INLAND PORT INDUSTRY RESEARCH Report 2025

SUPPLY CHAIN CANADA™

ACKNOWLEDGEMENT

Supply Chain Canada is the national association representing supply chain professionals across Canada. Through education, research, and advocacy, we work to strengthen Canada's supply chains—building the capability, resilience, and innovation needed to drive economic growth and competitiveness. This report, The Supply Chain Canada Inland Port Industry Research Report 2025, reflects our ongoing commitment to advancing the understanding of strategic infrastructure that underpins trade, investment, and community prosperity.

We gratefully acknowledge the Government of Alberta for its financial support in making this research possible. This study aligns closely with Alberta's priorities of economic growth, job creation, infrastructure development, and trade diversification, as outlined in the province's strategic plans. By examining the viability and benefits of an Alberta-anchored inland port network, this research contributes valuable insights that support Alberta's broader efforts to strengthen logistics resilience and expand market access for Canadian goods.

We extend sincere thanks to the many organizations and industry leaders across Alberta and Canada who participated in our surveys and roundtables. Their expertise and perspectives—spanning manufacturing, energy, transportation, agriculture, logistics, and trade—were instrumental in shaping this study's findings. We also acknowledge the individuals who contributed their time and professional insight at the Alberta Inland Port Industry Roundtables and through our stakeholder engagement process.

Finally, this report underscores the collective effort required to build stronger, more resilient supply chains for Canada. By connecting industry, government, and community partners, this research provides a foundation for informed policy, investment, and innovation—contributing directly to Canada's economic resilience and long-term growth.

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TABLE OF CONTENTS

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PROFESSIONALS ADVANCING THE FUTURE

1. Executive Summary

Global supply chains are contending with overlapping shocks—renewed tariff actions and countermeasures, periodic congestion at maritime choke points, climate-related interruptions to canal and port operations, and an uneven transition to digital trade documentation. In this environment, competitiveness hinges less on any single terminal or asset and more on whether regions can offer reliable, multi-gateway options with low administrative dwell and predictable schedules. That is the function of modern inland-port systems: they pool inland demand, standardize appointments and documentation, and connect multiple ocean gateways through disciplined rail windows and digitized hand-offs, turning available vessel capacity into bookable sailings.

Against that backdrop, Alberta's trade and economic performance increasingly turns on the quality of coordination across modes, nodes, and border processes. Tariff volatility on U.S. lanes, recurring maritime disruptions, and the rapid shift to paperless trade raise the premium on reliability, optionality, and transparency. Pacific capacity is recovering and Trans Mountain Expansion is enabling non-U.S. sales—real opportunities if inland operations consistently make rail cut-offs and align inspections and documents without friction. At the same time, institutional "rails" such as the federal Single Window and industry adoption of e-bills of lading make digitized hand-offs practical now. Taken together, these forces argue for a rules-first, data-visible inland-port network—operated as one system with two metropolitan engines (Calgary + Edmonton), with a southern extension in Lethbridge—as essential enabling infrastructure rather than a discretionary project.

Research Purpose & Scope

This study investigates the feasibility of an Alberta-anchored inland port as a policy and operating instrument to relieve coastal-gateway congestion, reduce delivered-cost variability, and strengthen Alberta's trade resilience amid tariff pressure and recurrent maritime disruption. Empirically, the work is grounded in a practitioner survey designed to elicit expert insight across strategic, economic, operational, regulatory, and technological dimensions, complemented by corridor-focused analysis of infrastructure capabilities and process frictions.

The research combines structured elicitation with corridor analytics to answer three questions: who is affected and how; what value an inland port would credibly create (time, cost, risk); and which design conditions would drive adoption. The instrument captures respondent role/sector/scale, modal profiles, and markets served (Prairies, West Coast, U.S., northern links), quantifies pain points (transport cost pressure, coastal congestion, rail access limits, warehouse tightness, border/administrative dwell), and probes exposure to recent tariff measures. To connect

infrastructure to enterprise outcomes, the survey also elicits adoption intent (willingness to use an Alberta inland port subject to cost/reliability conditions), staged volume expectations over the first two years, indicative rail–truck splits, and open-ended mappings of current import/export hand-offs to locate dwell and variability drivers. A targeted technology probe tests the perceived value of advanced yard/stacking solutions (e.g., BOXBAY, high-bay automated storage) so that operational options can be weighed alongside siting and policy choices.

Study Outputs

This feasibility phase delivered a respondent-validated profile of market needs, adoption conditions, and indicative benefits for an Alberta-anchored inland port. Respondents were senior decision-makers (director/VP/C-suite; corporate real estate; operations/procurement; logistics leadership) across manufacturers, shippers, importers/exporters, freight forwarders, transportation firms, 3PL/warehousing and allied sectors (including mining, airport operations, and industry associations). By firm size, the sample skews large (≈67%) with a medium-sized cohort (≈22%). Modal exposure is road-heavy (≈56%) with material rail usage (≈22%) and smaller air (≈6%) and sea (≈6%) footprints. Geographically, reported footprints span the Prairies (≈94%), West Coast (≈83%), Central Canada (≈72%), and U.S. markets (≈56%), with additional activity in the North (≈50%) and Atlantic (≈50%).

Problem and Exposure

Dominant pain points, as identified by the selected respondents, are high transportation costs (≈78%), coastal port congestion (≈67%), and limited rail access (≈39%), with additional frictions in border processing and environmental/regulatory compliance. Most firms report effects from recent U.S. tariff actions—significant (≈28%) or moderate (≈50%)—while ≈22% report no impact. Warehousing tightness in major hubs (e.g., Toronto/Minneapolis/Chicago) is a non-trivial constraint (not affected ≈61%; at least slightly/moderately affected ≈39%). On-dock issues at West Coast ports are common (moderate ≈50%; high ≈17%; slight ≈17%).

Adoption and Benefits.

Almost 83% of the respondents indicate they would use an Alberta inland port—≈50% if costs are competitive and ≈33% definitely —with ≈17% neutral or negative (≈6% unsure; ≈11% report current networks are optimized). Expected direct savings from removing redundant intermediary movements are heterogeneous: a plurality anticipates <5%, with a substantial cohort 10 to 20% and smaller shares 5 to 10% and 20 to 30%—signalling that the business case will rest as much on variance reduction and reliability as on headline rate cuts. Respondents view a full logistics-park offer (warehousing/industrial) as additive to the core proposition and rate advanced yard/stacking technologies as very/extremely important for lowering storage/reshuffle costs, increasing transparency, and compressing dwell. On enterprise outcomes, most expect at least moderately positive growth effects, with a smaller group extremely positive, and many neutral pending specifics.

The outputs provide (i) a quantified problem map (cost, congestion, rail access, border dwell); (ii) a demand signal for a rules-first, place-neutral inland system anchored by a wider inland port solution in Alberta (iii) clear adoption conditions (price competitiveness; KPI-backed reliability; logistics-park amenities; digital/document readiness; technology fit);

and (iv) benefit bands sufficient to calibrate a two-node pilot and prepare investor-readiness materials.

What This Means, In Principle

Alberta should treat the inland port as a single corridor made up of a few coordinated locations, not as a race between sites. That is how the best systems abroad work—South Carolina's two inland ports, the Port of Virginia's inland network, and Gothenburg's Railport all run multiple nodes under one rulebook and one public scoreboard. The payoff is reliability: pooled demand supports set rail or barge departures, and common rules keep trucks, trains, and paperwork moving on time. Our survey points the same way. Most firms—about 83%—say they will use an Alberta inland port if it is cost-competitive and reliable. Many do not expect huge headline rate cuts; what they want is predictable schedules and fewer delays at gates, yards, rail cut-offs, and the border.

So, the near-term task for policy is clarity and coordination. Publish a simple operating playbook, standardize permitting and land-readiness templates across communities, protect key logistics lands, and start reporting a short set of corridor KPIs (truck gate time, rail dwell, appointment adherence, time-to-release for compliant cargo). Operationally, build where it matters: place transload, cold chain, and returns/repair next to the rail ramps; improve practical rail access while keeping first/last-mile trucking easy; and use proven technologies (like high-bay automated storage) where they cut wait times and reduce yard reshuffles. It is also clear that there is an urgent need to run an awareness and education program so that SMEs, policy and business leaders, carriers and shippers, municipalities, and Indigenous partners share the same vocabulary about inland ports and can benefit early.

Finally, the provincial government needs to embark on a "two-node pilot" (Calgary + Edmonton, with Lethbridge as a southern spoke) under one public dashboard, then scale only when the KPIs improve—evidence before expansion. Keep "playcards" ready so shippers can pivot among Pacific, U.S., and Hudson Bay routes when tariffs or schedules change.

Alberta cannot wait for an anchor investor to define the playing field; investors are already comparing locations across Canada and the United States. The political leadership in the province must lead with policy and operating clarity now so that, when anchor investors run the comparison, the province's value proposition is obvious. These steps don't require megaproject spending, but they give investors and shippers confidence that the corridor will run on time.

Churchill -The Hedge Alberta Needs:

The 2025 U.S. tariff regime (10% baseline plus reciprocal and sector specific measures) alters margins on U.S. lanes, alongwith contemporaneous federal steps to bolster Hudson Bay Railway and Port of Churchill create the option value for Alberta exporters to reweight volumes toward Europe via Hudson Bay during tariff-intense periods—without abandoning Pacific schedules when those remain favourable. Churchill Plus is framed as a four-season, dual-use northern gateway with Indigenous equity ownership; federal O&M/pre

INVESTORS ARE COMPARING LOCATIONS-ALBERTA MUST LEAD WITH CLARITY NOW

development support is intended to keep rail/port performance reliable while the MPO supplies a faster approvals lane. Alberta's rules-first corridor is the inland counterpart that makes those northern sailings bookable, not aspirational. If tariff pressure eases, the same inland playbook and KPI discipline keep Alberta attractive to tenants and investors because time and risk remain legible across all routings.

What Success Looks Like

As a precursor to any success story to be worth the paper it is printed on, the province should have issued an "investor readiness pack", which is reflected in credible investor activity by way of events like increased RFI/RFP responses, site visits, MOUs/term sheets, and first anchor tenants moving in.

With targeted training/micro credentials in place with academic partners; Indigenous equity pathways made operational; and quarterly stakeholder forums being active, when U.S. tariffs bite, measured eastbound lift via Churchill from Alberta origins should increase, while Pacific

2. Introduction

WHAT IS AN INLAND PORT

Traditionally, the processing of international trade has occurred at ports located along national land borders, airports, and seaports. These sites have served as the primary gateways for goods entering and leaving the country, where federal inspections and transactional requirements are carried out. However, a notable shift is underway. An increasing share of trade activity is now being redirected to inland locations, reflecting both logistical innovation and a growing need for supply chain efficiency. Inland ports serve as strategic hubs where trade processing is moved away from congested border crossings and consolidated into centralized, multimodal facilities. These locations typically offer access to rail, road, and sometimes air connections, and support a wide array of logistics and customs services in a single zone. When equipped with customs clearance operations and Foreign-Trade Zone (FTZ) capabilities, inland ports can fully accommodate international trade flows, reducing delays and administrative burdens. Critically, inland ports that offer integrated value-added services—such as warehousing, packaging, and assembly—further enhance their role in modern trade networks. By facilitating smoother, more cost effective goods movement, these inland logistics platforms contribute directly to national competitiveness, resilience, and supply chain optimization. Policymakers have an opportunity to support this evolution through targeted infrastructure investments, regulatory streamlining, and cross-jurisdictional coordination.

Inland ports, frequently termed “dry ports” or “intermodal hubs,” serve as vital extensions of coastal seaports, facilitating multimodal freight movement deep into continental interiors. Their strategic establishment is universally recognised as a potent response to burgeoning global trade volumes, escalating congestion at maritime gateways, and the imperative to optimize supply chain efficiency and foster regional economic growth (Woxenius, 2007). Their performance is influenced by factors such as facility infrastructure, connectivity, service quality, and economic environment. The relationship between inland ports and seaports is complex, involving bidirectional flows and strategic cooperation to optimize supply chain efficiency. For a landlocked jurisdiction like Alberta, navigating the complexities of its vast geographical expanse and maintaining competitiveness in international trade, the concept of an inland port transcends a mere logistical enhancement; it emerges as a critical strategic imperative. Such infrastructure can fundamentally reshape provincial and national supply chains, enhancing market access to Canadian goods and attracting foreign direct investment (FDI).

STUDY SCOPE & OBJECTIVES

This exploratory stakeholder study, by directly engaging Alberta's key industry representatives, provides a foundational and empirically-driven understanding of local perceptions, readiness, and the latent demand for such transformative infrastructure, laying the groundwork for a robust policy framework. It is also important to note that globally, the precise scope and definition of what constitutes an inland port remain an evolving concept, often mistakenly confined to mere intermodal transfer points rather than envisioned as comprehensive supply chain ecosystems.

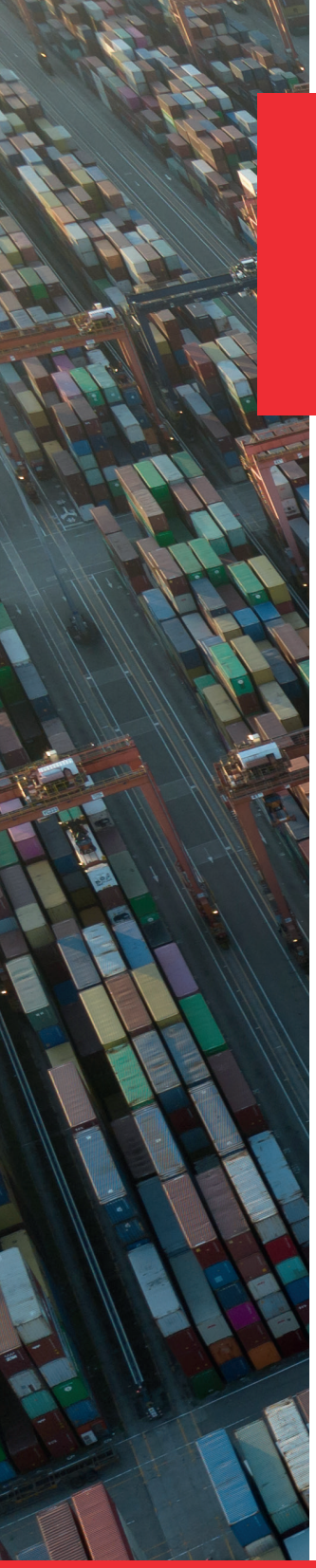
METHODOLOGY OVERVIEW

This study employed a multi-phase research approach to evaluate the potential for inland port development in Alberta, combining rigorous literature review with extensive industry engagement and policy analysis. The methodology was designed to produce actionable insights tailored to Alberta's unique logistics landscape while drawing lessons from global best practices.

The research began with a systematic literature review examining peer-reviewed studies, government reports, and industry data analyses. This foundational work identified key success factors for inland ports internationally, including infrastructure requirements, and effective governance models. Special attention was given to case studies from comparable regions from North America and other European and/or Asian cases. Building on this theoretical framework, we conducted three industry roundtables with over 50 Alberta-based stakeholders representing logistics providers, major shippers, and infrastructure developers. These sessions yielded qualitative insights about local challenges and opportunities, particularly regarding current modal splits and pain points in Alberta's freight transportation network. Participants provided crucial perspective on what features would make an inland port viable for their operations.

To quantify these findings, we distributed a targeted survey to carefully identified industry stakeholders across Alberta. The survey captured data on current transportation patterns, cost structures, current levels of knowledge about inland ports and their benefits, and willingness to adopt inland port services. Quantitative analysis revealed specific thresholds for modal shift potential, while open-ended responses highlighted regulatory and infrastructure barriers. Detailed information on the results of the survey are presented below in the section titled "data Analysis".

Throughout the research process, we continuously aligned findings with Alberta's policy landscape. This policy lens ensured recommendations would be both ambitious and implementable within existing frameworks. The study's conclusions emerged from synthesizing all three streams of research - academic literature, industry input, and policy analysis - with validation provided by academic experts. This comprehensive approach generated findings that are both data-driven and grounded in Alberta's practical realities, offering policymakers a clear roadmap for inland port development.



3. Literature Review

Inland ports have emerged as crucial nodes within the global and regional logistics systems, serving to extend the reach of seaports into hinterlands and facilitate efficient freight distribution over land (Witte et al., 2020). Their strategic location away from congested seaports allows them to perform various functions ranging from cargo storage, transshipment, customs clearance, to acting as multimodal intermodal hubs (Khaslavskaya & Roso, 2020).Over the past two decades, the evolution of inland port research has expanded from initial classification and operational studies to comprehensive analyses of their economic and environmental contributions. The significance of inland ports is underscored by their capacity to support millions of tons of freight annually, generate substantial employment, and promote sustainable transport modes such as inland waterways (Oztanriseven et al., 2022). For instance, Dutch inland ports have demonstrated economic impacts comparable to major seaports, highlighting their importance in national and regional economies (Wiegmans et al., 2015) This growing recognition aligns with global trends emphasizing modal shifts toward environmentally friendly transport and integrated logistics networks.

The significance of inland ports is underscored by their capacity to support millions of tons of freight annually as inland waterways.

Despite this progress, specific challenges remain in understanding inland ports' economic impacts, particularly in diverse geographical and institutional contexts. Existing literature reveals a fragmented understanding of inland port development models, performance metrics, and best practices, with limited consensus on classification and evaluation frameworks (Varese et al., 2020). Moreover, debates persist regarding the relative influence of seaports versus inland ports in driving regional growth, with contrasting views on whether inland ports act primarily as extensions of seaports or as autonomous economic hubs (Wiegmans et al., 2020). The knowledge gap is further pronounced in the context of Western Canada, where inland port development is nascent and underexplored, raising questions about the transferability of international models and lessons (Ng et al., 2015). The consequences of this gap include suboptimal infrastructure investment, policy misalignment, and missed

opportunities for regional economic enhancement. (Chen & Cheng, 2024; de Lange & Adua, 2022).

This section of the report aims to provide a synthesis of peer-reviewed research concerning inland ports and their multifaceted roles, features, and benefits while also addressing the particular contextual relevance for Western Canada. The review will integrate findings from global studies, including focused research from North America and Canada, to draw comparative insights and inform both policymakers and academics.

