

REGIONAL DYNAMICS IN NON-METROPOLITAN HIGH-TECH CLUSTERS – THE EXAMPLES OF OULU AND LULEÅ

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NORDREGIO
Nordic Centre for Spatial Development



INTRODUCTION

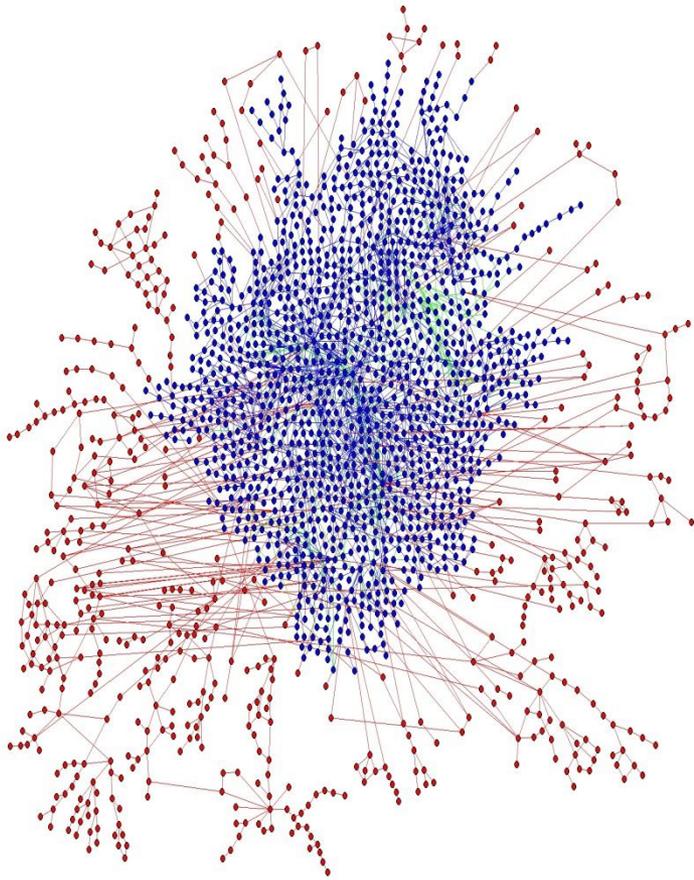
- **Håkan Ylinenpää**, Professor of Entrepreneurship & Innovation at LTU. Research Director for the national excellence centre in innovation system research CiiR
- **Jukka Teräs**, Senior Research Fellow, Nordregio. Specialised in regional development and innovation environments
- Disposition of our 20 minutes
 - CASE LULEÅ
 - CASE OULU
 - ANALYSIS: SMART SPECIALIZATION
 - ANALYSIS: RESILIENCE
 - CONCLUDING REMARKS & IMPLICATIONS

Sources include:

Teräs, J – Ylinenpää, H (2012): Regional Dynamics in Non-metropolitan Hi-tech Clusters: A longitudinal study of two Nordic regions. In: Innovation Governance in an Open Economy. Shaping Regional Nodes in a Globalized World. Edited by A. Rickne, S. Laestadius, H. Etzkowitz. 2012, Routledge



THEMES



How to develop (smart specialization) strategies for regional innovation?

Resilience and regional dynamics?

What can we learn from two "sister regions" in North Finland and North Sweden?



METHOD



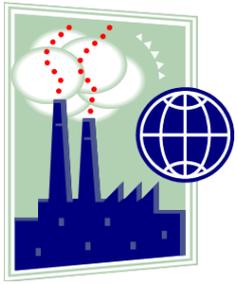
- A longitudinal case study of two Nordic regions spanning over 25 years:
 - Luleå and Norrbotten in Sweden
 - Oulu and Northern Ostrobothnia in Finland.
- A combination of quantitative and qualitative data.



OUR LONGITUDINAL EMPIRICAL DATA HIGHLIGHT...

