Intermodal at the Crossroads

Leader of the "Growth Pivot"

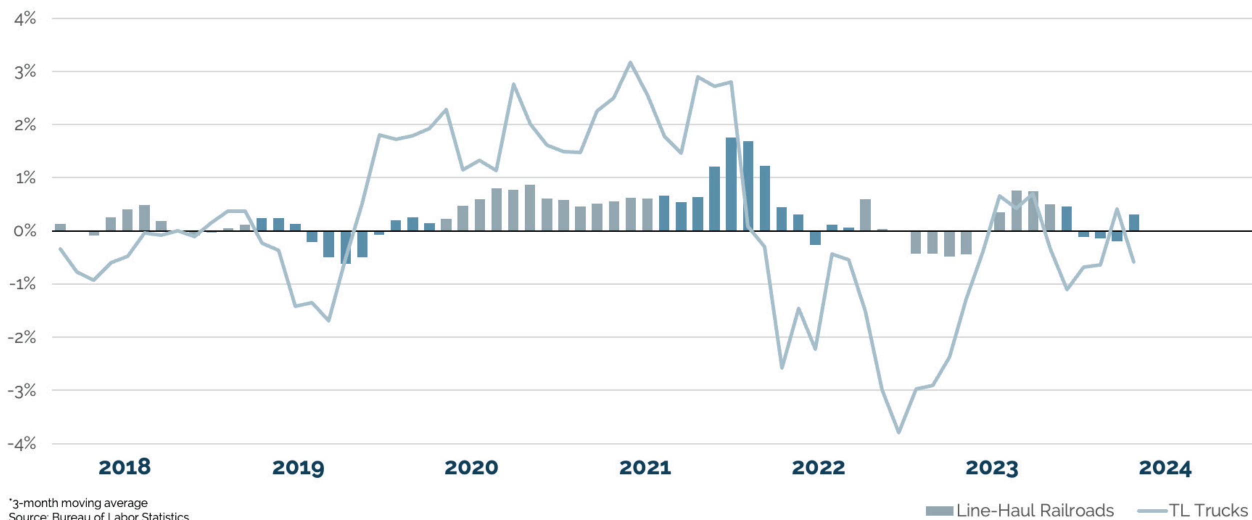
Anthony B. Hatch

Introduction

This report will attempt to explain and analyze the past ten years, what differed from our previous reports and why, and then give some thought to where intermodal could go in the next ten years. This will cover the North American intermodal network in its entirety, and not evaluate individual carrier's strategies; nor will it cover the short-term effects of current events such as labor situations. Instead, it will analyze the prospects of the North American intermodal network over the long term.

Truck Rates Are Down

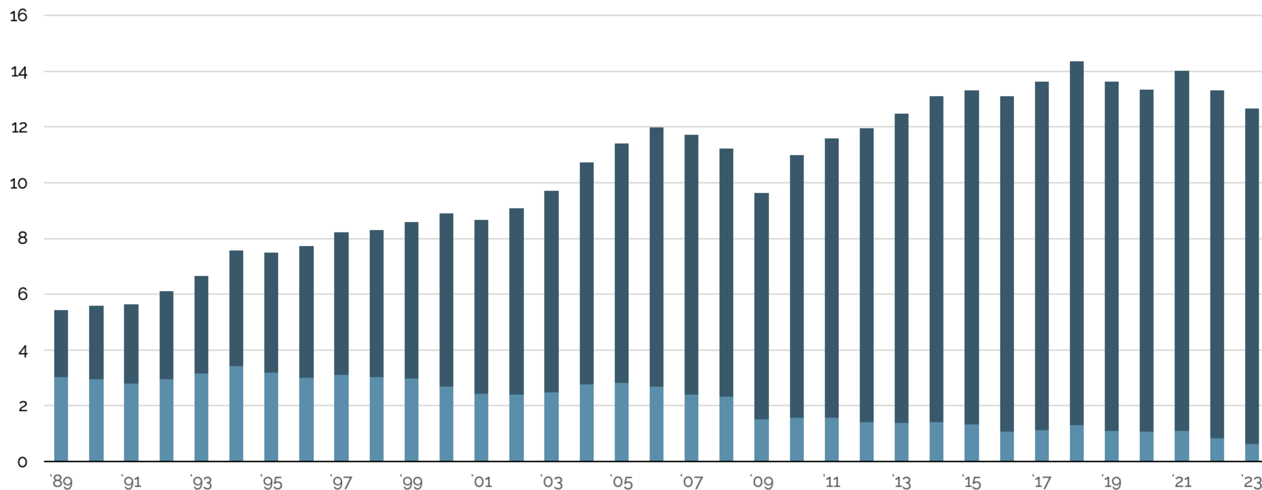
Month-to-Month Change in the Producer Price Index*



This report is based on publicly available data from the Intermodal Association of North America (IANA), Asociación Mexicana del Transporte Intermodal (AMTI), Association of American Railroads (AAR), Surface Transportation Board (STB), Department of Transportation (DOT), and various company reports and webcasts, interviews specific to this report and those at various shipper/rail intermodal meetings over the past months. Special thanks to Larry Gross, TTX, Peter Burke (Rice University Class of '29) and the carriers and consultants listed (or in some cases not) in my "Methodology" section.

Huge Intermodal Growth

Millions of containers and trailers

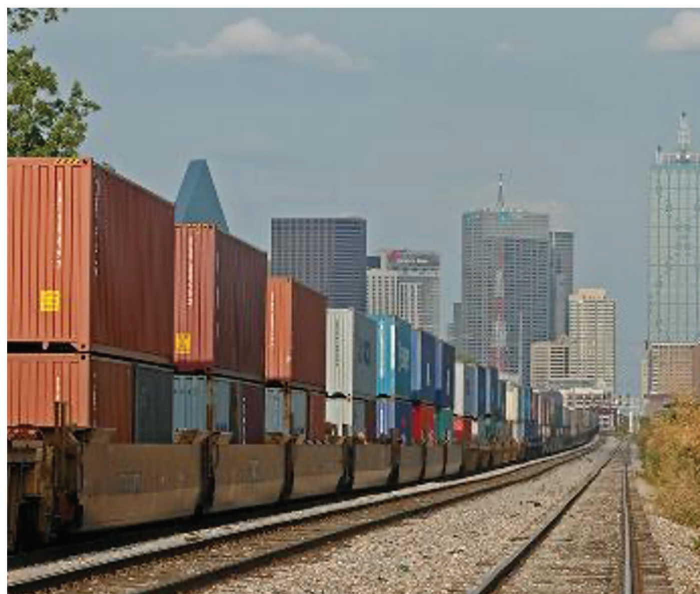


Data are originations and do not include the U.S. operations of CN, CPKC, and GMXT. Source: AAR Rail Time Indicators

The first intermodal report of this "series", from 2002, was "*The Value of Intermodal to the U.S. Economy*", written by Thomas Brown and me. Despite being rather provincial – all rail but particularly intermodal is border-blind – it was an interesting introduction aimed at the less or perhaps fully-uninitiated about this exciting segment, focusing largely on externalities (road congestion, driver shortages, globalization, the rise of Big Box retail - and even as far back as '02- environmental benefits) and internal factors (railroad capital expenditures, public/private partnerships like the Alameda Corridor in 2016, the last R/R run was on August 25) and called for modal fairness in policy (still an issue). Finally, we predicted the "crossover date", when intermodal would surpass "King coal" as the largest commodity, would be the following year. Surprisingly, that came as a shock to many observers when it occurred, although coal would stay in the fight until about 2014.