Central to this review is the conceptual clarification of inland ports and the distinction between inland ports, dry ports, and traditional seaports. Inland ports often serve as inland extensions of seaports, facilitating efficient cargo movement and management through multimodal transport systems, while dry ports typically denote inland terminals primarily linked by rail to seaports, focusing on cargo clearance and customs operations (Nguyen & Notteboom, 2019). Understanding these definitions is vital to framing the discussion on inland port development. Such comprehensive coverage will inform future research trajectories and assist senior policy leaders in crafting strategic interventions in Alberta's inland port assessments.

HISTORICAL EVOLUTION OF INLAND PORTS

The development of inland ports has been influenced by broader trends in freight transportation and globalization. Since the 1980s, growing seaborne trade volumes and containerization have driven the emergence and expansion of inland terminals to alleviate congestion at seaports and extend their gravitational reach inland. This evolution coincides with rapid technological advancements in handling equipment and the establishment of intermodal transport chains integrating maritime, rail, road, and inland waterway transport modes(Cullinane et al., 2012).

Containerization has been particularly influential, transforming the logistics landscape and underpinning the development of inland ports as key intermodal hubs. The growth of container traffic created a demand for inland sites where cargo can be efficiently handled, consolidated, and redistributed, thus facilitating better hinterland connectivity. This container-focused development has been accompanied by diversified functions at inland ports, moving beyond mere transshipment points to incorporate value-added logistics services, distribution centers, and industrial clusters.

In the North American context, inland ports have shown steady growth aligned with the expansion of global trade and regional economic integration. The development reflects adaptation to challenges such as congestion at coastal ports or in rail networks connecting these ports to the hinterlands and the need for enhanced hinterland access through multimodal infrastructure investments. The performance and characteristics of inland ports have been increasingly studied to inform efficient operational models and strategic planning.

OFF THE DOCKS, INTO THE FUTURE: THE FIVE UNLOCKS OF INLAND PORT GROWTH

1. Geography Unlock: Water + Rail set the Inland
(to the late 1950s)

Rivers, lakes, and canals (Mississippi, Rhine, Great Lakes–St. Lawrence) plus radial railways created the first inland network. The St. Lawrence Seaway's deep-draft completion (1959) tied the Atlantic to the Great Lakes via 15 locks, letting oceangoing ships reach interior cities. Bulk and breakbulk dominated, and port functions stayed at the waterfront—but the inland grid existed, waiting for faster cargo.

2. Standardization Unlock: the Box Changes Everything
(mid-1950s onward)

Containerization didn't just cheapen handling; it standardized interfaces across ship–truck–rail. That collapsed dwell time, made intermodal choreography routine, and shifted competitive advantage from quay-side warehousing to network connectivity. Once boxes moved seamlessly, it became logical to push port functions inland (customs, devanning, empties) where land is cheaper and operations scale better.

3. Scale Unlock: Double-Stack Rail Makes Distance Cheap
(1980s onward)

Stacking two containers per well car plus long unit trains doubled train productivity and turned very long inland hauls into the lowest unit-cost option. This produced the North American archetype: distant, rail-anchored load centres—big intermodal ramps surrounded by logistics parks, DCs, 3PLs, and value-add transload. Distance stopped being a penalty and became an economy of scale.

4. Institutional Unlock: the Dry Port Becomes a Category
(1990s–2010s)

Practice matured into policy. UN guidance and the Intergovernmental Agreement on Dry Ports codified inland, rail/barge-linked nodes where handling, storage, and border formalities can occur "as if" at the seaport.

Scholarship clarified typologies (close/satellite, mid-range, distant) and governance (public, private, PPP). Europe's freight villages added a campus model: planned, rail-served clusters sharing yards, IT, and services at the metro edge.

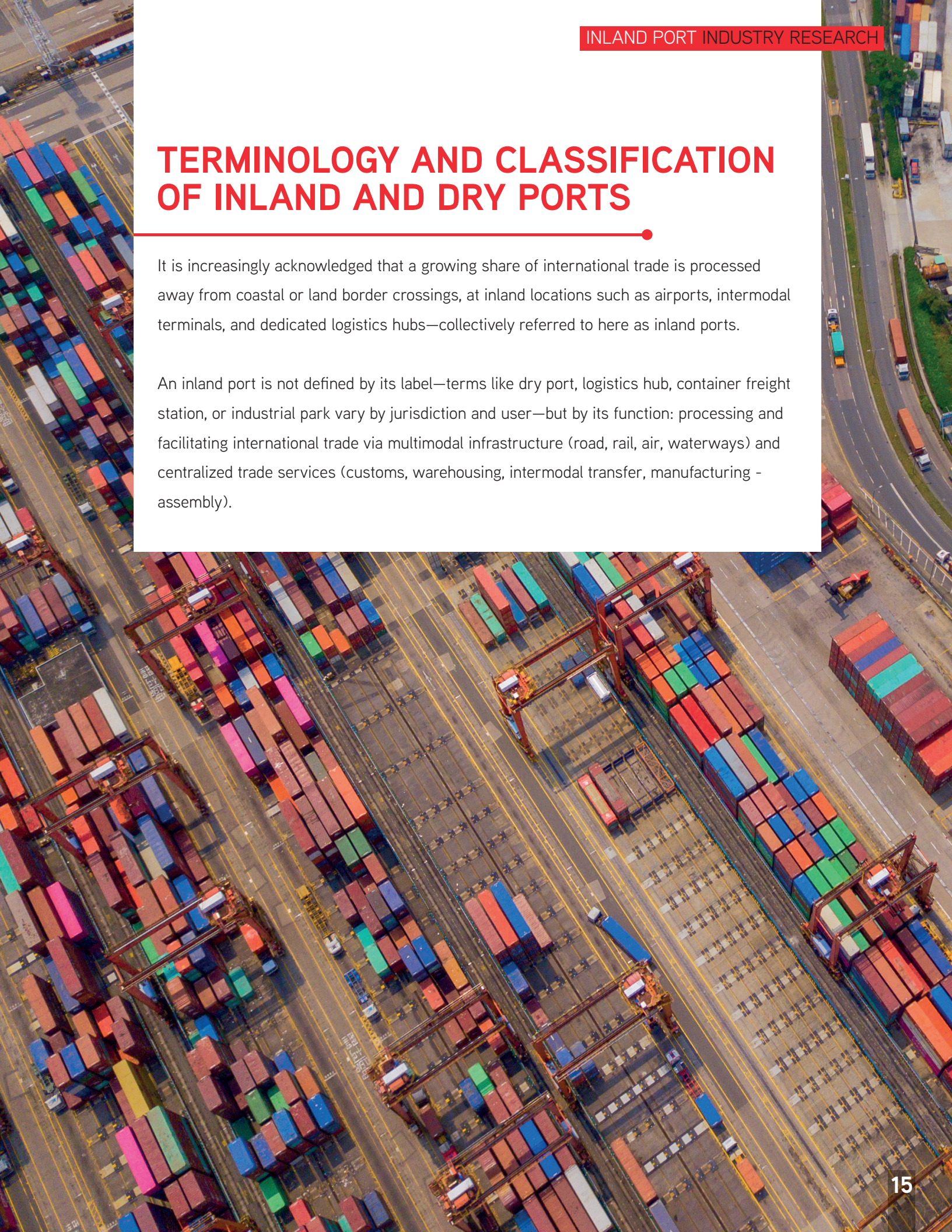
5. Platform Unlock: Clusters, FTZs, and Digitized Corridors
(2000s–today)

Inland ports evolved into platforms: land-use zoning + FTZ benefits + rail slots + transload ecosystems + data pipes (ETA feeds, slot booking, digital customs). Seaports now extend reach with rail shuttles to inland satellites; inland hubs aggregate demand and decongest gateways, anchoring regional industrial strategy.

TERMINOLOGY AND CLASSIFICATION OF INLAND AND DRY PORTS

It is increasingly acknowledged that a growing share of international trade is processed away from coastal or land border crossings, at inland locations such as airports, intermodal terminals, and dedicated logistics hubs—collectively referred to here as inland ports.

An inland port is not defined by its label—terms like dry port, logistics hub, container freight station, or industrial park vary by jurisdiction and user—but by its function: processing and facilitating international trade via multimodal infrastructure (road, rail, air, waterways) and centralized trade services (customs, warehousing, intermodal transfer, manufacturing - assembly).



INLAND PORTS VS. DRY PORTS: CLARIFYING THE DISTINCTION

While the terms are often used interchangeably, literature and policy sources (e.g., UNCTAD, U.S. DOT) differentiate:

DRY PORTS

Are a subset of inland ports—intermodal terminals primarily connected to seaports via rail or road, equipped for customs clearance and container handling.

INLAND PORTS

May include dry ports but also encompass inland waterway ports, air cargo hubs, and multi-industry logistics zones.

DISTANCE-BASED CLASSIFICATION

(close, mid-range, distant) explains differences in design, services, and governance.

CLOSE-RANGE

Near-hinterland, short-haul connections to seaports (e.g., Charlotte Inland Port, NC).

MID-RANGE

Hundreds of kilometers inland but still reliant on direct seaport links (e.g., Kansas City SmartPort).

DISTANT

Deep hinterland hubs with multi-corridor access (e.g., CentrePort Canada in Winnipeg).

4. Regional and Global Experiences in Inland Ports

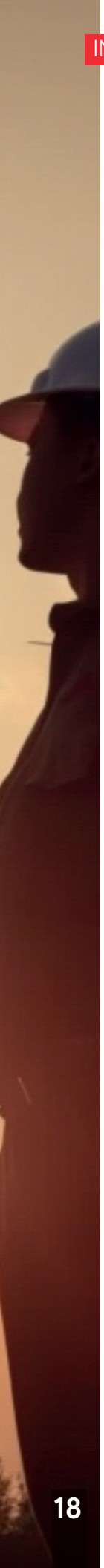
COMMON CHALLENGES AND BARRIERS

Governance Fragmentation & Institutional Misalignment

Governance fragmentation remains one of the most persistent and consequential barriers to inland port success. In many cases, multiple levels of government national, regional, and municipal share overlapping or poorly defined authority over port planning, land use, environmental regulation, and corridor integration. In federal systems such as Canada, the U.S., and Australia, this often results in jurisdictional deadlock where no single body assumes full responsibility for aligning inland ports with national logistics and trade strategies. The experience of the Port of Aalborg in Denmark—where reclassification of its connecting Limfjord as "non-navigable" by national authorities blocked EU funding—demonstrates how single-point policy decisions can derail multi-year investment programs. In North America, the Utah Inland Port controversy underscores how lack of early consensus-building with local governments and communities can lead to long-term resistance, lawsuits, and public relations setbacks. For policy planners, the lesson is clear: governance frameworks must be codified, transparent, and coordinated across agencies, ideally via a centralized intergovernmental inland port authority empowered to streamline decision-making and mediate conflicts between economic development goals and community interests.

Policy & Regulatory Impediments

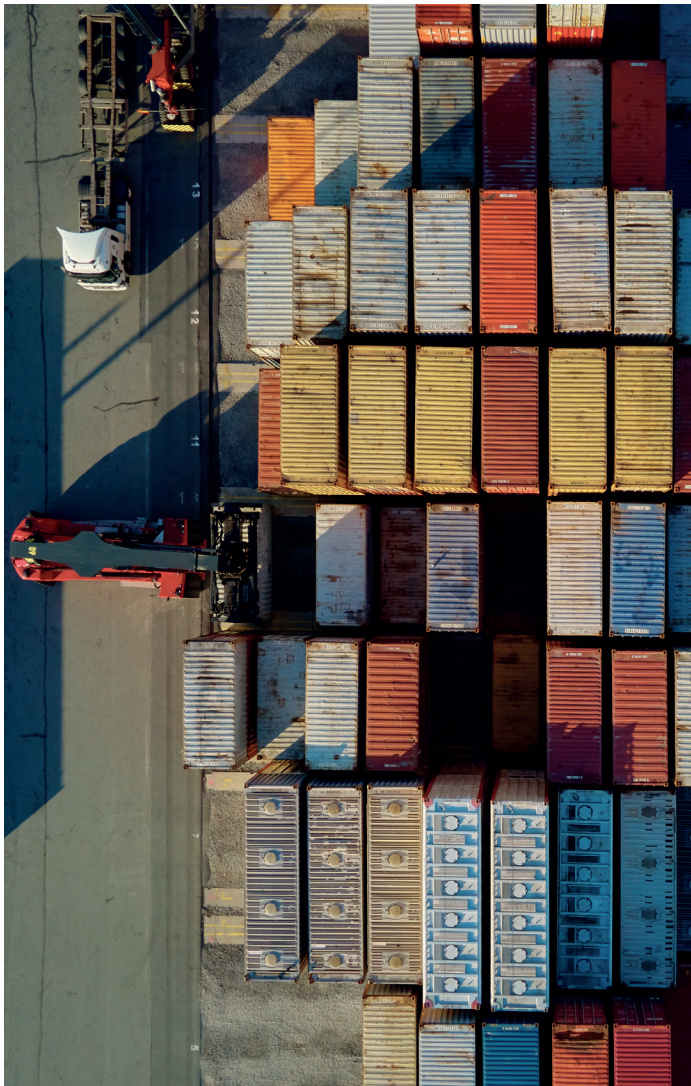
Policy inconsistency and regulatory opacity are common pitfalls in inland port development, particularly in jurisdictions with fragmented economic planning or overlapping agencies. In Brazil, for instance, a 2024 sustainability study found that many inland and river ports remain underutilized or inactive due to bureaucratic delays, conflicting regulations, and lack of coherent federal guidelines for private-sector participation. In federal economies, similar challenges arise when



environmental approvals, customs regulations, and land-use permits are governed by different agencies without a unified process. The Utah Inland Port experience highlights how insufficient stakeholder engagement in early regulatory design can lead to political backlash, legal challenges, and delays in implementation. For policy planners, best practice lies in designing a clear and predictable regulatory pathway that addresses customs modernization, foreign trade zone (FTZ) frameworks, and sustainable land use—while embedding transparent public consultation mechanisms. These steps reduce uncertainty for private investors, accelerate project timelines, and build the public trust essential for long-term o perational stability.

Infrastructure & Multimodal Integration Gaps

Even when inland ports have strong policy support, their effectiveness is compromised if multimodal connectivity is incomplete, underfunded, or poorly sequenced. Inland ports are only as strong as their links to seaports, airports, rail hubs, and interstate corridors. The Addis Ababa–Djibouti railway illustrates a global pitfall: despite high capital investment, failure to include freight access spurs to key terminals and warehouses undermined the corridor's economic viability. In North America, connectivity gaps can be seen in mid-continent inland ports where rail access exists, but first- and last-mile trucking infrastructure remains congested or underdeveloped. Furthermore, river port projects such as those on the Mississippi and Ohio systems often face unpredictable bottlenecks due to aging lock-and-dam infrastructure and seasonal water-level changes, limiting reliability. For policymakers, this signals the necessity of holistic transport corridor planning, where rail, road, water, and digital infrastructure are co-funded and synchronized. This approach not only strengthens resilience but also maximizes ROI by ensuring that capital-intensive inland port facilities operate at full throughput potential.



Digitalization & Environmental Resilience Gaps

On the digital front, studies from European inland ports show that stakeholders consistently rank integration of real-time cargo tracking, automated customs clearance, and interoperable data platforms as top operational priorities, yet these are often underfunded or implemented piecemeal. This digital lag hampers throughput efficiency, reduces supply chain visibility, and makes it harder to integrate with advanced manufacturing and just-in-time logistics ecosystems. On the environmental side, inland ports are not immune to climate risks: EPA assessments identify many U.S. inland freight hubs as vulnerable to flooding, extreme heat, and storm events, with direct implications for cargo reliability and insurance costs. Waterway-based inland ports face seasonal navigation constraints linked to climate change—such as prolonged droughts impacting Mississippi River traffic. For thought leaders, the policy implication is the need to embed climate adaptation and digital infrastructure investment into inland port master plans from the outset, rather than treating them as add-ons. This ensures operational continuity, maintains competitiveness, and strengthens investor confidence in the face of growing supply chain volatility.

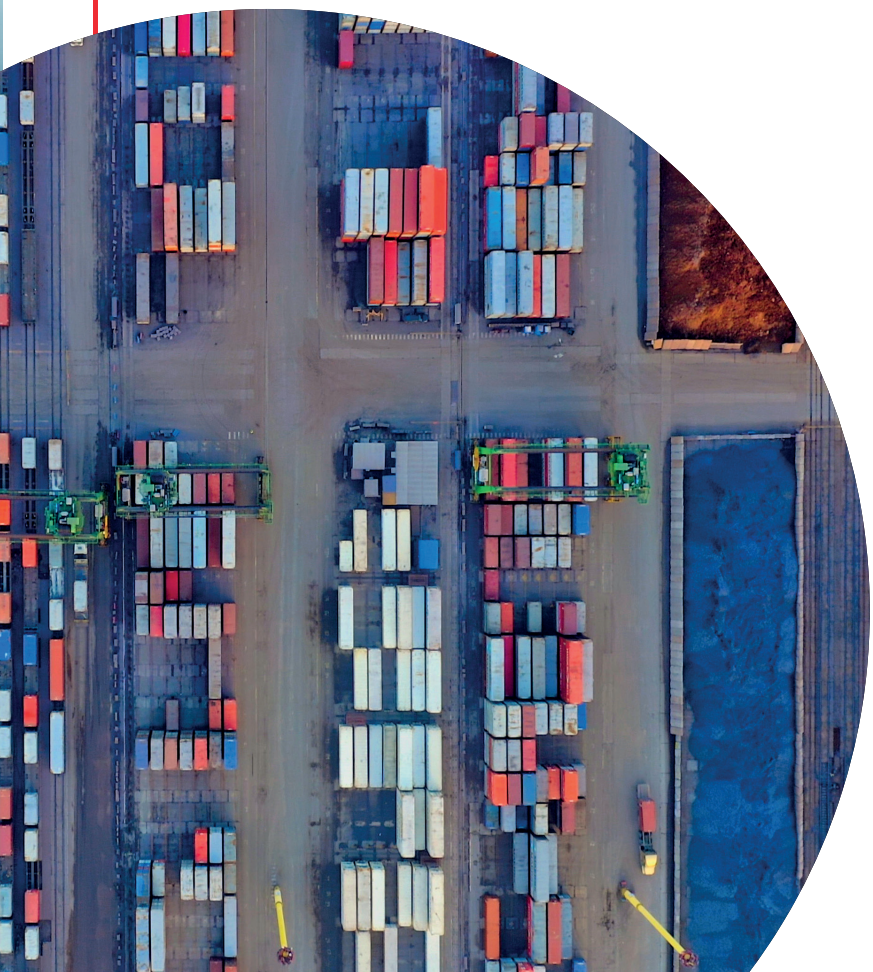
STRATEGIES TO OVERCOME OPERATIONAL INEFFICIENCIES

In light of the recurring bottlenecks outlined above, the most effective responses are not one-off fixes but a coordinated operating model. Inland ports function as systems: reliability at the gate, rail ramp, or customs desk is only as strong as the weakest link in data, process, or accountability. The goal, therefore, is twofold: (1) compress time-to-clear and time-to-transfer across the entire landside chain, and (2) lock in those gains through transparent KPIs, shared data, and role clarity among agencies and operators.