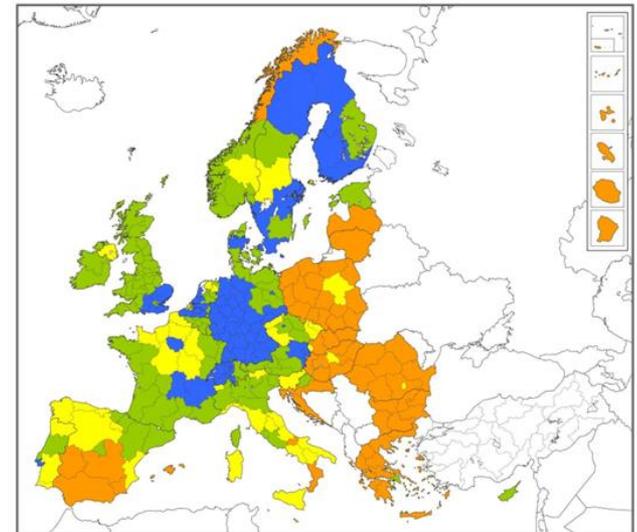
- A Finnish region that during the last 25 years developed into a European hot-spot for high technology, but also a region that today experiences tougher times due to globalization of the economy.
- A Swedish region that used to be lagging behind its more dynamic sister region in Finland, but also a region that today is a hot-spot for development based on natural resources and on initiatives to develop “smart specialization” based on the integration of “the old” and “the new”.



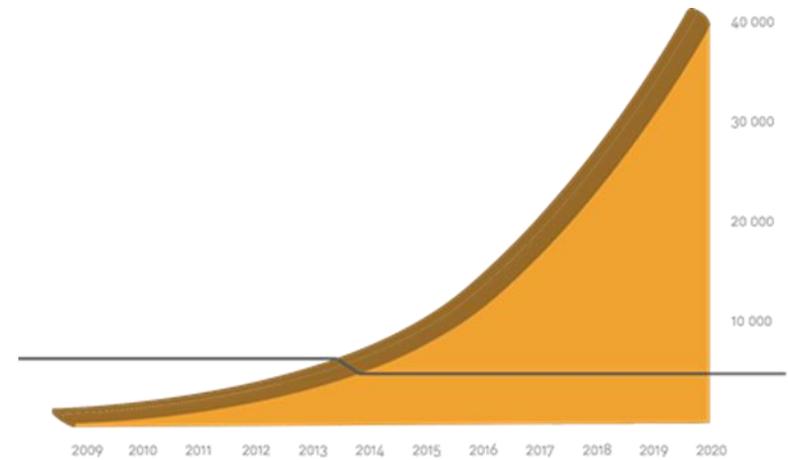


THE LULEÅ CASE

- Located to a region with a booming mining industry during recent years
- Dependent also on other forms of industrial exploitation of natural resources (paper & pulp industry, ironworks & steel industry, hydroelectric power generation)
- Supported by a technical university with specific expertise in natural resource exploitation and ICT



BIG DATA - AN OPPORTUNITY FOR SMART SPECIALIZATION



WHY SWEDEN?

- Access to reliable and price-worthy energy – less need for back-up systems
- Access to renewable energy
- Stable political and geological climate

WHY LULEÅ?

- Competence based on process industry reduces risk for production problems
- The cold climate reduces need for cooling systems
- A proactive, professional and engaged welcoming from local actors
- Closeness to a technical university, good fiber and flight connections



THE NODE POLE REGION



- The Node Pole region encompasses the municipalities Luleå, Boden and Piteå in the very north of Sweden, just by the Arctic Circle.
- The region has the epithet The Node Pole due to its northern position and potential to become a global hub for data traffic.



HYDRO 66 *66:00:00 to build new wholesale data centre in The Node Pole region
Green and cost-effective hosting, adjacent to Facebook and KnC Miner, in the Arctic region of Sweden



