VALUE CHAIN AND CLUSTERING

VALUE CHAIN

High value added regions demonstrate high interdependency between value added manufacturers and suppliers of all types. Suppliers also demonstrate willingness to adapt products, demonstrate flexibility and support product development.

In some areas, particularly Germany, links evolve to geographic closeness and a *cluster* is created.

In resource-based regions, (eg. Ontario, other Provinces, Nordic region), interdependency tends to be most pronounced at interface between commodity lumber producers and first level remanufacturers.

Clustering serves development of competitive advantage for cluster as a whole. Clustering represents opportunity for industry sector to capture additional value, foster increased growth.

VALUE CHAIN — ONTARIO

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Medium - Low Some dependence on local lumber manufacturers for feed stock, but other supplies readily available	Medium Using mix of domestic and imported supplies of both hardwood and softwood lumber	Low Panels generally obtained from lowest cost supply source, frequently from outside Ontario
Specialisation of interdependency - specialisation in the suppliers	Low Commodity grades supplied/purchased	Low-medium Intermediary suppliers providing species and grades not available from domestic sources	Medium Suppliers providing overlaid and cut-to-size panels
Key supplier sectors	Ontario softwood and hardwood lumber manufacturers, and importing agents and wholesalers	North American hardwood lumber and veneer manufacturers; import agents and wholesalers, domestic softwood lumber mfg.	North American MDF/PB panel manufacturers, North American hardwood lumber-veneer manufacturers, import agents and wholesalers
Key competitive value provided from the value chain	Readily accessible, high volume supplies.	Quality, fit for purpose, competitively priced raw material.	Quality, fit for purpose, competitively priced raw material.

VALUE CHAIN — QUÉBEC

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Medium Some dependence on local lumber manufacturers for feed stock, but other supplies can be sourced	Medium Using mix of domestic and imported supplies of both hardwood and softwood lumber	Medium Panels generally obtained from lowest cost supply source, sometimes from outside Québec
Specialisation of interdependency - specialisation in the suppliers	Low Commodity grades supplied/purchased	Low-medium Intermediary suppliers providing species and grades not available from domestic sources	Medium Suppliers providing overlaid and cut-to-size panels
Key supplier sectors	Québec softwood and hardwood lumber manufacturers, and importing agents and wholesalers	North American hardwood lumber and veneer manufacturers; import agents and wholesalers, domestic softwood lumber mfg.	Québec and North American MDF/PB panel manufacturers, North American hardwood lumber-veneer manufacturers, import agents and wholesalers
Key competitive value provided from the value chain	Readily accessible, high volume supplies.	Quality, fit for purpose, competitively priced raw material.	Quality, fit for purpose, competitively priced raw material.

VALUE CHAIN — BRITISH COLUMBIA/ALBERTA

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	<u>High</u> Depend on local lumber mills for feedstock	<u>Moderate</u> Use imported hardwood, but local softwood	<u>Low</u> Purchase commodity panels from lowest cost supplier.
Specialisation of interdependency - specialisation in the suppliers	<u>Very Low</u> Commodity grades supplied/purchased, especially low grade which primary mills keen to sell.	<u>Medium</u> Some suppliers undertaking panel overlaying. Some lumber suppliers drying to meet user needs	<u>Medium</u> Overlaid panels being supplied with various faces.
Key supplier sectors	Softwood Lumber sourced in BC/AB	MDF/PB panel manufacturers Softwood and hardwood lumber producers	MDF/PB panel manufacturers
Key competitive value provided from the value chain	Low cost raw material. (Negative – suppliers offer limited flexibility.)	Quality, fit for purpose, competitively priced raw material	Quality, fit for purpose, competitively priced raw material