What follows is a practical, evidence-based playbook focused on digitization, risk-based border management, landside orchestration, and institutional capability that converts strategy into day-to-day performance. These measures are interlocking by design; implemented together, they turn isolated improvements into dependable throughput, lower costs, and a stronger value proposition for shippers and communities alike.

Digitize the core of trade processing—not just the edge

High-impact gains come from end-to-end digital integration: a national Single Window for all border agencies, a Port Community System (PCS) that synchronizes port/inland-port actors, and paperless trade instruments (e.g., electronic bills of lading). Full implementation of the WTO Trade Facilitation Agreement (TFA) is consistently linked to lower trade costs WTO/OECD estimates indicate average reductions of ~14.3% globally (with up to ~$1T in added trade) and potentially 10–18% in total trade costs when measures are fully implemented. A well-run Single Window reduces paperwork, cycle time and discretionary steps; World Bank work shows Single Windows streamline formalities and cut bureaucratic redundancies when agencies coordinate on standard data models. PCSs improve data sharing and reduce truck and container dwell time when broadly adopted across stakeholders.



Adopt risk-based border management so compliant operators move faster

Pair digital rails with Authorized Economic Operator (AEO) regimes and data-driven targeting. Under the WCO SAFE Framework, AEOs receive reduced inspection rates and expedited release benefits that translate directly into lower variability and cost. Most customs administrations are implementing SAFE and growing AEO footprints, creating a common language of trust that inland ports can leverage through co-location of customs and pre-clearance services. In North America, the U.S. ACE single window shows measurable gains from automation (e.g., reported ~44% lower truck wait times at land borders after ACE core deployment, plus large time savings on bond processing), demonstrating the operational upside of integrated targeting and paperless release. Canada's CBSA Single Window Initiative similarly consolidates data for 9 partner agencies spanning 38 programs, streamlining risk assessment and release decisions.

Invest in people and institutions then lock in performance through KPIs

ICT only pays off when capabilities and governance mature together. Prioritize capacity building (customs risk management, data quality, API/EDI operations, yard/gate planning, rail planning) and institutional strengthening (inter-agency MoUs, clear lead authority, shared data standards). Define and publish a KPI suite that aligns agencies and operators e.g., truck turn time, rail dwell, customs release time, % pre-cleared cargo, trouble-ticket rate, and on-time slot adherence via public dashboards (as used by Los Angeles' Port Optimizer and other ports). Tie funding to outcomes (e.g., conditional corridor grants for meeting dwell/turn-time targets). Finally, embed resilience into operations: climate-aware asset plans for inland waterways and yards; digital continuity (redundant systems, cyber hygiene); and scenario playbooks for disruptions so operational efficiency holds under stress. (World Bank PCS/Single Window guidance repeatedly flags climate and continuity considerations alongside digitalization).

Orchestrate the landside: appointments, extended gates, and first/last-mile fixes

Truck appointment systems and extended gate/off-peak programs are proven tools to smooth peaks and improve terminal productivity capabilities that inland ports should mirror for rail ramps, cross-docks, and customs exam facilities. The Port of Virginia's PRO-PASS reservation system is explicitly designed to reduce truck turn times and yard congestion; operational changes there (reservation windows, chassis rules) improved truck fluidity. In Southern California, the PierPass OffPeak program has shifted a significant share of truck moves to nights/weekends diverting tens of millions of daytime trips since launch illustrating how pricing and scheduling can decongest gates and urban arterials. Complement scheduling with real-time visibility (e.g., Georgia Ports' app and TOS analytics tracking truck turn times, dual transactions, and rail dwell), then hard-wire those data into continuous improvement routines.

OVERVIEW OF PORT DEVELOPMENT IN NORTH AMERICA

Across the U.S. and Canada, inland ports have matured from real-estate plays into system extensions of seaports and rail load-centres, designed to push border and yard functions inland, cut truck miles, and add surge capacity when coasts clog. Three development archetypes dominate: seaport-led satellites (e.g., Virginia Inland Port; South Carolina's Greer), railroad-anchored load centres (e.g., BNSF's Logistics Park Chicago and Alliance Intermodal Facility), and integrated tri-modal logistics hubs tied to cargo airports (e.g., Rickenbacker in Columbus; CentrePort Canada in Winnipeg). Each model links customs/border processes, intermodal lifts, and value-added logistics closer to inland demand, while maintaining daily doublestack rail (or barge) connectivity back to the marine gateway.

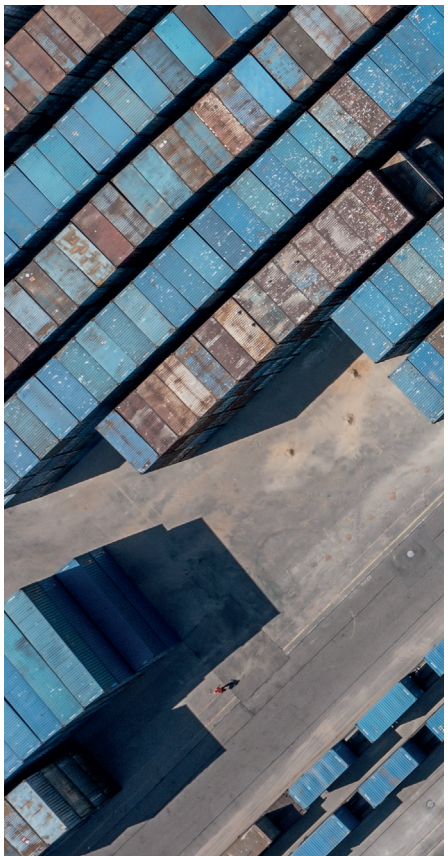
Seaport-led inland ports show how "satellite truck gates" decongest terminals and reshape hinterland flows. The Virginia Inland Port (Front Royal) operates about 200 miles from Norfolk with daily rail service; it functions as an inland extension of the Port of Virginia and is now part of a rail decarbonization initiative. Inland satellites such as this, and the Richmond barge link, move containers off congested urban roads and onto rail or barges earlier in the journey. In the Southeast, South Carolina Ports' Inland Port Greer has become a textbook case of inland scaling: after a major expansion adding 9,000 feet of rail and yard capacity, Greer can handle up to 300,000 rail lifts per year, already surpassing 200,000 annual rail moves—pulling truck traffic off key interstate corridors and tightening the Charleston–Upstate supply loop. Sister facility Inland Port Dillon complements this rail shift. Georgia's Appalachian Regional Port offsets approximately 710 truck miles per round-trip; the port estimates over 12.5 million truck miles avoided annually as volumes ramp—clear evidence that inland rail delivers measurable road, emissions, and reliability benefits.

Railroad-anchored inland hubs concentrate lifts, distribution centres, and Foreign Trade Zone activity at scale. In Chicagoland, CenterPoint Intermodal Center (Joliet/Elwood)—6,400 acres combining Union Pacific's Global facility and BNSF's Logistics Park—remains the largest inland port in North America, purpose-built to stack millions of square feet of distribution around two Class I intermodal ramps. BNSF's Logistics Park Chicago handles the largest intermodal volumes on the continent along the LA–Chicago corridor, with historical lift counts approaching 900,000 per year and designed expansion blocks that add significant capacity per 8,000-ft track segment. In Texas, the Alliance Intermodal Facility (Fort Worth) performs over 1 million lifts per year and sits inside AllianceTexas, a tri-modal district anchored by Perot Field Alliance

Airport; thousands of direct jobs are tied to the intermodal facility and the surrounding industrial cluster, underscoring the economic dividend of co-location.

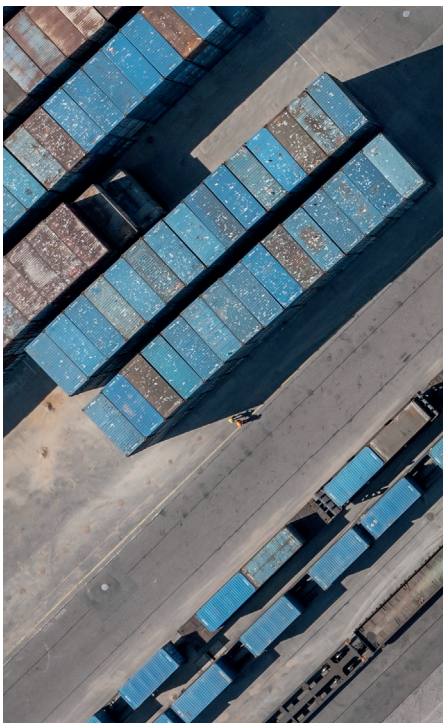
Canada's inland network applies the same logic in a different geography. CentrePort Canada—a 20,000-acre tri-modal Foreign Trade Zone in Winnipeg—links three Class I railways with a 24/7 cargo airport and the Trans-Canada highway grid. Federal investment has backed its 665-acre Rail Park, while provincial support has helped align industrial land, rail spurs, and trade-facilitation programs in one site. Farther west, Ashcroft Terminal near Vancouver—320 acres with both CN and CP mainlines on-site—serves as a pressure valve for the Lower Mainland; expansion funding has increased track, roadways, and a new CN link to improve throughput and resilience during coastal disruptions.

Policy instruments around these hubs are not afterthoughts—they're enablers. In the U.S., the Foreign-Trade Zones (FTZ) Program recorded nearly US$950 billion in merchandise received in 2023 and around 550,000 jobs, providing duty deferral and avoidance that materially improve the business case for inland manufacturing and distribution. In Canada, inland sites like CentrePort operate with single-window access to FTZ programs, allowing duty and tax deferral until goods enter the domestic economy—an important cash-flow lever for exporters and re-exporters. On the infrastructure side, dedicated inland-port and trade corridor funds—such as Canada's National Trade Corridors Fund and U.S. programs like RAISE, INFRA, and MEGA—co-finance the rail, grade separations, barge links, and first/last-mile projects that convert inland real estate into true gateway capacity.



Operational Takeaways for Policy Planners and Industry Leaders

North American inland ports work best when they (1) are wired directly to a marine gateway by daily rail or barge, (2) co-locate customs/FTZ, intermodal ramps, distribution centres, and value-added logistics, (3) publish and manage to hard KPIs such as rail dwell, truck turn times, and gate appointment adherence, and (4) align public funding to corridor-level outcomes, such as truck-mile reductions. The result is not just smoother flows at the coast; it's distributed economic growth inland, measurable emissions cuts, and a more shock-tolerant continental freight system.



POLICY FRAMEWORKS AND GOVERNANCE IN CANADA AND THE USA

The Canadian Operating Model

Canadian inland-port success hinges on network federalism: the federal tier (Transport Canada, CBSA, PrairiesCan, Infrastructure Canada, Canada Infrastructure Bank) sets corridor strategy, trade-facilitation rules, and co-funds major links; the province (Alberta Transportation & Economic Corridors; Jobs, Economy & Trade) integrates highways, land-use, investment attraction, and skills; municipal and regional bodies (City of Calgary, City of Edmonton, Rocky View County, Leduc Conty, safeguard logistics land, streamline permitting, and fix first/last-mile constraints; industry (CPKC, CN, YYC Cargo, YEG Cargo, 3PLs, major shippers) operates assets and shares data; and Indigenous partners participate as equity and benefit-sharing partners (e.g., via the Alberta Indigenous Opportunities Corporation).

The goal is one corridor plan and one data spine, delivered through shared incentives and hard performance targets.

Core Canadian Policy Levers

Trade-Corridor Investment

Use the National Trade Corridors Fund (NTCF) to co-finance Alberta priorities: additional siding/yard capacity, grade separations near intermodal terminals, ring-road connectors, and climate-resilient assets (e.g., drainage, heat hardening) at CN Logistics Parks across Alberta, the CPKC intermodal terminal, and international airport cargo precincts. Pair NTCF with the Canada Infrastructure Bank where revenue models (user fees, availability payments) make sense.

Trade-Facilitation and Border Modernization

Align Alberta's inland nodes with CBSA Single Window, Trusted Trader (PIP), eManifest, and e-documentation (e.g., eBL readiness). Co-locate exam/inspection capabilities at inland terminals and enable risk-based release so compliant cargo moves on arrival while exceptions are targeted.

Foreign Trade Zone (FTZ) Program: Edmonton Region FTZ, Calgary Region FTZ

Leverage the Edmonton and Calgary FTZ Points as a concierge bundling duty/tax deferral tools (Customs Bonded Warehouses, Duty Drawback, Export Distribution Centre, Exporters of Processing Services). Market this to agri-food, energy equipment, aerospace, and e-commerce returns/repair to anchor value-added activity inside Alberta rather than at coastal gateways.

Port Community System (PCS) Data Trust

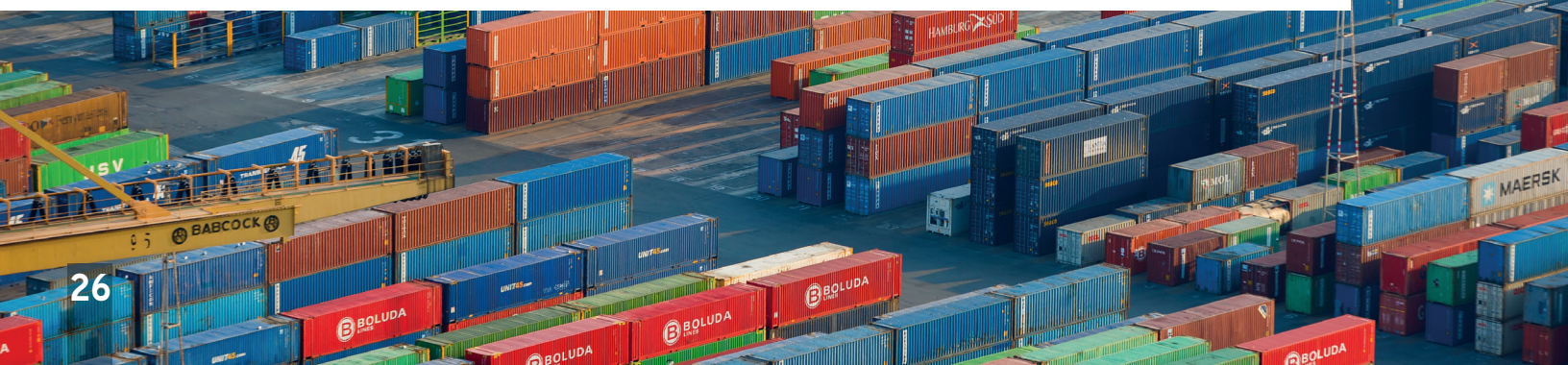
Stand up a Prairie Gateway PCS that standardizes ETA/ETD, gate moves, rail cut-offs, customs hold/release, and yard congestion across CN CLP, CPKC intermodal, YYC and YEG Cargo, major DCs, and brokers—using role-based access so sensitive rail/shipper data stays protected. Publish non-confidential KPIs to sustain accountability.

Land-use Protection and Industrial Readiness

Through the City/CMRB municipal statutory plans, protect contiguous logistics land along Stoney Trail and in the Balzac/Conrich corridostrategic corridorsr; pre-permit for 24/7 operations, staging yards, DG routes, and noise/lighting envelopes. Tie subdivision approvals to truck geometrics, yard circulation, and appointment-capable gates to avoid queuing on arterials.

Skills and Institutional Capacity

Codify a freight skills pipeline (Alberta Post-secondary and Polytechnic Schools + industry) for yard planning, rail operations, customs risk, data engineering, and cyber security. Create an intergovernmental corridor unit inside the Province to shepherd projects from concept to funding to delivery.



5. Challenges and Opportunities Specific to Western Canada

Geography and Gateway Concentration

Western Canada's economy runs on long inland-to-Pacific corridors served primarily by two container gateways: Vancouver and Prince Rupert. That concentration yields scale but also single-point exposure to weather, labour, and capacity shocks through the mountain passes. Capacity is growing: Roberts Bank Terminal 2 would add about 2.4 million TEU in Vancouver, and Prince Rupert's CANXPORT (formerly RIELP) is purpose-built to transload Prairie commodities into containers at scale and deepen the port's intermodal role. Together, these changes raise the value of reliable rail paths and inland stuffing/transload capacity around Calgary.

Rail–Road Complementarity

A balanced strategy works the hand Western Canada is dealt: rail is the cost- and carbon-efficient backbone for long-haul moves across the Prairies, while trucking carries the majority of shipments by count and a large share by value, provides time-certain service, and is indispensable for first/last-mile, regional distribution, construction, and energy field logistics. Rail's total sector share of transport emissions in Canada remains relatively small, while on-road freight is steadily improving its footprint via higher-efficiency engines, idle-reduction, better aerodynamics and tires, renewable and low-carbon fuels, and early zero-emission truck deployments on urban and short-haul routes. The most resilient Western strategy deliberately optimizes the rail–road interface instead of treating modes as substitutes.

