29 SEPTEMBER 2025

CIRANO
Knowledge into action

GVC*dt*LAB

Improving the attractiveness and competitiveness of the St. Lawrence – Great Lakes Corridor

Leadership Roundtable of the St. Lawrence - Great Lakes Corridor

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METHODOLOGY

Integrating data and perspectives

100+ documents

reviewed including industry reports, government publications and academic papers

15+ interviews

with carriers, importers/exporters, logistics intermediaries, ministries and public organizations, academia and scientific community

20+ datasets

analyzed to collect evidence on the current challenges facing the corridor and potential solutions

Leveraging the *digital twin* being developed by CIRANO's GVCdtLab research initiative financed by the National Trade Corridors Fund (NTCF)

DEFINITIONS

Attractiveness and Competitiveness: What do these concepts mean for the SLGL corridor

Attractiveness is the ability of the corridor to draw in resources by offering favourable conditions in terms of economic opportunities, institutions and infrastructure

Competitiveness is the ability of the corridor to maintain or improve its global economic standing in the face of competition while ensuring sustainable growth in productivity and living standards

A shared vision for 2025

Toward an integrated, intelligent and resilient multimodal ecosystem

A SHARED VISION FOR 2025

Toward an integrated, intelligent and resilient multimodal ecosystem

Coordinating governance with an operating framework that aligns stakeholders on

investing in multimodal infrastructure (road, rail, maritime, air, pipelines)

a shared digital port-community system

workforce upskilling to operate assets

a green corridor approach to accelerate decarbonization

One trade and transport corridor

A TRADE AND TRANSPORT CORRIDOR

An overview of the region amid global uncertainty

$6.9T

GDP in 2024 (in USD)

357k

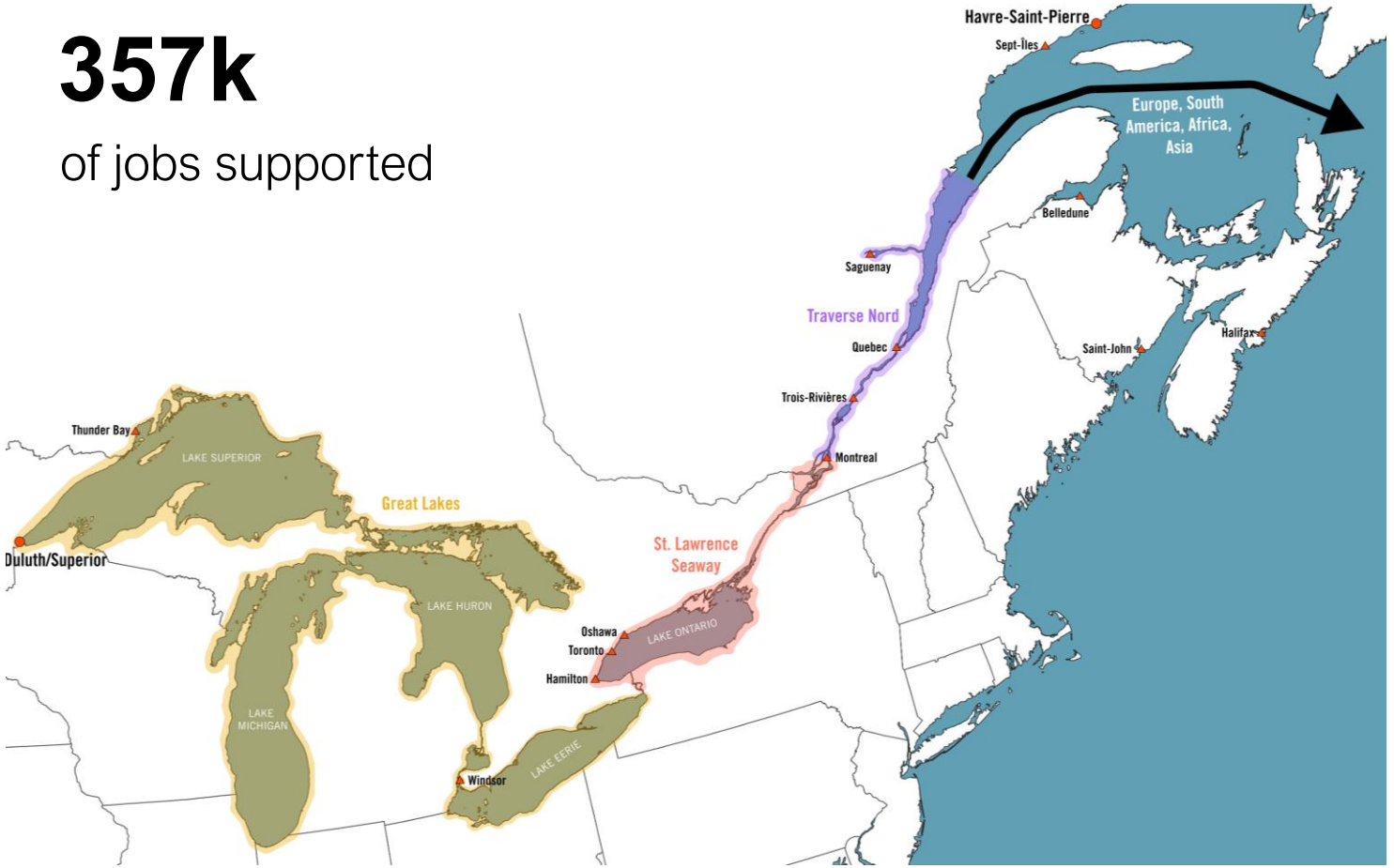
of jobs supported

798k

firms in Quebec & Ontario

111M

population in 2024



252.1M

metric tonnes of cargo moved

$157.2B

of moved cargo value

$66.1B

of economic activity

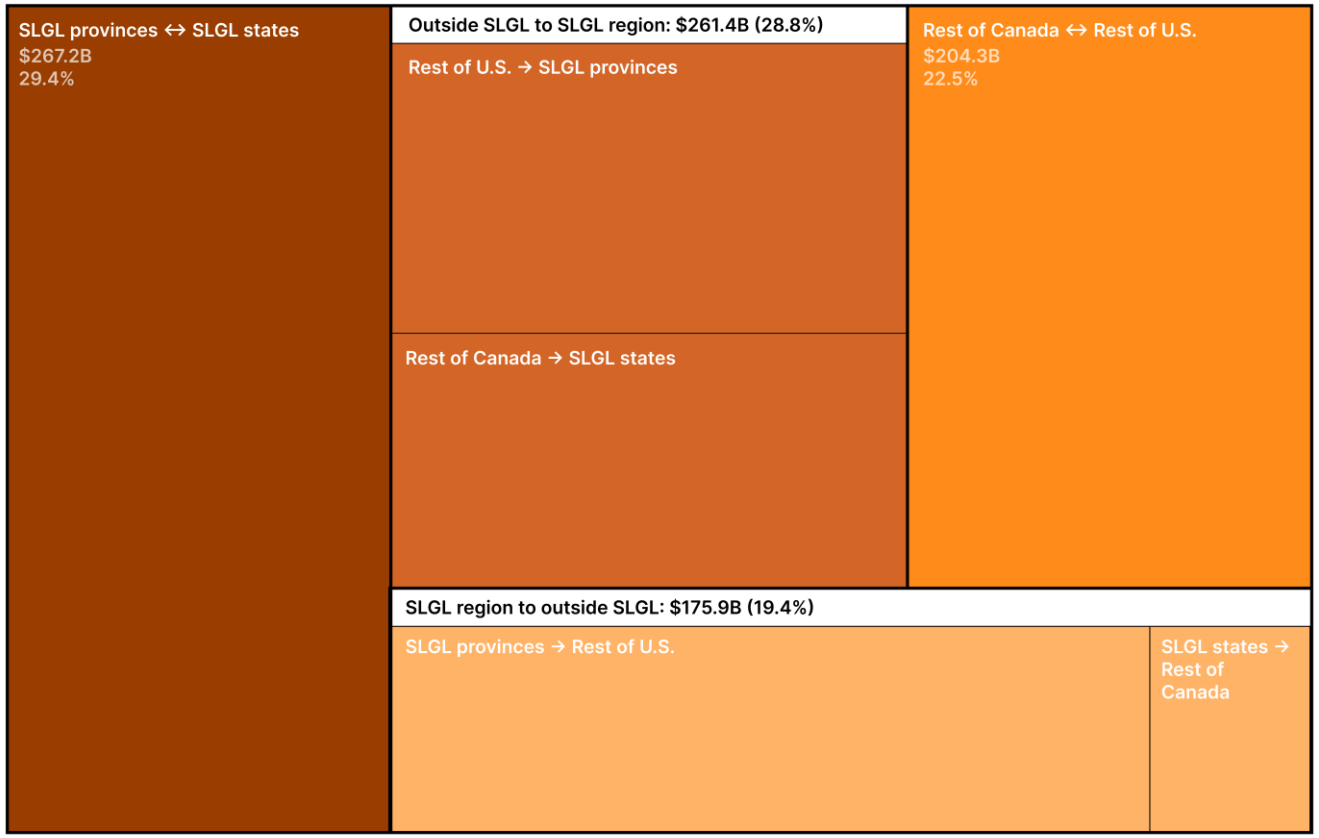
data from Statistics Canada and U.S. Bureau of Economic Analysis

