

**COLLABORATION NETWORKS AND  
INNOVATION IN QUEBEC'S ICT  
HARDWARE CLUSTER: A DEEPER  
UNDERSTANDING OF THE  
ECOSYSTEM**

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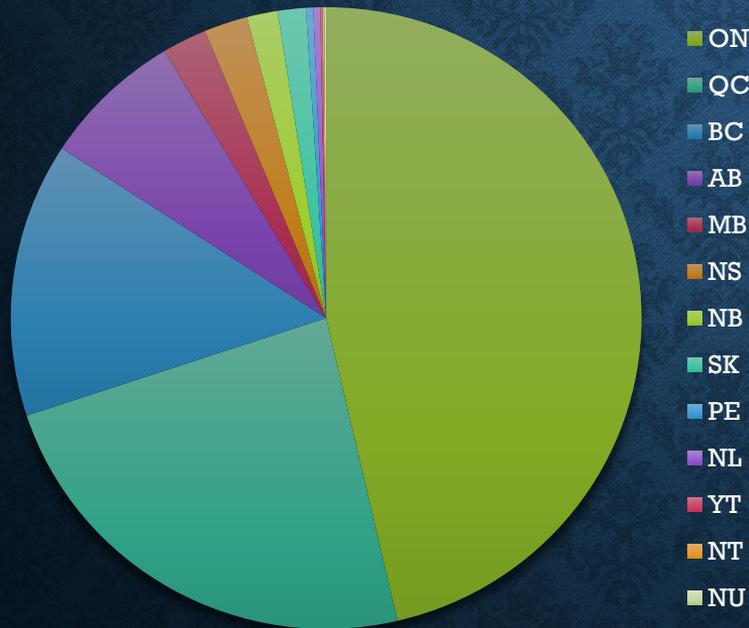
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# AGENDA

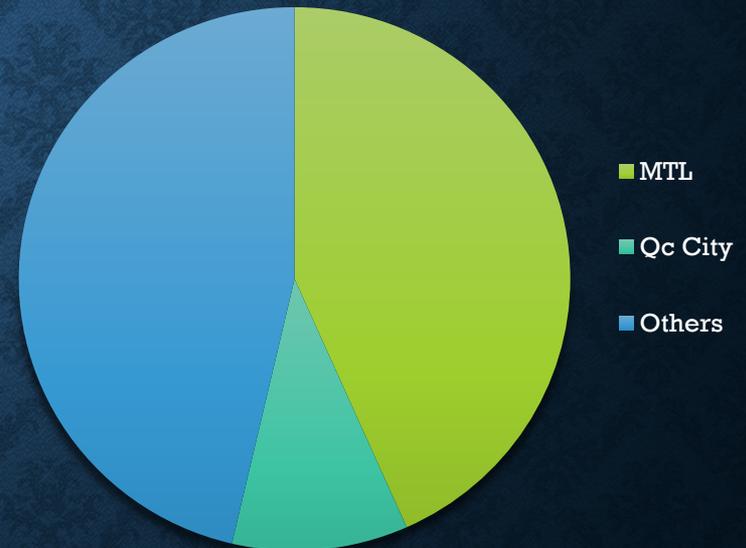
- Research context
- Research questions
- Methodology
  - Data
  - Interviews
- Results
  - Firms
  - Intermediaries
- Conclusion and discussion
  - Next steps

# ICT INDUSTRY IN CANADA

## Geographical distribution of ICT firms in Canada



## Geographical distribution of ICT firms in Quebec



# RESEARCH CONTEXT

- 86% of the ICT industry is composed of small firms (less than 10 employees)
- Lee and al. propose an intermediary model that supports SMEs to create their collaboration network
- Bromont is home of the only semi-conductor manufacturing firm outside south east Asia

# RESEARCH QUESTIONS

- Which practices of open innovation (OI) are adopted by the Canadian ICT industry?
- And how are they characterized?

