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3. Four visions of the future

Extract from Brave new world? Container transport in 2043

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BY **THOMAS MILLER**

Four visions of the future

It is impossible to know how different uncertainties facing the industry will come together over the next 25 years. However, combining elements in logical ways and deducing the implications can be a useful thought exercise. We have developed four such futures: digital reinvention; digital disruption; third wave of globalisation; “peak container” and consolidation. These illustrate the wide range of outcomes that could come to pass in the container transport industry.

To construct the scenarios, we had to make some judgement calls on how certain trends and discontinuities combine together. These four futures certainly are not the only ones that could transpire; indeed, the future may instead entail some combination of these or include further elements that could not be predicted.

Digital reinvention

TRADE DEMAND

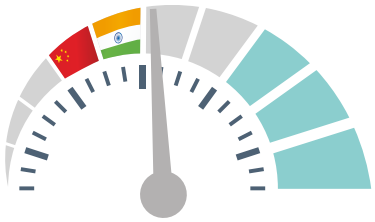
1-1.5x
MULTIPLIER

"SLOW AND STEADY" TRADE GROWTH

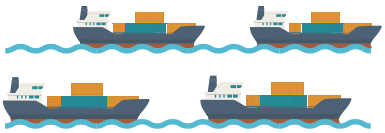
MODEST ADDITIONAL CONTAINERISATION

SHORTER, MORE DIVERSE SUPPLY CHAINS (E.G., INDIA TO CHINA, AFRICA TO EUROPE)

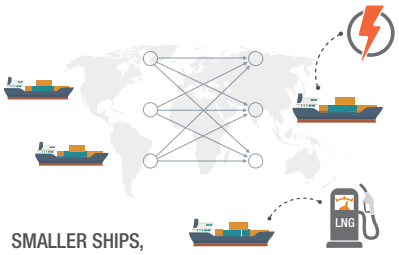
CHINA MANAGES SLOWDOWN, INDIA DOES NOT ACHIEVE "BREAKOUT" GROWTH



SECTOR ECONOMICS

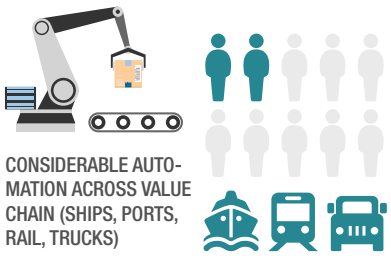


SCALE ECONOMIES LOSE SALIENCE; FLEXIBILITY IS VALUED



SMALLER SHIPS, MORE POINT-TO-POINT, LESS TRANS-SHIPMENT

DIGITAL, DATA, AND ANALYTICS A FUNDAMENTAL DRIVER OF VALUE



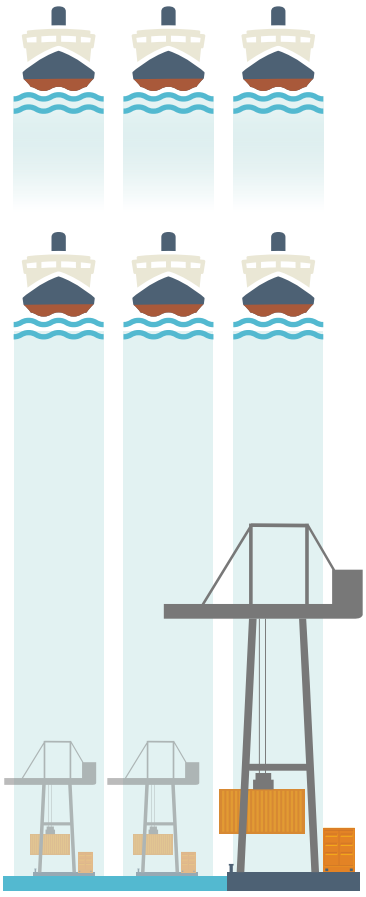
CONSIDERABLE AUTO-MATION ACROSS VALUE CHAIN (SHIPS, PORTS, RAIL, TRUCKS)

INDUSTRY STRUCTURE

4-5 MAJOR INCUMBENTS AND "LONG TAIL" OF POINT-TO-POINT PLAYERS

VERTICAL INTEGRATION ENABLES DIGITISATION AND PROVISION OF E2E SUPPLY CHAIN SERVICES

FREIGHT FORWARDING RADICALLY SHIFTED TO A DIGITAL MODEL



It's 2043 and the container transport industry's traditional incumbents are even stronger. Digital, data, and analytics have indeed become the fundamental driver of value creation. Players with significant asset footprints – particularly when coupled with vertical integration – lead the way, with proprietary data that allows them to out-compete any potential disruptive entrant. Data and technologies like blockchain are used in creative ways to ensure reliability across the value chain, real-time transparency on cargo flows, and seamless integration with customs and customers' supply chain systems. That doesn't mean the operating systems and solutions are always developed in-house; many "digitally native" suppliers of software and analytical solutions thrive.