data from Martin Associates (2023) for the GLSL waterway

A TRADE AND TRANSPORT CORRIDOR

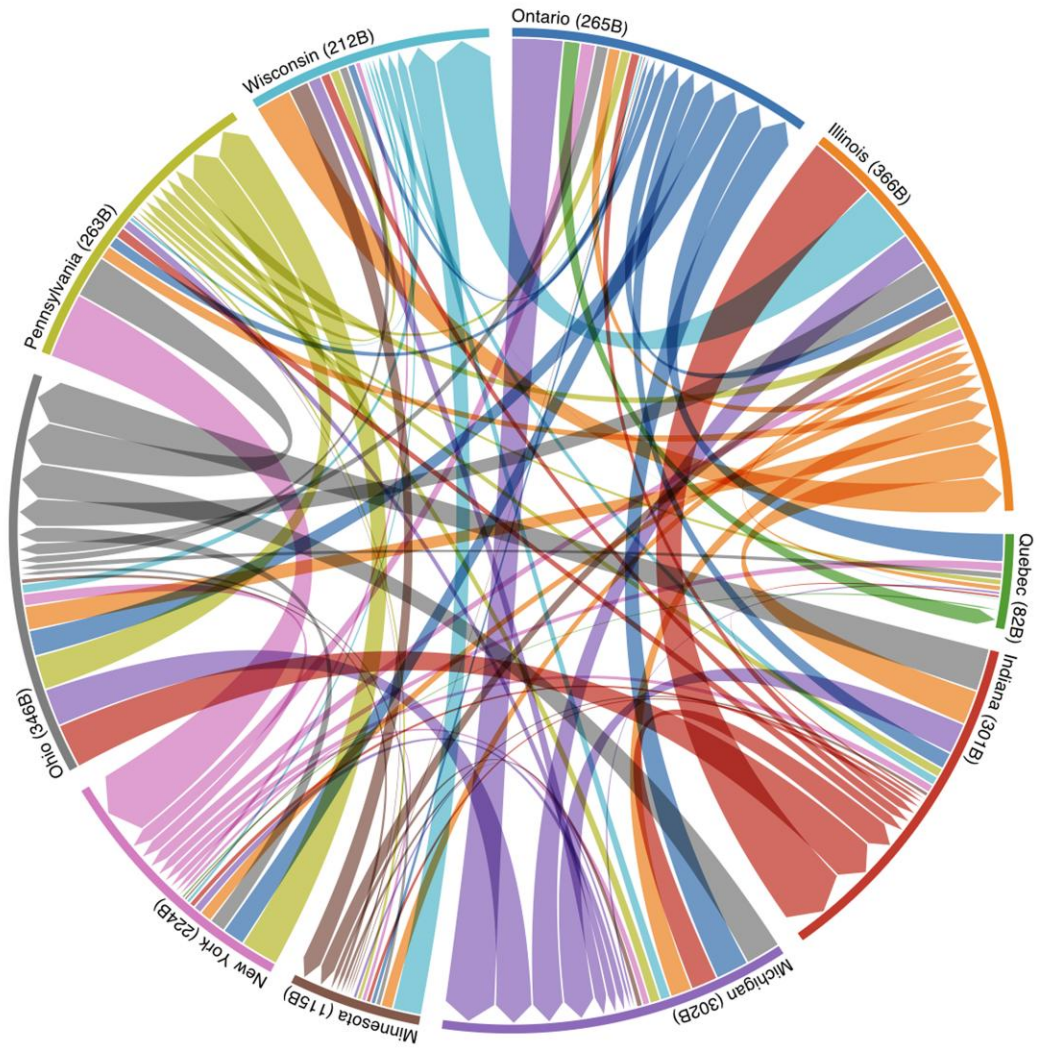
An integrated economic region

Canada-U.S. trade by exporter-importer region, 2024



Source: Author's calculation using data from Statistics Canada; GVCdtLab

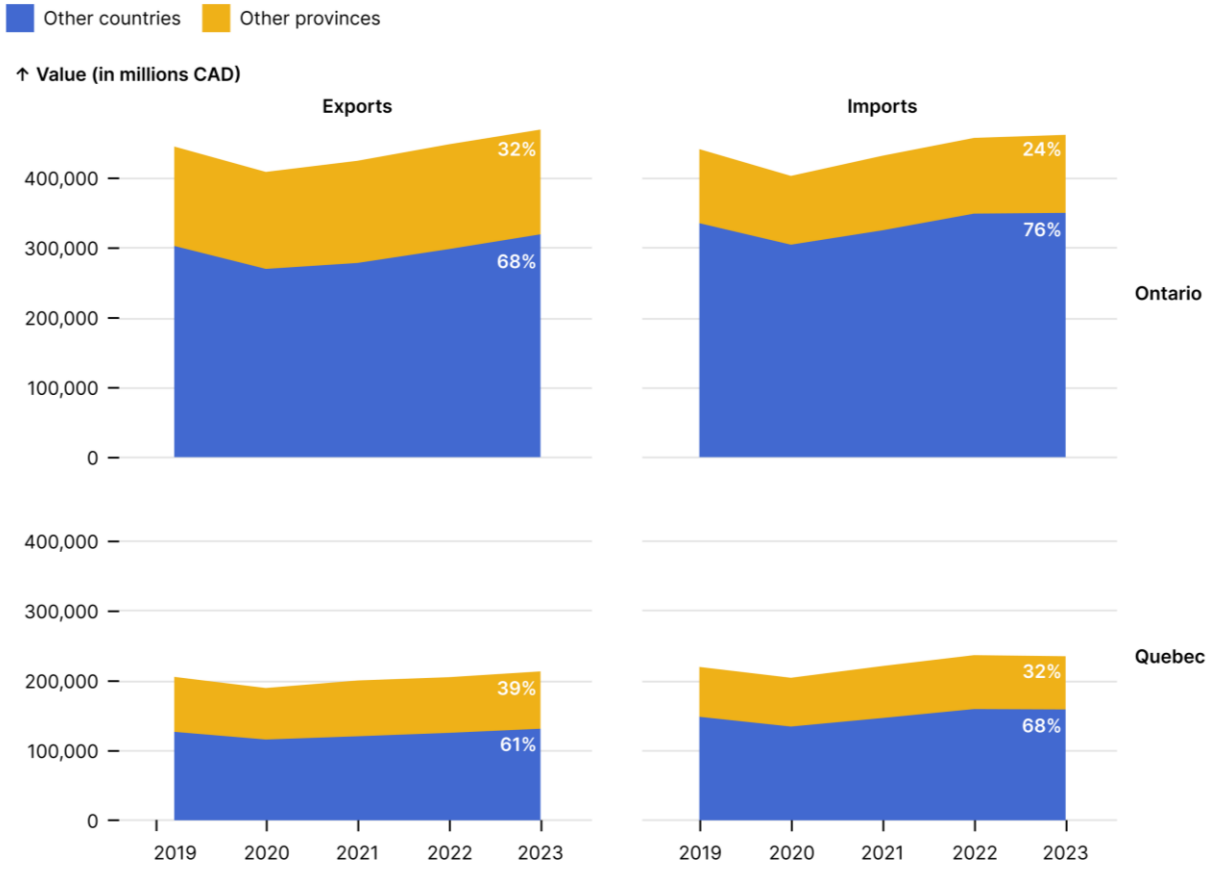
Trade flows within the St. Lawrence - Great Lakes region (in USD)



Source: GVCdtLab

Trade diversification will change modal dynamics

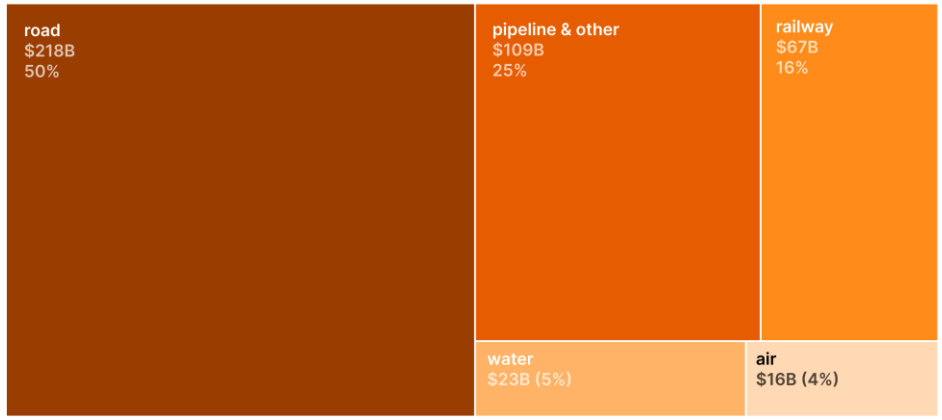
Proportion of interprovincial and international trade



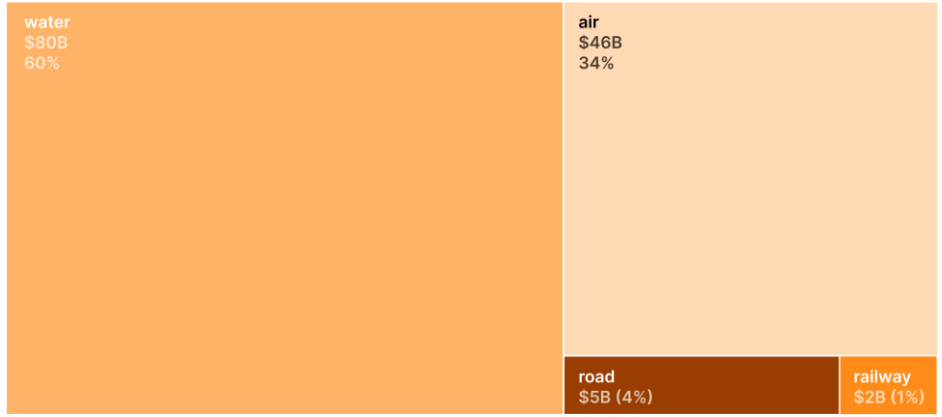
Source: Statistics Canada

Canadian exports by mode of transport, 2024

To the U.S.