TOWARDS A MORE RESILIENT REGION BASED ON NATURAL RESOURCE EXPLOITATION



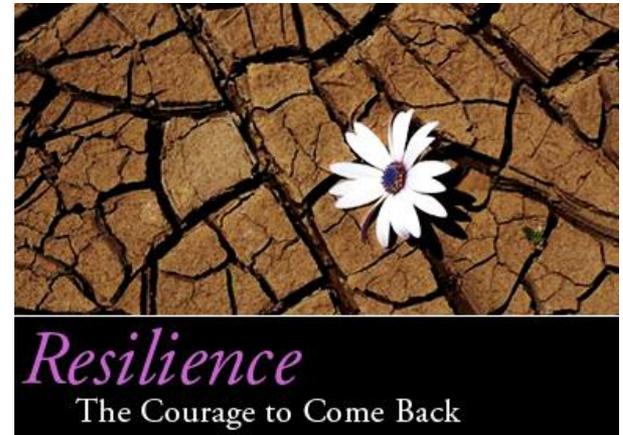
Process industries



Data centres

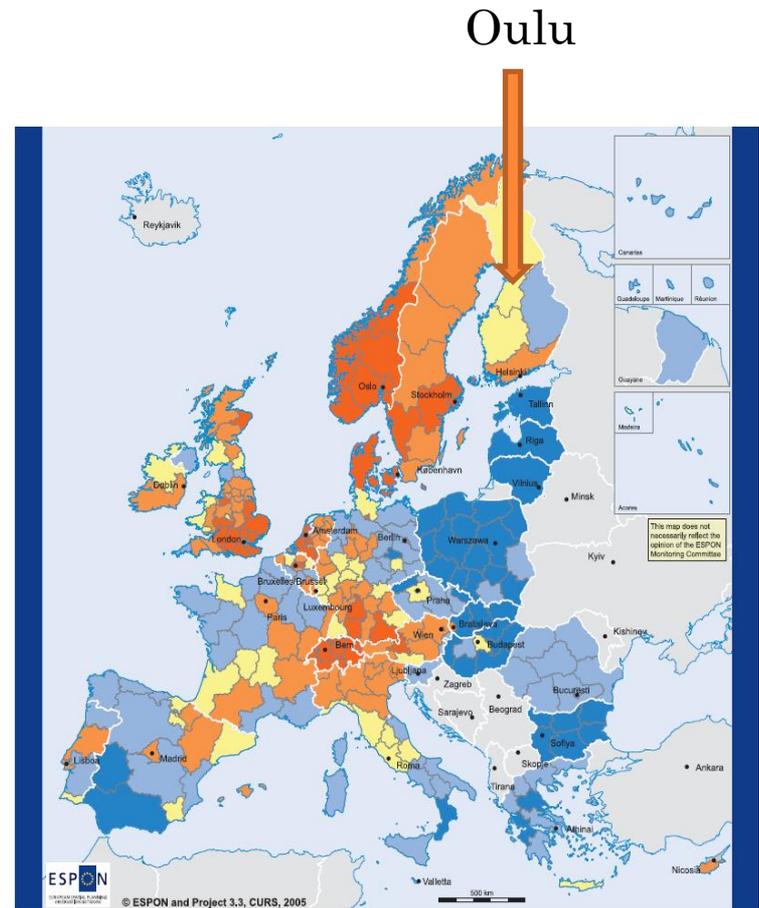


Tourism



THE OULU CASE

- The leading city of North Finland with 194,000 inhabitants
- The city has experienced e.g. "the Oulu Phenomenon", the rapid conversion in the 1980s and 1990s from a traditional industrial region into an internationally-known centre of ICT-related technologies