The integration of digital, data, and analytics into container transport operations is sped up through vertically integrated business models. The coordination challenge across a mosaic of players proves to be too challenging in this timeframe – too many operating systems, too many applications that can't talk to each other, too many IT infrastructures. Only by working together are the freight forwarders, container lines, and terminal operators better able to develop an ecosystem of digital tools that "talk" to each other. Many end up merging. Customers love it and align closely with their preferred container transport provider.

> "We have a situation where the container business is commoditised. Can a provider provide enough differentiation to value where he will see … a willingness to pay a little more? Airlines figured out how to provide more services without bigger and bigger planes."
> *– Container terminals executive*

This vertical integration means there are approximately four to five major players, as well as a large number of smaller companies servicing geographies that haven't caught the attention of the majors. Technology has also helped better optimise the networks within these large, vertically integrated players. As such, economies of scale in ship sizes remain somewhat relevant, but the value of network flexibility – enabled by smaller ships – has increased. Terminal investments can be matched to the expected changes in the fleet, and "smart" stowage as well as crane operations have been perfected to minimise the cost and time of moving a container from the ship onto the fleet of autonomous trucks that pull up on-demand. Many terminal yards have been converted into e-commerce logistics zones in the middle of prime urban areas. Container alliances disappear, having lost their appeal as players consolidate.

The digital advances have unlocked many efficiencies in the supply chain, helping spur further trade growth. But this growth is offset by the effects of modest near-shoring and occasional protectionist policies, sparked by advances in manufacturing automation. Containerisation increases on the margins, mostly due to faster-growing trades in highly containerised goods. And while China manages its transition to a services-based economy, India doesn't achieve "breakout" growth. Add it all up and trade growth has essentially held to 1-1.5x global GDP growth since 2018.

For the integrated players that lead this industry, returns are quite good on average. Having effectively seen off the challenge from "digital disruption" by embracing digital, data, and analytics, they now deliver extremely reliable and transparent service to their customers. They have also established a different competitive dynamic, competing on value-adding digitally enabled services, rather than offering larger and larger ships and terminals. The better coordination across ships and terminals means both segments, while sitting under one umbrella, have been able to improve their capital productivity and operational performance.

Standalone freight forwarding has had to adapt considerably and not everyone is successful; the coordination challenges have been brought in-house to the vertically integrated majors and the interfaces with customers have been fully digitised. Some global freight forwarders still thrive by offering to arbitrage across all the major integrated container transport players, as do specialised niche players focused on local markets, but they still have to work very hard to compete against the majors' end-to-end offer with attractive all-in costings.

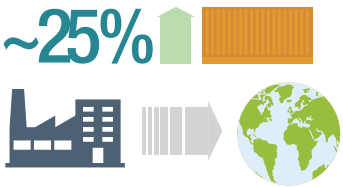
Digital disruption

TRADE DEMAND

1.5-2x MULTIPLIER

REDUCED FRICTION VIA DIGITAL UNLOCKS NEW EXPORTERS/IMPORTERS

MODEST ADDITIONAL CONTAINERISATION



SHORTER, MORE DIVERSE SUPPLY CHAINS (E.G., INDIA TO CHINA, AFRICA TO EUROPE)

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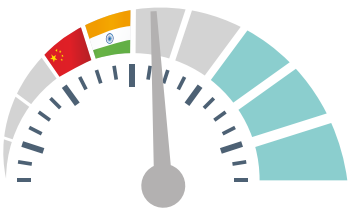
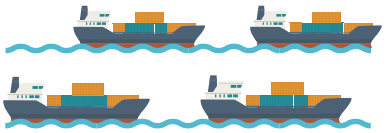