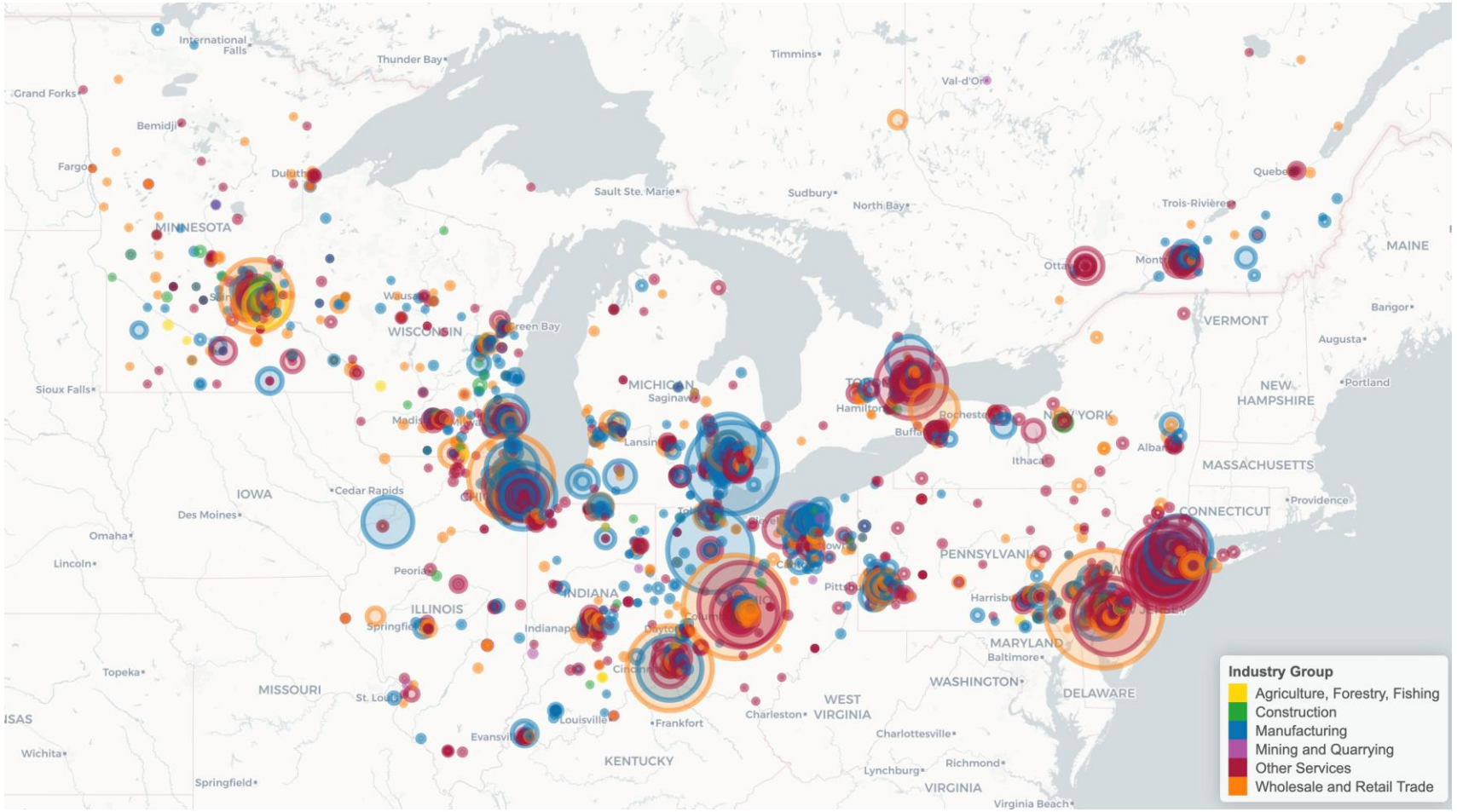
To the rest of the world



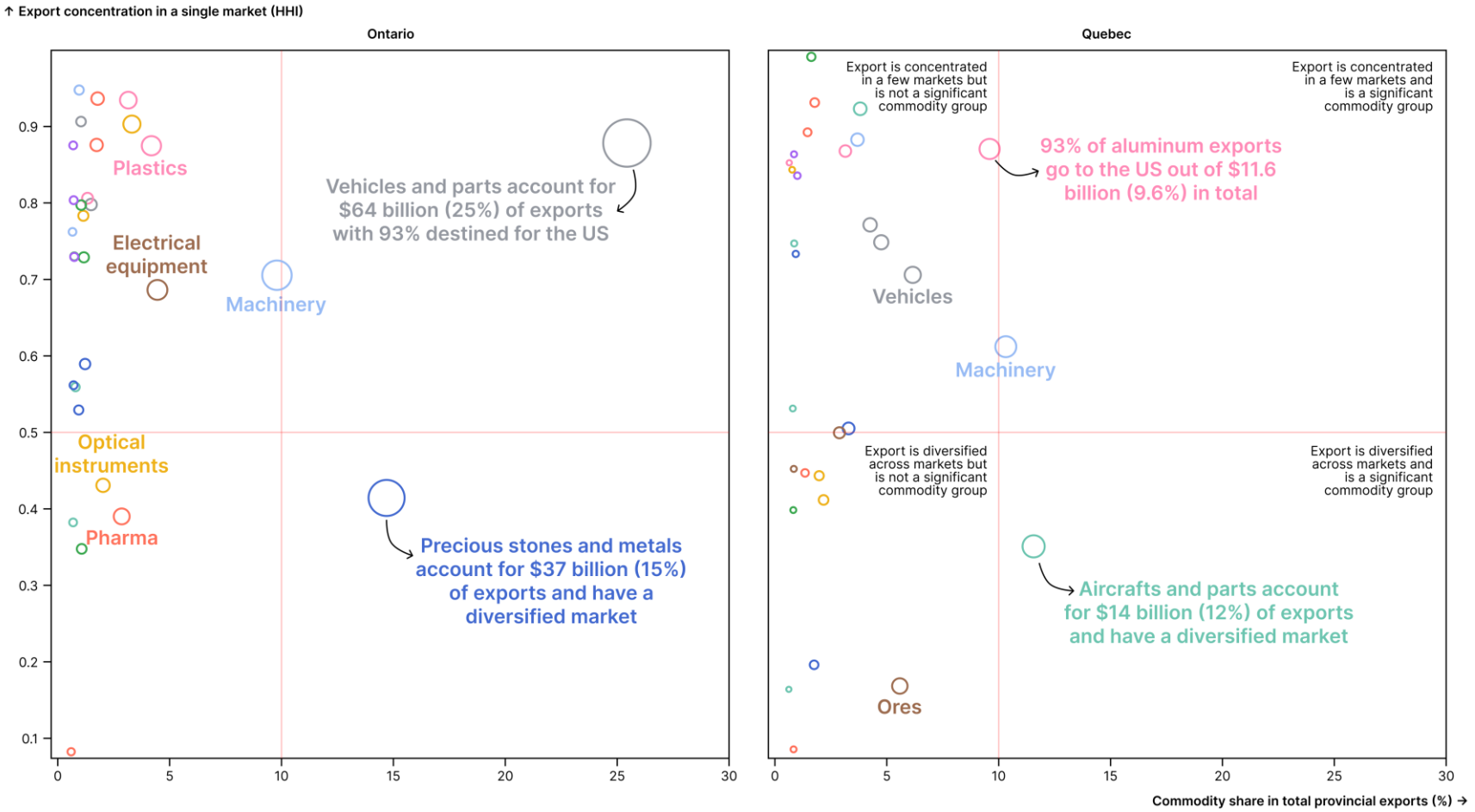
Source: U.N. Comtrade

A TRADE AND TRANSPORT CORRIDOR

The largest firms headquartered in the region in 2024



Regions have different industries yet heavily concentrated export markets



Source: Own calculation based on trade data from Statistics Canada

export potential

+ critical minerals
+ grain
+ crude oil
+ LNG

Distinct roles played by ports

Certain port terminals specialize in the handling of specific commodities

- Aluminum at Saguenay and Sept-Îles
- Grain at Thunder Bay
- Ore and steel at Hamilton