VALUE CHAIN — GREAT LAKES STATES

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Medium-High Local lumber manufacturers key supply for feed stock, but other supplies can be sourced, if at higher cost	Medium Using mix of domestic and imported supplies of both hardwood and softwood lumber	Medium Panels generally obtained from lowest cost supply source, sometimes from outside Québec
Specialisation of interdependency - specialisation in the suppliers	Low Commodity grades supplied/purchased	Low-medium Intermediary suppliers providing species and grades not available from domestic sources	Medium-High Suppliers providing overlaid and cut-to-size panels
Key supplier sectors	Domestic softwood and hardwood lumber manufacturers, and importing agents and wholesalers	North American hardwood lumber and veneer manufacturers; North American softwood lumber mfg.; import agents and wholesalers,	North American MDF/PB panel manufacturers, North American hardwood lumber-veneer manufacturers, import agents and wholesalers
Key competitive value provided from the value chain	Readily accessible, high volume supplies.	Quality, fit for purpose, competitively priced raw material.	Quality, fit for purpose, competitively priced raw material.

VALUE CHAIN — NORDIC

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Medium/Low Using std lumber from domestic sawmills (major part of the capacity owned by sawmill companies)	Medium Larger millwork co's key customers for sawmills – adaptation of products & services	Low Standard specifications (IKEA suppliers high specialisation & interdependency)
Specialisation of interdependency - specialisation in the suppliers	Medium/Low Standard specifications - easy to switch supplier	Medium Relatively high level of adaptation in products	Low Standard specifications (IKEA suppliers high specialisation & interdependency)
Key supplier sectors	Domestic sawmills	Domestic sawmills Traders (imported MDF) Domestic PB	Domestic EGP manufacturers Domestic PB Imported MDF
Key competitive value provided from the value chain	Low prices, supply reliability	Fir for purpose raw material	Low prices, flexibility (with IKEA: volumes, programmability)

VALUE CHAIN — DENMARK

	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Low Using std lumber from Nordic sawmills (direct or via traders)	Medium/High Larger millwork co's key customers for sawmills – adaptation of products & services	High Well-developed domestic component manufacturing (EGP) – strong clusters (ownership)
Specialisation of interdependency - specialisation in the suppliers	Low Standard specifications - easy to switch supplier	High High level of adaptation in products, working with selected suppliers	Medium/High Possibilities for high adaptation but very competitive
Key supplier sectors	Nordic sawmills	Nordic sawmills Imported/domestic MDF/PB	Domestic EGP manufacturers Imported/domestic MDF/PB
Key competitive value provided from the value chain	Low prices, supply reliability	Fir for purpose raw material (low waste), suitable quality (not necessarily high)	Low prices, supply reliability & flexibility

VALUE CHAIN — GERMANY

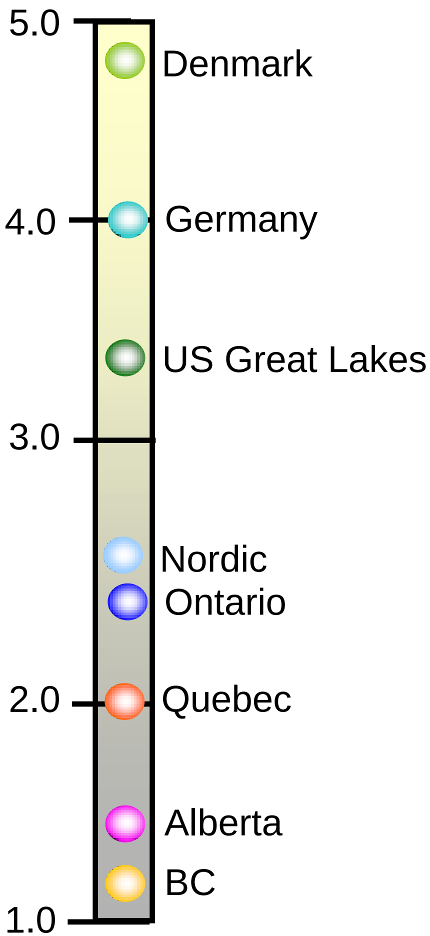
	Reman	Millwork	Furniture & Cabinets
Interdependency - degree of raw material sourcing from local suppliers in the value chain	Low Imported std lumber from Nordic & E. European sawmills (direct or via traders)	High Mainly fragmented industry serviced by domestic component manufacturers/ merchants	High Furniture clusters with well-developed subcontracting structures (panels, further processing)
Specialisation of interdependency - specialisation in the suppliers	Low Standard specifications - easy to switch supplier	Medium/High Specialised window/door component manufacturing – grading by customer	High High level of adaptation in products & services but very competitive
Key supplier sectors	Nordic & Eastern European sawmills	Wholesalers/merchants Domestic/E.European component manufacturers	Domestic MDF/PB Component suppliers EGP (domestic/imported)
Key competitive value provided from the value chain	Low prices, flexibility (easy to switch)	Fir for purpose raw material, high quality, large scale component manufacturing for low unit costs	Fit for purpose, high quality but at competitive prices, product/process development support