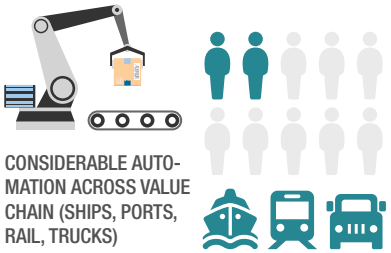
SECTOR ECONOMICS



SCALE ECONOMIES LOSE SALIENCE; FLEXIBILITY IS VALUED

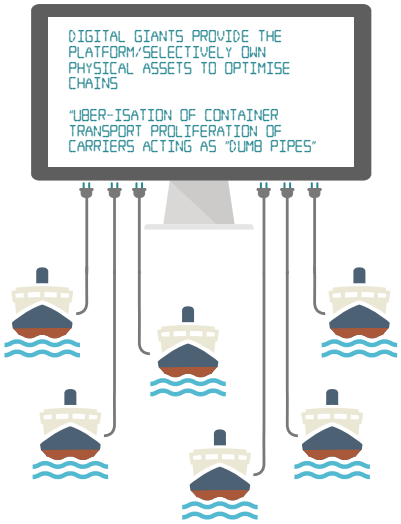
SMALLER SHIPS, MORE POINT-TO-POINT, LESS TRANS-SHIPMENT

DIGITAL, DATA, AND ANALYTICS A FUNDAMENTAL DRIVER OF VALUE



CONSIDERABLE AUTO-MATION ACROSS VALUE CHAIN (SHIPS, PORTS, RAIL, TRUCKS)

INDUSTRY STRUCTURE



LED BY "DIGITAL GIANTS" – ENABLES DIGITISATION AND PROVISION OF E2E SUPPLY CHAIN SERVICES

FREIGHT FORWARDING BECOMES TOTALLY DIGITAL

Digital Disruption is a world in which today's incumbents struggle. They fail to move with sufficient haste and purpose in adopting digital, data, and analytics. Instead, other "digitally native" companies succeed in better managing the end-to-end value chain by leveraging technology and win a large share of the profit pool from marginalised asset owners and traditional freight forwarders. This could happen in many different ways. For example, some of today's "e-freight forwarding" or aggregator start-ups may succeed in capturing a large share of customers; think of Expedia and its role in the air travel and hotel industries. Alternatively, a start-up may introduce a platform that more efficiently matches supply of transport capacity to demand – an Uber of container transport. Perhaps most extreme, an e-commerce player might decide to use its large balance sheet and advantage in data and analytics to take a physical position in container transport, much like Amazon's recent moves in air cargo.

Here, we imagine the "Uber-isation" of container transport, wherein incumbent container line brands become irrelevant: from the customer perspective, one container ship travelling on a given route is the same as any other. The existence of the digital platform makes barriers to entry relatively low, as anybody who can afford to buy or lease a container ship can plug in and connect immediately to customers. In effect, the container shipping industry becomes characterised by a plethora of port-to-port basic liner services – or even tramping. Average returns for ship owners and operators are desperately thin.

However, the real-time matching of supply and demand in the liner segment also means smaller ships can carve out a more profitable niche. Container terminal operators celebrate as the rush into larger and larger ships is blunted. Customers begin to value flexibility and adaptiveness; the cost of seaborne transport might be slightly more expensive than before, but goods are delivered faster and more reliably.

Traditional freight forwarding does its best to adapt. Indeed, the further the digital platform extends into inland logistics, including trucking and rail, the less value-add a freight forwarder can provide. The promise of digitisation and blockchain in the flow of customs forms and other documentation has been fully realised, and there is little need for manual intervention to ensure rapid processing at the border or in player-to-player hand-offs. Some innovative forwarders succeed in digitising their business models to "go digitally native" as well.

Overall trade growth in this world does not differ markedly from the Digital Reinvention scenario, except in one respect: the simplicity of the digital platform as well as the efficiencies it has galvanised have made international trade even more accessible for small and medium-sized producers the world over. Therefore, there is a modest uptick in trade growth to 1.5-2x global GDP growth, which is neither reinforced nor diminished by macroeconomic factors like China and India's growth patterns. In sum, the container transport value chain has become much more efficient, but the value of this revolution has been captured by customers and "digitally native" new entrants.