40k

metric tonnes of containerized traffic in Canada

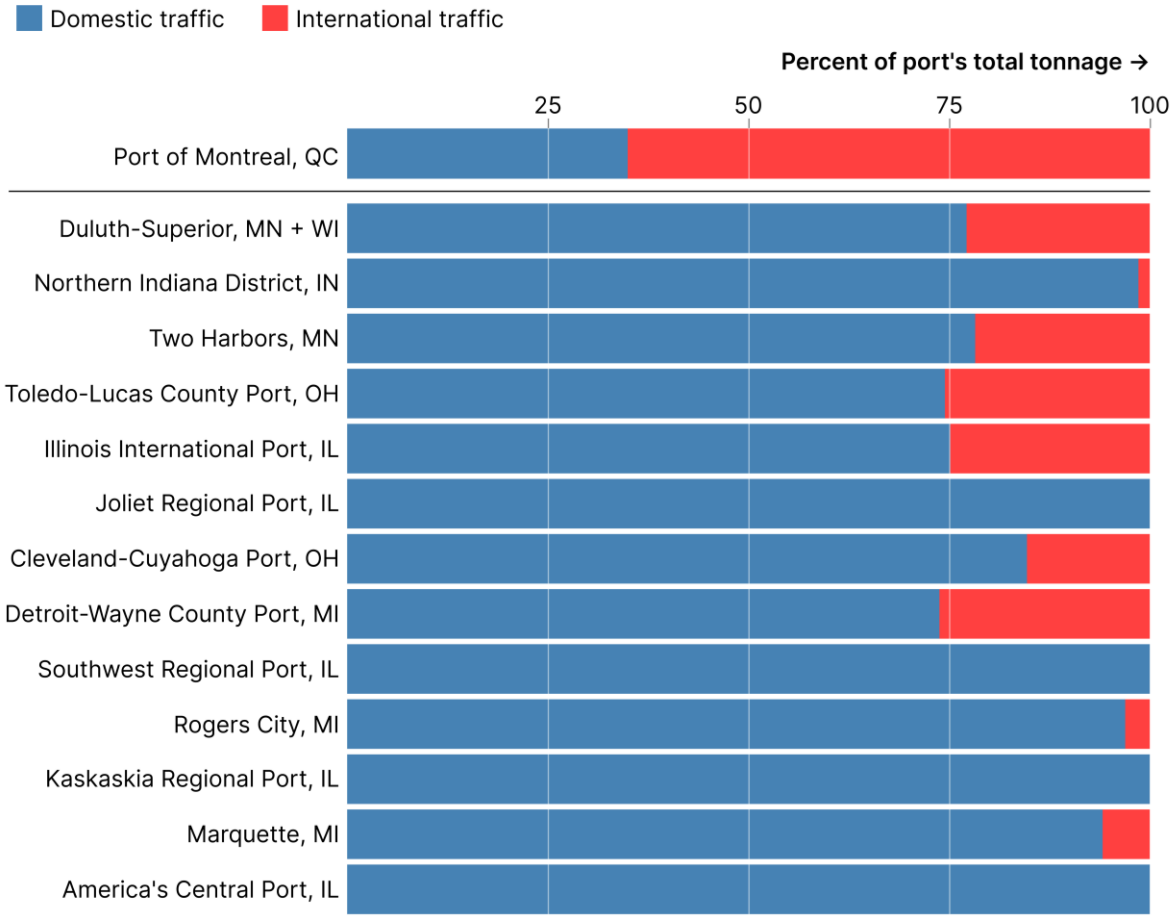
57k

metric tonnes of containerized traffic in the U.S.

data is from Martin Associates (2023) for the waterway in the region

Unlike the Port of Montreal, America's busiest Great Lakes ports primarily move domestic trade

Includes only ports that moved over 5 million short tons in 2022.



Source: Author's calculation using Port of Montreal and U.S. Army Engineer Institute for Water Resources data; GVCdtLab

CHALLENGES

Lack of year-round navigability

Port of Montreal can handle ships carrying 6,500 TEUs versus Port of Halifax's 15,000+ TEUs

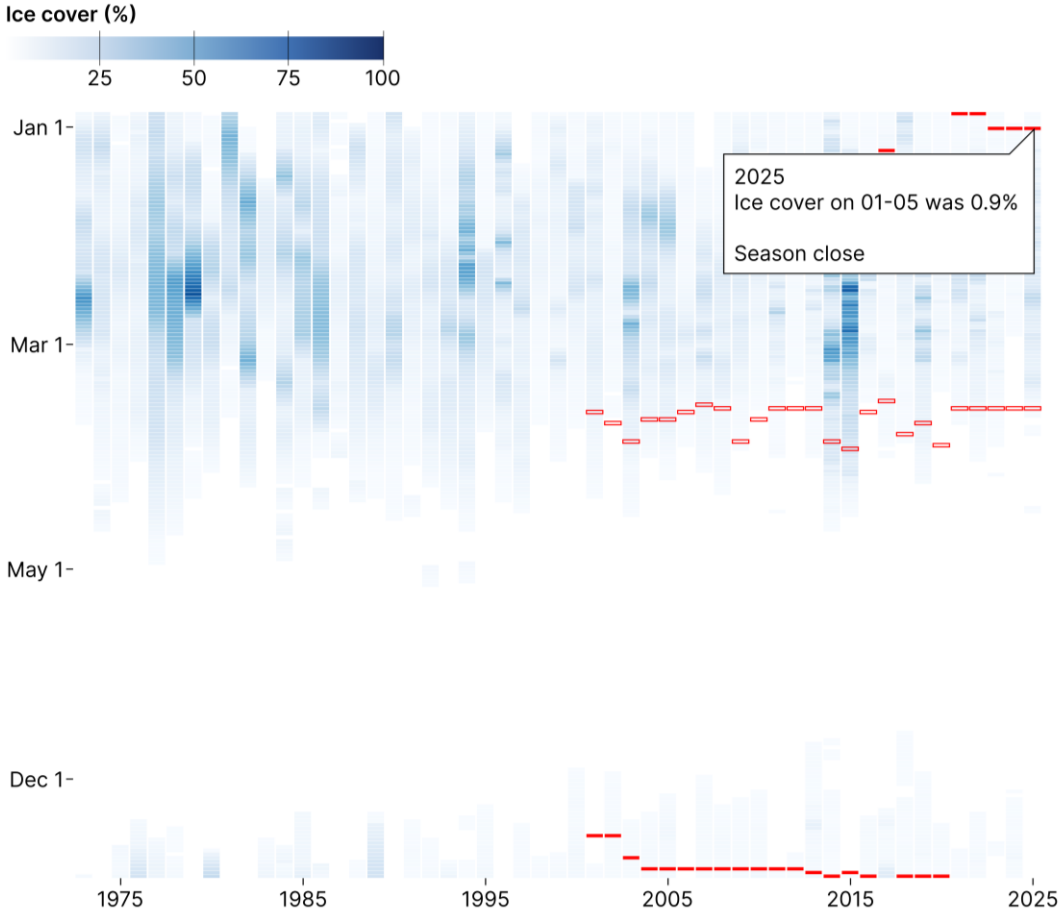
Annual navigation season through the MLO section of the St. Lawrence Seaway

The trend from 2004 to 2024 shows an average increase of 6.5 days in season length, adding about 8 hours of navigation time each year.

Source: Author's calculations using data from the Great Lakes–St. Lawrence Seaway System; GVCdtLab

Daily maximum ice cover on Lake Ontario shows that only a few days exceed 15% surface ice

The opening day of the navigation season hasn't shifted earlier — most of the season's lengthening comes from later closing dates.

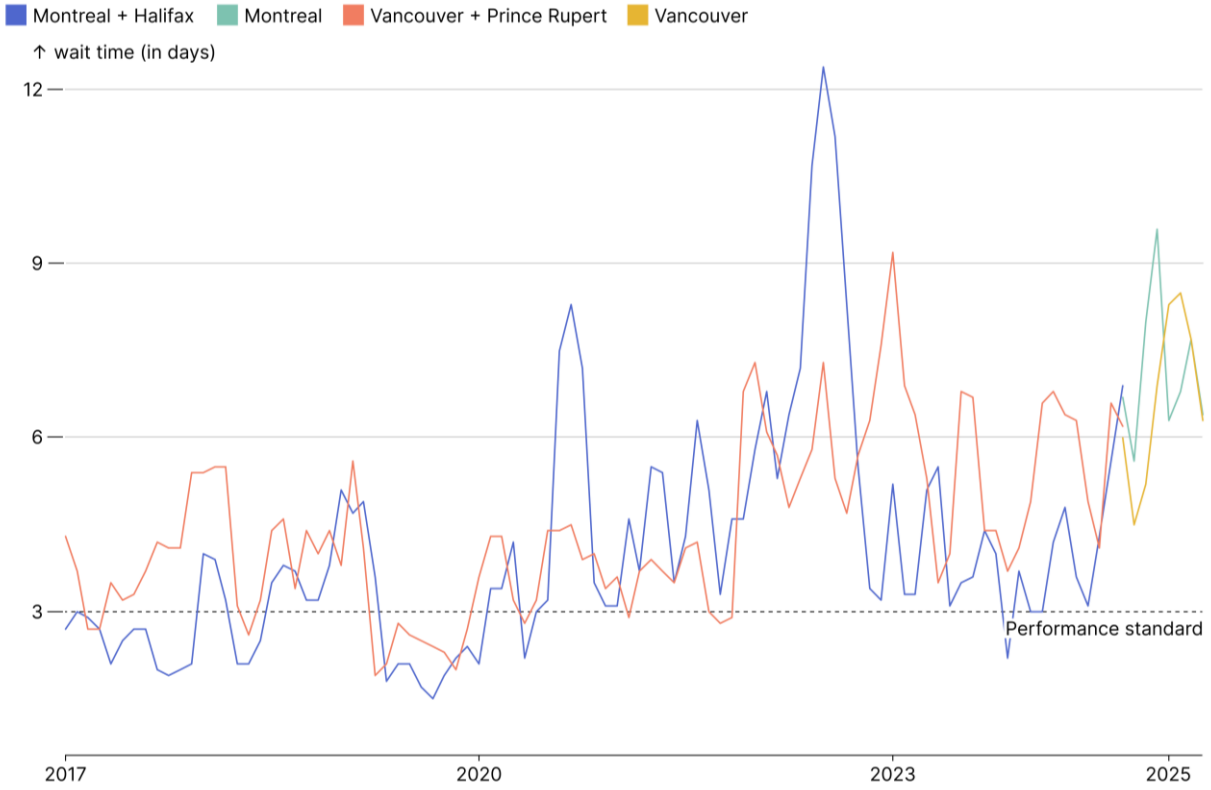


Source: Author's calculations using data from the Great Lakes–St. Lawrence Seaway System and the Great Lakes Environmental Research Laboratory; GVCdtLab

Congestion at current intermodal hubs

Imported containers now wait over six days for rail and truck transfers at Canada's busiest ports

Data before September 2024 includes dwell times at the Ports of Halifax and Prince Rupert, though they account for only a small share of total container traffic.