Disruption and Climate Risk

Events like the 2021 atmospheric rivers that severed rail and highway links in the Fraser corridor demonstrated how quickly national flows can stall and how essential redundancy is. Post-event reporting by operators and government noted dozens of washouts and prolonged detours before service normalized. For Alberta, the operational answer is a standing playbook: pre-arranged train paths that can be activated during disruptions, surge yards and inland transload capacity in Calgary, and real-time data sharing across terminals, railways, customs, carriers and large shippers.

Labour and Operating Windows

Coastal job actions have shown that reliability hinges as much on synchronized operating windows as on concrete and steel. Publishing a small set of corridor performance metrics—truck turn time, rail dwell, appointment adherence, and time-to-release for compliant cargo—creates shared accountability and a defensible basis for targeting public funding at the bottlenecks that move the needle most. (Ports and carriers already report similar metrics; the gap is corridor-level transparency.)

Indigenous Partnership and Capital Access

A durable corridor strategy embeds Indigenous partnership as a structural success factor—through early engagement, equity participation, and benefit agreements. Alberta's Indigenous loan-guarantee program has already enabled hundreds of millions in Indigenous equity across major assets, and the federal Indigenous loan-guarantee corporation expands access further. Bringing these tools into inland-port and corridor projects reduces approval risk, anchors local employment pipelines, and aligns long-term governance.

YYC and YEG are Canada's fourth and fifth leading cargo airports and a critical backstop for time-sensitive exports, spares, and e-commerce. YYC reports 5,217 cargo landings in 2024 and YEG reported 3,546—useful redundancy when surface networks are strained— and future inland ports should treat Alberta's cargo capacity as part of the inland-port estate with shared data and truck-gate coordination.

CN's Logistics Parks in Calgary and Edmonton have been reconfigured to increase storage capacity, gate flow and service reliability; CN and CPKC's network connects both Calgary and Edmonton to both Pacific gateways and—post-merger CPKC—offers North-South reach into U.S./Mexico supply chains for Alberta manufacturers and Agri-exporters. A corridor plan that locks in predictable rail service windows and disciplined truck appointments will convert those physical assets into reliable shipper lead times. Road reliability is the hinge between terminals and distribution. With the ring road complete, the fastest low-cost wins are along Stoney Trail: truck-friendly interchanges, clear heavy-haul connectors to the rail ramps, and safe, well-serviced rest and staging area.

6. Comparative Models of Inland Port Networks

EUROPE: CORRIDOR LOGIC, TRIMODAL NODES, AND DATA-FIRST COORDINATION

How it's organized:

Europe plans and funds transport as connected corridors, not isolated assets. Inland ports are embedded in these corridors and treated as co-equal nodes alongside seaports, rail, roads, and inland waterways.

Operational features:

- Trimodal hubs linking rail, barge, and motorway (e.g., along the Rhine–Alpine axis) concentrate lifts, distribution centers, customs, and value-add services on one estate.
- Port Community Systems (PCS) knit together terminals, carriers, customs, and hinterland operators with pre-arrival notices, slot booking, and automated release messages.
- Synchromodal operations: cargo is flexibly routed between rail/barge/road based on time, cost, and disruption conditions—supported by shared data and agreed service windows.
- Freight villages (interporti) in Italy co-locate rail ramps, DCs, truck services, and administrative functions to shrink dwell and idle time.

Why it works:

Clear corridor governance; common digital rails; barge capacity that absorbs peaks from the seaports; and freight villages that make the "last 5 km" predictable for trucks.

ASIA: NATIONAL DESIGNATION, SCHEDULED RAIL, ICD SCALE

(And Selected Emerging Markets)

How it's organized:

Many Asian economies use formal designation of inland ports (or ICDs—Inland Container Depots) tied to national logistics plans. Designation unlocks land, rail paths, and customs presence, often with incentives for private operators.

Operational features:

- Scheduled inland trains (daily or multiple times per day) between coastal gateways and inland hubs; predictable cut-offs and arrivals drive factory and DC planning.
- ICD networks (e.g., in India, Vietnam, Thailand) scale by standardizing rail service patterns, gate processes, and documentation across dozens of inland sites.
- Bonded logistics parks at inland nodes enable duty deferral, assembly, and export prep alongside the rail ramp—reducing coastal yard pressure.
- Public–private delivery: state provides the spine (rail paths, customs, land rights); private partners run terminals, warehouses, trucking, and digital solutions.

Why it works:

Scheduled rail plus bonded processes turn inland facilities into true "extensions" of the seaport. Industrial clusters grow around predictable train slots and low-friction customs.

SUB-SAHARAN AFRICA AND LATIN AMERICA: CORRIDOR BOOTSTRAPPING & GOVERNANCE LEARNING CURVES

How it's organized:

Dry ports are introduced to decongest coastal cities and push clearance inland, typically along one or two strategic rail/road corridors.

Operational features:

- Phased upgrades from simple bonded yards to full dry-port status as rail reliability and customs systems improve.
- Hybrid customs models that start with targeted commodities and expand to general cargo once processes stabilize.
- Donor or development-bank support for corridor hardening (rail spurs, road access, border posts) paired with institutional capacity building.

Why it works:

When it does

A corridor lens, even with limited budgets, focuses scarce capital on rail links, access roads, and border processes that move the most volume. Early wins build credibility for the next tranche of investment.

NORTH AMERICA: RAIL-ANCHORED SATELLITES AND KPI-DRIVEN ADOPTION

(Outside of Alberta)

How it's organized: Hubs develop in three recognizable archetypes

- **Seaport-led satellites** (e.g., inland terminals linked by daily rail) that act as "truck gates" far from the coast;
- **Railroad-anchored load centers** (large inland estates wrapped around Class I intermodal ramps);
- **Tri-modal airport logistics districts** that couple time-critical air cargo with rail and highway distribution.

Operational features:

- Daily double-stack rail between marine terminals and inland nodes; disciplined appointment systems at truck gates to smooth peaks.
- Public KPI culture: truck turn times, rail dwell, appointment adherence, and avoided truck miles are tracked and used to justify funding and private uptake.
- Foreign-trade/FTZ regimes and bonded facilities to support assembly, kitting, and export prep.
- Driver amenities—secure parking, services, digital reservation platforms—reduce empty running and missed slots, which improves terminal productivity without new concrete.

Why it works:

Clear service patterns, measurable performance, and practical road–rail interfaces make inland nodes a dependable extension of the coast.

SNAPSHOT OF LEADING MODELS
(selected)

REGION	EUROPE	ASIA	SUB-SAHARAN AFRICA / LATAM	NORTH AMERICA
Representative model	Rhine–Alpine trimodal hubs; Italian freight villages; national PCS platforms	Nationally designated dry ports/ICDs; scheduled inland trains; bonded logistics parks	Corridor-anchored dry ports with phased capabilities	Seaport satellites; rail load centers; tri-modal airport districts
What it optimizes	Corridor flow balance and modal shift	Predictable inland extensions of seaports	Decongestion and inland clearance	Measurable throughput and reliability
Core Tools	PCS, slot booking, barge windows, unified corridor planning	Set train paths, bonded zones, tandardized ICD processes	Targeted rail/road spurs, simplified border processes, PPPs	Daily intermodal, FTZ tools, appointment systems, KPI dashboards
Typical strengths	Synchromodality, dense cluster effects, reliable barge/rail	Scale, timetable disci-pline, export-oriented clusters	Rapid decongestion, gradual institutional learning	Strong private investment, KPI culture, driver amenities
Common Watch-outs	Water-level variability, urban land pressure, cyber posture	Over-centralization risk, dependency on state rail performance	Rail reliability, multi-agency coordination, funding continuity	First/last-mile bottlenecks, governance fragmentation

7. Economic Impact

Job Creation & Labor Market Effects

Inland ports have repeatedly demonstrated an ability to add substantial employment and catalyse wider economic development. Where jurisdictions organise multiple, well-sited inland hubs to operate as one network, employment grows in waves construction and site servicing first; then steady, skills-based roles in terminal operations, equipment maintenance, gate and yard control, and customs/inspection support; followed by adjacent logistics (transload, cross-dock, export preparation, returns/repair, cold chain) and, over time, supplier and light-manufacturing activities (assembly, packaging, specialised repair). As reliability and service frequency improve, induced employment expands in driver services, site and facilities management, and IT/data functions. Mature networks typically show wage uplift relative to regional averages, reflecting higher technical intensity in yard equipment, appointment systems, and compliance processes.

International evidence from Europe, Asia/China, and the Gulf underscores both the scale and the quality of outcomes. In Germany, the Port of Duisburg (duisport) reports approximately 52,000 direct and indirect port-dependent jobs across some 300 transport and logistics firms on the estate illustrating the employment footprint of a fully developed inland hub that integrates rail, inland waterway, and motorway links. In Italy, the freight-village model demonstrates how employment deepens as clusters densify: Interporto Quadrante Europa (Verona) documented around 13,000 jobs in its mature phase with a planned horizon above 20,000, while Spain's Zaragoza Logistics Platform (PLAZA) has continued to attract major tenants and expand its workforce, with recent reporting on pay increases for ~1,800 logistics workers alongside new capacity coming on stream.

Across China's inland network, designated logistics parks tied to the China–Europe Railway Express have become significant employment anchors. The Xi'an International Trade & Logistics Park reports ~1,700 e-commerce companies and 20,000+ employees on-site, reflecting the co-location of digital trade and rail-linked logistics functions; peer-reviewed studies further associate the rail service with measurable local income gains in participating cities, indicating broad labour-market benefits beyond the park gates. Complementary reporting highlights sustained growth in west–east rail services and inland hub activity, including frequent scheduled trains into major European nodes such as Duisburg, which in turn support employment in handling, warehousing, and onward distribution.

THE POLICY IMPLICATION FOR ALBERTA IS STRAIGHTFORWARD: JURISDICTIONS THAT PAIR INLAND-PORT DEVELOPMENT WITH SKILLS PIPELINES AND PROTECT CONTIGUOUS LOGISTICS LAND FOR CO-LOCATION ACCELERATE THE SHIFT FROM CONSTRUCTION TO DURABLE, HIGHER-WAGE OPERATIONS

The Gulf provides a useful reference for logistics-led job ecosystems at the sea–air–land interface. Dubai's Jebel Ali Free Zone (JAFZA), directly connected to the seaport and integrated with inland logistics districts, states that it sustains 130,000+ jobs and attracts a large share of the city's foreign direct investment; DP World additionally reports record annual trade throughput associated with the zone's operations. Public communications from the Government of Dubai and the operator have, at times, characterised combined port/free-zone employment (direct and indirect) at around one million jobs—an order-of-magnitude indicator of how large, multi-modal logistics platforms can shape metropolitan labour markets.

Taken together, these cases show a consistent employment pathway: (1) early operational roles stabilise as schedules and processes become predictable; (2) technical and supervisory roles grow with automation, data exchange, and inspection modernisation; and (3) supplier and light-manufacturing functions co-locate as time-certainty improves. The policy implication for Alberta is straightforward: jurisdictions that pair inland-port development with skills pipelines (yard planning, mechatronics, gate and rail operations, customs risk, data engineering) and protect contiguous logistics land for co-location accelerate the shift from construction to durable, higher-wage operations while spreading direct, indirect, and induced employment across the network.

Trade Facilitation & Investment Opportunities

Our assessment concludes that inland-port networks function as platforms for trade facilitation and, when designed well, become natural magnets for private capital. The effect is twofold. First, modern border processes risk-based controls, single-window submissions, and electronic documentation compress time and uncertainty along the supply chain. Second, predictable operations combined with customs-efficient regimes (bonded facilities and zone programs) improve cash-flow economics for firms, which in turn strengthens location decisions and capital commitments.

The international evidence is clear on the value of streamlined procedures. The World Trade Organization's analysis of the Trade Facilitation Agreement (TFA) estimates that full implementation reduces average trade costs by roughly 14.3 percent, primarily through transparency, advance processing, and coordinated border management measures that inland hubs can embed into day-to-day routines and systems. In Canada, the CBSA Singl Window Initiative demonstrates how multi-agency coordination scales in practice: the platform consolidates data for nine partner departments across thirty-eight programs, allowing importers and service providers to interact with government through a unified channel that inland facilities can align to operationally.

Digitisation of trade documents is an additional accelerator. The Digital Container Shipping Association's member carriers have publicly committed to convert 50 percent of original bills of lading to electronic form within five years and reach 100 percent by 2030, and the industry has now completed a first standards-based, interoperable electronic bill of lading transaction. These milestones signal that e-documentation will rapidly become the default; inland nodes that are "eBL-ready" will offer both speed and predictability to shippers and carriers.

Customs-efficient site design and zone regimes correlate with stronger private-sector uptake. In the United States, Foreign-Trade Zones processed approximately US$949 billion in merchandise in 2023 and supported about 550,000 jobs, illustrating the program's scale as a tool for manufacturing and distribution in inland locations. The same report notes hundreds of active production operations and substantial use of domestic-status inputs—evidence that zones reinforce domestic value-added rather than simply warehousing imports. News coverage from multiple jurisdictions further shows firms turning to FTZs and bonded facilities to manage tariff and supply-chain shocks, underscoring the role of inland, customs-efficient estates as "safety valves" during policy or market volatility.

"Our assessment concludes that inland-port networks function as platforms for trade facilitation and, when designed well, become natural magnets for private capital"

Corridor-level operating signals also matter for investment attraction. Georgia's Appalachian Regional Port publishes a simple, credible metric—710 truck miles avoided per round-trip for each container moved by rail—tied to a direct, scheduled connection with the seaport. The clarity of that commitment helps site-selectors and carriers quantify the reliability and cost implications of locating in the hinterland, and subsequent communications have reported cumulative avoided truck-miles as the facility has matured. Comparable inland facilities in the United States and Canada routinely publicize service frequency, yard capacity additions, and tenant announcements; together these indicators reduce investor uncertainty by making performance and growth trajectories legible.

The policy implication is straightforward. If Alberta wishes to unlock trade-driven private investment around a network of inland hubs, the enabling conditions are known and replicable:

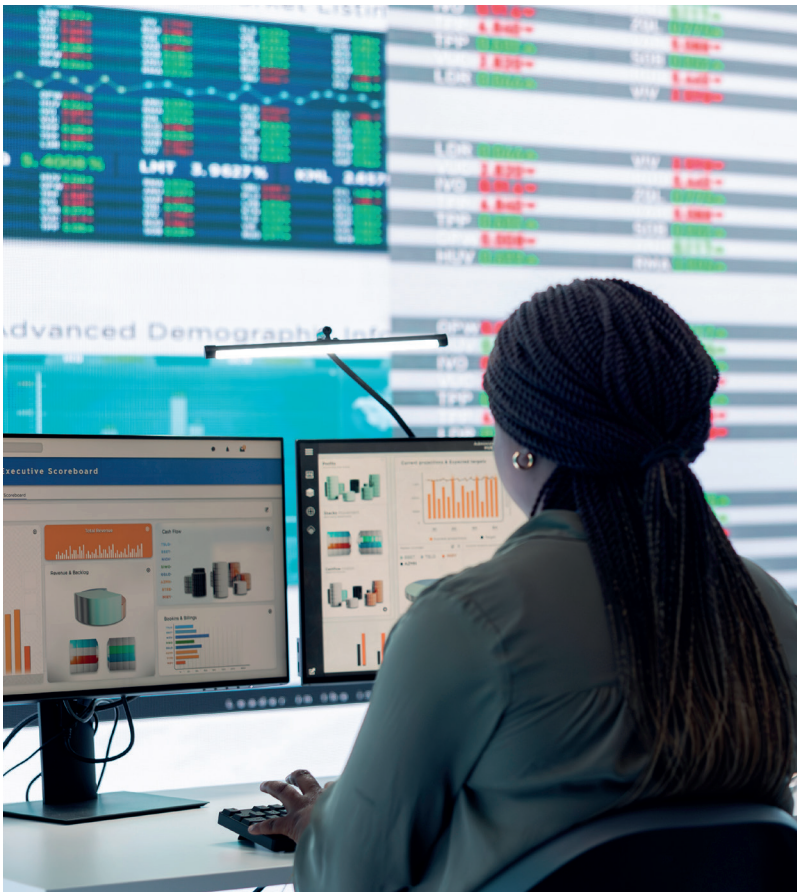
- Align operations with single-window processes and risk-based controls; ensure readiness for electronic documentation;
- Co-locate inland inspection and a concierge for federal trade programs (bonded warehousing, duty/tax deferral); and
- Jurisdictions that have combined these elements—while keeping zone and bonded tools accessible inside inland estates—have consistently attracted distribution centres, light manufacturing, and specialised logistics providers, translating procedural certainty into capital formation and long-term employment

8. Data, Trends and Analysis - Why an Inland Port is now an Urgent Need of the Hour of Alberta

TRADE DATA ANALYSIS

Canada remains one of the OECD's more trade-exposed economies: trade in goods and services equalled roughly 65% of GDP in 2024. Merchandise flows are still concentrated with the United States 75.9% of Canada's exports and 62.2% of imports in 2024 creating scale advantages but clear concentration risk. Alberta is a national export anchor. Canadian crude exports averaged 4.20 million b/d in 2024, and the Trans Mountain Expansion (TMX) materially altered routing: 75% of the year-over-year increase moved by marine vessel and 70% of the increase went to non-U.S. buyers, indicating early diversification. Pacific capacity signals are constructive: Vancouver handled 3.47 million TEU in 2024 (+11% YoY), while Prince Rupert moved 23.1 million tonnes amid an expansion cycle—evidence that coastal windows exist if inland timing and processes keep pace.