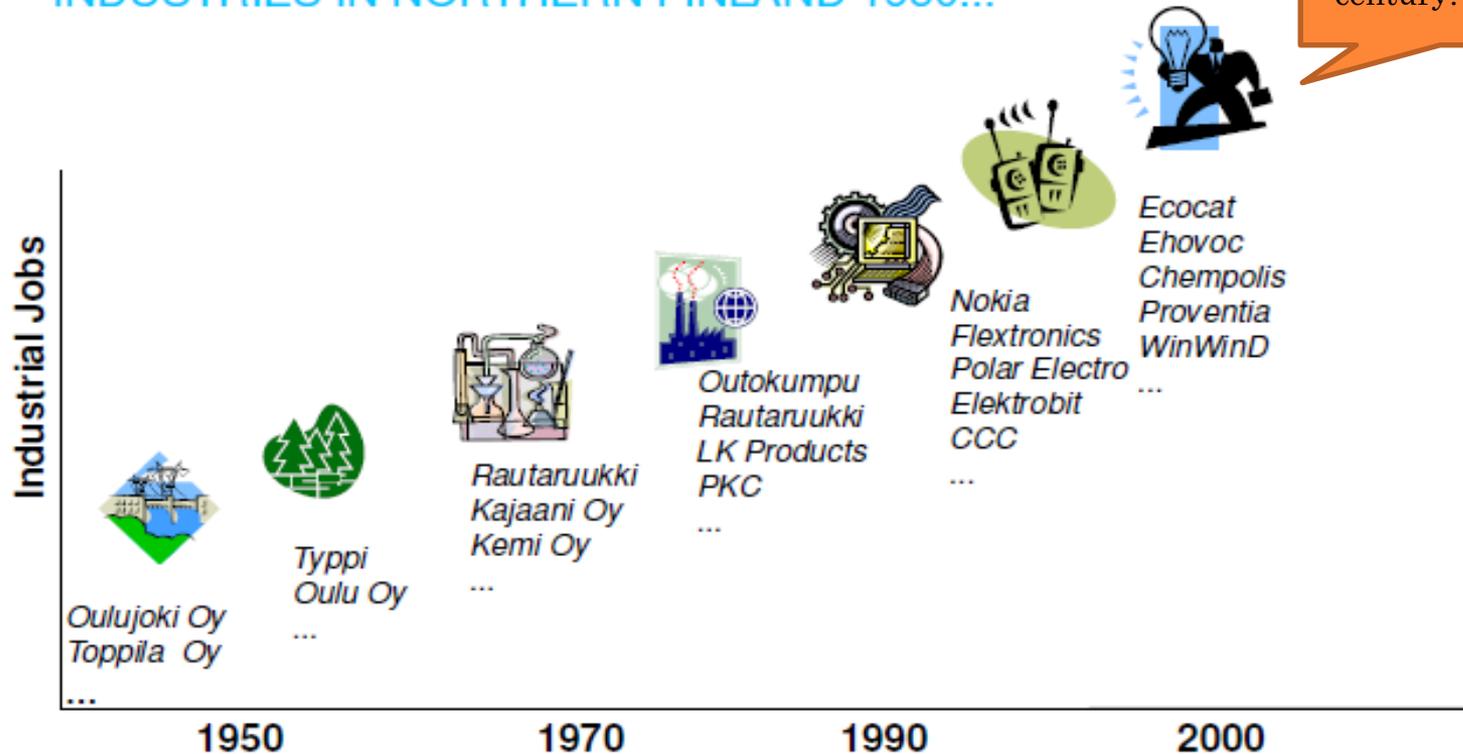


The rapid industrialization of Oulu (Keinänen 2010)

ouluinnovation

FOR FUTURE INNOVATIONS AND BUSINESS SUCCESS

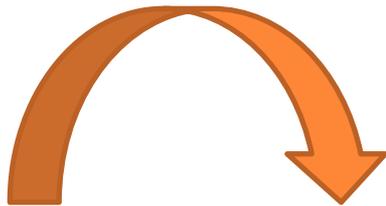
INDUSTRIES IN NORTHERN FINLAND 1950...



Energy...Forest...Chemical...Metal...Electronics...Wireless...Software...Cleantech...

FACING A NEW GLOBAL REGIME

- Nokia Mobile Phones has been acquired by Microsoft. Rapid loss of Nokia jobs in Oulu, with a negative effect on the local subcontractors. A status of ÄRM (A region of sudden structural change) was given to Oulu by the Finnish Government in 2012.



“One era, the era of the mobile phones, has anyway come to an end. Nobody knows what the future will bring but we are searching for it now.” (Mr Matti Pennanen, city mayor, 2008)



TOWARDS A SMART SPECIALIZATION

- Diversification into other sectors e.g. environmental sector and bioeconomy has partly compensated for the losses of ICT and telecommunications jobs.
- New research-driven high tech clusters e.g. printed intelligence are emerging, based on the accumulated knowledge in the region
- Mining industry “renaissance” in North Finland in the 2000s boosted high tech applications and new optimism in the Oulu region (mining industry today, however, facing challenges due to lower metal prices)
- New startups and incubators, success in some Nokia-based new ventures: a positive sign



LESSONS LEARNED IN OULU FROM A RESILIENCE PERSPECTIVE

- High tech boom was a wonderful but risky experience: too many eggs in the same basket
- Global markets – a double-edged sword
- The skills of the workforce is an essential cornerstone of economic resilience in Oulu.
- The city has been able to produce repeatedly successful responses to economical shocks and “slow burns”. The region has “a regional DNA of survival and renaissance”.



OUR LONGITUDINAL EMPIRICAL DATA HIGHLIGHT...

- Two regions which have gone from policy interventions fostering flexible specialization,
 - with the motive of staying resilient and competitive over time,
- Favouring a smart specialization strategy exploiting related variety
 - with the motive of building competitiveness from a focus on one to a few strong industries within the region.