Source: Transport Canada, Port of Montreal, Port of Vancouver, GVCdtLab

The CBSA clears containers exclusively at the Port of Montreal despite 79 commercial vessel facilities in Quebec and Ontario

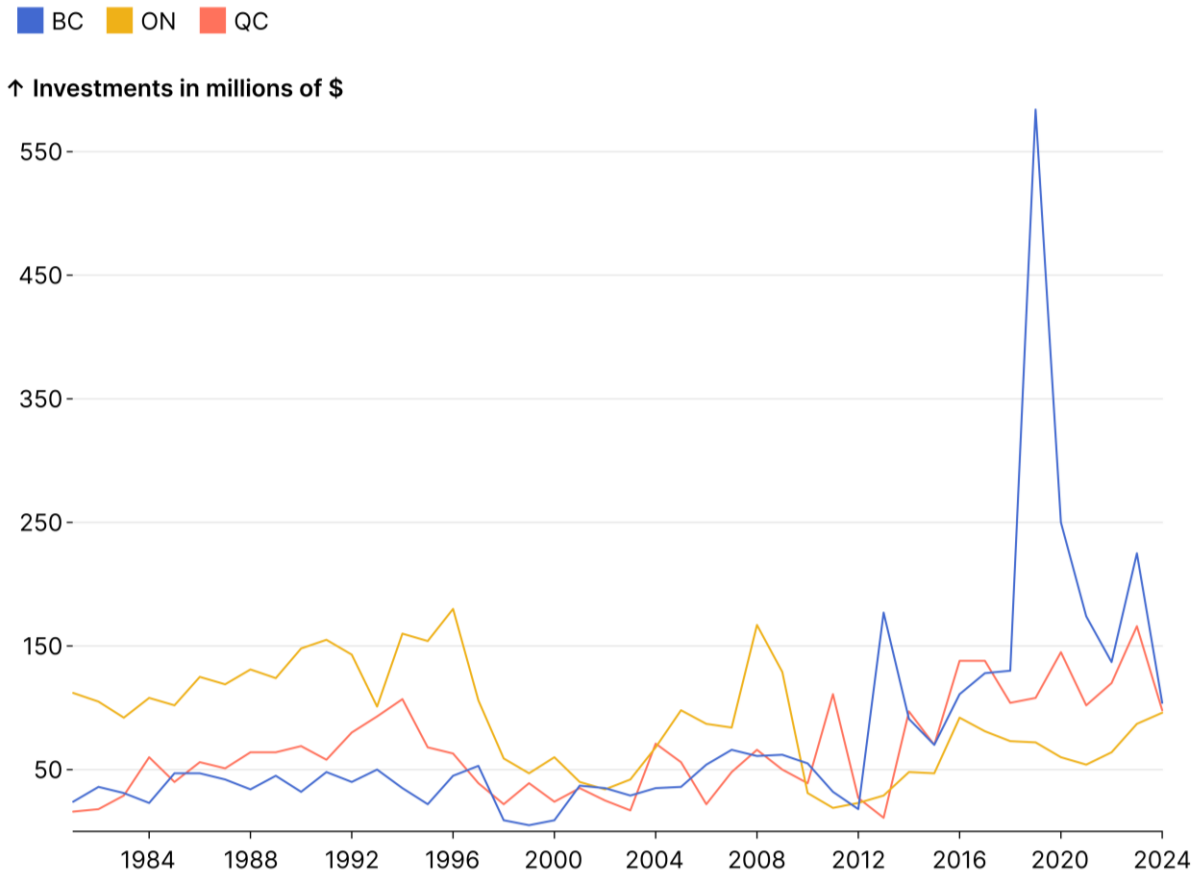
Expanding clearance infrastructure to other ports could create regional intermodal hubs and unlock new transportation routes

C/VESS: An authorized marine port of entry where cargo and commercial vessels report to the CBSA.

Source: Canada Border Services Agency • Created with Datawrapper

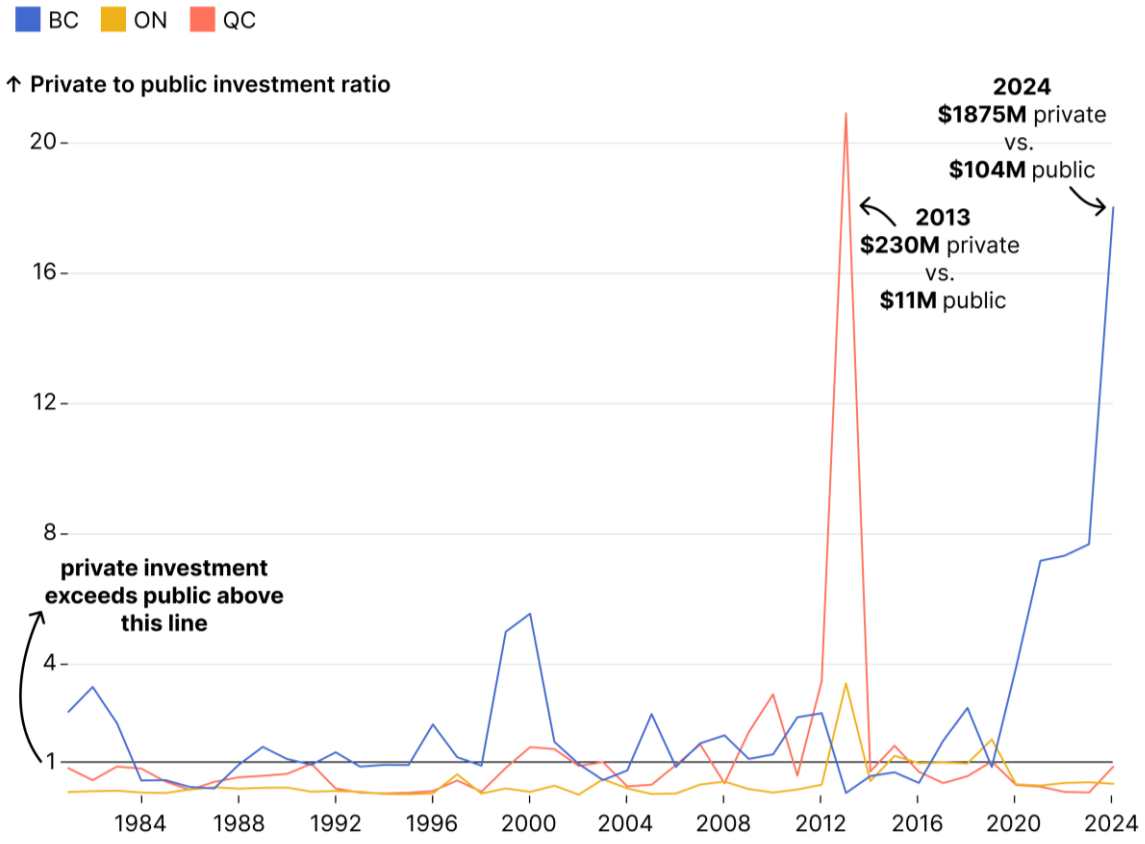
Canadian investments in marine infrastructure

Annual public investment in marine infrastructure



Source: Infrastructure Economic Accounts, Statistics Canada

Private investment per $1 of public funding in marine infrastructure



Source: Author's calculation using data from Statistics Canada's Infrastructure Economic Accounts

CHALLENGES

Increasing U.S. investments in marine infrastructure

13%

of the U.S. Harbor Maintenance Tax Fund (HMTF) goes to the U.S. Great Lakes ports

2x

annual appropriations of the HMTF since 2014

$900M

USD in appropriations in 2025

$168.9M

USD from the Port Infrastructure Development Program (PIDP) went to 13 U.S. Great Lakes ports between 2019-23

2x

annual PIDP budget since 2021 to $450M USD with the Infrastructure Investment and Jobs Act (IIJA)