DEFINITION OF CLUSTERING

This factor addresses the flow of synergies between the manufacturers and their raw material and component suppliers, equipment manufacturers, customers and supporting institutions to foster the development of a secondary **WOOD PRODUCTS CULTURE.**

A successful **CLUSTER** intensifies the use of knowledge and constructive interaction between different parties and, in many ways, enables the individual enterprises which constitute the cluster to overcome such other disadvantages as distance from raw materials, high input costs, and distance from markets.

CLUSTERING IN INVESTIGATED REGIONS



- The European organizations have focused on the benefits of clustering to the point where suppliers and markets search them out
- The clusters in the Nordic countries are heavily supported by government efforts to gain synergies
- Clusters in US States historically developed from resource availability. More recently have been fostered by industry/government/ education cooperation to foster growth/value, (eg. PA Hardwoods Council).
- Canadian initiatives more frequently focused on development of geographic diversification of growth — equality of minimal benefits to many communities — though market-driven clusters have developed in Ontario and, to a lesser degree in Québec.

CLUSTERING AS COMPETITIVE ADVANTAGE

The qualitative benchmarking also highlighted some differences with the use of clustering to secure competitive advantage. In the context of the globalization of markets and industries, clustering, (or developing local home-based advantages), may turn out to be the only source of competitive advantage.

Benchmark regions with strong and well developed clustering, (Denmark, Germany, Nordic and the Great Lakes States), demonstrate that leverage can be gained through effective development of clusters within the value added wood products sector to spur further growth of the sector.

This success demonstrates that cooperation between stakeholders can create significant leverage. It is critical that the Province, the primary producers and value added manufacturers embrace the concepts of value chain (from resource to end use) and clustering if Ontario wood products are to thrive in global markets and compete effectively against well established producers from other regions.

ILLUSTRATION OF CLUSTER MAPS

'Horizontal' Clustering →

'Vertical' Clustering ↓

	Industry	Supporting Suppliers/Indust	Supporting Instit/Infra.	Interlinked Industry	Stakeholders
Resource	Forest Estate. Gov/Forest Owners	Nurseries Land Agents	Universities Research Centres	Tourism Agriculture	Envir. Stewardship Electorates Gov.Agencies
Harvesting and Transport	Contractor Base	Machinery,Fuels	Research Road, Rail Systems	General Transport	NGO,Unions Road users Gov.Agencies
Primary Processing	Sawmills, Chipping Hogging	Machinery, Fuels	Research Centres Training	Energy	Gov.Agencies NGOs, Unions
Secondary Processing	Reman,Panels, Pulp, Paper, Biofuel	Machinery, Fuels Chemicals	Research Centres Training, Education, Financial	Composites, Printing, Publishing, Food Packaging	Gov.Agencies NGOs, Unions
Tertiary Processing	Specialisation, Coatings, Converting, Furniture, Parquet, Windows etc.	Machinery, Fuels Chemicals	Research Centres Design, Building Res.	Plastics, Metals Textiles	Gov.Agencies, Unions
Distribution	Merchants, Retailers, Wholesalers	Advertising, Logistics, Fuels	Road, Rail Systems Warehousing, E-Biz	DIY	Gov.Agencies Road Users
Final Consumption, Goods and Services	Consumers, Builders, Business to Business	Consumer Groups	Research Centres Design, Builders IT, e-Biz	Substitutes Consumer Finance	Health&Safety Gov. Agencies
Waste management, recycling	Contractors, Councils, Paper&Wood Producers	Machinery, Chemicals, Waste	Energy, Waste util, MSW, Landfills	Energy, Composite Materials	Gov.Agencies NGOs, Electorate