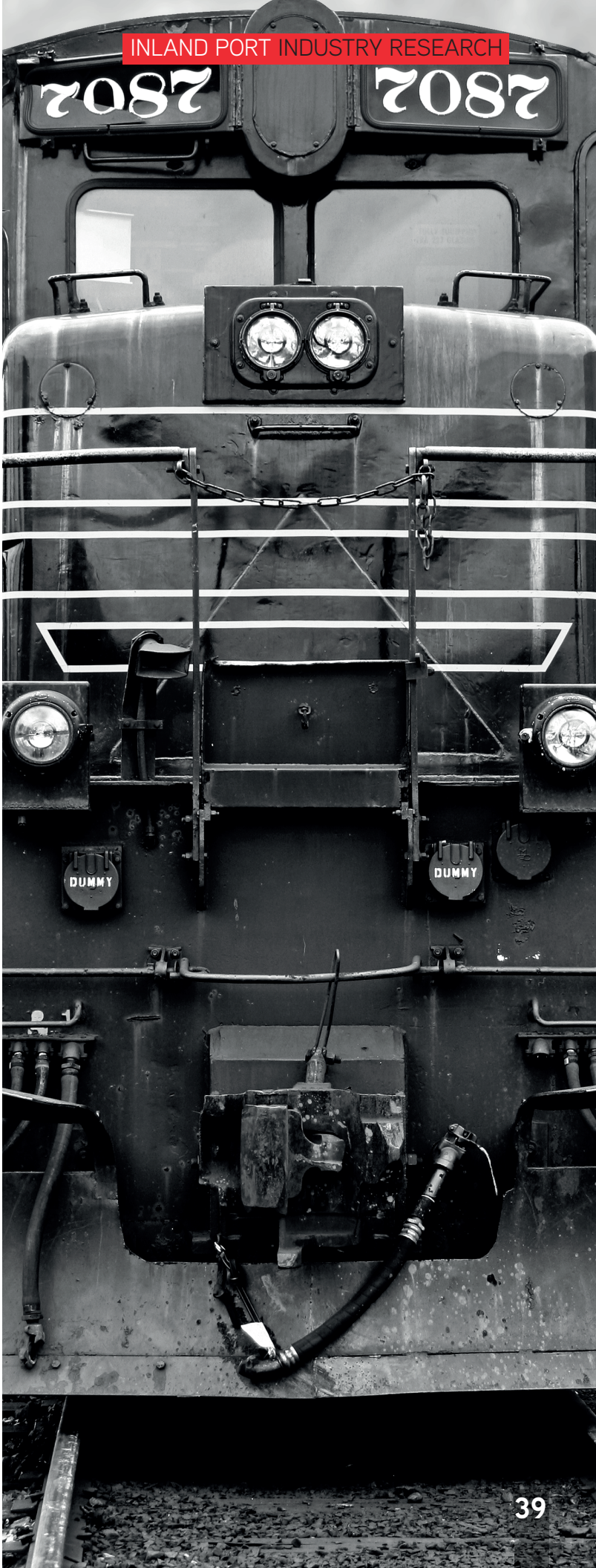
Two policy railings are already in place that Alberta can "plug into." First, Canada's CBSA Single Window integrates 9 partner agencies and 38 programs exactly the multi-agency plumbing inland sites must align to. Second, ocean carriers' e-bill of lading (eBL) push is now on a dated trajectory 50% digital by 2028, 100% by 2030 and industry completed a first standards-based, interoperable eBL in May 2025. Inland nodes that are "e-docs ready" will cut dwell and variability for EU/Asia lanes.



THE 2025 TARIFF SHOCK AND WHY DIVERSIFICATION CAN'T WAIT

In April–July 2025, the U.S. adopted a reciprocal tariff architecture that set a 10% baseline on all imports, with higher, targeted rates by sector and partner; actions were formalized via presidential orders and subsequent modifications. Although a 90-day U.S.–China truce has paused some escalation, tariff levels and exemptions remain fluid. The practical takeaway for Alberta: a single-market strategy now carries policy-risk volatility that can change landed cost overnight.

At the same time, Canada's diversification channels are widening. Global Affairs reports accelerating exports to non-U.S. destinations in 2025 double-digit growth in H1 with CETA and CPTPP providing rule-of-law access points into Europe and Asia TMX is already pushing Alberta energy into non-U.S. markets; Pacific ports have capacity; and digital/documentary pre-conditions are falling into place. The "so what": an inland-first operating model inspection and release inland, origin transload, disciplined appointments, scheduled rail windows matched to berth cycles turns policy access into booked cargo.



WHAT ALBERTA TRADES AND WHAT AN INLAND PORT SYSTEM UNLOCKS

Energy

Crude, RPPs, gas, and NGLs dominate value. TMX's marine path plus non-U.S. buyer interest makes rail-to-vessel timing a new critical capability. Inland hubs that can stage DG-compliant flows, align customs events with cut-offs, and recover quickly from weather/labour incidents convert optionality into sales.

Agri-food

Canola (seed and oil), wheat, barley/malt, beef, pork, pulses are Alberta strengths with natural demand in EU and Northeast Asia. Origin stuffing, cold-chain staging, and trusted-trader treatment inland reduce cycle-time and claim EU/Asia windows as they open.

Manufacturing & Chemical

Machinery, fabricated metals, fertilizers, plastics, and chemicals benefit from bonded warehousing and duty/tax deferral at inland estates; e-documentation reduces variability on higher-value orders.

THE NEAR-FUTURE TRADE ORDER RESILIENCE BY DESIGN

EU, Asia, and Canada are converging on three features of "next-gen" trade:

- Redundant corridors (multiple routings to avoid single-point failure).
- Digital trust (eBL, pre-arrival data, risk-based release).
- Friend-shoring around clear rule sets.

In this world, Alberta's advantage is a multi-node inland network that behaves as one system—several ideally located hubs synchronizing with Pacific trains and sailings, with inland inspection and digital hand-offs that make EU/Asia lanes predictable.

SCENARIO LENS: HOW AN INLAND-PORT NETWORK CHANGES OUTCOMES

(Illustrative; swap in Alberta-specific volumes when available. Arithmetic shown for transparency.)

Scenario 1

U.S. tariff baseline persists; EU/Asia lanes gain value

Assumption

U.S. maintains a 10% baseline tariff through 2026; China-related measures remain volatile. EU/CPTPP access remains stable.

Implication

Alberta exporters face higher landed-cost volatility on U.S. lanes, while EU/Asia become relatively more attractive for eligible SKUs. Inland nodes that are Single Window-aligned + eBL-ready reduce admin dwell by hours per move and make non-U.S. lanes bankable.

Back-of-envelope impact:

If origin transload + appointment discipline saves 12 minutes per truck move and the all-in truck hour is ~$90, per-move saving ≈ $18. At 100,000 moves/year, operating savings ≈ $1.8M, which can be re-priced to offset incremental tariff exposure on U.S. orders or reallocated to open EU/Asia accounts.

If rail dwell falls 1 hour on 50,000 lifts, at $60/hour composite resource cost, ≈ $3.0M in returned capacity/value—enough to support new EU/Asia block-train cadence without additional yard concrete.

SCENARIO LENS: HOW AN INLAND-PORT NETWORK CHANGES OUTCOMES

(Illustrative; swap in Alberta-specific volumes when available. Arithmetic shown for transparency.)

Scenario 2

Escalation: select sectors get targeted (autos, metals, agri-inputs)

Assumption

Sector tariffs rise in the U.S.; retaliatory measures shift Asian buyers toward non-U.S. suppliers; the U.S.–China truce cycles on/off.

Implication

Alberta's agri-food (oilseeds, proteins) and chemicals/fertilizers can gain share in Asia/EU if dwell and variability are kept low. Inland bonded/inward-processing lets manufacturers re-sequence inputs without cash-flow strain.

Back-of-envelope impact:

Inventory carry: If a shipper moves $2.0M/day through the hub, a 1-day lead-time reduction at 20% carrying-cost rate yields $400,000/year in carrying-cost savings—repurposable to price or margin under tariff headwinds.

Safety stock: A 25% drop in lead-time variability reduces safety stock proportionally; across 1,000 SKUs at $1,000/unit with 20% carrying-cost, the annual savings can reach low-seven figures.

SCENARIO LENS: HOW AN INLAND-PORT NETWORK CHANGES OUTCOMES

(Illustrative; swap in Alberta-specific volumes when available. Arithmetic shown for transparency).

Scenario 3

De-escalation: tariffs ease, but reliability premium stays

Assumption

Truce extensions persist; baseline tariffs ebb by 2026, but firms keep diversified footprints.

Implication

Reliability and data-rich corridors still win. Inland hubs that publish simple corridor KPIs truck turn, rail dwell, appointment adherence, compliant-cargo time-to-release crowd in DCs, cold-chain, and export-prep tenants because cost-to-serve becomes legible. (U.S. inland connectors have shown the power of reporting avoided truck-miles to attract tenants; the same logic applies here.)

WHAT ALL OF THIS MEANS FOR ALBERTA

Actions that turn data into bookings

Lock in diversification while the window is open.

TMX and Pacific capacity provide non-U.S. lanes now. Inland inspection/release, origin transload, and scheduled rail matched to berth cycles convert that into commitments with EU and Asia.

Design for policy-risk hedging

A multi-node inland system gives exporters routing optionality when tariffs shift, while bonded/deferral tools protect working capital. In a world of fast policy turns, optionality is worth real money.

Digitize the Hand-Offs

Require candidate hubs to be CBSA Single Window-aligned and eBL-ready from the start; this is how Alberta captures the global shift to paperless trade and cuts variability on long-haul lanes.

Aim investment at the few things that move time

Appointment discipline, staging, yard circulation, and pre-arranged rail slots routinely beat large capex in the first 12–24 months; scale physical capacity in step with demonstrated uptake.

Make Performance Visible

Publish a tight KPI set truck turn time, rail dwell, appointment adherence, time-to-release at corridor level. The clearest inland networks internationally use these to de-risk private capital and accelerate tenant decisions.

The numbers point one way

TMX and Pacific capacity provide non-U.S. lanes now. Inland inspection/release, origin transload, and scheduled rail matched to berth cycles convert that into commitments with EU and Asia.

9. Stakeholder Perspectives

The study's respondent profile confers strong validity to these findings. A clear majority of participants report more than sixteen years of professional experience in logistics, transportation, and international trade with most holding senior decision-making roles. This depth of experience translates into evidence that is grounded in day-to-day operational realities (network bottlenecks, gate processes, customs interactions, equipment cycles) rather than abstract opinion. Practically, the high level of senior engagement indicates existing buy-in across industry segments, which reduces project risk for early-stage inland port development and accelerates adoption once services are offered.

Qualitative comments reinforce three themes: (i) reliability and time-certainty are valued more than nominal rate reductions; (ii) stakeholders prefer phased, performance-led rollouts over big-bang, all-at-once projects; and (iii) clarity on governance, data-sharing, and inspection protocols is a precondition for private investment. These themes are consistent with mature inland-port ecosystems internationally, where multi-node networks grew as operating discipline, service patterns, and shared information matured in tandem.

Respondents span manufacturers, importers and exporters, freight forwarders, 3PLs, motor carriers, and rail-served shippers. Modal use is led by road for flexibility and reach, with rail playing a significant role for long-haul bulk and containerized flows. This dual dependency mirrors other large, resource-based economies and underscores why a well-designed inland port should optimize the rail–road interface rather than privileging one mode. Road remains essential for first/last-mile, regional distribution, construction, and energy field logistics, while rail provides the cost- and carbon-efficient backbone for long-distance corridors.

Geographically, Alberta firms serve Western Canada, the Prairies, Central Canada, and the United States, with growing links to European and Asian markets via Pacific gateways. The breadth of this footprint means that inefficiencies or surges at coastal terminals quickly propagate inland as missed cut-offs, longer dwell, and inventory volatility. Respondents consistently signaled that a coordinated inland solution would act as a buffer against coastal constraints while tightening schedules across the province.

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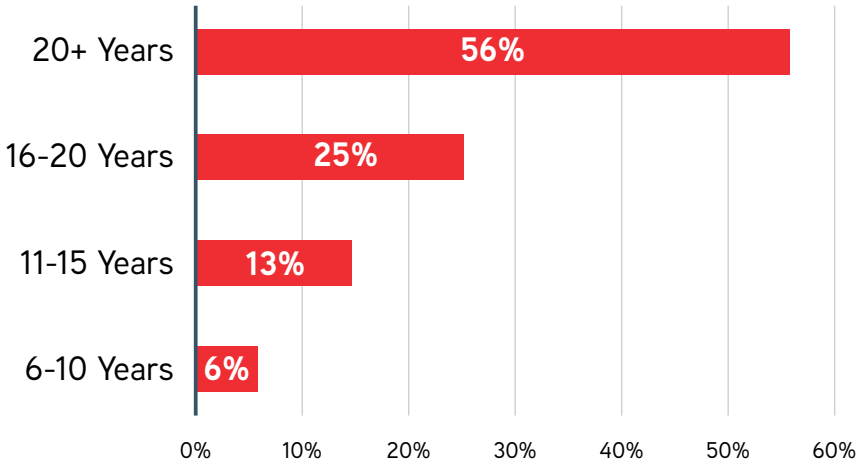
Figure 1: Respondents' experience in Industry



ORGANISATIONAL LANDSCAPE AND TRANSPORTATION DYNAMICS: ALBERTA'S TRADE NETWORK

The project's representation spans a diverse cross-section of Alberta's logistics and trade ecosystem, incorporating manufacturers, transportation companies, importers, shippers, freight forwarders, and exporters. This breadth offers a 360-degree perspective of the province's supply chain realities and competitive constraints.

The data show a pronounced reliance on road transportation (56% as the primary freight mode) and rail (25%), revealing Alberta's dual-mode dependency. Road offers unmatched flexibility and reach, especially to intra-provincial and cross-border markets, while rail provides efficiency for long-haul bulk and containerised cargo. This mirrors patterns observed in other large, resource-based economies, where balanced rail-road integration has been critical for inland port success. For example, Kansas City's SmartPort capitalised on road-rail synergies to expand its hinterland reach and attract distribution-intensive industries.

Alberta's trade flows stretch from the Canadian West Coast to Prairie Provinces, into Central Canada, the United States, Northern Territories, and even the Atlantic Provinces. This geographical spread means systemic inefficiencies have amplified impacts delays or congestion at a coastal port can cascade thousands of kilometres inland, affecting production schedules, inventory management, and market access timelines. These impacts reinforce the urgency of developing inland processing capacity within the province, enabling Alberta to buffer against bottlenecks and position itself as a resilient hub in North American trade corridors.

Figure 2A : Modes of transport in use

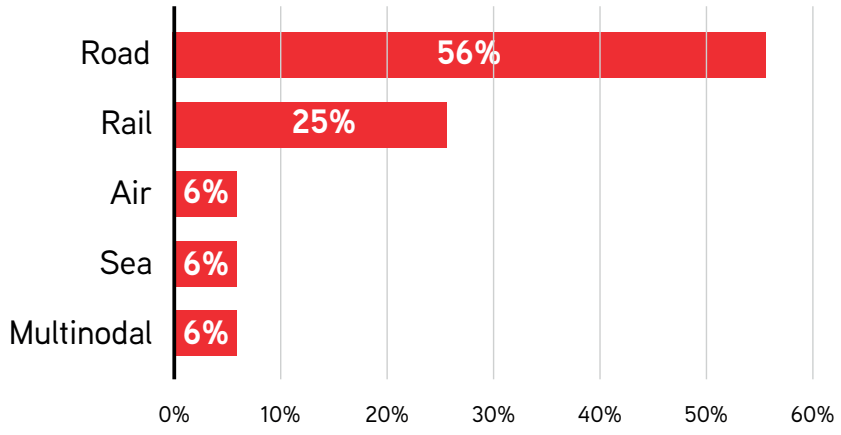


Figure 2B : Quantity of Alberta Exports by Mode (Source: Statistics Canada)

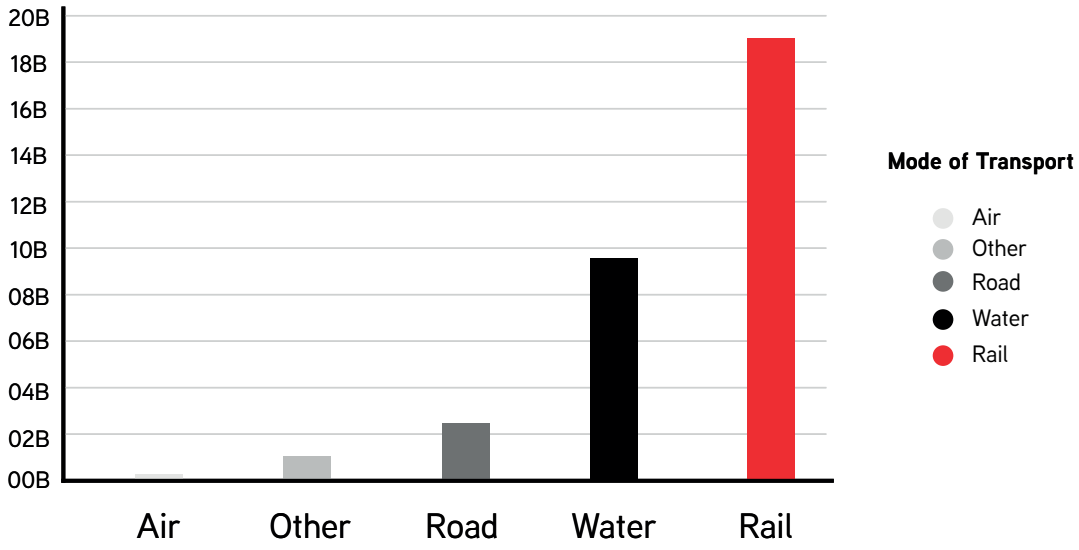


Figure 2C : Value of Alberta Exports by Mode (Source: Statistics Canada)