Characteristics of Strong Intermodal Corridors

1. Sufficient capacity to keep trains moving
2. Long enough to compete with trucks
3. Sufficient volume to keep unit costs competitive
4. Strong highway feeder system at each end and at intermediate terminals



In 2014, with Tom Brown now at Union Pacific, our updated white paper was sponsored by the AAR and IANA entitled "*Ten Years After – The Second Intermodal Revolution*". In the twelve years since the first report, the railroads have engineered their "renaissance", gained pricing power, and become the darlings of the financial community – all while intermodal led all commodities in growth and became the largest rail commodity by volume and by revenue. In 2012, intermodal was the first commodity to recover from the effects of the Great Financial Recession. By 2014, at close to the peak of globalization and concurrent success in international intermodal, we saw "the groundwork being laid for…the domestic segment to truly take off." I acknowledged the issue of margin, with intermodal inflating the overall Operating Ratio (OR) but also noted that:

> In the period 2003-07 Burlington Northern Santa Fe (BNSF) and Canadian National (CN) were the two best stocks in the rail group, which overall easily surpassed the overall market in that period. But in that group of outperformers, why did CN and BNSF stand out? CN was lauded for its OR improvement, but BNSF, growing its intermodal as a percentage of revenue from a quarter to over a third, only improved its OR by 8% (to 77.9%!). But it improved its Return on Invested Capital (ROIC) by a third to 10/5%.

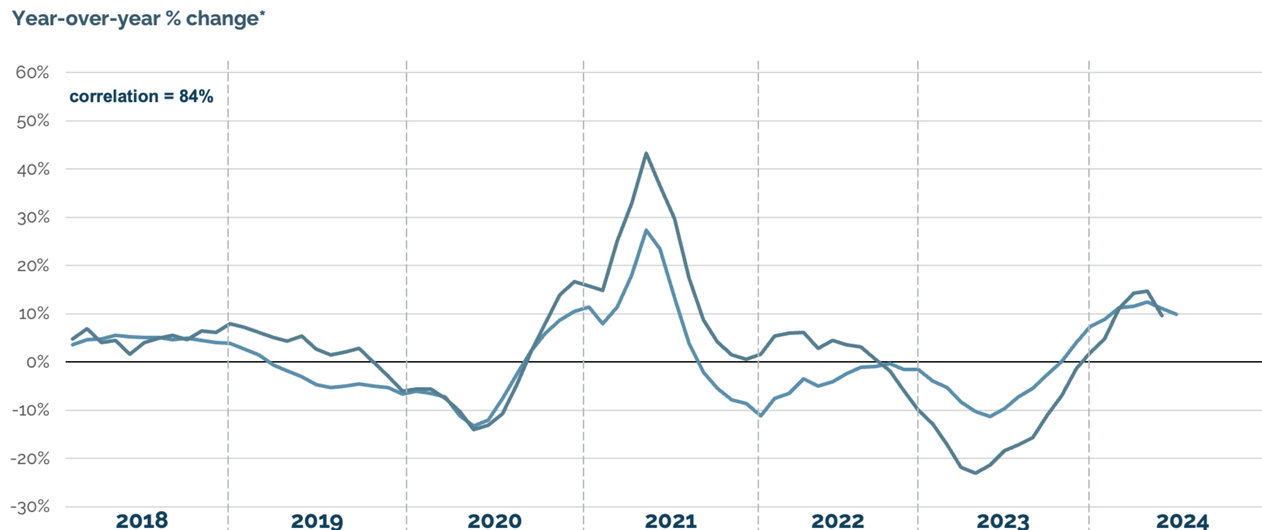
By 2014, Corridors and logistics parks were built, clearances and double tracking (de-bottlenecking) were well advanced, new ports were open, earnings were growing, and shareholders were happy. The future looked so bright, and the report predicted that Intermodal volumes would grow 5-7% in the coming decade, with international maturing to a Gross Domestic Products (GDP)plus level but domestic accelerating to a 2-3X GDP level.
This proved optimistic.

What went wrong? And can rails and their Intermodal Marketing Company (IMC) partners get back on track and grow intermodal, and grow it profitably?

The Lost Decade 2014-23 – What Went Wrong?

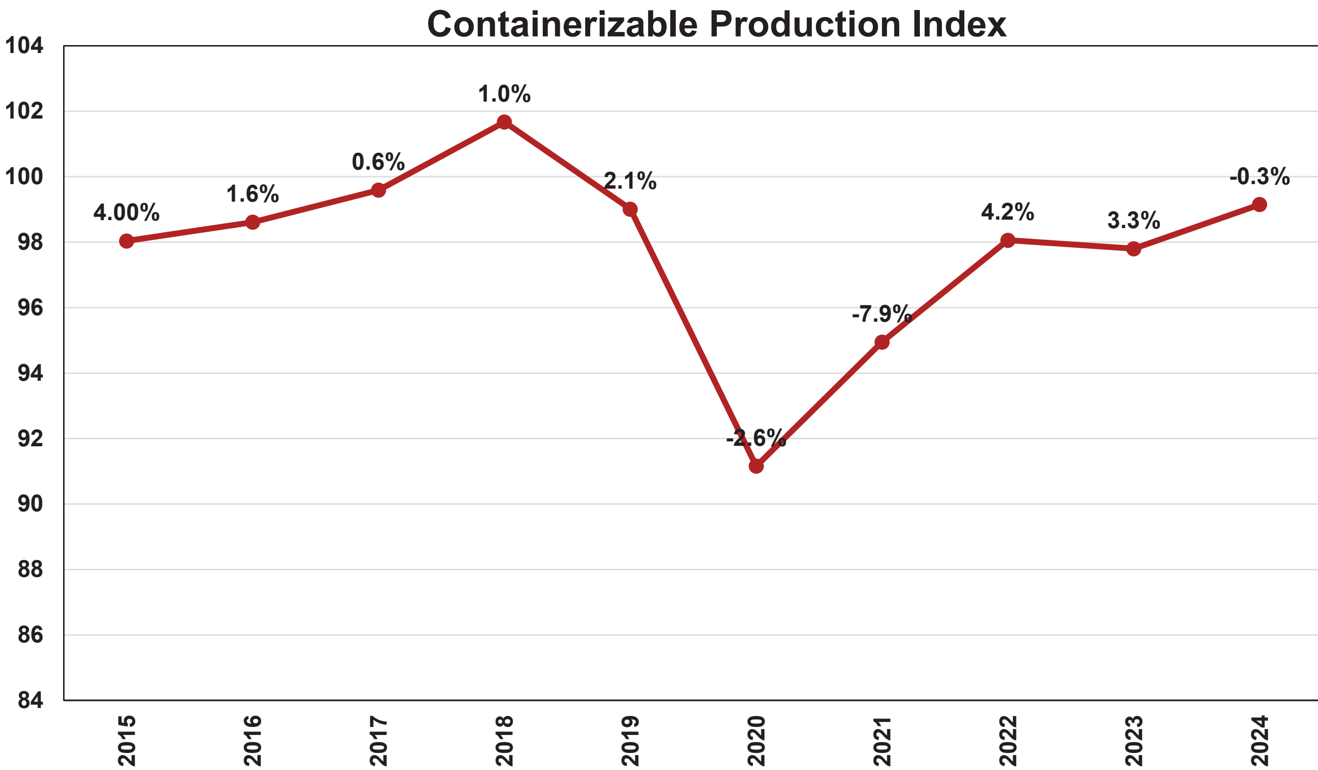
Intermodal started the decade successfully on, and even over the first half of that ensuing decade, that "Second Revolution" looked like a good call. From 2014-2018 intermodal volumes grew 14% or at a 3.5% compound annual growth rate (CAGR) (IANA/TTX). North American intermodal reached its peak of addressable market share, at 12.5%, according to Larry Gross (and Noel Perry) in *Intermodal In-Depth*.