Cluster maps list and connect the groups associated with an industry sector

EXAMPLE OF CLUSTER MAPS

'Vertical' Clustering

'Horizontal' Clustering

	Industry	Supporting Suppliers	Supporting Instit./Infra.	Interlinked Industry	Stakeholders
Resource	Forest Estate, Gov/Forest Owners	Nurseries Land Agents	Universities Research Centres	Tourism Agriculture	Envir. Stewardship Electorates Gov.Agencies
Harvesting and Transport	Contractor Base	Machinery, Fuels	Research Road, Rail Systems	General Transport	NGO,Unions Road users Gov.Agencies
Primary Processing	Sawmills, Chipping Hogging	Machinery, Fuels	Research Centres Training	Energy	Gov.Agencies NGOs, Unions
Secondary Processing	Reman,Panels, Pulp, PaperBiofuel	Machinery, Fuels Chemicals	Research Centres Training, Education Financial	Composites, Printing, Publishing, Food Packaging	Gov.Agencies NGOs, Unions
Tertiary Processing	Specialisation, Coatings Converting, Furniture, Parquet, Windows etc.	Machinery, Fuels Chemicals	Research Centres Design, Building Res.	Plastics, Metals Textiles	Gov.Agencies, Unions
Distribution	Merchants, Retailers, Wholesalers	Advertising, Logistics, Fuels	Road, Rail Systems Warehousing, E-Biz	DIY	Gov.Agencies Road Users
Final Consumption, Goods and Services	Consumers, Builders, Business to Business	Consumer Groups	Research Centres Design, Builders IT, e-Biz	Substitutes Consumer Finance	Health&Safety Gov. Agencies
Waste management, recycling	Contractors, Councils, Paper&Wood Producer	Machinery, Chemicals, Waste	Energy, Waste util, MSW, Landfills	Energy, Composite Materials	Gov.Agencies NGOs, Electorate

'Integrated Commodity Forest Products Company'

'Nordic Sector'