data is from the American Great Lakes Ports Association

CHALLENGES

Changing geopolitical situation

0.1%

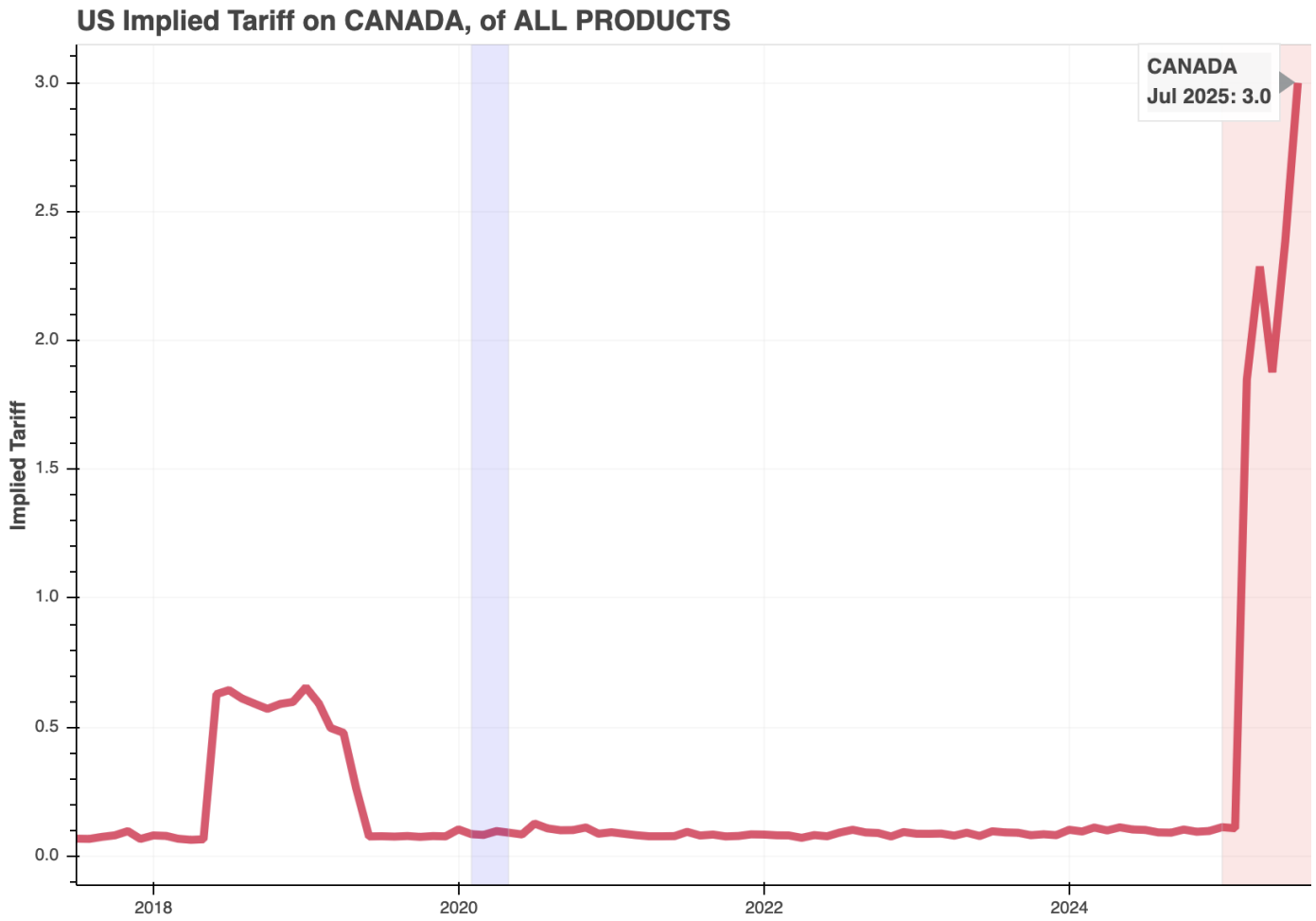
applied tariff rate
until February

3.0%

applied tariff rate
in July 2025

investigations on

aluminum, steel and copper
timber and lumber
pharmaceuticals
trucks, aircrafts, drones and engines
semiconductors
...

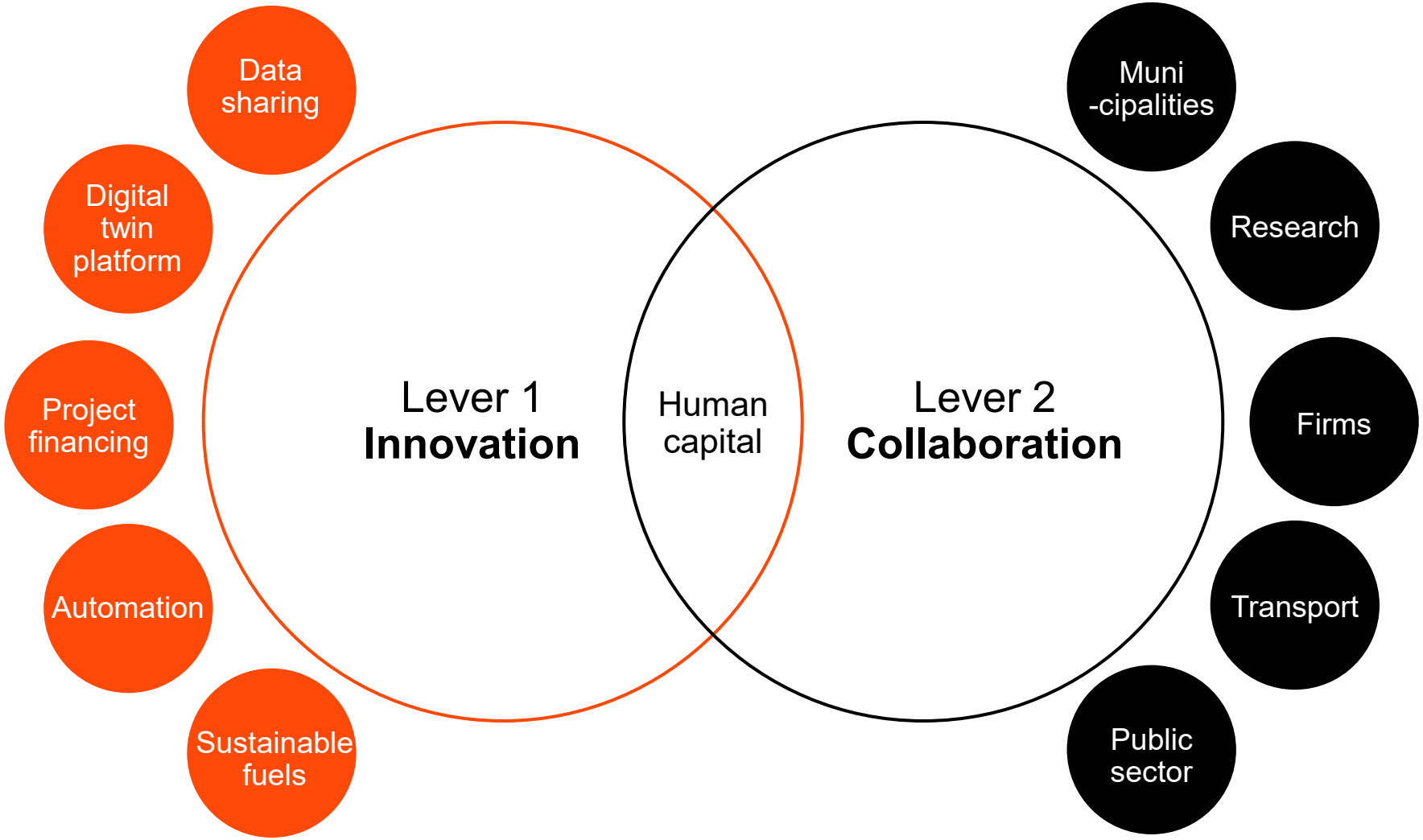


U.S. Federal Reserve (2025)

Two levers to improve the attractiveness and competitiveness of the corridor

TWO LEVERS

Improving attractiveness and competitiveness



Three pillars of priorities

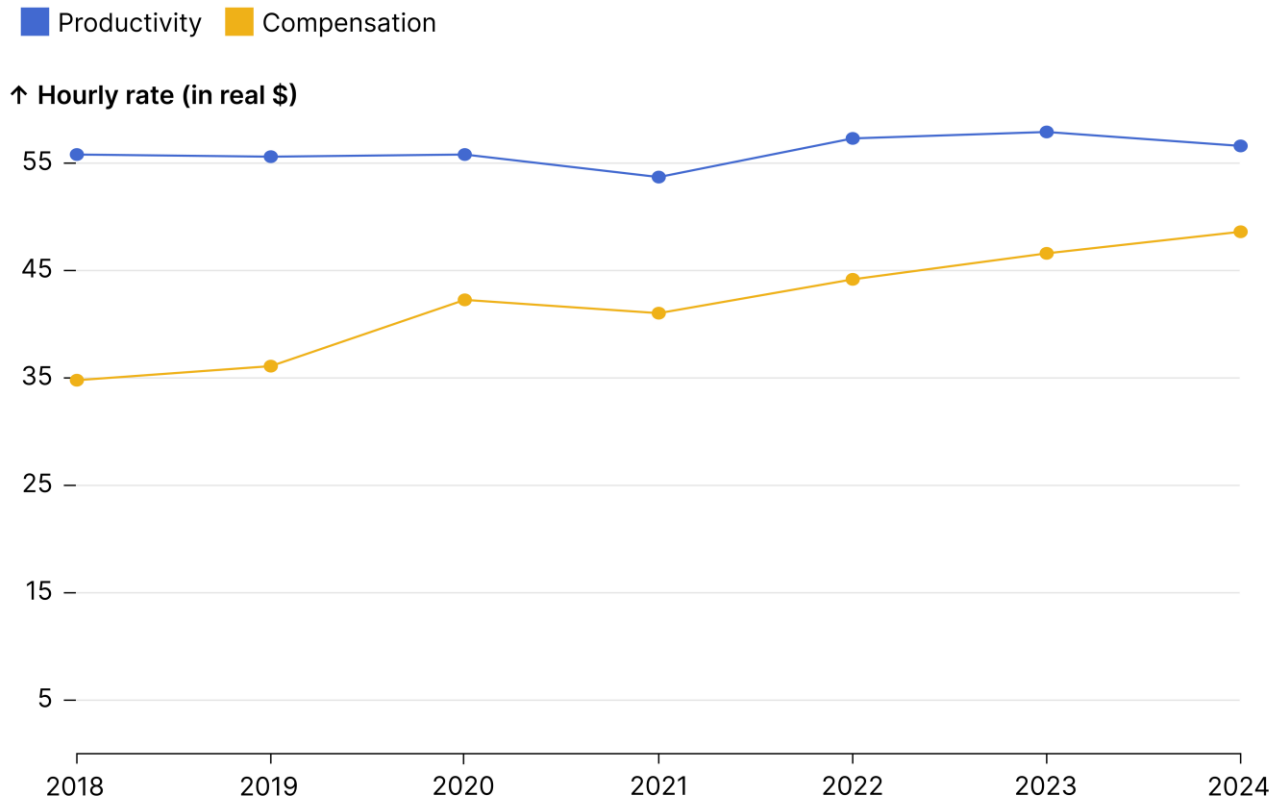
Profile of labour productivity in Canadian transportation

support activities for transportation

Firms providing support services to other firms in the four modes of transportation, including

- Port operations, cargo handling
- Railway terminal operations
- Truck loading and unloading, trucking terminals