As Ports Go, So Goes Intermodal



*BNSF, CSX, NS and UP combined. **Combined loaded + empty TEUs at Baltimore, Charleston, Houston, Long Beach, Los Angeles, New York/New Jersey, Oakland, and Savannah, Seattle/Tacoma, and Virginia. Data are based on 3-month averages. Source: AAR, individual ports

Then the second half of the decade gave it all back – 2018-23 volume CAGR was a negative 1.7%. The rail market share is now estimated to be 10.7%. This came, remember, in a rising economy. Domestic intermodal under-performed TTX's "Containerizable Production Index". Merely holding shares would have added 13% to their intermodal volumes – and perhaps $2.7B to their revenues! Domestic intermodal, rather than taking off, saw its market share drop from a high of 6.7% in 2018 to a low of 5.6% in the first quarter of last year. Market share now sits at about 6.1% according to Larry Gross, AKA the Intermodalist, which while down from the peak represents a trend reversing increase in share.. Of course, transloading (converting 3 X 40' containers into 2 X 53's, mostly at Los Angeles and Long Beach (LALB)) distorted the numbers.



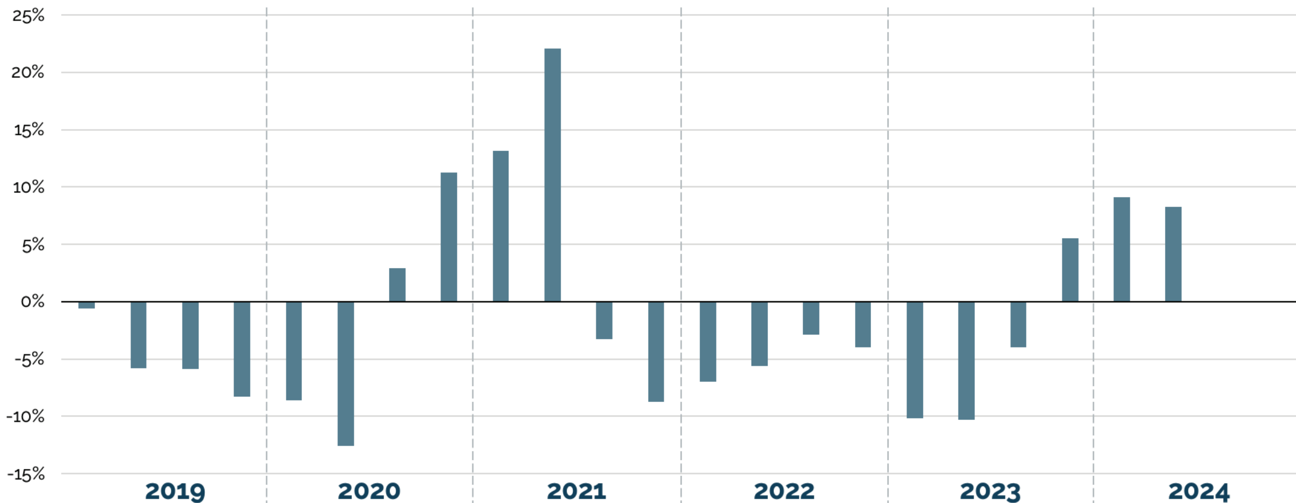
Why Did This Happen?

There are few macroeconomic factors, beyond any carrier's control:

- Port share shifted to the east, where the rail Length of Haul (LOH) is much lower, and the percentage that goes on rail at all, as compared to the US west coast - particularly the biggest port combination, LALB – is significantly lower. LALB, where 60% of the inbound containers are loaded to a long-haul train, had a 39% share of North American containerized imports in 2008 – it is now at 32%. The rail share of imports into eastern or gulf ports is, of course, a lot lower – as is the LOH. This was enabled by changing supply chains, shipper risk reduction, smart and capable port authorities (notably Georgia Ports Authority), and the widening of the Panama Canal (listed as a risk, albeit a manageable one, in 2014). The shipping lines' consolidation, either outright or by (changing) alliances, also added complexity.

U.S. Rail Intermodal

% change from same quarter previous year



Data are based on originations, are not seasonally adjusted, and do not include the U.S. operations of CN, CPKC, and GMXT. Source: AAR Rail Time Indicators

- *Politics, tariffs and trade wars* – Tariffs in 2017-18 roiled the internal intermodal markets, and some form of de-coupling from China, the United States' largest import trading partner, has changed supply chains around the world by adding new countries and complexities, leading to outcomes that, even now, may not be fully recognized.

- *DE-globalization* – By the end of this decade, we did see trade grow at the level of GDP, not higher. This led to the concepts of re- and near shoring (added complexity but helping the growth market of Mexico).

- *The relative decline of Big Box retail ("Bricks & Mortar") and the rise of ecommerce* – Ultimately this is proving to be a positive thing for rail intermodal, but the initial rise of ecommerce, before its own infrastructure of warehouses and DCs were built out, was very favorable to truck. The new competitors focused even more on logistics, often disintermediating long term parcel partners, creating multi-port and multi-channel supply chains, and introducing the term "compaction" – making packaging (and items) smaller…

- *The COVID-19 Pandemic* – It may take years to fully analyze the impacts of the immediate global shutdown and the unplanned, phased economic recovery. For the rail network, their actions in the early days, when the future was so uncertain, led to crew shortages, etc. that ultimately resulted in rail industry's service issues and its role in the *"supply chain crisis"*. There were shortages everywhere of course – warehouse workers, chassis – but the rails were "lucky" enough to have a regulatory body that held hearings to embarrass them. The whole intermodal system, perhaps best exemplified by the 100+ ships anchored outside of LALB, got a black eye. The problems at LALB accelerated share shift to eastern ports, at least temporarily.

- *Freight recession* – Perhaps this is just more pandemic effects, the "long tail" of COVID, such as the inventory swings and the growth and duration of owner/operator truck drivers in the marketplace. Whatever the causes, the last years of this decade, from late 2022 on, have seen the most profound freight recession this century. The biggest impact is on truck – and therefore intermodal – pricing, holding back rail/intermodal volume and share recovery.