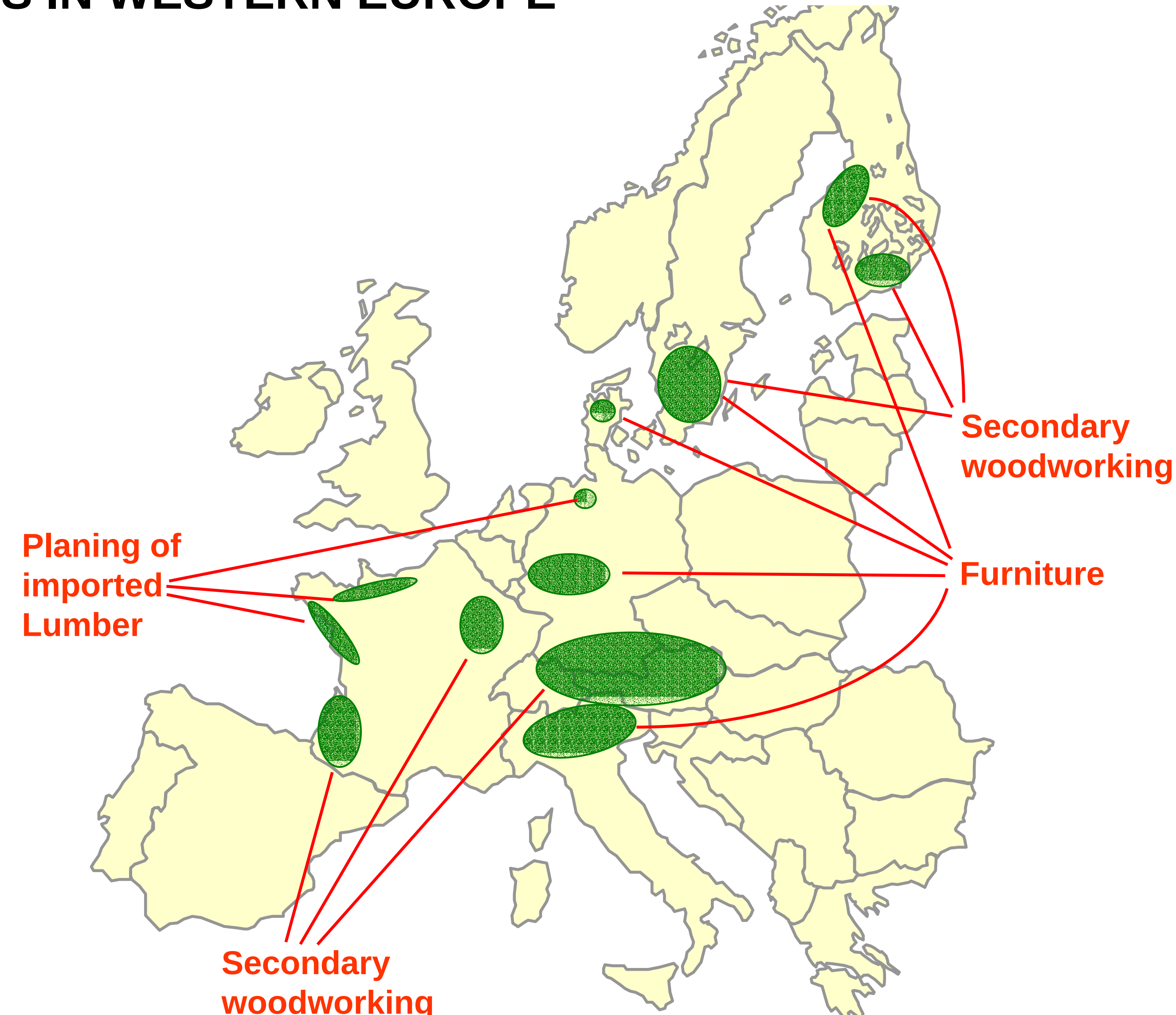
'German Panels'

'Denmark Furniture'

'Complete Loop Forest Products Company'