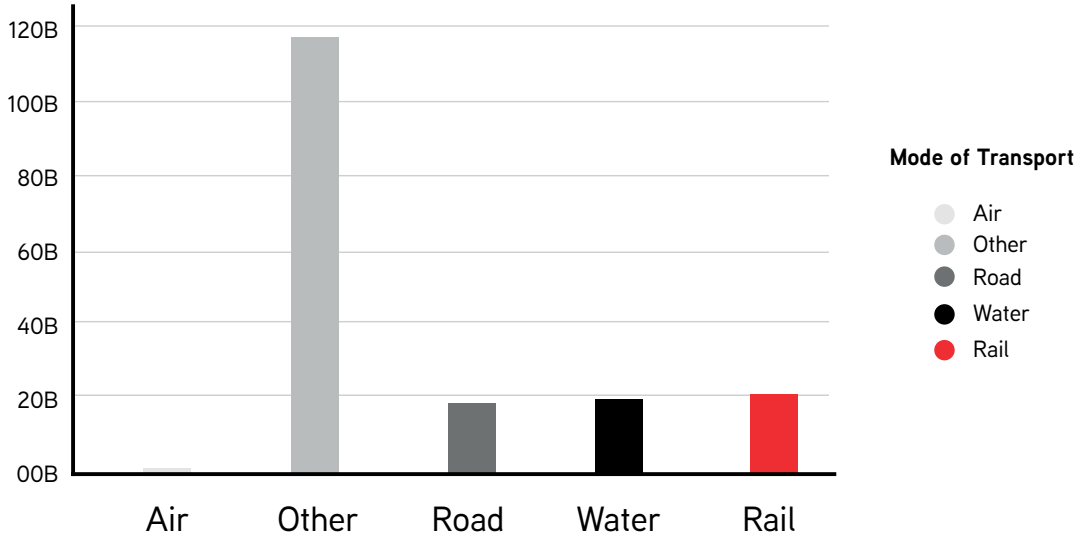
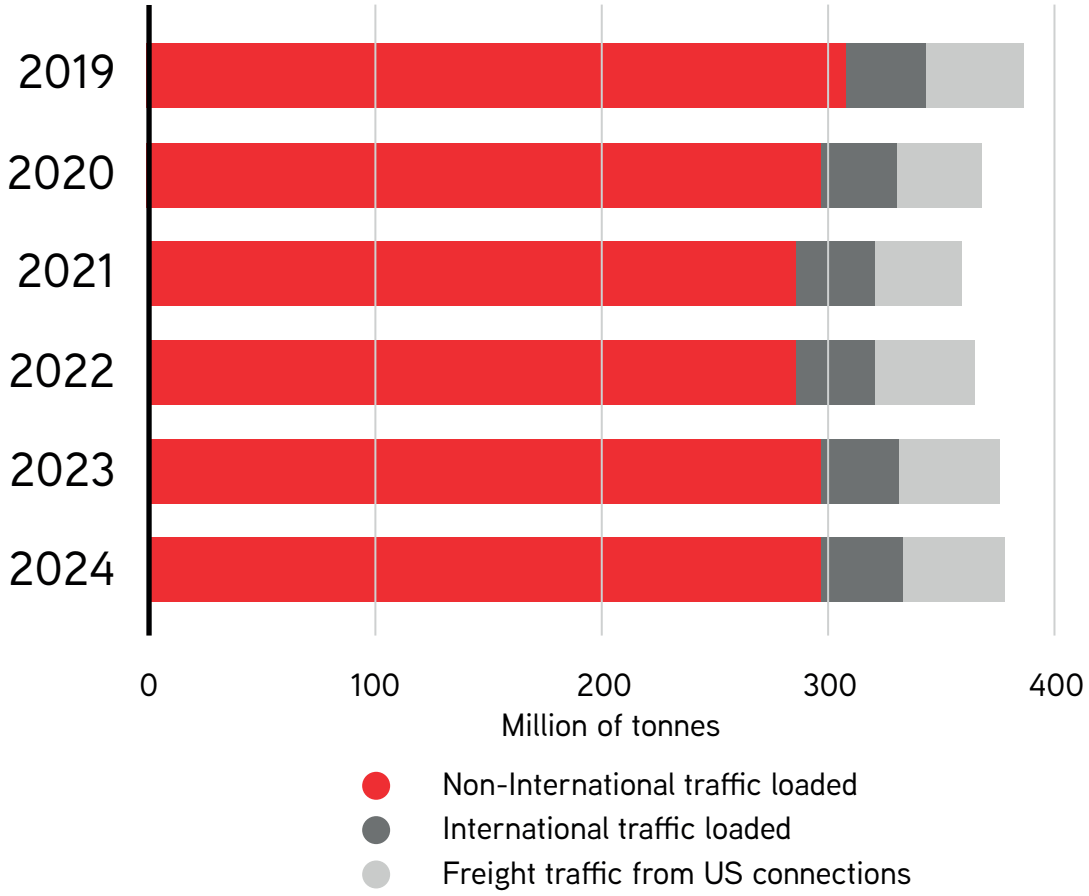


Figure 3: Railway carloadings components, total tonnage, 2019 to 2024
Source : Statistics Canada



This scenario presents a compelling opportunity to incentivise a crucial modal shift towards rail for long-haul freight through inland port development, aligning directly with both economic competitiveness and environmental sustainability goals.

Organisations recognize that an inland port in Alberta directly addresses the inherent inefficiencies of current road-heavy operations by offering a more streamlined, cost-effective, and potentially greener route to major Canadian and international markets.

The wide geographical service area of Alberta businesses further solidifies the argument for a large-scale inland port as a continental logistics facilitator, positioning it as a strategic asset not merely for the province but for national trade infrastructure.

PERCEPTIONS AND FAMILIARITY WITH INLAND PORTS: A RECEPTIVE BUT UNINFORMED MARKET

Survey results show strong commercial receptiveness to inland-port services alongside a notable knowledge gap. A large majority indicate they would adopt an inland port if costs and reliability were competitive, yet relatively few consider themselves deeply familiar with how inland ports function. Cross-tabulations reveal that greater familiarity correlates with higher expected profit improvements suggesting that education raises confidence by making mechanisms tangible (e.g., risk-based inland inspections, appointment-driven gates, origin transload, and digitized documentation).

This pattern supports an early emphasis on education and awareness. A neutral, province-wide program delivered with academic and professional partners can establish a common vocabulary and demonstrate the day-to-day mechanics of inland operations. Short ministerial briefs, case-based seminars, simple quarterly dashboards, and study visits to mature inland hubs would close the knowledge gap and improve uptake of modern trade-facilitation tools.

Figure 4 : Willingness to use inland ports, if made available in Alberta

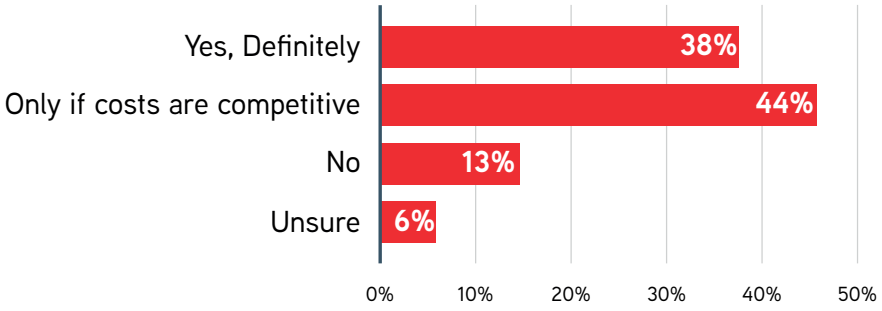
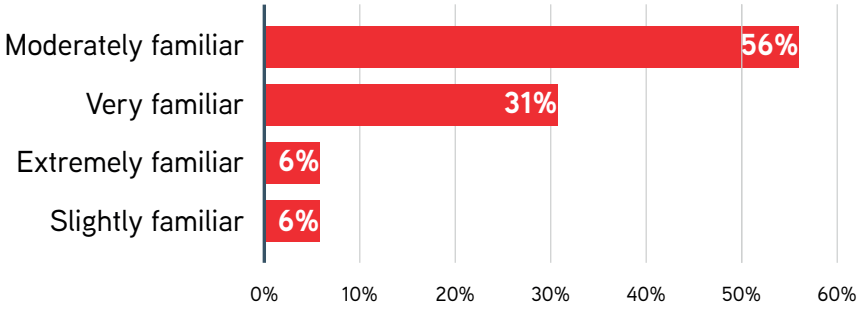


Figure 5 : Respondent familiarity with the concept of inland ports

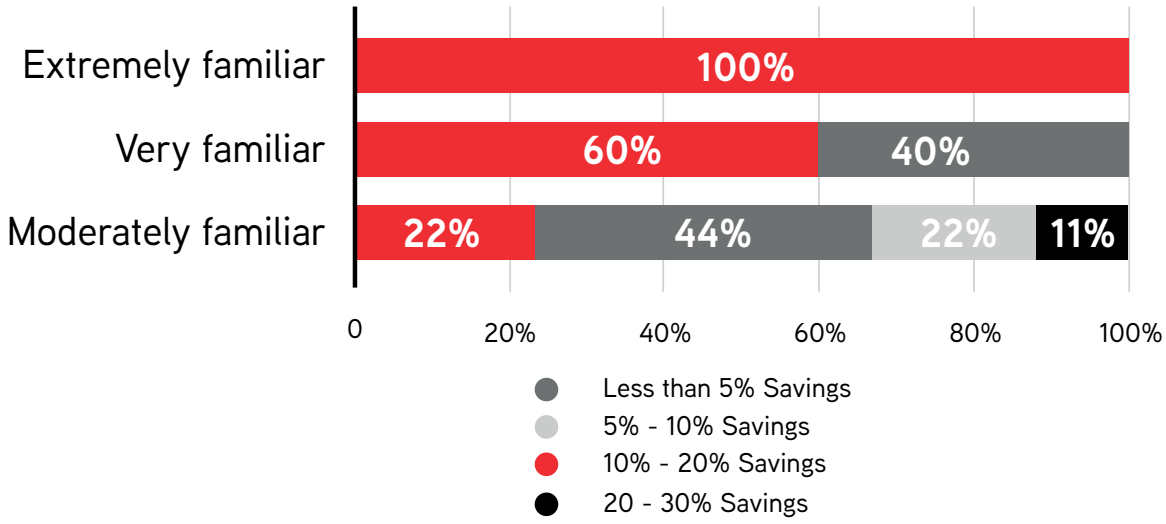


This dichotomy presents both a considerable challenge and a profound opportunity for strategic planning. The high willingness to adopt, even with limited deep understanding, underscores a clear latent market demand for enhanced logistics infrastructure, validating investment in concept development and targeted education. This signifies that while the initial hurdle of convincing stakeholders about the need for efficiency is largely overcome, the subsequent challenge lies in effectively communicating the specific mechanisms and the full spectrum of benefits an inland port offers.

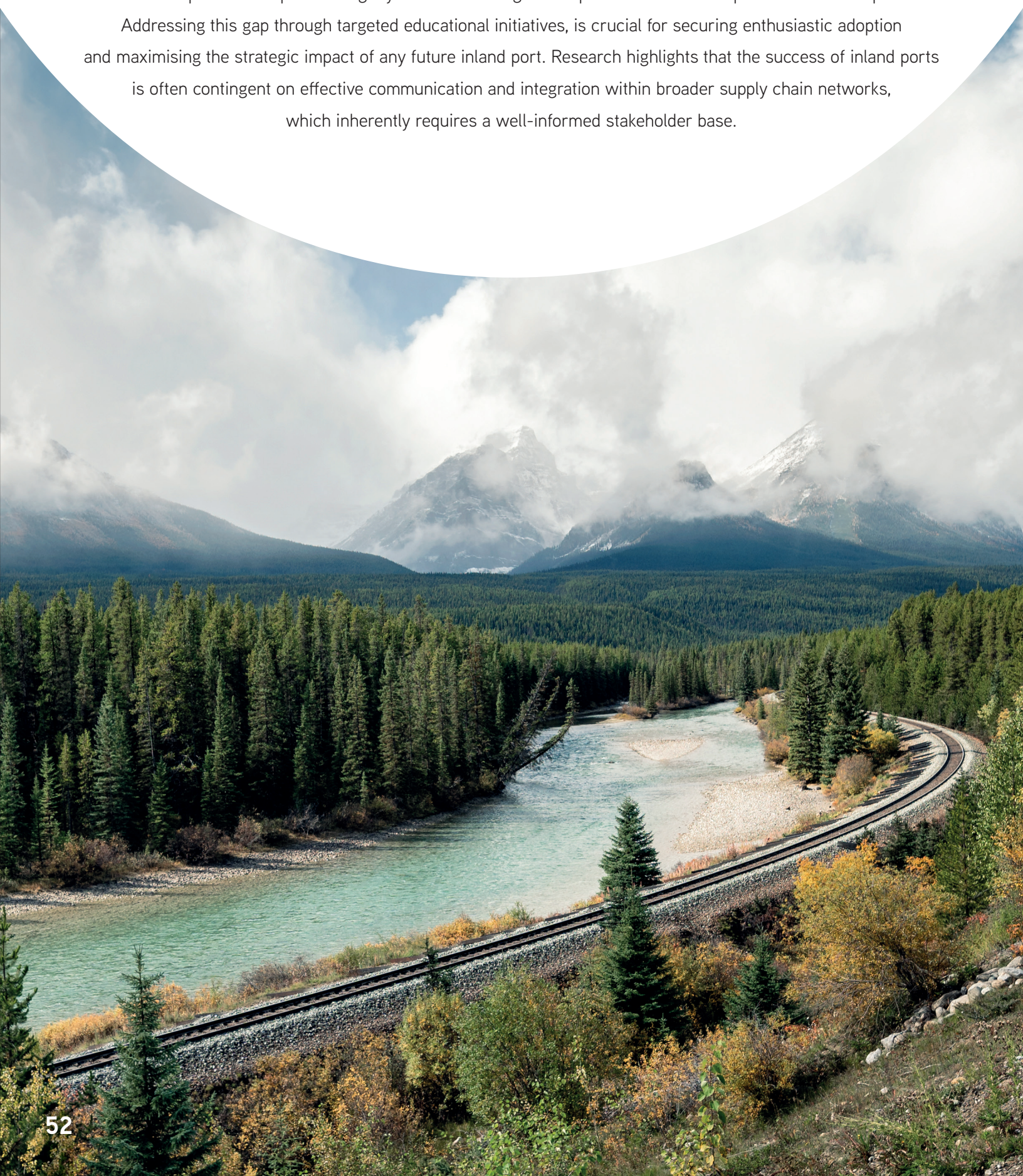
When examining the correlation between respondents' familiarity with the concept of an inland port and their expectations of cost savings from its implementation, an interesting pattern emerged. All respondents who identified as "extremely familiar" with the concept believed that an inland port could enhance their business profits by 10–20%. Among those who reported being "very familiar," opinions were more divided: 40% anticipated a profit increase of 5% or less, while a significant 60% expected profits to rise by 10–20% (Figure 6).

The "moderately familiar" group displayed the widest range of expectations, reflecting more varied perspectives on the potential benefits of inland ports.

Figure 6: Correlation between familiarity with the concept of inland ports and expected profit increases, as perceived by respondents



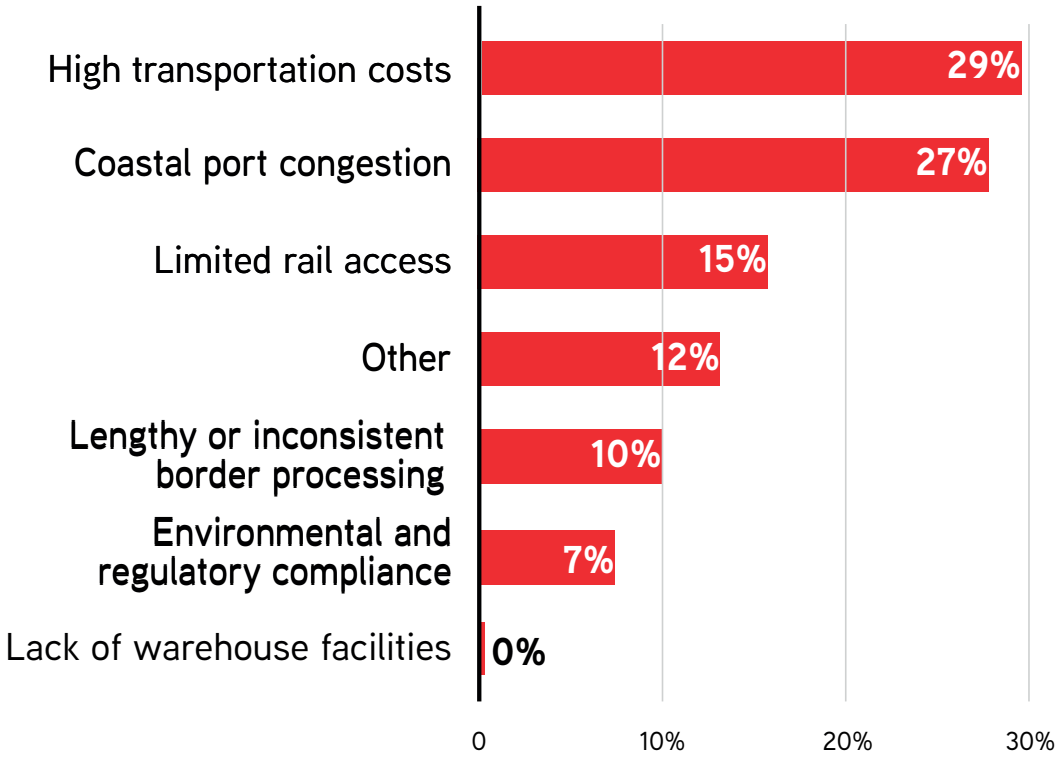
This widespread conceptual ambiguity creates a ceiling on the perceived value and potential of inland ports. Addressing this gap through targeted educational initiatives, is crucial for securing enthusiastic adoption and maximising the strategic impact of any future inland port. Research highlights that the success of inland ports is often contingent on effective communication and integration within broader supply chain networks, which inherently requires a well-informed stakeholder base.



LOGISTICS CHALLENGES: AN INLAND PORT AS A STRATEGIC SOLUTION

The research identified high transportation costs (29%) and challenges with gateway fluidity (27%) as the most pressing logistics issues faced by Alberta stakeholders. Other significant issues included limited rail access (15%) and lengthy or inconsistent border processing (10%).

Figure 7: Logistics challenges faced by business



These challenges are not unique to Alberta; they mirror systemic inefficiencies within Canada's broader supply chain network (Transport Canada, 2020). Statistics Canada's "Survey of Marine Vessel Operators, 2023" corroborates the prevalence of supply chain challenges, reporting that almost three-fifths (57.2%) of marine vessels used for freight experienced issues, including "labour challenges at ports or terminals and delays at ports" (Statistics Canada, 2025).

This directly reinforces the study's findings on transportation network bottlenecks. An Alberta inland port directly addresses two of the most pervasive economic pain points for Canadian businesses: the escalating cost of moving goods and the unpredictable delays encountered within the broader transportation network.