The “lost decade” isn’t all because of outside, uncontrollable events. There are at least five+ major rail/intermodal self-inflicted wounds to consider.

- *Over-reliance on externalities* – The rails and their IMC partners seemed to wait for the growing Environmental, Social, and Governance (ESG) movement to draw business; the lack of governmental infrastructure spending to shift share; higher fuel prices and the “driver shortage” to spur truckload conversion towards their intermodal units. For the present, one could possibly add “near-shoring” to this list of hoped-for external pressures. ESG is now seen only as a “tiebreaker”; but carbon focus should regain momentum and all of those externalities should be helpful not relied upon solely.

- *Execution* – Rail service, which was on an improving trend line from the start of the century on, began to stall a few years into the decade. By 2015-16, it was noticeably declining, even if slightly. The reasons weren’t entirely clear, nor are they now, but the “service stall” was a significant factor and led to a strategic redirection at most US rails.

- *Precision Scheduled Railroading (PSR)* – Contrary to common thinking, PSR was introduced into the US after and partially because of service and operating efficiency deterioration. This might be best exemplified by the late Kansas City Southern (KCS) CEO Pat Ottensmeyer’s quirky declaration: “Service begets growth”. But despite the KCS experience, and the growth through this 10-year period of the Canadian originators of PSR, PSR itself became a toxic phrase and is often blamed for rails lack of growth, or perhaps even a lack of *intention to grow*. This should be examined further. For railroads and their partners and customers:
    - The speed of the CSX implementation of PSR set off a furor, angering both shippers and regulators. This led to embarrassing public hearings and shipper pushback.
    - By 2018, all but one US carrier was undergoing PSR implementation. The one abstaining railway was BNSF, due to the huge impact of unbalanced business (unit train volumes in coal, grain – and intermodal). However, recently BNSF has had some veteran PSR advisors on their staff.
    - The initial impact on intermodal, dating back to the original CN (the “Mothership of PSR”) model, is to shrink (or “curate”) the business, rethinking the intermodal network and service roster. CN did this in the initial PSR implementation, and reducing the intermodal footprint was publicly acknowledged in this decade by CSX, Union Pacific (UP) and CN. Rethink, shrink – then grow was the PSR mantra.
    - PSR initially requires severe inward focus (before the “Growth Pivot” to the outside) which inhibits or precludes collaboration and significantly changes the risk/reward ratio for risk taking. In other words, aside from the physical changes (reduced footprint) the corporate mental and psychological impacts may be as great or greater.
    - The intensified OR focus (see below) An expected outcome from the PSR improvement, margin improvement, became at times the entire focus (a “bastardization” of true PSR according to NS). The efforts to reduce OR led to reduced sales & marketing (and overall) headcounts, and reduced Origin/Destination (O/D) pairs, etc. Some industry insiders have called the network as of this writing “skeletal”, noting that the top twelve corridors account for 77% of the volumes. For this reason, as well as others, another veteran decried the shrinking of the “vital and valuable” intermodal channel network.

- *Missed opportunity and lost shipper trust are a bad combination* – Poor execution and an over-reliance on matching supply (capacity) with demand has led to many missed opportunities. One notable example of this can be seen in the peak year of 2018. Trucking regulation led to a well predicted share shift to intermodal, but the network failed to provide adequate box capacity and overall service. Much of the 2018 growth was in Trailer on Flat Car (TOFC), which, when trucking capacity loosened the following year, resulted in those trailers being moved quickly and easily back to the highway. Another example of this is the crew services choking off growth in the pandemic recovery period of 2020-22.

For the most part, the "lost decade" and the PSR effects do not apply to Canada, the home of PSR itself.

- Having completed their PSR implementation earlier, and less controversially – not to mention with no or little Surface Transportation Board (STB) oversight, CN and CP for the most part enjoyed healthy growth and stakeholder relations during this period.

- CN did, however, run into capacity problems in the west in the middle years of this period – they outgrew their network, which led to a few lost years of catch-up.

- CN also suffered shareholder hostility to their growth plan towards the end of this period, which led to a management shakeup. Stability has since been restored.

- CP grew throughout the period after their Growth Pivot (circa 2017) and then initiated the merger to create the CPKC.

For the investment community, the PSR impact was just as seismic, and intertwined with the physical realities on the intermodal network. This effectively created the potential to pit shareholder interests against those of other stakeholders such as shippers, regulators and labor.

  - The success by CSX CEO Hunter Harrison at Illinois Central Railroad (IC), then CN, then CP and finally at CSX in margin expansion (dramatically reducing the OR) created a new expectation on Wall Street, splitting the formerly united interests of stakeholders. "PSR" itself became a toxic phrase to many rail stakeholders (shippers, regulators, labor).
  - However, to many investors, PSR became a celebrated phrase and philosophy, even if it was mostly misunderstood. This celebration directly led to what the author has called the "Cult of the OR", whereby success and free cash flow is led by OR reduction, possibly to the outright exclusion of costly long term growth efforts.

- *Don't Fear the Reaper* – The OR success of recent years has created perhaps the biggest risk of all – short term and activist investor pressure on management. Fully ensconced in the "Cult", advocating returning focus to "margin overgrowth", activists and their allies, the portion of shareholders with shorter investment horizons, have chased away growth-oriented managements at CN, and, almost did so at Norfolk Southern (NS), creating a mindset of risk avoidance which has served to set back growth plans to some degree network wide. In the case of the latter, NS's interest in intermodal and supposed lack of interest in OR improvement was directly cited as the primary reason for proxy fights.

The Next Ten Years – Rebuilding Trust

The 2014 report called on railroads and their partners to do the following ten things to maintain their momentum in intermodal. Here is an updated list for 2024 noting that several of the elements remain relevant from a decade ago:

- *Change/perfect the Rail/IMC relationship* somewhat accomplished in some places (noting the state of the BNSF/JB Hunt partnership is much better entering this decade, and other IMCs have changed partnerships with rail carriers in order to form a more perfect intermodal union).

- *A sub-topic, from 2014, was "Achieve Pricing Power"* – After 2003 (and the first report), the rails had achieved pricing power in merchandise, bulk and to a degree, international intermodal. Indeed, a major factor driving what I called the "Railroad Renaissance" in the first decade of this century was price, and rails have retained pricing power into the third decade.

- *Not in domestic intermodal, however* – Rail Intermodal is predominantly a contractual business so it was historically somewhat immune, from the full effects of truck spot pricing but the duration of this freight recession, the longest in living memory (stretching back to at least Q4/22) has ended that paradigm. Not only has pricing power not been achieved in the broader trucking market, which is, of course, a major issue as of this writing, but much of the rail/IMC friction is over price/cost of minutia. The most recent Journal of Commerce Intermodal Contract Index stood at ~125, meaning contractual intermodal was priced at 25% below truck (the much discussed goal is ~15%).

- *While the rising truck price tide will lift all boxes* – the intermodal network is reconsidering its allegiance to holding price at all costs as opposed to gains in volume, density, and long-term market development. Price flexibility to recapture volume – and thus density – must be explored. This will certainly disappoint stakeholders solely focused on OR. The question remains: Wholesale (the champion being BNSF) or retail? The other three US railroads have some retail but the Canadian railroads, are the retail champions, especially in the Canadian segments of their networks. The 2014 report opined: "there's a lot of margin out there". But is it too late to change strategies? And do you want to compete with your partners? However, there are still ways to better connect with the actual shippers. BNSF considered the value of co-branding using "Intel Inside" as a model; UP has initiated its "BCO Forum"; CN opened an office in Shanghai.