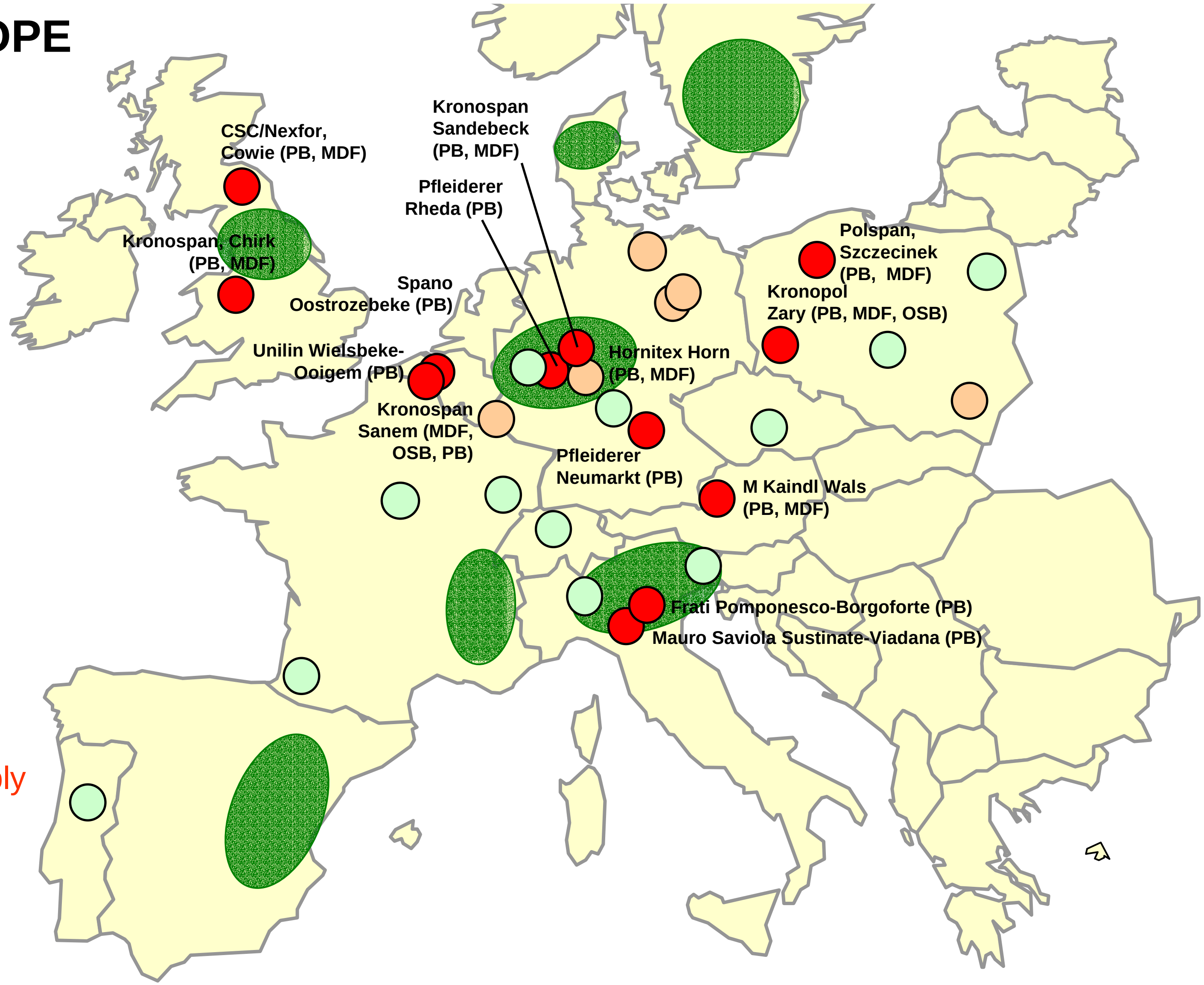
JAAKKO PÖYRY
Jaakko Pöyry Consulting

LOCATION OF VALUE ADDED WOODWORKING CLUSTERS IN WESTERN EUROPE



WOOD-BASED PANEL "MEGA-SITES" IN EUROPE

- Current "Mega-Site" (> 700,000 m³)
- Future "Mega-Site"
- Other Major Panel Capacity Concentration (> 500,000 m³)
- Furniture Clusters

