

Competing trajectories for digital technologies and skills among Atlantic Canadian wood product companies

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Smart specialization framework

smart specialization: a place-based approach that takes a broad view of innovation, builds on local assets, and focuses investments onto competitive strengths, with public sector and a broad set of stakeholders supporting a private sector approach of entrepreneurial discovery (*European Commission, Smart specialization platform*).

Smart specialization **policy prescriptions** suggest

- privileging investments into higher growth companies using more innovative technologies and higher level skills.
- They extract more value from resources and can tap better into global value chains.
- They show more interest developing high value back end technologies, systems and platforms.



Atlantic Canadian forestry case study

site visits and interviews

"Older" forestry

- Products: pulp, paper, lumber, furniture, finishings
- Capital: \$150k harvesters, P&P and lumber mills
- \$15-20/hr mechanical skills, manual labour, weeks of training, turnover (varies w/ oil prices)
- Profits from volume (vs margins) of low VA commodity

"Newer" forestry

- Traditional products
+ new streams, ex. Bioenergy (biomass CHP + green diesel), fibre for MedTech + adv materials, higher VA mfg / constr (eg corrugated wood)
- \$500k harvesters, CHP plants, product and supply chain diversity
- Human-assisted robotization of harvesting, measurement, inventory geotagging and management, ERP use, remote sensing (eg moisture)
- \$30-40/hr, months of training, little turnover, premium on digital and general skills, not industry-specific (more in-house training)
- Lower volume, low (traditional products) and high (new products) VA





Guttor

Competing trajectories

Smart specialization would suggest 'new forestry' as favored trajectory

- High growth + high skill
- Higher value add in global value chains (GVCs)
- Back end technology and platform opportunities

- However, no clear Shumpeterian path. Incumbents and upstarts both innovate, with varied impact on skills and employment. Incumbents...
 - invest in skill- and job-displacement vs skill- and job-enhancing technologies (eg autonomous machinery, vehicles)
 - show less interest in back end tech and platform development
 - successfully resist disruption; use state to raise market entry barriers, both financial (e.g. subsidized training) and non-financial (access to feedstock), stifling innovation, diversification and value capture

Can policy push trajectory?

Smart specialization and digital prosperity requires vision, alignment, patience, particularly in seizing cleantech, medtech, buildtech

- This requires policy bench strength which smaller jurisdictions may lack

Territorial context matters

Prince Edward Island

- policy priority to challengers (energy diversification, value capture)

New Brunswick

- policy priority to dominant incumbent (land mgt, access to markets, monoculture, spraying, no FITs, subsidized training programs)

Generalizations

- Competing trajectories are not unique to resource sectors (eg mfg, FIRE)
- Digital technologies may both upskill (human-assisted robotization, industrial design) or deskill / displace workers (autonomous harvesters, vehicles).
- While incumbents may not resist technological innovations, they may very well choose 'job-less' trajectories
- Territorial governments have an interest to favor smart spec trajectories, but they need
 - policy capacity
 - wherewithal to shift resources away from incumbents
 - patience to look beyond booms and towards higher value-added and back end tech development opportunities

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