IMPLICATIONS FOR SMART SPECIALIZATION

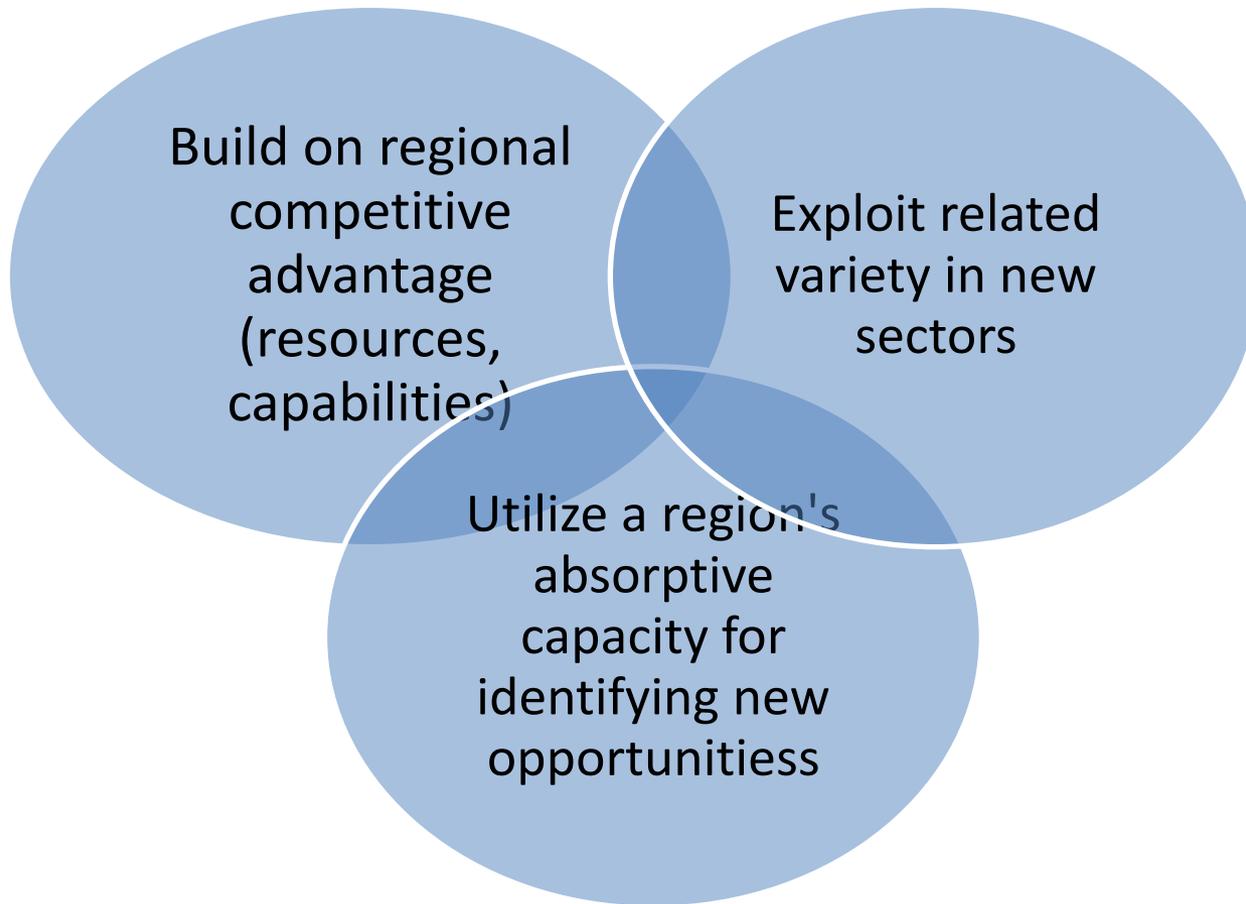
- A regional smart specialisation built on two or more existing (or emerging) sectors may therefore represent a truly “smart” specialisation:
 - Allows for tapping into the development potential of more than one sector
 - Allows for exploiting the development potential existing in the interface between two (or more) sectors of industry and business.
 - Reduces the inherent risk of ‘picking the winner’ *a priori*; a documented high-risk strategy



LESSONS LEARNED FROM THE RESILIENCE PERSPECTIVE

- It is critical to recognize that a region's opportunities to diversify into new industries and new knowledge bases is affected by **the degree of related variety** (Asheim, Boschma & Cooke 2011)
- Thereby a specific region may also achieve a form of **system resilience** that improves the region's ability to cope with change and new demands, and at the same time counteracts the risk of regional lock-in effects into one specific regional structure.





A policy implication road-map



Thank you for your attention!
Comments and suggestions are welcome!