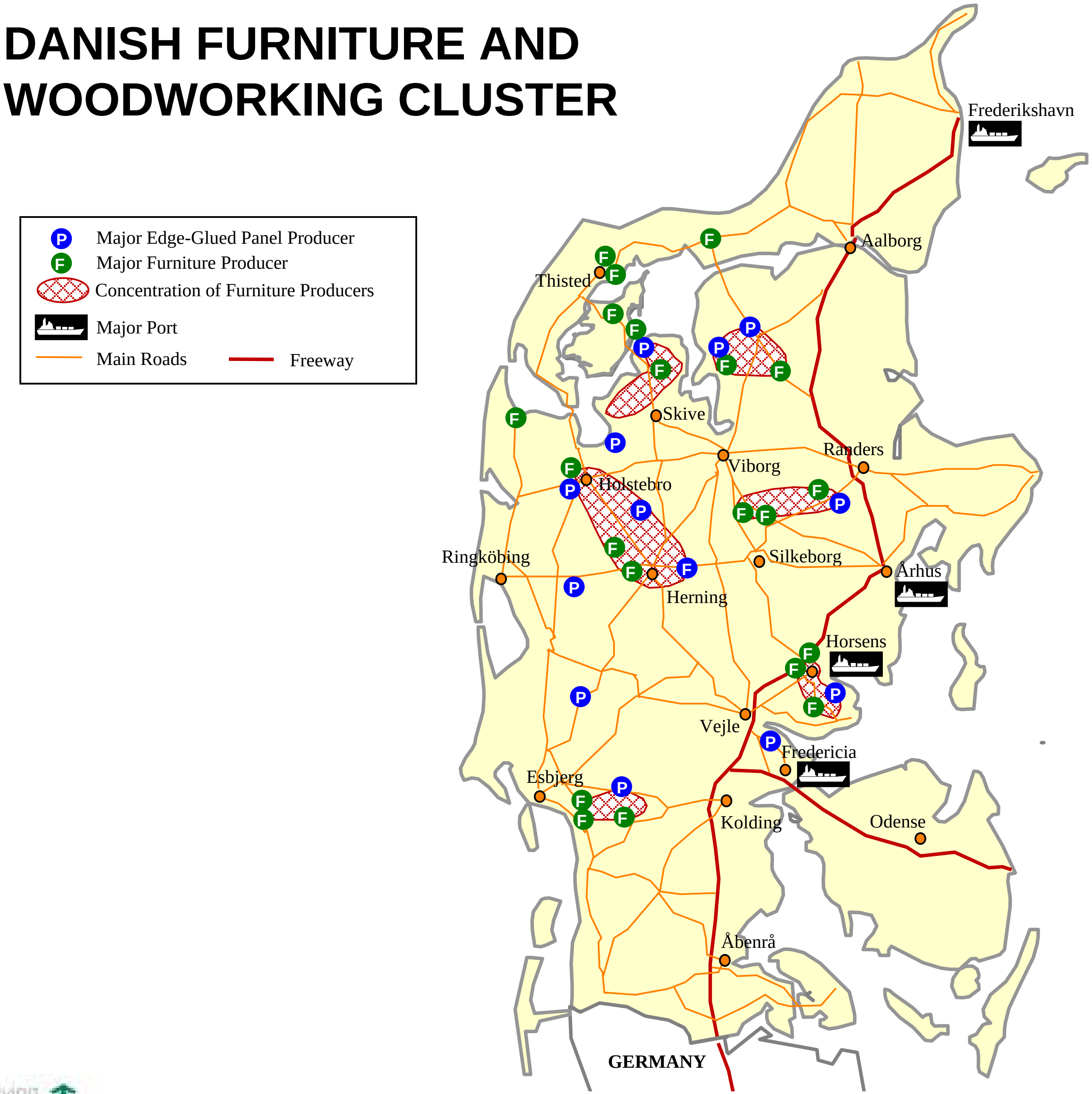


DRIVERS

- Capital Efficiency in Establishment
- Site Scale
- Efficient Wood Procurement and Supply Control
- Logistics Synergies

JAAKKO PÖYRY
Jaakko Pöyry Consulting

DANISH FURNITURE AND WOODWORKING CLUSTER



CLUSTERING – ONTARIO PERSPECTIVES

For Ontario, keys to success in such efforts can be expected to include —

Vertical clustering through the value chain with

Raw material suppliers (panels, lumber) to promote specialization, flexibility and product development capabilities