- *Continue to Develop Mega-Projects* – this was clearly done in the last period and continues to occur – BNSF/Barstow the Barstow Intermodal Gateway (BIG) is a $1.5B wager on transloading with their partner and on the long-term viability and sustained primacy of the LALB gateway is but one example; CN is building out a Chicago Logistics Park, CPKC provides a flurry of others (Vancouver, Dallas) which it attributes to what it calls its "PSR Dividend" – repurposing freed up land. Other examples, perhaps not quite as BIG, abound, such as UP in Dallas, the Inland Empire and Phoenix, as well as eastern and other inland port partnerships.

- *Constant Projects/Capex* – Rails have maintained their average ~18% revenues/capex ratio. Rails make, in comparison to the ponderous public infrastructure political process, rapid capital deployment decisions based on ROIC opportunity. The rail network, was given a recent "B" grade (B+ without passenger) in the US by the American Society of Civil Engineers (ASCE), while highways were rated a "D". The rail network pays, rather than absorbs, taxes.

- *Simplify complicated supply chains* – the rail side simplified large parts of the network, not to improve what Oliver Wyman has called "customer centricity" but to improve margins. Cooperation and visibility are improving but remain inadequate.

- *Open new lanes* – as we saw, due in part to PSR in the US in the last 5-7 years, the opposite was true: lanes and O/D pairs were reduced. However, as of this writing the pendulum appears to have swung, slowly and tentatively, the other way again and lanes and O/D pairs are being introduced and reintroduced, albeit not at the pace that some observers desire.

- *Simplify and add complicated new services* – The natural desire for operational simplicity, with both customer and OR benefits, must be tempered by the need for additional complexity to penetrate some potentially lucrative new markets. While there are real differences between international and domestic sectors, and between the US West, US East and Canada, it is interesting to note Canada's embrace of complexity (on a simple long-haul service). Intermodal hubs in Toronto have perhaps 15 destinations served; in Chicago, eastern US rails serve 4 or 5.

- *Maintain trade-lane flexibility* – the rail/intermodal network by necessity has been very flexible and continues to do so. This may not seem so obvious to day-to-day observers, but the rails pivot rather quickly – from domestic manufacturing and its building blocks transported in carloads to containers, fueled by globalization for instance, or the pivot to and from Crude by Rail (CBR) in more recent times (cited by some as an irritant to intermodal in the "lost decade"). Recently, there are new services from the US East Coast to the Midwest, the continued development of the ports of St. John and Halifax; and, of course, Mexico. Repurposing CSX's Northwest Ohio terminal from a domestic

hub to part of their point-to-point international network is a great example of flexible strategic thinking. Will Prince Rupert retain its importance in 2030, or will the railroads benefit more from their investments in effort and capital on the Atlantic coast (CN in Halifax and CP and CSX in St John's)?

- *Add speed* – The original hypothesis from a decade ago meant that by taking time out of lanes, new forms of service-sensitive traffic could be approached, much as by taking cost out of rail operations, new tranches of customers (or LOH or density levels) might now be considered worth the investment.
  - Increased over the road velocity requires more sidings, more IT and strict scheduling. Increased speed in the door-to-door lanes means, perhaps, better terminal throughput. Increased speed on some trains absorbs a disproportionate amount of segment capacity and isn't always worth that cost (as evidenced by the failed experiments to achieve more speed for parcel carriers in the last period). That notwithstanding, improved technology and scheduling could possibly make a new experiment worthwhile.
  - Some rail strategists have argued not without push back, that slowing down the train speeds (say from top speeds of 60mph to 40mph) and focusing on the terminal and dray segments of the overall transport plan could bring huge fuel savings (and OR improvements) without necessarily changing the O/D service. Others have countered that existing technology, like Wabtec's Trip Optimizer™, provide the best speed/fuel dynamics, and that faster trains compensate for lots of terminal problems.

- *Consider new products* The 2014 report suggested flatbed, seemingly a non-starter, and refrigerated freight. The latter has been tried and tried again (see Tiger Cool Express and other attempts). It seems to work some in closed loop (and long haul) situations like with CN and now CPKC, whose alliance with Americold could be a big winner. The high cost of the reefer box has held down enthusiasm, especially in interline services – but the new slimline reefer box may be a solution to that age-old problem.
  - In Europe, shipper BASF is moving its chemical tank car transportation to tanktainers. Is that viable in North America (such as with CSX and their wholly owned subsidiary Quality Carriers)? The Canadian rails already utilize tanktainers. But for the US major rails, this would the risk of cannibalizing the existing high margin chemical business be too great?
  - In the last years of the Lost Decade, there has been, for entrepreneurial and/or competitive response reasons, renewed enthusiasm for alliances resulting in an explosion of announcements – Mexico Midwest Express (MMX), Quantum, Falcon Premium as well as new connections to the Iowa Interstate (IAIS) and the Indiana Railroad (INRD). This has revived the major argument whether to interline or focus on single line service.
  - *Quantum* BNSF and JB Hunt, intermodal partners with a history dating to 1989, announced Quantum, a specialized service with 95% on-time guarantees. Specialized yes, but niche? No. The partners see an amazing 7-11 million loads addressable in their region alone! To give this some perspective, the upper level of that range wouldn't fall far short of the entire North American volume of last year!
  - *Extend beyond your own system* – another way of looking at alliances and partnerships – NS & Florida East Coast Railway (FEC), CN & CSX, CP & CSX.

- *Look at Length of Haul* –The wide range of strategies in this one continent is amazing; it's dictated by management preference, labor rules, geographic region, and the existing intermodal ecosystem. History plays a role as well. The rails have been accused of a "Big Train Mentality", which can be limiting for marketing shorter hauls. As Oliver Wyman points out in their treatise supporting short haul emphasis, the longer the haul, the simpler the business and the handling to miles ratio allows for good pricing. Of course, the longer the haul, the higher the intermodal market share and the contract discount to the highway for shippers. As such, the intermodal penetration rate is higher. The shorter the haul, the more complex, and the higher impact of the terminal and dray performance. But the shorter and intermediate LOH lanes have much lower penetration rates, and therefore more opportunity. So, what is the low addressable point – a day's drive (roughly 500 miles)?