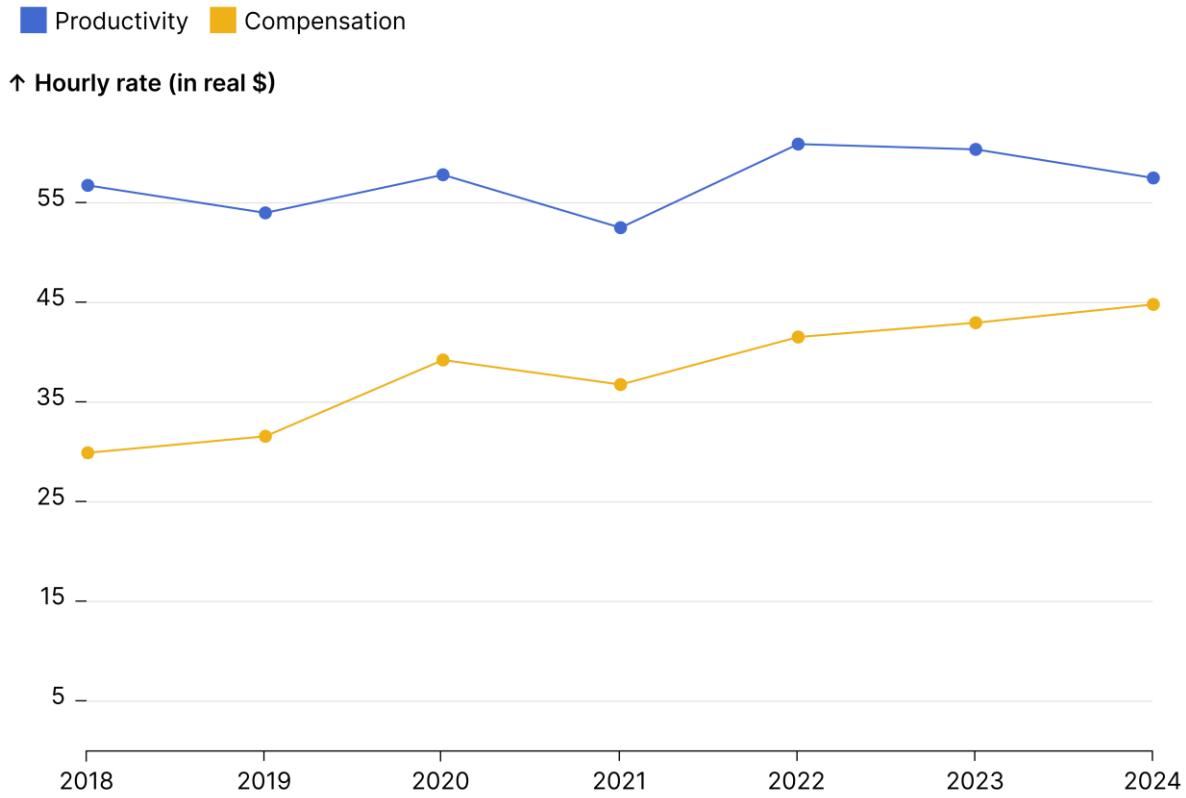
Canada's transportation support services: Productivity versus compensation



Source: Statistics Canada; GVCdtLab

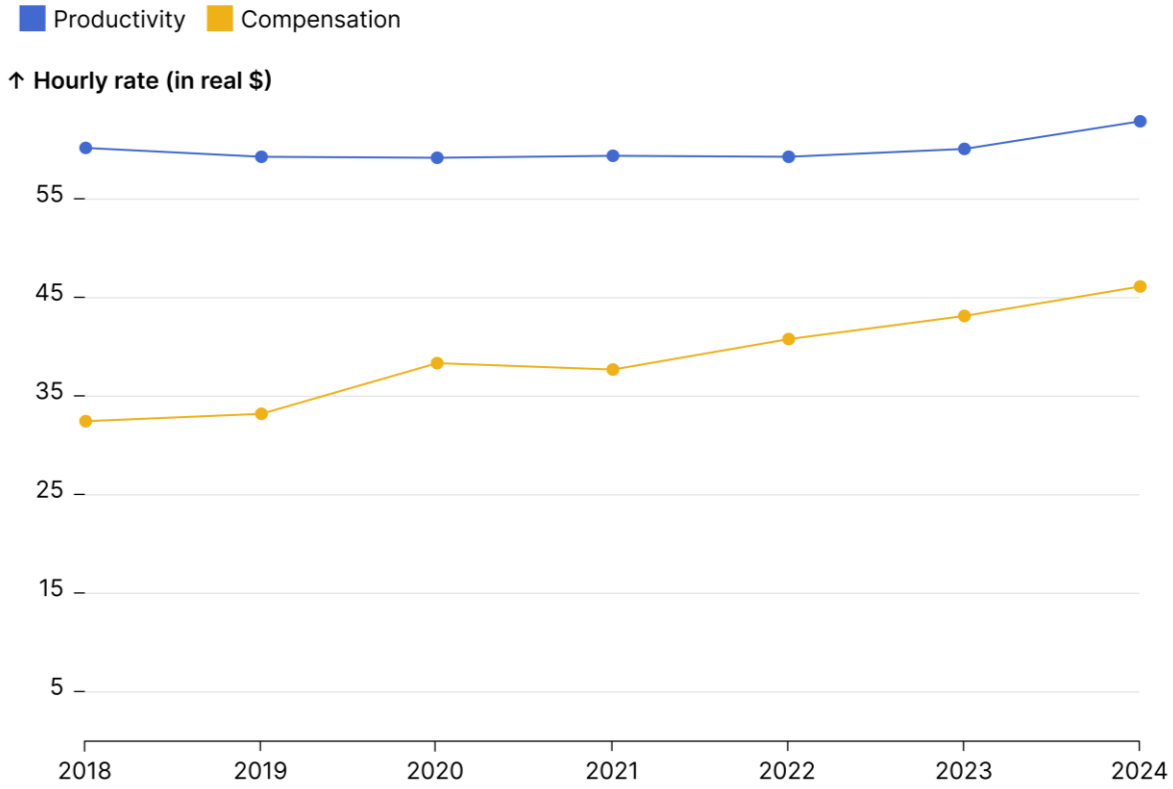
Profile of labour productivity in Canadian transportation

Ontario's transportation support services: Productivity versus compensation



Source: Statistics Canada; GVCdtLab

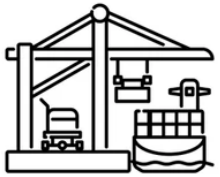
Quebec's transportation support services: Productivity versus compensation



Source: Statistics Canada; GVCdtLab

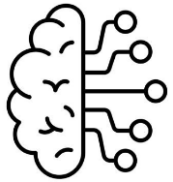
PILLAR 1: PRODUCTIVITY

Innovations in logistical efficiency



automated gates, cranes and vehicles at ports

Port of Rotterdam
Port of New York
Port of Virginia



optimizing port operations with AI

Port of Rotterdam
Port of Antwerp

data sharing and digitization of documents

South Korea's KTNET paperless trade infrastructure

end-to-end modal visibility and optimization of supply chains

West Coast Supply Chain Visibility Program

Current challenges with marine infrastructure

Investments needed in rail and road to get to ports outside of current hubs

$0.48

CAN federal investment per tonne of cargo

$4B

identified investments in existing CPA infra

40%

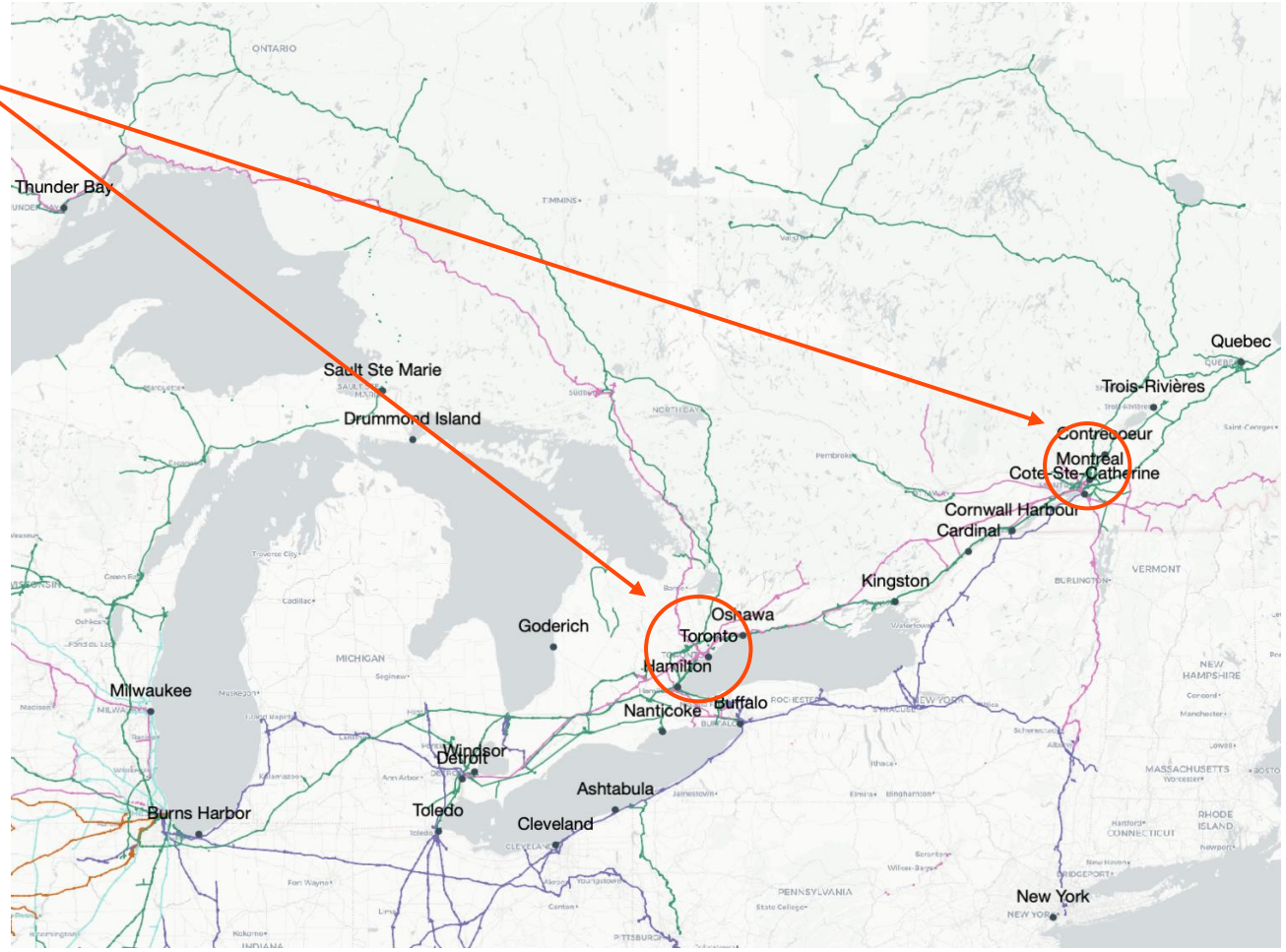
greater federal investment per tonne in the U.S.

