

Geographical and Relational Proximities in the European Airbus Project

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**2 September 2006,
46th ERSA Congress - Volos, Greece**

Proximity Theory

- Growing recognition that geographical proximity is less important for success in innovation than previously thought.
- Boschma 2005 *Proximity and Innovation: A Critical Assessment* argues that 4 types of relational proximities might be as or more important than geographical proximity.
- Torre and Rallet 2005: *Proximity and Localization* suggest that a - more broadly defined – ‘organized proximity’ might deliver many benefits traditionally associated with geographical proximity.

Different Types of Proximities

Boschma	Dimension	Torre and Rallet	Dimension
Geographical	Space	Geographical	Space
Cognitive	Expertise		
Organisational	Interdependencies	Organized	Interactions & Institutions
Social	Micro relations		
Institutional	Macro rules		

Theoretical Research Needs

- There is agreement that a strong need exists for empirically investigating the relevance of different types of proximity.
- This seems especially important given that increasing globalization puts the merits of geographical proximity into question.
- It must be examined which other proximities can make up for the diminishing leverage of geographical proximity.

Empirical Research into Airbus

- This paper examines the different types of proximity that facilitate, or impede, knowledge exchange and interactive learning.
 - To examine proximities the classification of Boschma is used.
1. The relationship between Airbus Broughton, Airbus UK, and Airbus SAS will be introduced.
 2. Airbus at Broughton in Wales and its supply chain is the next focus of enquiry. These firms make wings for Airbus planes.
 3. Airbus UK and Airbus SAS are examined. Airbus UK does wing R&D and production, and the international Airbus SAS designs, manufactures and assembles all other aircraft components.

Research Questions

- 1) To what extent does geographical proximity play a role for success in innovation for Airbus Broughton, UK and SAS?
- 2) Which relational - i.e. cognitive, organisational, social and institutional proximities - are equally or more important?
- 3) What theoretical lessons regarding the relevance of different proximities within Airbus can be drawn?
- 4) What wider theoretical implications emerge?

Relationship Airbus Broughton, UK, and SAS

- Within the international Airbus SAS, subsidiary Airbus UK is in charge of aircraft wings and operates two main sites.
- **Filton** in England is mainly responsible for R&D and strategy, and **Broughton** in Wales produces metal wings for all current aircraft and will assemble composite wings for future planes.
- Geographical proximities seem to play a key enabling role for the Broughton **supply chain**, in facilitating generation and application of tacit knowledge and in easing transport problems.
- However, **Airbus SAS**, headquartered in Toulouse in France, operates 16 widely dispersed European R&D and manufacturing sites, and many other facilities worldwide.

- Transport of components is facilitated by purpose-built freight planes, ships and lorries, and accounts for but a fraction of the overall cost.
- Wings are designed in England; and shipped after production at Broughton to France or Germany for final aircraft assembly.
- The structure of Airbus SAS, designed to guarantee similar influence and workshares for the major shareholder countries, has often been criticised for its inefficiency, but remains unchanged.
- The aerospace industry is of international nature, and many stakeholders deny the relevance of geographical proximity.
- Hence, other forms of proximity might be equally or more important than geographical proximity.

Wing Production and Supply Chain at Airbus Broughton

- For several firms of the Airbus Broughton supply chain geographical proximity to Airbus appears to be crucial.
- **Metal Improvement Company** and **RD Precision**, e.g., moved closer to Airbus to interact and handle large wing parts more easily.
- Tacit knowledge is easily exchanged through frequent contacts between Airbus and suppliers' staff.
- MIC and RD also share cognitive framework with and trust Airbus, and seem thus cognitively and socially proximate to the OEM.

- However, as already mentioned, wings travel far by plane, boat and lorry after leaving Broughton in journeys sometimes lasting days.
- Also, the supply strategy of Airbus shows no commitment to Wales per se, but calls for cost reduction through global sourcing.
- Airbus is thus more sceptical than its suppliers about the relevance of social proximity to its supply chain.
- Also, Airbus values cognitive proximity boosted by geographical proximity less than its suppliers.

Wing Development and Aircraft Assembly in Airbus UK and SAS

- Airbus wings are designed at Airbus Filton, collaborating with Broughton in 'Centre of Excellence Wing.'
- Permanent geographical proximity plays no role with the sites located far apart. Yet, sites are linked by company aircraft services, and face-to-face meetings often take place.
- Thus, temporary geographical proximity (Torre) manifests, and cognitive and organisational proximities are pronounced.
- Having arrived in one of the fiercely competing Toulouse or Hamburg Airbus assembly sites, Broughton wings are fitted into planes.
- **Economic success** of often **conflict-ridden** Airbus SAS challenges relevance of permanent geographical and of social proximity.

- However, temporary geographical, cognitive and – to some degree - organisational proximities are important.
- Interactions within Airbus UK are governed by the same macro institutional setting, so that institutional proximity is a given, but does not account for much.
- In Airbus SAS the diverse institutional settings of countries might explain more – but what?
- While national interests provided the support and resources necessary for success, e.g., at the same time they led to the creation and preservation of an inefficient management structure.
- But is this due to different macro rules, given that the countries hold the same, if competing, interest for workshare and power?

- Looking at typical institutional factors such as language and law, it emerges that there is a mix of main and other languages, and that Airbus SAS is subject both to national and EU laws.
- So far, institutional proximity cannot explain much.
- But a more detailed analysis will show some interesting effects.

Conclusions: Proximities at Airbus

- Geographical proximity proved quite important to several firms of the Airbus Broughton supply chain, mainly in facilitating generation and application of tacit knowledge.
- Also cognitive and social proximities matter, as Airbus and suppliers share the same understanding of technology and trust each other.
- Permanent geographical proximity is of no significance both within the UK Centre of Excellence Wing and within Airbus SAS, although temporary geographical proximity plays an important role. Tensions rather than social proximity often characterises Airbus SAS.
- Yet, cognitive and organisational proximities are important to both Centre and Airbus SAS, allowing for knowledge exchange and keeping all parts of the international company together.

- Institutional proximity is present within Airbus UK, but does not offer useful explanations.
- But adding to the previous account, a lack of institutional proximity within Airbus SAS due to ineffective corporate structures - e.g., granting too much autonomy to national 'Centres of Excellence' - seems to explain major tensions and resulting economic problems.
- However, from a refined perspective of organisational proximity, it emerges that the very structure of Airbus SAS - close to the ideal governance form of 'loosely coupled networks' (Boschma) – suggests excellent learning and innovation outcomes!

- The same holds true for cognitive proximity, where the different national training backgrounds of Airbus engineers seem to strike exactly the right balance between proximity and distance!
- Here the key problem is that many of the Airbus SAS governance structures can legitimately be analysed both in terms of organisational proximity and institutional proximity.
- Multinational companies experience proximities at different levels of governance, so that only demanding multi-level analyses might ensure conclusive results.

Wider Theoretical Lessons

- Confirming recent scholarship (Boschma; Torre and Rallet), the limited overall significance of geographical proximity becomes clear.
- It emerged that cognitive, and to a lesser extent organisational, social, and institutional proximities matter in contingent ways, exercising their effects only in conjunction.
- The problems in analysing Airbus SAS suggest that there is a need to examine potential tensions between different categories of proximity.