    - CPKC, for example, given its huge length of haul, is emphasizing long haul interline volumes between the formerly independent carriers, notably on grain but also in the MMX business linking Mexico to the Midwest. It has actively shed some short haul business and lost some others (interline lanes with UP and BNSF). Are they foregoing some big truck conversion opportunities intra-Mexico?
    - The share opportunity and size of the addressable intermodal freight market – see the Oliver Wyman report – suggest the growth is higher moving down the LOH. Not all rails can address this opportunity equally, of course, given the vast distances in the US West and in Canada. But UP, for one, has publicly committed to the 500-mile addressable target.
    - The Canadian and western US carriers have obvious LOH advantages over the eastern US railroads. But they have concurrent higher, often much higher, levels of market penetration.
    - The US eastern rails see big opportunities in local-east conversion and inland ports, making short haul international business perhaps the most consistently discussed opportunity, with shuttle trains in Georgia from the port of Savannah. Both eastern railroads see inland port development as terrific opportunities.
    - Short line and perhaps more realistically regional railroad connections offer the large rails and the entire intermodal network extended market reach – IAIS is connecting Chicago to Council Bluffs; INRD connecting to CN and its owner-partner CSX; Tri-Cities Intermodal is attempting to do similar things in the Pacific Northwest, Anacostia's Pacific Harbor Lines (PHL) commissioned an excellent study for using shuttle trains to clear LALB (possibly connecting to BIG?). Short lines have to have a "hook" – IAIS has Chicago access and runs in a relatively forgotten lane by the Class Is, Chicago to Omaha. PHL is in the POLB/POLA; INRD has Indianapolis, the FEC has South Florida.

- *Address interline issues* – Not accomplished then, nor now. Yes, in some cases, intermodal can range across systems and provide single line-like service (BNSF/JBHT, Falcon Premium as well as the UPS service and perhaps Amazon). This is a big (perhaps the biggest) issue in carload/merchandise, but the thought that intermodal was somewhat immune to this consistent irritant was roundly disabused and proved to be flat out wrong (the differences were described by a rail whose growth is dependent on interline that was nonetheless described as "night and day"). LA to Harrisburg is an example of a successful interline routing, but outside of a few mega-lanes, the old issue of revenue/cost splits between rails or partners still exists. Emerging new opportunities may finally change this – linking the eastern US to Mexico, for example, or finally going after the "watershed" business (the volumes unequally far from the Mississippi River – cited by several experts as being absolutely critical to intermodal growth in the coming decade).

All Systems Grow

The future may not be as bright or as easy to accomplish as it seemed in 2014, but ten years later intermodal is still the by-far best opportunity for growth. After all, with the new labor contracts, railroads may have achieved peak OR. Financial gains from taking out 300, 200 or even 100 basis points from the cost side are harder to achieve and worth less in terms of cash flow or earnings potential, simply put, the rails must grow, or risk irrelevance and a forced strategy of managed decline to almost pure utility status. For railroads to remain relevant, they must grow intermodal and to do so requires changed behaviors across the intermodal supply chain, and by the financial community. There really isn't any other long-term alternative.

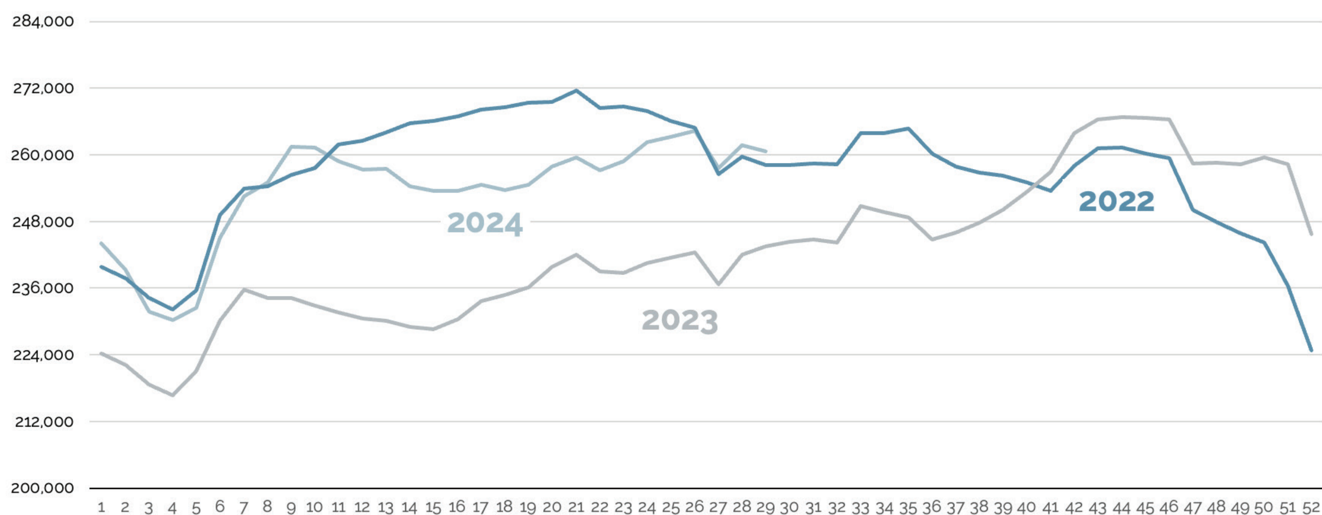
- *Growth Pivot?* – And, tacitly acknowledging the above, railroad leadership, often in conjunction with their channel partners, have espoused a growth strategy since 2020. The so-called "pivot", or PSR 2.0, was the refocus on growth following a period of perhaps 18 months to two years of each individual railroad looking inward, cost efficiency to gaining volume on the newly efficient networks. The subsequent announcements of a pivot were later challenged by, on the one hand, shipper/regulator skepticism, and on the other by the segment of the investor class who wanted to refocus back on margins rather than on costly and lengthy process of growth.

Obviously, the pandemic's arrival in March 2020 scrapped the plans announced by all the rail managements in their January earnings webcasts. So, what are the necessary next steps to re-orient rail/intermodal on the growth path?

- *Operational stability* – the first task, largely complete, was to recover from service disruptions, labor shortages, safety reviews, regulatory hearings and proxy fights (or threats) of the past few years. From a railroad perspective, that has, mostly, been accomplished, and their recovery has been publicly noted by regulators as well as by their IMC partners and even by the actual beneficial cargo owners (BCOs).

