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

François DELTOUR (IMT Atlantique, LEMNA)
Sébastien LE GALL (Université Bretagne Sud, LEGO, Marsouin)
Virginie LETHIAIS (IMT Atlantique, LEGO, Marsouin)
Cooperation can be highly beneficial SMEs in order to innovate.

Cooperation can be set up with multiple 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).
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)

- 1,469 SMEs
  - 48% Innovative SMEs
  - 52% Not innovative SMEs

- 711 SMEs
  - 6% New process only
  - 94% New products and processes

- 269 SMEs
  - 38% Innovation cooperation
  - 62% No innovation cooperation
Descriptive results (2)

What cooperation partners?

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

What scale of cooperation?

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Local only</td>
<td>13,10%</td>
</tr>
<tr>
<td>Up to regional scale</td>
<td>24,30%</td>
</tr>
<tr>
<td>Up to national scale</td>
<td>36,30%</td>
</tr>
<tr>
<td>Up to global scale</td>
<td>26,20%</td>
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</table>
Typology

5 patterns of cooperation forms in order to innovate

269 investigated SMEs

(A) SMEs with very diversified cooperation up to the global scale (N=30)

(B) SMEs with diversified and multi-scale cooperation (N=82)

(C) Digitalized SMEs cooperating up to the global scale (N=42)

(D) SMEs cooperating with targeted partners up to the regional scale (N=54)

(E) Mainly rural SMEs cooperating with one partner, excluding the global scale (N=61)
<table>
<thead>
<tr>
<th>Cluster A</th>
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<th>Cluster C</th>
<th>Cluster D</th>
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</table>

| 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] |

| 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 |
| Group belonging | | | Yes International group | | No |
Illustrated typology

5 case studies:

**SME A** (Industry, 85 people, group affiliated) - parangon

**SME C** (Industry, 44 people, group affiliated) - parangon

**SME B** (Industry, 230 people, independent SME)

**SME D** (other services, 20 people, independent SME) - parangon

**SME E** (Retail, 130 people, group affiliated) - parangon

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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 in salient only for cluster A. Being localed in low density area is no obstacle neither for mobilising multiples types of partners (cluster B) nor for developping global collaborations (cluster C).

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

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.
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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