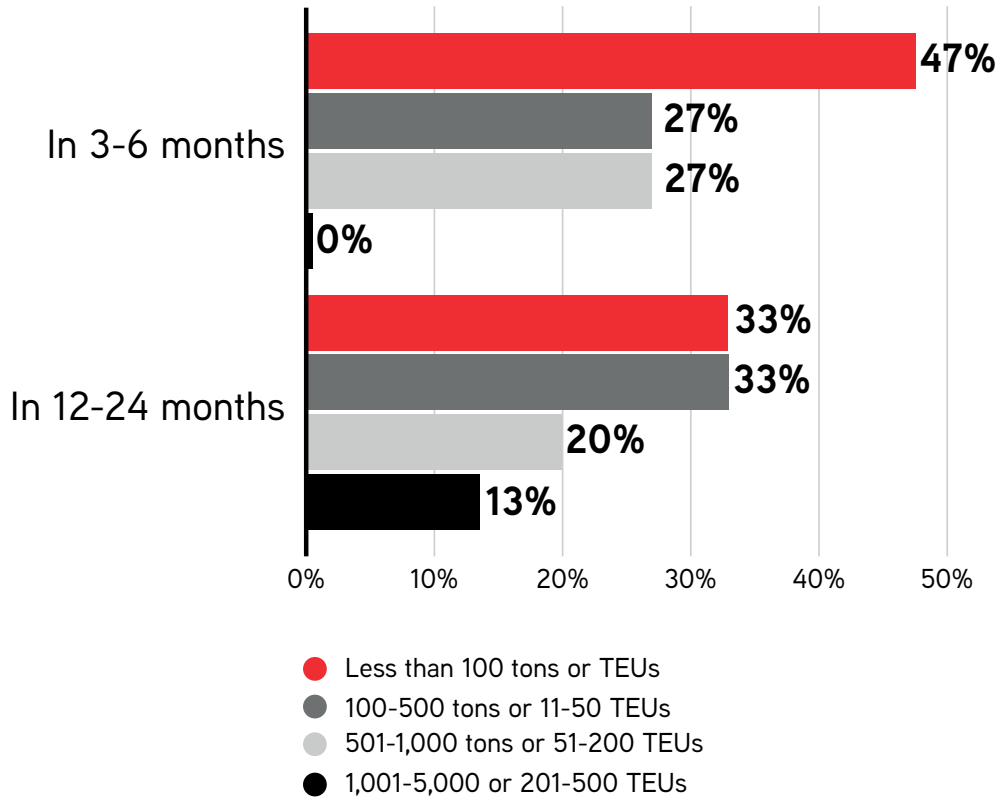
By facilitating efficient intermodal transfers, particularly by encouraging a modal shift from road to more economical and environmentally friendly rail for long-haul movements, an inland port can significantly reduce overall logistics costs for Canadian businesses. Furthermore, by acting as an effective extension of coastal gateways, it can mitigate systemic delays by accelerating cargo flow and providing vital buffer capacity, thereby improving the reliability and fluidity of Canada's trade arteries (ISM World, 2024). This directly contributes to Canada's national competitiveness and supply chain resilience, especially in the face of global disruptions and geopolitical tensions that could impact international trade routes. The reported "moderate negative impact" (50%) from recent tariff threats on supply chain operations further underscores the urgent need for supply chain agility and diversification, which an inland port can provide by diversifying routing options and creating alternative consolidation points.

An Alberta inland port directly addresses two of the most pervasive economic pain points for Canadian businesses: the escalating cost of moving goods and the unpredictable delays encountered within the broader transportation network.

ANTICIPATED IMPACTS OF AN INLAND PORT: LOCAL PROJECTIONS ALIGNED WITH GLOBAL PRECEDENTS

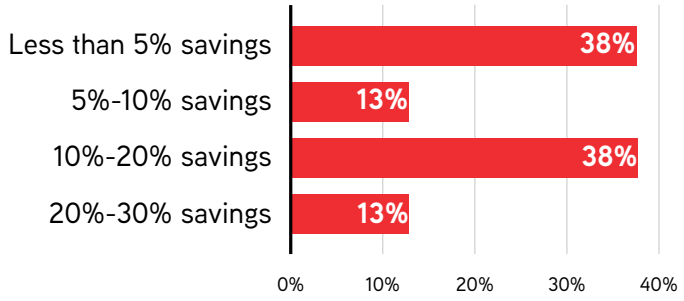
Respondents' anticipations regarding an inland port's impacts offer valuable localised projections that align with global trends. On shipping volumes, initial modest projections for short-term adoption (e.g., less than 100 tons or 10 TEUs in 3-6 months) evolve into more substantial expectations for longer terms (e.g., 33% anticipating 100-500 tons or 11-50 TEUs in 12-24 months), indicating a belief in growing utilisation once the facility is established.

Figure 8: Respondents' anticipated shipping volumes after the inception of an inland port



Regarding cost savings, while 38% anticipated less than 5% savings, an equal proportion projected significant 10-20% savings, notably among those respondents with higher familiarity, reinforcing the concept that deeper understanding translates into higher perceived value.

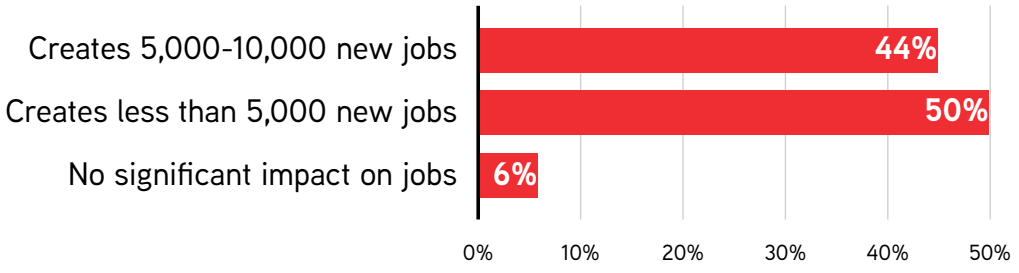
Figure 9: Anticipated increase in saving, as perceived by respondents



This aligns with studies consistently demonstrating that inland ports can yield substantial cost reductions through economies of scale in intermodal transport and reduced drayage (Growing Science, 2023).

For job creation, expectations ranged from fewer than 5,000 new jobs (50%) to 5,000-10,000 (44%), supporting the notion that inland ports are powerful engines for regional employment, not just in direct logistics roles but also through induced economic activity (CTRF, 2016). While 50% anticipated a neutral impact on their business growth, a combined 50% foresaw a moderately to extremely positive impact on business growth and expansion, suggesting a guarded but optimistic outlook.

Figure 10: Anticipated increase in jobs once a port is established



Most significantly, a strong consensus—75% of respondents—believe that an inland port would "somewhat attract investment in logistics and related sectors," while an additional 25% feel it would "significantly position Alberta as a global trade hub." This sentiment reflects more than just optimism; it mirrors a growing recognition of how inland ports serve as catalysts for regional transformation.

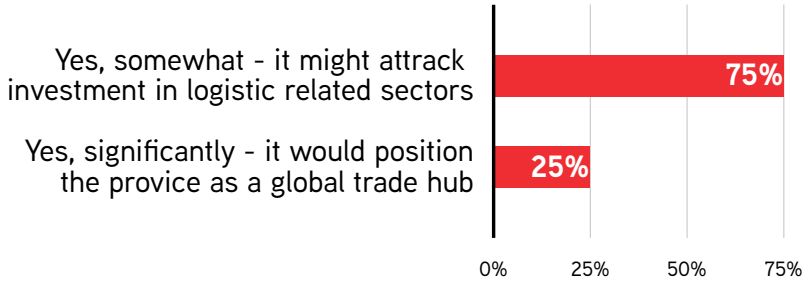


Figure 11: Percentage of respondents who believe FDI will increase as a result of establishing an inland port in Alberta

INLAND PORT INDUSTRY RESEARCH

Globally, inland ports have emerged as strategic infrastructure nodes that not only streamline freight movement but also anchor investment in manufacturing, warehousing, and distribution (Port Economics, Management and Policy, 2022). Their ability to centralize logistics activities, reduce congestion at seaports, and offer reliable multimodal connectivity makes them highly attractive to both domestic and international investors. In this context, Alberta's inland port initiative could play a pivotal role in elevating the province's competitiveness in North American and global supply chains.

Given this outlook, the alignment of stakeholder expectations with global investment patterns signals a timely opportunity for policymakers and economic developers.
By investing in inland port infrastructure and supporting ecosystems such as customs pre-clearance, bonded zones, and digital logistics platforms Alberta can significantly amplify its appeal for foreign direct investment (FDI) and unlock sustained economic growth across the logistics corridor.

These local projections, when viewed through the lens of successful international and Canadian inland port developments, paint a compelling picture of potential economic uplift, translating into tangible benefits such as job creation, increased provincial GDP, and an enhanced competitive edge in attracting and retaining businesses.

The study indicates clear appetite for inland-port services, conditional on reliability, cost competitiveness, and transparent operating protocols. Stakeholders support phased implementation that builds trust quickly and scales with demonstrated performance. Recommendations therefore emphasise location-neutral actions that any qualifying community can implement, sequenced to minimize risk and maximize adoption.

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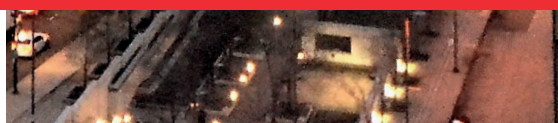


10. Overcoming Challenges: A Pragmatic Approach to Implementation

While the strategic advantages of an inland port are clear, a pragmatic approach necessitates acknowledging the inherent challenges in its development, as corroborated by both the research's emergent themes and extensive academic literature. These include significant upfront capital investment required for infrastructure (rail lines, terminals, warehousing), the operational complexities of ensuring seamless connectivity and efficient container flow, and potential land use conflicts and environmental concerns, particularly in proximity to urban centers.

Furthermore, successful implementation hinges on harmonising diverse regulatory and governance frameworks across federal, provincial, and municipal levels, alongside fostering robust inter-agency cooperation. Critically, as highlighted by this inquiry, merely having the infrastructure is insufficient without a deeply informed user base capable of leveraging its full potential.

These challenges are not insurmountable but require proactive, strategic planning and collaborative effort. This translates into the necessity of establishing clear, supportive policy frameworks, securing multi-year funding commitments, and actively streamlining regulatory processes. It also implies active participation from industry stakeholders in the planning phases, providing specific operational insights, and investing in internal capabilities to adapt to new logistical paradigms.

Learning from the experiences of other Canadian ports (e.g., Port of Vancouver's inland initiatives) and international best practices (e.g., European dry ports) can provide invaluable blueprints for mitigating risks and optimising implementation strategies, ensuring that Alberta's inland port is developed efficiently and effectively.

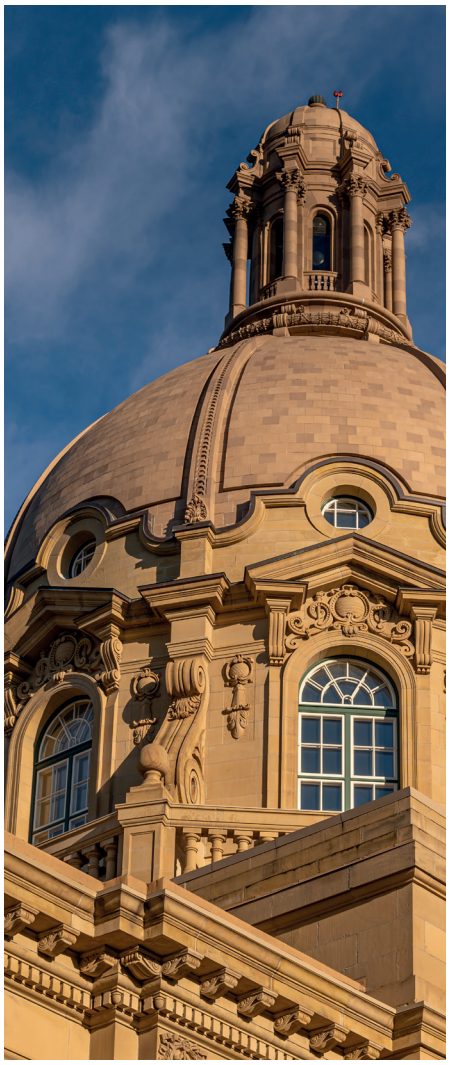
11. Conclusion and Recommendations

Global merchandise trade is operating under overlapping sources of uncertainty: renewed tariff actions and countermeasures, episodic constraints at maritime choke points, climate-related interruptions to canal and port operations, and a rapid—but uneven—shift toward digital documentation and stricter compliance regimes. These forces have raised the premium on reliability, optionality, and transparency in supply chains. For export-oriented jurisdictions, the binding constraint is less "is there a vessel?" than "can we make predictable windows across multiple gateways and keep administrative dwell low," which is why leading regions are re-weighting from single-node assets to coordinated corridor systems.

In North America, the tariff measures announced by the United States in early 2025 have increased delivered-cost volatility and planning risk on southbound lanes, reinforcing Canada's need to diversify both markets and routes. For the Prairies, that means organizing inland operations so they can feed several ocean gateways—Pacific, U.S., and Hudson Bay—with schedule discipline and digitized hand-offs, while remaining legible to private capital. Against that backdrop, Canada's current policy direction emphasizes corridor diversification, improved regulatory clarity, and nationally significant projects intended to enhance trade resilience and competitiveness. Within that broader context, the federal Major Projects Office (MPO) is advancing fast-track processes for selected initiatives, and concept work is underway on a northern, four-season outlet through Port of Churchill Plus.

Taken together, these developments point to a practical need for provinces to organize inland systems so they can connect predictably to multiple ocean gateways—Pacific, U.S., and Hudson Bay—under varying market and policy conditions.

Alberta's best contribution to (and benefit from) this Canada-wide strategy is to present one investable inland corridor—two metropolitan engines (Calgary + Edmonton) with a southern spoke (Lethbridge)—operated under a single, rules-first playbook and designed to interlock with federal projects, notably Churchill Plus.



The case for an inland-port network in Alberta is no longer speculative. Three forces converge to make action both urgent and prudent:

- **Rising policy risk on the U.S. corridor,**
- **The normalisation of disruption at maritime chokepoints, and**
- **The rapid digitisation of trade documents and border processes.**

Together, these signals argue for a policy stance that treats inland processing, scheduling discipline, and digital hand-offs as enabling infrastructure rather than optional enhancements.

The evidence assembled in this study points to a clear conclusion: Alberta's competitiveness now hinges less on single assets and more on the quality of coordination across modes, nodes, and border processes.

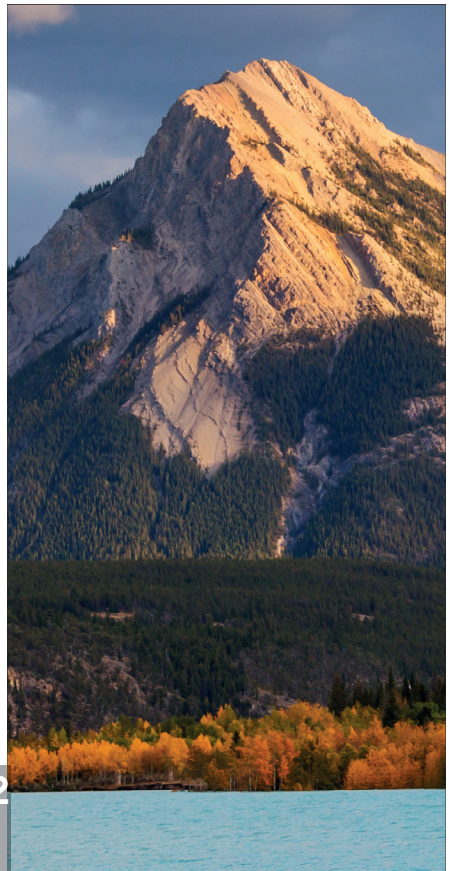
What attracts capital in this sector is not rhetoric but an investable environment: a visible operating playbook (shared inspection options, e-documentation readiness, appointment discipline), standardised permitting templates and protected logistics land, a thin but credible data spine with public KPIs, and a light governance forum that can resolve issues quickly. When those elements are in place, investors can model time and risk with confidence; when they are absent, incentives rarely compensate. The practical implication is that government must lead on policy and institutional scaffolding now—so that when investors run their comparisons, Alberta's value proposition is legible, predictable, and superior to alternatives.

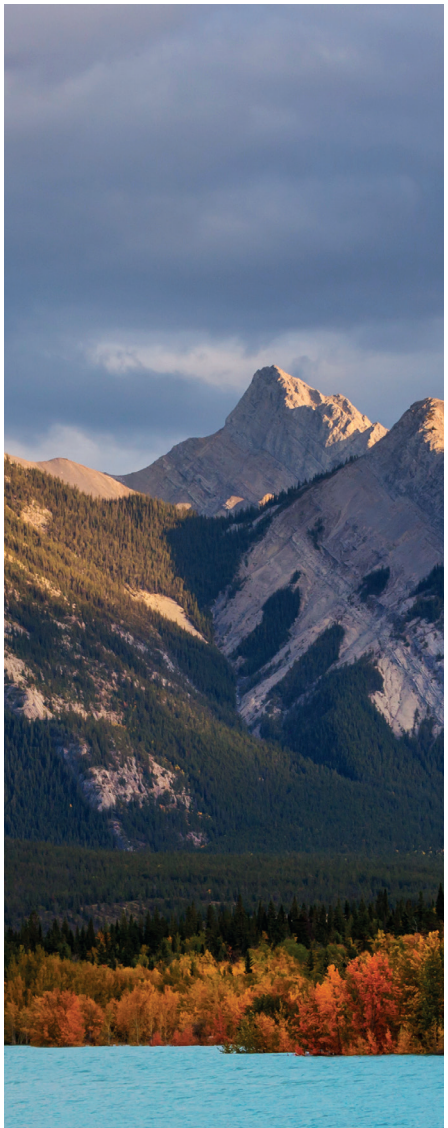
Grounded in the study's findings and prevailing conditions, we offer the following actionable recommendations for Alberta's policy leadership to consider urgent actioning.