U.S. Rail Intermodal

Originated units per week, 6-week moving average

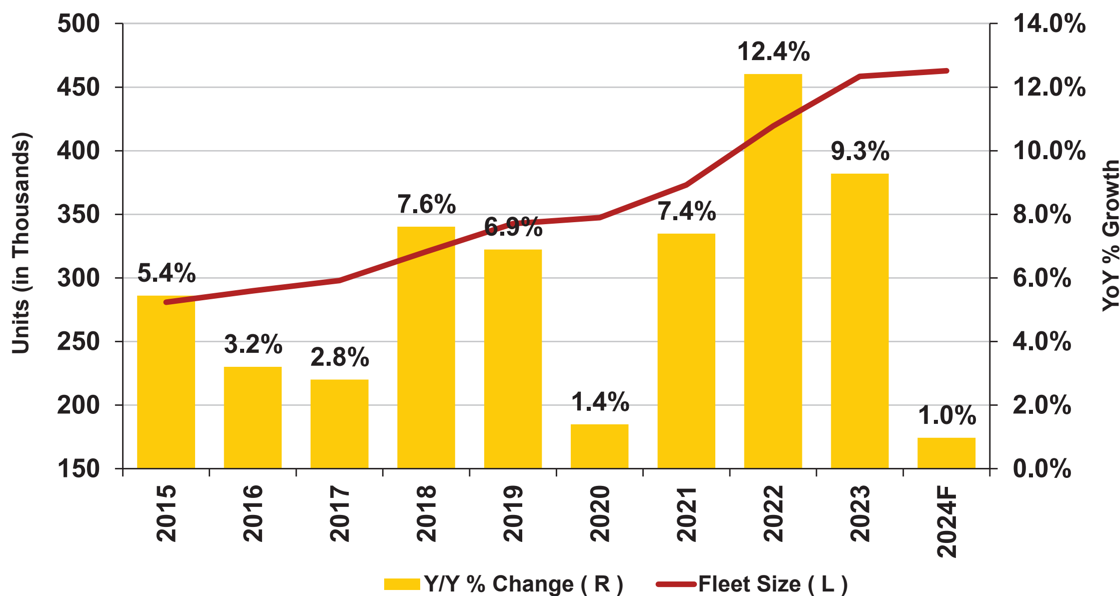


To be fair to PSR, in the intermodal markets, the new operational discipline wasn't all bad – it has led to rail service reliability improvements; in improving the merchandise network it has improved overall railroad balance sheets and cash flows. Velocity and dwell have recovered, and trip plan compliance (TPC) metrics have improved. Throughout this post-pandemic period capital expenditures by the rails have held steady, and there is capacity for growth and then some.

- *Wait for the longest freight recession ever to end* – This is the mother of all macro factors, or externalities – but like other, much more positive ones, such as oil price competitiveness, congestion, infrastructure, driver shortages and carbon, the state of the economy remains an outside force to be reckoned with. A repeat of the "traditional" scenario whereby volume acceleration leads to service impairment would be disastrous from a marketing perspective. The historical pattern must be avoided to regain trust.

- *Detail plans and goals* – The message itself is of critical importance – as evidenced by recent anti-growth proxy fights. Beginning in late 2022 to now, all five of the publicly traded rails will have held Investor Conferences that highlighted growth plans led by intermodal. This comes not without controversy (see "Risks") nor skepticism. Investors, regulators and shippers ask:
    - Can rail service remain good as volumes improve? This is so important it bears repetition.
    - Are rails committed to the new services for the long haul? This is another crucial factor for shipper trust. Will they factor in resiliency, or "buffer", to ensure capacity?

- Will rails simply trade freight with each other, such as potentially to/from Mexico - or grow true volumes?
- Can relatively new measurements like TPC or Rail Services Indices be *consistently* shown to let stakeholders track plan progress before the freight recovery?



Employ Existing and Future Technology

As one major Intermodalist told me, "The success of intermodal for the future requires automation." We'll only briefly discuss technology as a risk below, but as an opportunity there are six areas to investigate:

- *Safety and predictive maintenance* – for schedule reliability as well as overall stakeholder rewards.

- *Security* – cross-border and on network to prevent theft or migration. Technology portals, for example, can play in both safety and security.

- *Visibility* – noting that Hapag Lloyd, as well as other ocean carriers, are adding GPS to all of their boxes on the one hand, and the growing acceptance of RailPulse™ as an industry-wide solution (rails large and small, leasing companies, OEMs, shippers) for carload traffic. Visibility technology improvements can also be utilized internally, in terminals.

- *In-terminal management* – this is probably the biggest area, using Artificial Intelligence (AI) to plan box storage and deployment, shorten gate and dray times, etc. In fact, autonomous vehicles (AV) will likely improve dray and terminal operations well before they actually threaten linehaul. One example of a new storage technology employed by major port operator DP World is BoxBay, whereby containers can be stored 11 stories high and easily utilized, saving on footprint, etc.

- *Attract new markets* – two companies working on EV/AV short haul intermodal technologies include Parallel Systems and Intramotev. The former signed up to conduct a pilot program on GWR's short line Central Georgia – but has been blocked by the Federal Railroad Administration (FRA) – a sign of the biggest obstacle for rails – but not trucks - in employing technology, regulations. This should change under expected incoming FRA Administrator David Fink.

- *Burnish rails' already strong green credentials* – aside from rail and supplier's work on new fuels (CP/CSX on hydrogen, Wabtec on batteries, others) all the above are carbon-reducing. This environmental advantage could be tempered by the policies of the incoming administration.

The Last Merger and its Impacts on the Future of Network Intermodal

The CPKC combination is interesting in so many ways. It is very likely the last merger given the STB review rules. It is the first major rail merger in the modern era that is growth oriented; that is to say 80% of the expected benefits come from the revenue side, the complete opposite of the major mergers in the 1990s that created the US' "Big Four", which were 80% or more focused on economies of scale and reducing duplicative effort. But three more things make it a crucial piece of the next ten-year story for intermodal:

- *It is a merger based on end-to-end, single line service advantages* – This serves as a direct competitor in key intermodal lanes that were served by interline combinations, specifically to/from Mexico. Can interline services compete?

- *It greatly increases competition* between railroads which may or may not grow the overall market, depending on competitive reactions. While the expectation is for the CPKC to be ultimately successful, it's not clear what the early gains will be given volumes taken away from western carriers interlining with the former KCS in Robstown and Laredo.

- *Mexico is the Prize* – the fastest growing rail market, though still small (less than 3% of the North American intermodal market), and despite the flashy growth levels shown by the former KCS, intermodal has actually lost share in the last half of the "lost decade". In fact, despite the constant talk of near-shoring, Mexico has lost share of Latin American Foreign Direct Investment (FDI). Mexico can be – and certainly has been – the subject of its own reports. Not without its own political risks – such as the rule of contractual law, the high cost of dirty energy, the 2023 use of the Mexican Marines to intervene in governmental disputes - but since NAFTA and USMCA and the recent surge in near-shoring interest, the risk is certainly worth taking pending political events, of course.

- *Recent competitive alliances and services* – to Mexico include the much-heralded Falcon Premium and BNSF/JB Hunt/Ferromex (FXE), both at Eagle Pass (a border crossing itself not without challenges). These were widely seen as a response to the merger. Initial results seem to back the proposition that partnerships, if properly managed, can indeed compete with single line service. This is hard, and like a good garden, must be constantly tended. CPKC has responded to the response, as it were, by adding in CSX via the Meridian Speedway and connecting those markets, in addition to NS already ensconced.

Risk

Is growth attainable? Of course, the future trade flows could be greatly impacted by the new administration's trade policy. Recent declarations of 25% tariffs on Canada and Mexico have great bearing on current IM markets – and anticipated growth opportunities – if enacted. Further tariffs and enforced decoupling efforts concerning China could also have a chilling impact. At the minimum, fear of tariffs (and of labor actions) are changing trade patterns (pre-buying, etc) as we saw in 2017-19, making usual year over year analysis more difficult and the future (even) harder to predict.

- *What could derail this second attempt at an Intermodal revolution?*

Rewards require overcoming obstacles: there are several big challenges to overcome:

- *Execution and Effort* – Intermodal has been here before, and if not failed outright it has not won either. PSR rails have been managed in a Just in Time (JIT) like fashion – trying to exactly match capacity with anticipated (but completely unpredictable) demand. One consequence is that rail service historically deteriorates when demand increases. That pattern must change. Alliances take even more effort and care. After all, there are multiple partners with differing financial pressures and goals, multiple CAPEX plans to consider. Execution also entails managing growth on the upside, and, when things go wrong, managing recoverability and resiliency.

