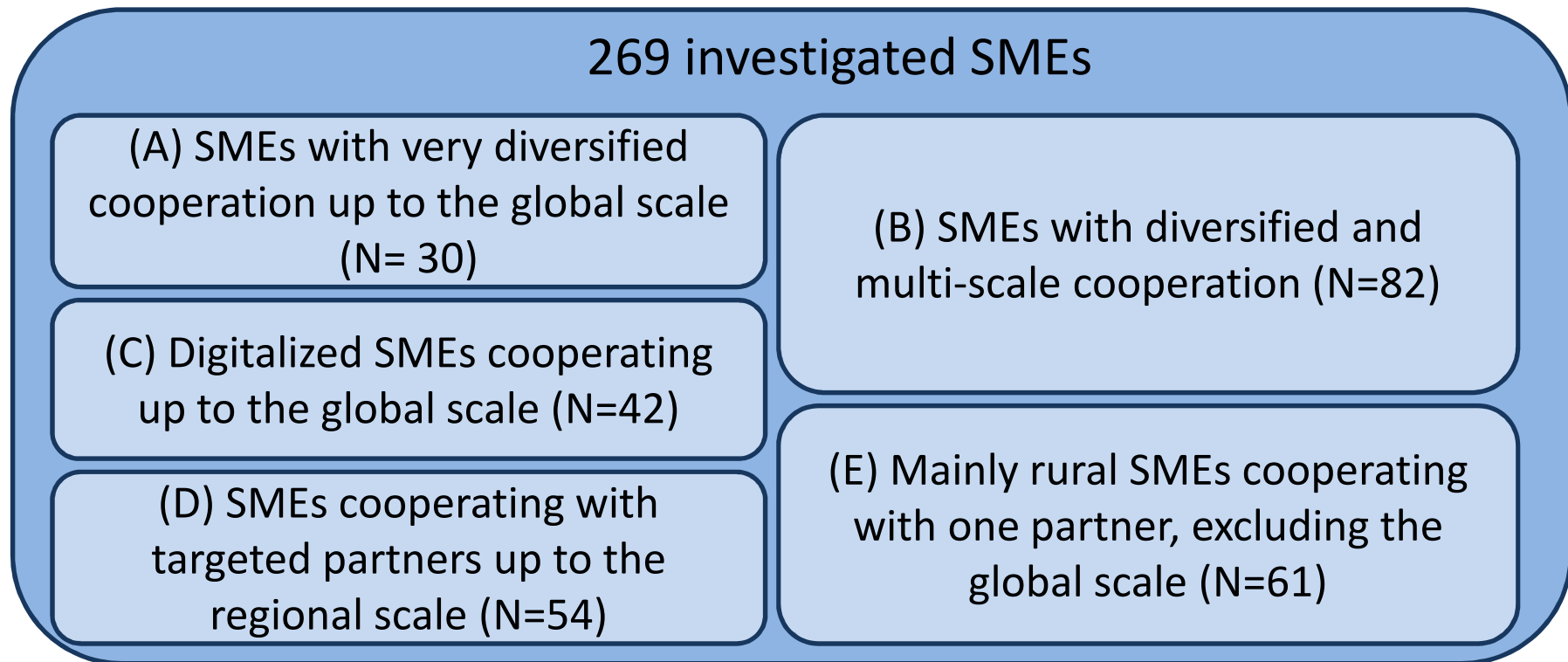
Cooperation partners for innovation	
<b>Suppliers</b>	<b>194 (72,7%)</b>
<b>Clients</b>	<b>162 (60,7%)</b>
<b>Competitors</b>	<b>116 (43,4%)</b>
<b>Others firms of the group</b>	<b>91 (34,0%)</b>
<b>Private research centres or consultants</b>	<b>63 (23,6%)</b>
<b>Public research centres or universities</b>	<b>55 (20,6%)</b>

### What scale of cooperation?

<b>Local only</b> 13,10%	<b>Up to regional scale</b> 24,30%	<b>Up to national scale</b> 36,30%	<b>Up to global scale</b> 26,20%
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# Typology