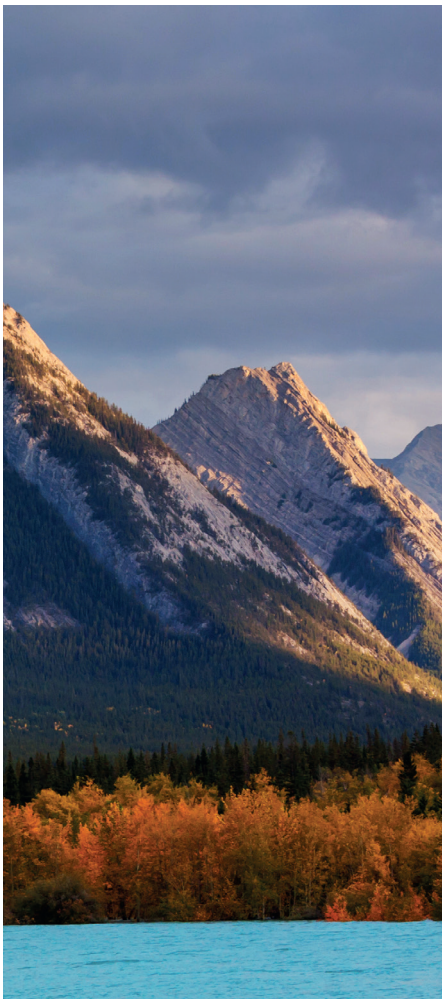
RECOMMENDATION 1

The province to convene a location neutral inland port umbrella agency

It is recommended that the province invites leaders from key stakeholders like Calgary's Prairie Economic Gateway project, Port Alberta (Edmonton Metro), Lethbridge's Western Gateway along with indigenous leaders into a place-neutral operating umbrella (e.g., Alberta Inland Gateway Council - AIGC), so as to signal a single, legitimate locus for decision making and external signalling to potential investors. The aim isn't a new megaproject; it's to make existing assets legible to investors as one corridor with predictable windows to Pacific sailings and—when the economics and policy favour it—through-routing to Churchill for EU-bound cargo and/or existing port corridors to Prince Rupert or Vancouver. While the establishment of a province led AGIC will significantly boost investor confidence in Alberta as an investment ready jurisdiction, it will also align with federal expectations that provinces co-ordinate on corridor rules, not just sites. The establishment of the AGIC also prepares Alberta to be ready to leverage trade opportunities off the Churchill corridor, as and when it becomes operational and viable.







RECOMMENDATION 2

AIGC to stand up a time-boxed Provincial Policy & Strategy Steering Committee

Once established, the AGIC to stand up a "Provincial Policy & Steering Committee" (PPSC) with representation from agencies like Alberta Jobs, Economy & Trade; Transportation & Economic Corridors; Treasure Board & Finance; municipal leads and/or their economic development agencies from Calgary/ Edmonton /Lethbridge; key logistics stakeholders like CPKC, CN, EIA, Calgary Airports, major 3PLs like Bison & Trimac etc.; Supply Chain Canada; and neutral academic expertise via Mount Royal University's Transportation & Logistics (T&L) Hub (secretariat) with other university labs and Indigenous economic-development partners.

The secretariate at MRU's T&L Hub, with support from partner agencies like Supply Chain Canada – West, shall convene the PPSC operations to manage cadence and agendas, maintain the issue log, and handle escalations; facilitate MOUs among provincial ministries, municipalities, Indigenous economic-development entities, logistics organisations, and key 3PLs to formalize participation; and adopt a brief Terms of Reference setting out decision rights, quorum, conflict-of-interest provisions, escalation pathways, and transparency norms. The PPSC shall prepare a 6-month work plan and public facing messaging and information sharing plans, for the consideration of and approval by the AGIC.

The PPSC to publish version 1.0 of an "Operating Playbook," that shall establish early scopes, objectives, KPI frameworks, stage-gates (concept pilot scale), and program governance.

The PPSC will be free to examine the value of inviting Manitoba/Churchill observers (Crown-Indigenous vehicle, Hudson Bay Rail, northern marine/ icebreaking) where interfaces matter—so that eastbound "playcards" are co-designed, not retrofitted into the Alberta inland port policy.

The committee should be small enough to decide, broad enough to be legitimate.

RECOMMENDATION 3

PPSC to stand up time-boxed working groups

Since major logistics investors rank jurisdictions before they call, the PPSC shall prepare Alberta to be visibly investor ready. Alberta's advantage will come from a visible operating playbook, standard permitting templates, protected logistics land, and thin but credible corridor metrics conditions. With these in place, investors can model time and risk; without them, capital will select other jurisdictions south of the 49th parallel. To further the province's role as a leader on policy and enablement, so private commitments follow, PPSC to stand up working groups (WG) in the following three areas:

- Capital Investment & partnering
- Permitting & land use
- Operations & Data

These three WGs shall be deployed by PPSC to help publish initial, high-level positioning on key issues like:

- setting up of a "Land Register" (protected parcels; zoning status; utility envelopes)
- a policy stance on protected logistics land,
- designing of a "Permitting Kit",
- compiling a "KPI dictionary", and
- establishing "Incentive Principles" for stakeholders.

All of these policy documents (and others as identified by the PPSC during the course of its discussions with stakeholders) shall help Alberta create a very important marketing package for sharing with its potential investors in the inland port ecosystems- the "GATEWAY Pack"— Governance, Approvals, Templates, Eligibility, Workflows, Assets, Yardsticks.

The GATEWAY Pack is what the AIGC can then use to convene investor interest in Alberta and to present a strong case to potential investors for considering Alberta as a viable inland port investment.

RECOMMENDATION 4

PPSC to setup educational and awareness campaigns.

Once the GATEWAY Pack is ready and handed over to the AIGC for consultations and approval, PPSC to focus its attention towards developing a common language around inland ports within key Albert stakeholders. Despite their growing importance in global supply chains, significant misconceptions persist, particularly the confusion between a comprehensive inland port and a more limited logistics terminal yard. These misunderstandings impede investment, stakeholder collaboration, and public support, preventing the full realization of the economic and logistical benefits inland ports offer.

SMEs, policy leaders across sectors, major shippers, carriers and community/business leaders need to fully grasp what an inland port is truly capable of. Therefore, there is a critical need for investment in educational and awareness initiatives concerning inland ports.

Regional policymakers, and businesses often fail to grasp the scale and multi-faceted nature of an inland port. They may view a proposed inland port project as just another simple rail yard or a logistics terminal, underestimating the potential for a large-scale, integrated logistics hub that includes value-added services like customs clearance, warehousing, and distribution. Without a comprehensive understanding of the inland port model, investment decisions may be poorly informed. For example, focusing solely on a terminal yard's functions overlooks the more significant revenue streams and efficiencies gained from offering a full suite of services, such as Foreign Trade Zone privileges and extensive warehousing. This can lead to projects that are either underutilized or failing to reach their potential as regional economic drivers.

To foster a comprehensive understanding of inland ports, a multi-pronged educational strategy is needed. This initiative would involve creating short primers, titled "Inland Port 101," for ministers and councils, alongside sector-specific webinars tailored to exporters and third-party logistics providers. Key operational details, including FAQs on appointments, inland examinations, electronic documentation, and border procedures, would be made readily available. Further enriching this effort would be a deep-dive, case-based analysis of successful peer systems, such as those in Greer/Dillon–Charleston, Duisburg, Venlo/Rotterdam, and ARP–Savannah, examining the factors contributing to their viability and identifying common pitfalls.

RECOMMENDATION 5

PPSC to commission a "Place-neutral geolocation & network design" study

Multi-node "one port, many sites" models are common worldwide and provide a strong precedent for designing an inland port as a coordinated system across nearby cities. In the U.S. Southeast, South Carolina Ports operates two inland ports—Greer on the I-85 corridor and Dillon on the I-95 corridor - presented as a single port value proposition rather than standalone sites. In Scandinavia, the Port of Gothenburg brands a nationwide network of ~26 inland terminals as Railport Scandinavia, integrating customs, storage, empty depots, and scheduled rail under one port identity that spans multiple municipalities (and reaches into Norway/Finland). The Port of Virginia likewise treats the Virginia Inland Port (Front Royal) and other inland facilities as components of a single port system linked by rail and barge to its coastal terminals.

On the Rhine, Port of Switzerland (Swiss Rhine Ports) is a unified authority for three adjacent river ports—Basel-Kleinhüningen, Birsfelden, and Muttenz—marketed and managed as one logistics hub handling ~6 million tonnes and >120,000 TEU annually. Several U.S. inland districts formalize multi-node governance across entire metro regions: the Ports of Cincinnati & Northern Kentucky span 15 counties and 226.5 river miles under one jurisdiction; the Port of Metropolitan St. Louis coordinates five public ports over 70 river miles; and the Port of Pittsburgh covers 13 counties and 200 navigable miles with ~200 terminals—each branded as one "port" despite many nodes.

Beyond North America, France's HAROPA PORT is a single authority created by merging Le Havre, Rouen, and Paris into one Seine-axis river/sea port—an explicit "one port, many nodes" model across multiple cities. And in a statewide inland context, the Utah Inland Port Authority administers multiple project areas—urban and rural—under one brand and rule-set, demonstrating how a programmatic, multi-node inland port can be governed at scale.

Together, these cases show investors and shippers respond well when dispersed assets are organized under one operating identity with shared rules, schedules, and KPIs—a directly transferable template for positioning an Alberta inland port as a coherent multi-node corridor spanning Calgary, Edmonton, and Lethbridge.

Hence, alongside its initiatives to support education and awareness around the concept of inland ports, PPSC to commission a time-boxed, transparent "geo location & network design" study that is rooted in established methods of site selection. This study shall consider factors like rail mainline proximity/capacity, highway rings, airport interfaces, contiguous land, utilities & DG envelopes, labour catchments, inspection logistics, and climate resilience to arrive at a "primary-hub + complimentary sub-locations" map for the Alberta Inland Port Corridor and an implementation roadmap for such an integrated approach.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International practice explains why this multi-node design outperforms single-site models. First, frequency economics favour multiple well-sited origins feeding scheduled rail shuttles: pooled demand across nodes raises departure certainty and cuts dwell variance, which is precisely how the twin inland ports in South Carolina sustain daily, dedicated service to Charleston and scale rail lifts after yard upgrades (Greer is now engineered for ~300,000 rail lifts per year; Dillon provides a second scheduled origin).

Second, network resilience improves when volume and functions are distributed: if a local incident or surge constrains one node, shippers retain a schedulable alternative within the same operating rule-set.

Third, role specialization lifts productivity—airport-adjacent nodes lean into time-definite, high-value and cold-chain flows; rail-anchored nodes emphasize high-throughput transload and DG-compliant staging—mirroring the Rotterdam–Limburg corridor where interior terminals (e.g., Venlo, Born) cooperate with deep-sea ports to reduce road-kilometres and CO_2 while preserving predictable windows inland. A similar logic underpins the Appalachian Regional Port in Georgia, where each round-trip container shifted to rail avoids ~710 truck-miles, freeing scarce highway capacity and stabilizing schedules as shuttle frequency increases. These are not isolated anecdotes but recurring features of mature inland systems: frequency from pooled demand, resilience from distributed capacity, and efficiency from explicit role clarity under shared data and inspection routines.

Put differently, a two-node, one-system approach de-concentrates risk while concentrating reliability. It allows the province to stage capital against measured improvements (minutes and variability on the corridor KPI card), to mutualize rail shuttle frequency across catchments, and to convert small operational gains—fewer missed cut-offs, tighter appointment adherence—into bankable performance for exporters re-weighting toward Europe and Asia. The net effect, demonstrated repeatedly in the EU and U.S. Southeast, is higher service frequency, better on-time performance, and a broader spread of benefits without zero-sum rivalry—exactly the operating conditions an inland gateway needs to attract private tenants, sustain scheduled rail windows to Pacific sailings, and hedge tariff-driven shocks on North American lanes.

Designed as a multi-node, rules-first, and data-visible corridor system, Alberta's inland gateway converts policy access to Europe and Asia into booked cargo, turns tariff risk into a manageable variable, and channels the complementary strengths of its metropolitan regions into one coherent, investable network.

Limitations of the study

Findings reflect the perspectives of a highly experienced but self-selecting respondent pool. While seniority improves validity, it may over-represent larger shippers and operators relative to SMEs. The survey captures views at a point in time and does not replace detailed site engineering, environmental assessment, or full market absorption studies. Reported international analogues offer directional guidance but require local calibration.

Priority areas for further inquiry —the case for follow-on studies

The consultation that underpins this report is rich in experience but, as noted in the limitations, it reflects a self-selecting group, skews toward senior decision-makers, and may over-represent large shippers and operators relative to SMEs. It captures perceptions at a point in time, and it cannot substitute for detailed engineering, environmental assessment, or full market-absorption analysis. International examples cited here are instructive, yet they remain directional until calibrated to Alberta's specific geography, labour markets, regulatory context, and Indigenous partnerships. With those caveats in view, a follow-on programme of work should aim less to prescribe outcomes than to assemble the common evidence base that allows government, industry, and communities to move together with confidence.

ENABLERS & BARRIERS TO SUCCESSFUL INLAND PORTS ESTABLISHMENTS

A dedicated study on enablers and barriers is warranted because most inland-port initiatives rise or fall on non-physical factors—rules, roles, permits, data, and operating discipline—rather than on acreage alone. International precedents show that successful systems pair the right sites with a light but credible governance model, clear decision rights, predictable permitting and land protections, scheduled rail windows, and digitized hand-offs (customs/e-documentation). Projects that stall tend to face fragmented authority, uncertain time-to-permit, weak access to rail slots, misaligned incentives, and community concerns around traffic, land use, or equity participation.

A systematic inquiry will separate what is necessary from what is merely nice to have, and will surface the practical pre-conditions for private uptake and durable public value. The proposed study would build an evidence-based playbook tailored to Canadian/Alberta conditions but informed by global practice. It would map the institutional enablers (governance options, RACI/decision rights, inter-municipal MOUs, Indigenous partnership and equity pathways), the regulatory enablers (standardized permitting envelopes, protected logistics-land stance, environmental and DG routing norms), and the operational enablers (appointment discipline, yard/slot protection, rail window agreements, inland inspection readiness, Single-Window and e-BoL alignment, data-trust principles). In parallel, it would catalogue barriers that repeatedly derail projects—land assembly frictions, inconsistent LCV/weights-and-dimensions rules, last-mile interchange constraints, warehousing tightness, border/administrative dwell, financing and O&M uncertainties, skills gaps—and link each to a realistic remedy and an accountable owner.

Methodologically, the work would combine (i) a comparative review of multi-node inland systems (e.g., South Carolina's Greer/Dillon, Port of Virginia's inland network, Railport Scandinavia, Swiss Rhine Ports, Cincinnati–Northern Kentucky) to distill transferable lessons; (ii) stakeholder interviews and roundtables across shippers, carriers, terminal operators, municipalities, Indigenous economic-development entities, and regulators to validate feasibility conditions; (iii) a policy and permitting scan to standardize templates and timelines; and (iv) an operational readiness assessment to identify the minimal digital/inspection stack required for day-one reliability. Outputs would include an Enablers–Barriers Matrix (with risk, remedy, and owner), a Readiness Index and heat-map by potential node, a model Terms of Reference for a steering committee/secretariat, standard permitting and land-readiness checklists, a data-governance blueprint for a thin operational spine, and a stage-gate roadmap (concept to pilot to scale) with KPI thresholds. Together, these deliverables give policymakers and investors a clear, shared basis for decisions—and a practical path to move from interest to investment.

TARIFF SCENARIOS AND FRIEND-SHORING RESILIENCE

Tariffs and routing risks are not static; they shift with policy cycles, supply shocks, and partner responses. A disciplined scenario exercise should therefore test three plausible paths—persistence, escalation, and partial easing—and quantify how each would re-weight lanes (Pacific, U.S. southbound, Hudson Bay/EU), affect time-to-sailing and missed-cut risk, and change working-capital exposure (inventory days, duty/tax cash-flow). For each path, the analysis should specify the trade-facilitation levers that preserve schedule discipline and liquidity: Single-Window pre-lodgement, e-BoL and data-sharing triggers, inland exam options, bonded warehousing and duty deferral, and inward-processing relief where applicable. Because survey evidence is time-bound, the scenario frame should be modular and refreshable—updated quarterly with new tariff/throughput signals—and sensitive to firm size, since SMEs often face tighter cash constraints and greater documentation friction than larger shippers. The practical output is not a static report but a set of pre-agreed operating playcards—clear triggers, contacts, and documentation paths—that convert market access into bookable routings the week conditions change.

WORKFORCE PIPELINE ALIGNED TO AN INLAND NETWORK.

As operations formalise and digitise, the skill mix evolves from purely operational roles toward mechatronics, yard planning, inspection and compliance analytics, and data/IT functions that support appointments and electronic documentation. A workforce inquiry, led with academic partners and employers, should map this transition by region and by node type, with explicit attention to SME needs, rural catchments, and equitable access to training (including Indigenous participation from inception). The aim is to identify sequencing and gaps, not to commit institutions prematurely to specific programmes.

DATA GOVERNANCE AND THE PATH TOWARD A PORT COMMUNITY SYSTEM

Multi-node systems function when a small set of shared operational events (gate status, rail cut-offs, customs holds/releases, appointment adherence) is visible to those who need it, and when documentation can move without friction. An options paper should explore a measured pathway to a neutral data-trust and, over time, a Port Community System—one that is thin by design at the start, aligned with national border systems, and capable of gradual expansion. In light of the survey's composition, this work should explicitly test governance choices with SMEs and community stakeholders to ensure that participation is practical and that privacy and commercial sensitivities are respected.

Taken together, these inquiries respond directly to the study's limitations: they broaden the lens beyond a senior, self-selecting respondent pool; they replace point-in-time impressions with analysable, repeatable evidence; and they create the interface to engineering, environmental review, and market-absorption analysis without foreclosing those processes. Commissioned under a neutral convenor and undertaken with open participation from industry, municipalities, Indigenous partners, and federal observers, this follow-on work would not pick winners; it would build the shared factual ground on which sound, timely decisions can be made.

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