# **METHODOLOGY**

# APPROACH

- Based on the study of Bouhadra and Beaudry (2016), we identified key players to conduct semi-structured interviews in order to characterize their collaboration practices
- The multiple case study employed, as described by Yin (2009), is a good method to get a deeper knowledge of an actual phenomenon
- 2 firms and 3 intermediaries in different fields of application

# THEMES

- Open innovation and collaboration practices
- GPN
- Innovation context in Quebec
- Public support
- Hardware vs Software

# DEFINITIONS

- **Collaboration:** To work together towards common goals and share methods of work or assume responsibilities collectively towards a project or a production (Laurel, 2002)
- **Subcontracting:** Transactional relation only, without any particular proximity between the two parties
- **Open innovation:** The use of inbound and outbound flows of knowledge in order to accelerate the innovation process (Chesbrough, Vanhaverbeke and West, 2006)

# RESULTS

# FIRMS RESULTS

| Type  | Alpha  | Beta  |
|---|--|---|
| Field of application                        | Telecommunications, infrastructures                                    | Aerospace and instrumentation   |
| Open innovation and collaboration practices | Collaborates with customers and universities                           | Collaborates with customers and universities  |
| Global production network                   | Located in Asia mainly   | Located in Asia but prefer a Canadian supplier due to tax credit  |
| Innovation context in Quebec                | Rich ecosystem   | Rich ecosystem  |
| Public Support                              | Public support is sufficient but no incentive for collaboration        | Public support is sufficient e.g. R&D tax credits, but lack of support for commercialisation  |
| Hardware vs Software                        | Hardware and software are now integrated together to provide solutions | There is still a future for the hardware field but it's also becoming more part of software application. Hardware companies are moving to Asia. |

# INTERMEDIARIES RESULTS

| Type  | Gamma  | Delta                                   | Epsilon   |
|---|--|---|---|
| Field of application                        | Tech firms (focused on commercialisation)              | Technology transfer office              | ICT firms (focused on funding)  |
| Open innovation and collaboration practices | Knowledge sharing with firms                           | Licensing                               | Collaborative projects  |
| Innovation context in Quebec                | Highly skilled labour force                            | Increasing presence of serial inventors | Need to work on our branding.   |
| Public Support                              | Weak in terms of commercialisation                     | Weak in terms of commercialisation      | Sufficient  |
| Hardware vs Software                        | Hardware is necessary to support software applications | No comment                              | Hardware is hidden in software applications but it will always exist. |

# ALPHA (FIRM)

*“Public support in Quebec is good but it’s still not enough because it doesn’t promote collaboration between firms.”*

# BETA (FIRM)

*“The closer, the better when it comes to selecting partners or suppliers, but sometimes we have to go Asia. It’s less costly and you will find everything you need.”*

# GAMMA (INTERMEDIARY)

*“Nowadays, it’s impossible to separate hardware from software as they are integrated into solutions”*

*“In the US, 1\$ for R&D equals to 2\$ invested in the commercialisation of a product. We can’t say the same for Canada since it’s only focussed on R&D.”*

# DELTA (INTERMEDIARY)

*“The government suggests that we use Canadian partners but they are currently hard to find. For example, Blackberry were involved in many projects before its financial situation declined”*

# EPSILON (INTERMEDIARY)

*“There is a good branding about Montreal and public support from the government through tax credits. But we should continue to promote the brand.”*

*“We have some of the best researchers in Optics/Photonics but nobody knows about it...”*

# **CONCLUSION AND DISCUSSION**

# CONCLUSION

- Firms and intermediaries have adopted some open innovation practices
  - Licensing
  - Collaboration with universities and clients
- Current innovation support seems to be weak especially for the commercialization of products
- Should intermediaries play a role in developing public policies?

# NEXT STEPS

- Interviews more firms/intermediaries
- Compare firms/intermediaries in similar fields of application
- Analyse the performance of a firm/intermediary based on the adoption of open innovation

**THANK YOU**