5 patterns of cooperation forms in order to innovate

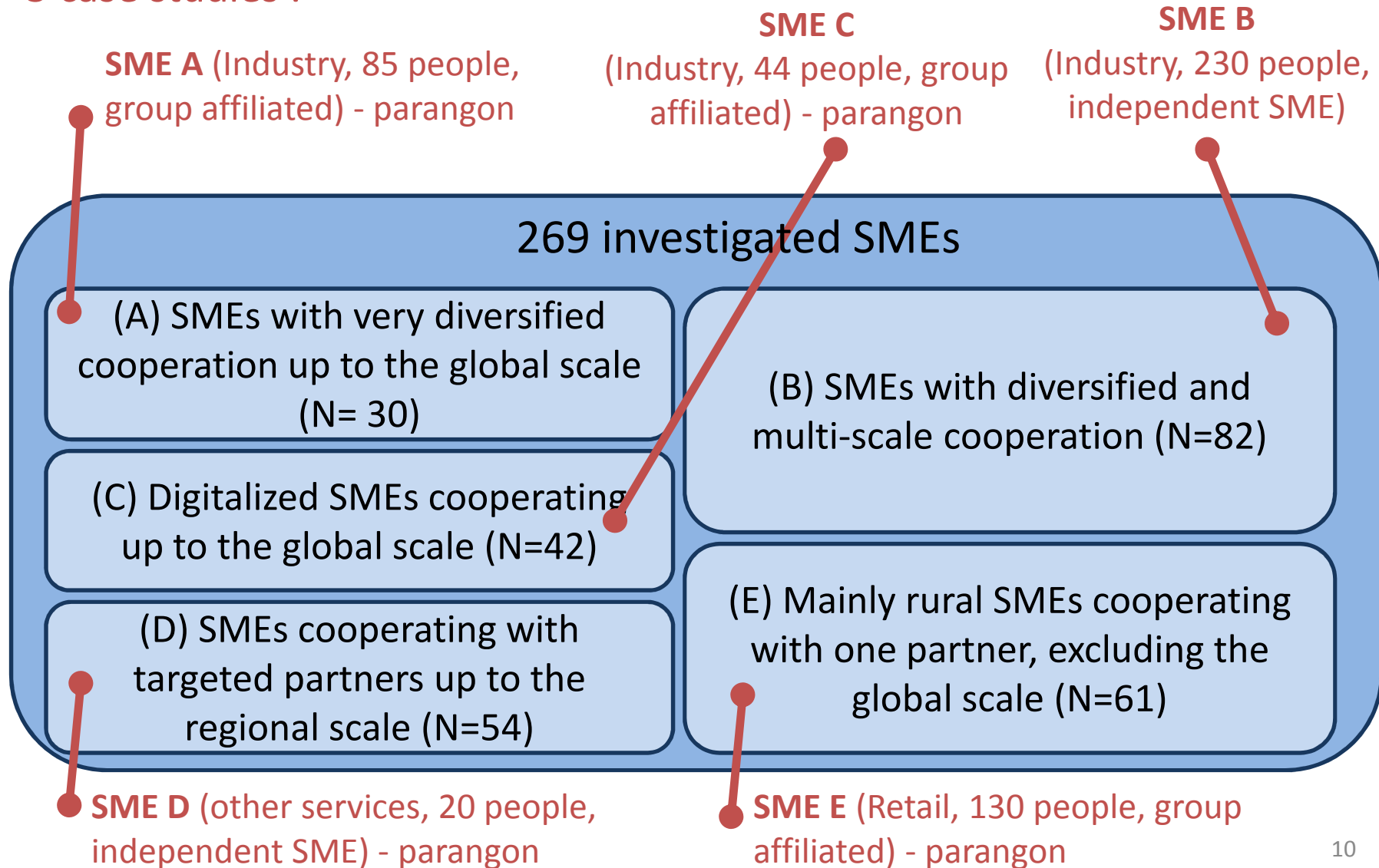




	Cluster A SMEs with very diversified cooperation up to the global scale	Cluster B SMEs with diversified and multi-scale cooperation	Cluster C Digitalized SMEs cooperating up to the global scale	Cluster D SMEs cooperating with targeted partners up to the regional scale	Cluster E Mainly rural SMEs cooperating with one partner, excluding the global scale
Size (N = 269)	30	82	42	54	61
Active variables					
Cooperation partners diversity	+5 types of partners	3 types / 4 types		2 types	1 type
Cooperation partners	Public research labs / Consultants and private research labs / Competitors	Suppliers / Clients / Competitors		[Competitors]	[Clients] [Suppliers]
Scale of cooperation	Global		Global [Local] [Regional]	Regional	[Global]
Origin of ideas		National [Global]	Global [National] [Regional] [Local]	Regional [Global]	[Global]
Illustrative variables					
Location	Urban area +200.000 inhab.			Urban area 25-35.000 inhab.	Rural zone
Digital use	IT training: 10 to 50% of employees At least one IT professional	IT training: >50% of employees	Diversified ICTs High level of Internet use IT department	No IT professional	
Main market, clients and suppliers	Growing market	Close clients	Remote suppliers Remote clients		Declining market
Sector	Industry	[Industry]	Industry [Building]	Finance and Insurance	Building
Group belonging			Yes International group		No

# Illustrated typology

5 case studies :



## Discussion (1)

Neither innovation nor cooperation are systematic in SMEs.  
Due to a necessary trade-off? (Ebersberger & Herstad, 2013)

### Cooperation for innovation whatever the location ?

Location in large urban areas is  
salient only for cluster A.

SME A benefits from cooperation with  
several types of partners, from local to  
global.

Being located in low density area is  
no obstacle neither for mobilising  
multiples types of partners (cluster B)  
nor for developing global  
collaborations (cluster C).

SME C is located in a virtuous ecosystem  
but has no strong mobilisation of local  
resources

New geography of innovation (Shearmur et al., 2016) shows that **territory  
accessibility issues** are more important than resources availability issues.

## Discussion (2)

### **Cooperation for innovation: influence of digital profile**

Clusters A and C show a link between geographical horizon of the collaborations and SMEs digital profile.

Investing in digital resources results from the CEO's will (SME A) or from the group policy (SME C).

ICTs are confirmed as alternatives to geographical proximity and create opportunities for cooperation and make partners coordination easier (Ben Mahmoud-Jouini, 2016).

But, only a few SMEs seem to use digital resources as strategic assets in order to innovate or for strategical differentiation.

# Conclusion

## **What are the benefits of a mixed-method for our research?**

- Innovation is a large concept that encompasses multiple realities (Garcia and Calantone, 2002). Collaboration too.
- Mixed method helps to better understand what we talk about.
- The nature of innovation is more precise with qualitative approach.

## **What can be done after?**

- We could make intra-cluster comparisons?



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