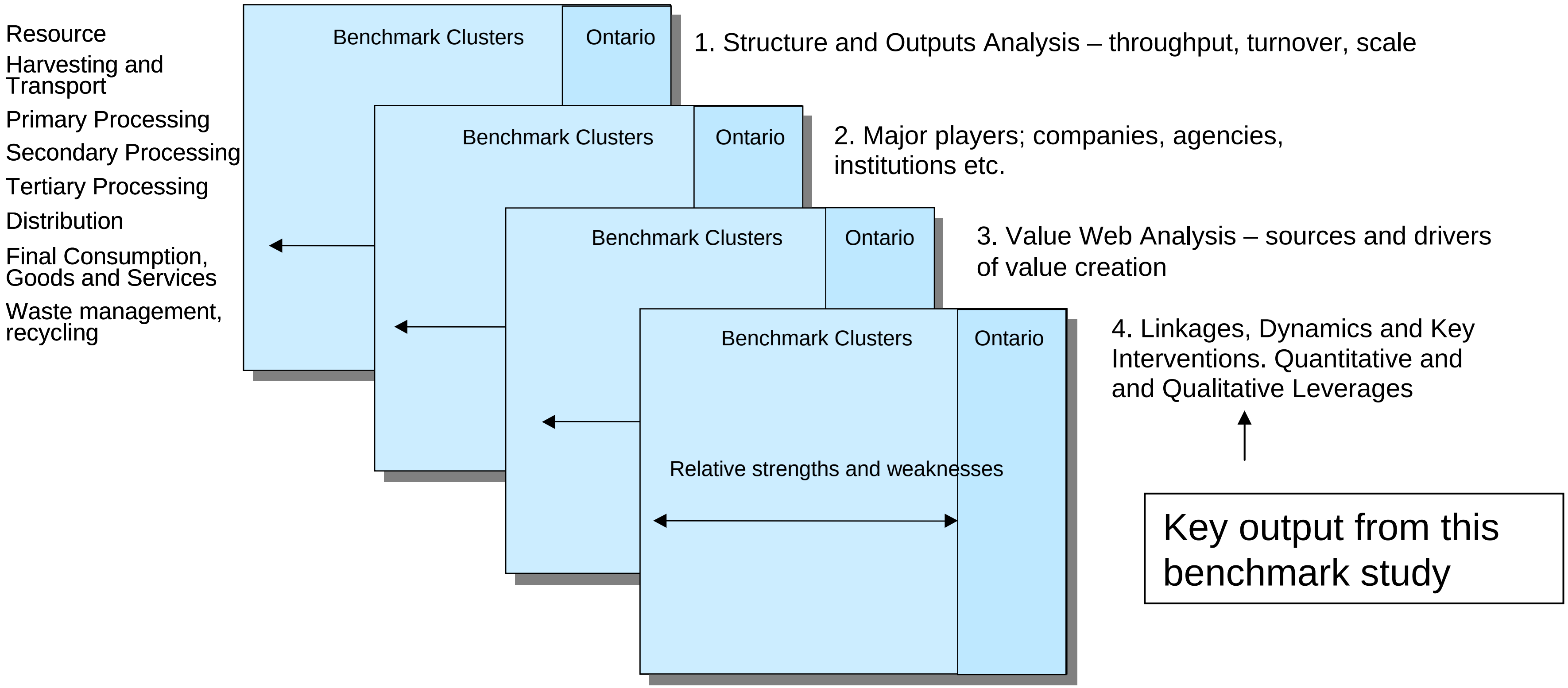
The Supply Chain (raw material to end-user) to share and promote efficiency improvements, competitiveness and innovation

Stakeholders (see also horizontal clustering) in supporting raw materials systems such as recycling - in terms of local government, consumers, industry (panels) and NGOs

Horizontal clustering through associated industries and institutions

Machinery and equipment producers, supporting suppliers and industries (chemicals, energy), supporting institutions (design, standards, management skills, know-how, marketing, technology adoption), interlinked industries (textiles, metals, plastics) and stakeholders (Government agencies, unions, NGO's).

BUILDING THE ONTARIO CLUSTER



The Ontario cluster can be both conceptualised and created from the cluster map