- *A need for cooperation, staying power and network success* – There may be huge opportunities in single line service (CPKC, "Local East", Inland Ports) but that cannot preclude interline focus. The watershed is just the most obvious opportunity. And the opportunity is for the network; no portion can stumble or the effects will be felt everywhere. It is hard, indeed, but the reward is one-price shipping, and almost single-line performance, not to mention market extension for each intermodal ally. Managing growth on the upside (avoiding overflowing the network).

- *Government and Politics:*
  - Trade policy & tariffs and uncertainty, notably in the US; forced changing supply chains; USMCA review in 2026.
  - Immigration policy and its impact on gateways
  - Inflation
  - Stability and the rule of law, especially contract law, notably in Mexico
  - Environmental policies – this should be a winner for the intermodal ecosphere given their carbon story, but we note the CARB threat in California, for example – a direct threat to BNSF building of "BIG". Under the new federal administration, the CARB threat appears to minimized.
  - Commercial regulation – as a new and obviously competitive business, intermodal has remained exempt from STB oversight. But that doesn't mean the STB itself agrees. And, last year the Environmental Defense Fund (EDF) commissioned a favorable report on the decarbonizing impacts of increased intermodal share – but advocated for more STB regulation to ensure it
  - Technical Regulation and Modal Fairness– noting the Federal Railroad Administration (FRA) pushback on safety technology and regulating two-man crews on a private network while the DOT supports driverless trucking on public roads. Of course, this appears likely to change favorably with the incoming administration.
  - Not In My Back Yard – local efforts that stopped BNSF's efforts to build the Southern California Intermodal Gateway or the delays in CN's Milton hub.

- *Labor* – Labor obstacles wax and wane, but they appear to be waxing again, after difficult rail negotiations in the US the last contractual round and outright strikes in Canada matched by difficult port negotiations and outright strikes. Between labor contracts and FRA regulations, the intermodal system has been at best delayed in deploying technology and achieving large gains in productivity. BCOs are aware of the productivity levels of North American ports, and rails, and of the past and potential for future labor disruptions. Any ILA success delaying or preventing automation reaching US east coast ports could bode well for LA/LB, which as noted is good for the rail/intermodal ecosphere. The next round of US national rail labor negotiations begins this fall, and at least one major rail has threatened to leave the long tradition of national negotiations, while the other three have signed large portions of their workforce ahead of the Washington, DC round. Crew scheduling and availability as well as port throughput are issues that do not appear to have near term solutions.

- *Technology* – the existential risk? While we now consider that advanced technology may be, at least initially, more likely to help than hurt the intermodal network, it was the midpoint of the "Lost Decade" when fears of the ultimate disruption may have peaked. Oliver Wyman's Rod Case told RailTrends in 2017 that if a platoon of digitally connected EV & AV trucks were allowed and understanding that big fleets turn over their trucks every 3-5 years (without the drag of the embedded locomotive fleet to consider), then almost a third of then-current rail volume was at serious risk. However, that same year the CEO of Tesla promised that 100K Tesla Class 8 trucks would be on the road by 2019. And that it would be "suicide" for the railroads (presumably meaning "homicide"). As of midyear 2024 there are ~3. TTX and others say that the real AV threat is anywhere from 10-25 years away.

- *Weather may no longer be included in so-called "Black Swan" events* – Once-in-a-century events appear to be annual, and political events (wars, Houthis, etc.) are moving in that direction.

These Are Coming

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- *Long Term Strategy versus Short Term Tactics* – The biggest risk aside from, and likely exceeding, those macro factors, is short term tactics, as espoused by the Cult of the OR, as opposed to long term strategy that growth plans require. This is the intermodal freight version of the fable of the tortoise (rails and IMCs) and the hare (short-term thinking). Rails have begun to talk about pivoting to growth, about building resiliency to ensure adequate crew capacity through a cycle, about being measured not (just) by margin (OR) but by earnings and cash flow growth, and perhaps best of all, by ROIC. And not "just" ROIC, but "through a cycle "ROIC".

- *Deaf – or distracted – ears?* – Unfortunately, they began this discussion in a world still upended by the pandemic effects and now a severe freight recession. Railroads (and IMCs) still talk about growth. Will rails be given the time required to earn shippers' trust? Will they be given the time to prove out new services and lanes? Will they be given the capital needed to add the necessary capacity?

Growth is Critical and Intermodal is the Best Path to Growth

The very nature of the investor focus on Class One railroad margins has an impact on the entire North American intermodal ecosystem.

Most rail leaders and stakeholders know that, with a few exceptions, the era of dramatic margin improvement is in the past. Given the long-term purpose of this report, margin recovery is not considered. Rail ORs in the low-sixties/high-fifties through a cycle were for a few years the goal, and remain possible, These are already harder to achieve under the new labor contracts, and they might prove impossible to achieve if the railroads want to grow.

However, rail ORs in, the low-sixties - through a cycle (or the coming decade) - are achievable, with accompanying growth rates and returns. The key is changing the nature of the financial debate - what constitutes success? Margin, or the real outcome - earnings, cash flows and returns on the heft investments? The rail intermodal infrastructure is in place for growth, leaving execution, strategy, willpower, technology, cooperation and investor buy-in as the obstacles to surmount. What is the alternative? Managed decline or utility-like status. For rail partners, such as IMCs, there really is no alternative. The Growth is out there However, the rail/intermodal network has the potential to restore itself to continuous growth. The new consensus on expected intermodal growth rate in the next decade could be on the order of international at GDP, and domestic at GDP+.

5+ Enduring (?) Railroad Competitive Advantages

01	**Labor Advantage** (ex: Double-stack LA-Chi – or Rupert-Toronto)[1]
02 03	**Fuel Advantage (2A)** (4:1 ton/mile; AAR)[2] – So 2B is ***EMISSIONS/*** Environmental Advantage (see...WMRT, Unilever, etc.)
04	**Infrastructure Advantage** (after the IHS buildout; user-pay and capex to support changing logistics patterns – ex: transcon)[3]
05	**Railroads' Excellent Financial Condition, Liquidity,** Free Cash flow
??	**Railroads' Historic Ability to Reduce Expenses in a Known Slowdown** (2009, 2020)[4]

Reasons to Believe

Economy-matching rate seems low and is a significant comedown from the heady days of 2014. Of course, the nature of GDP, based on goods and services, comes into account. But there's more: recency bias may be in play – external upheavals, freight recession, labor issues, service deterioration, and investor impatience. Most of these that can be addressed are being addressed. And not everyone was cautious or skeptical – look at the work of Oliver Wyman, or Quantum, or all those involved in Mexico. The EDF thinks intermodal could achieve a doubling of addressable market share by 2035. There are some conditions to be met– i.e. if partnerships are developed and maintained; if adequate capacity is provided; if service levels allow for restored shipper trust, and those levels (and those service offerings are maintained through a cycle) - and if the long-term growth strategists are able to keep the short-term tactical barbarians at the gates. In this scenario the domestic intermodal network has the potential to grow at a level of 2-3+ times GDP without needing a massive new influx of capex and can be done with a ROIC that justifies the investment and satisfies the shareholders.