$6B

identified investments in new CPA infra

CPCS (2025)

CPA = Canadian Port Authority



Current projects in digital infrastructure

Ongoing use cases

improving turnaround time

forecasting labour needs

improving data accessibility

lowering logistics costs

YVR cargo situational awareness digital twin

$17M

investment in the project

250k

truck dwell time hours saved per year

50%

aircraft dwell time hours saved

83k tons

expected increase in cargo volumes

Transport Canada (2024)

Challenges affecting supply chain resilience

infrastructure failure

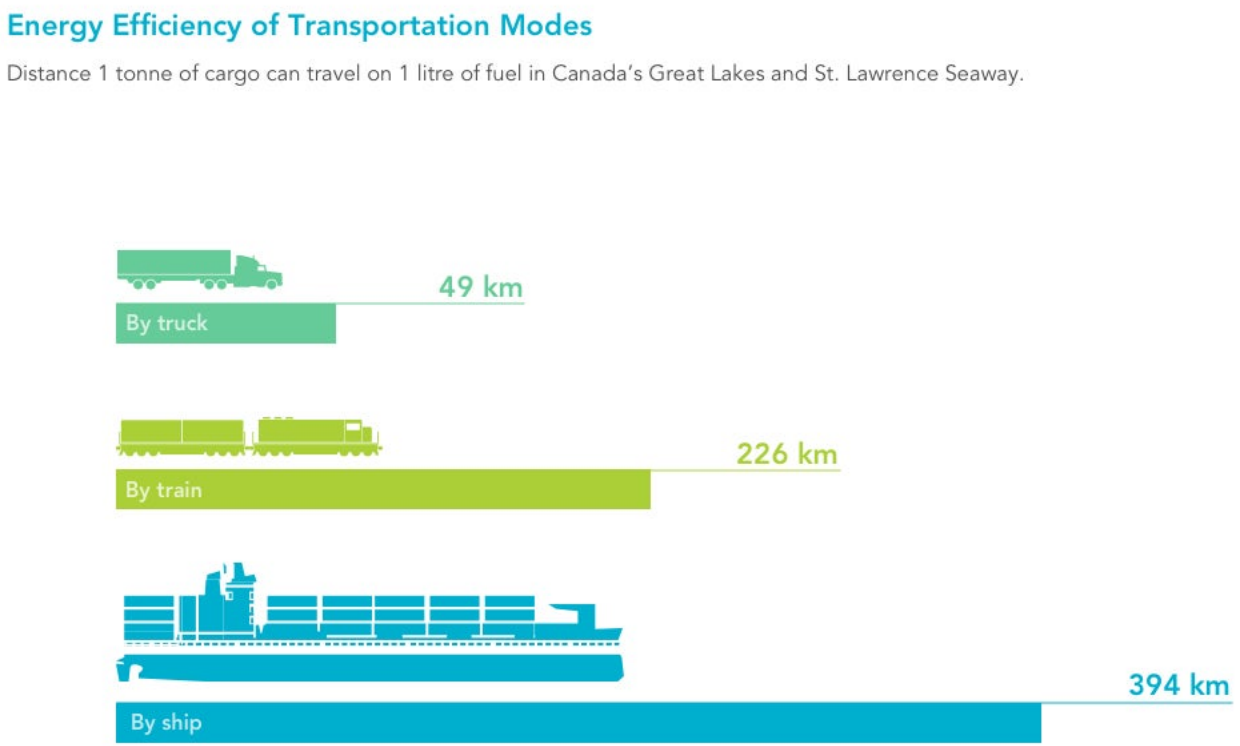
climate change

labour challenges

pandemics

Decarbonization

- Diversifying modes would reduce overall emissions for a given volume of cargo moved
- Coasting trade
- Port electrification
- Sustainable fuels



PILLAR 3: RESILIENCE AND SUSTAINABILITY

Making the SLGL corridor a vector of resilience

workforce upskilling and training the next gen

strengthen infrastructure against climate risks

enhance data exchanges

involving local communities and First Nations

Learning from other corridors and global hubs

LEARNING FROM OTHER CORRIDORS AND GLOBAL HUBS

North Sea–Rhine–Mediterranean Transport Corridor

8
countries

12k
kms of railway lines

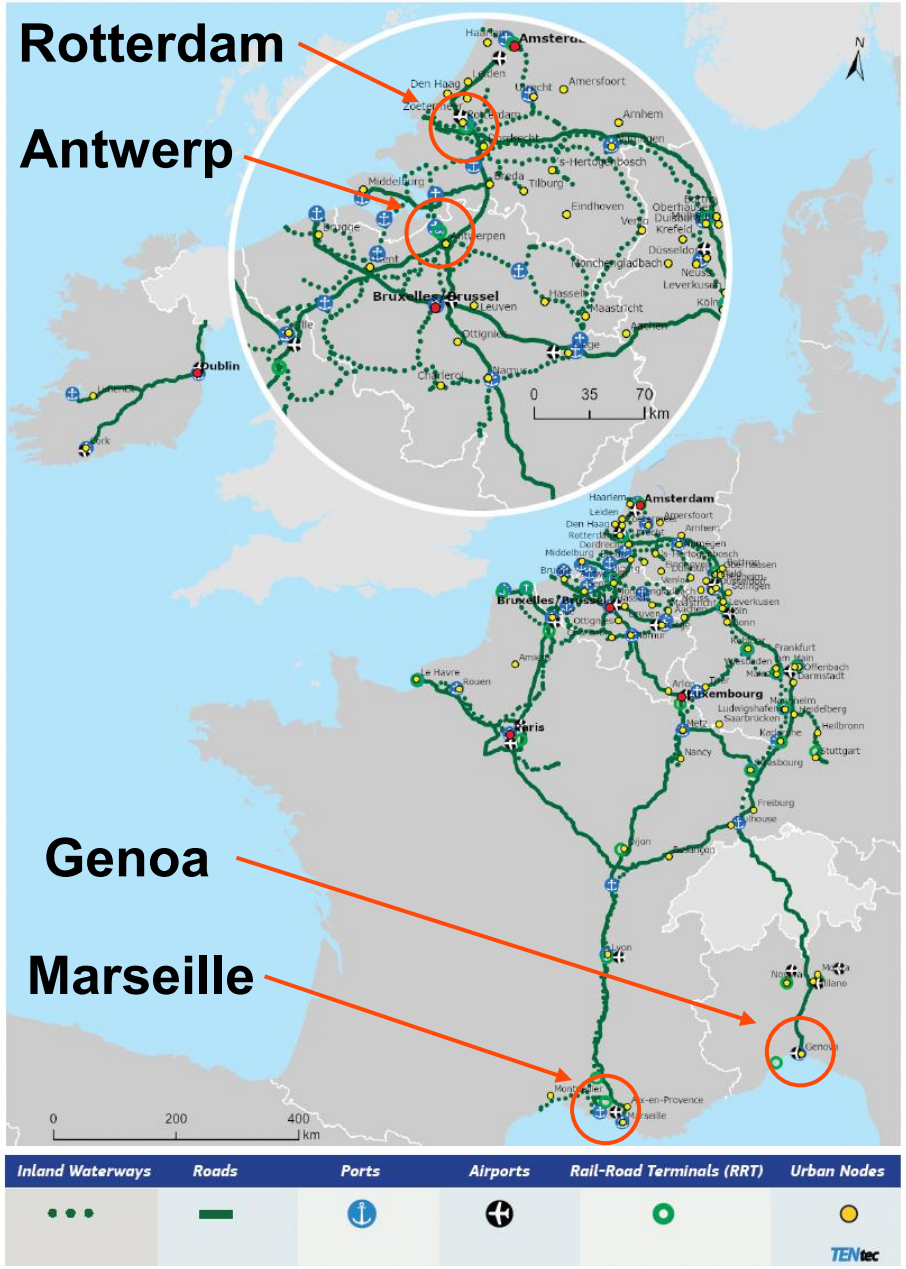
5k
kms of inland waterways

5k
kms of roads

achievements

- corridor digitalisation
- infrastructure investments to improve intermodal connectivity
- increased use of sustainable modes

European Commission (2024)



Synchromodality in the Port of Rotterdam

global logistics hub

integrated multi-modal ecosystem

active stakeholder alignment

core focus of connecting to the hinterland

synchronized modality of cargo flows using a digital platform

culture of trust and collaboration with data sharing between stakeholders

Digital Inland Waterway - Area- European Commission (2017); Port of Rotterdam; World Maritime University & Trafikverket (2023)

CONCLUSION

A shared vision for 2025

One corridor

SLGL trade and transport corridor

Two levers

Innovation

Collaboration

Three pillars

Productivity

Infrastructure

Resilience

Toward an integrated, intelligent and resilient multimodal ecosystem
THE SLGL CORRIDOR PLATFORM

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Knowledge into action

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