> "When all information is available, what is the role of a liner? Basically you provide the asset – and an asset operated by itself. The role of shipping liner services change. It becomes like a tram service. All you do is optimise your pool of freight. Barriers to entry get much lower. With cyber-connectivity, it doesn't matter if you have one asset or multiple – the asset is anonymous."
>
> *– Container shipping executive*

> "Ship, terminal, and customer will be much more connected in terms of information flow, which will smooth the supply chain, making containers more attractive again."
>
> *– Container shipping executive*

Third wave of globalisation

TRADE DEMAND

>2X MULTIPLIER

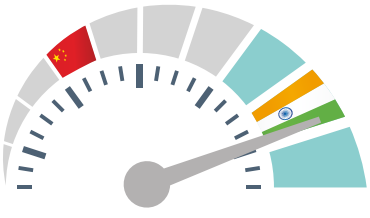
RE-ACCELERATION OF TRADE GROWTH

CONTAINER CAPTURES SIGNIFICANT SHARE FROM BULK

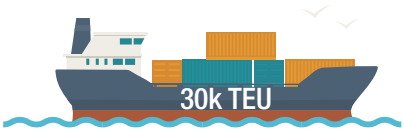
~35%

SPECIALISATION RESULTS IN SIGNIFICANT SUPPLY CHAIN FRAGMENTATION

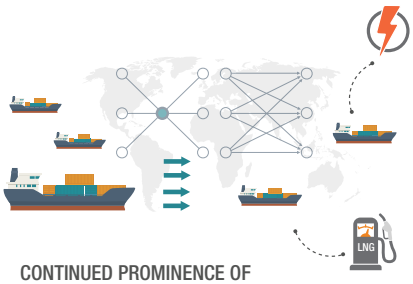
CHINA MANAGES SLOWDOWN WHILE INDIA GROWS >10% P.A.



SECTOR ECONOMICS

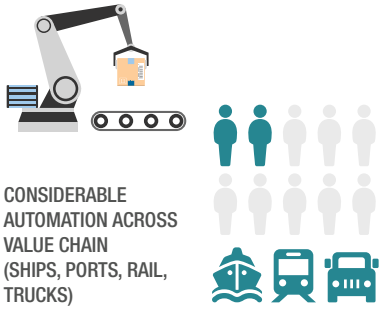


SCALE ECONOMIES BECOME IMPORTANT AGAIN FASTER THAN EXPECTED: ~30K TEU SHIPS WITHIN 10 YEARS



CONTINUED PROMINENCE OF HUB-AND-SPOKE NETWORKS

DIGITAL, DATA, AND ANALYTICS A FUNDAMENTAL DRIVER OF VALUE



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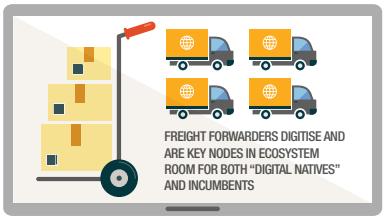


7+ INCUMBENTS AND "LONG TAIL" OF POINT-TO-POINT PLAYERS

ALLIANCES REMAIN IMPORTANT AND EXPAND SCOPE

VERTICAL INTEGRATION PROVES TO BE OF LIMITED VALUE

Perhaps the demand side of the industry – global trade – is not condemned to lower growth after all. Third Wave of Globalisation posits a return to the "go-go" years of the 1990s and early 2000s, when trade growth significantly outpaced global economic growth. In this instance, India achieves "breakout" growth greater than 10% annually, and supply chains, which had already been migrating from China to other parts of Asia, reorient again to tap into India's abundant pool of labour – a tidal wave of over one billion workers (again) rapidly integrating into the global economy. Supply chains fragment further, as countries specialise on the intermediate goods and manufacturing services where they have a competitive advantage.

Of course, there is more to the story than just India. China gracefully manages its transition towards services and consumption and its export-oriented sectors retain their vim. Africa's middle-class consumers awaken, and the same manufacturing renaissance might come to pass in many populous Africa countries like Ethiopia, Tanzania, and Kenya. What's more, containerisation regains its upward trajectory, as the modularity, adaptability, and "through transport" characteristics of containers proves attractive even for shippers of agricultural commodities, automobiles, and other products.

> "You may begin to see China, Thailand, Korea, Japan are no longer the cheapest places to produce. India, Myanmar – the pace of infrastructure development in these economies will determine the next migration of manufacturing."
> *– Container terminals executive*

In this world, digital continues to grow in importance, but it does not fundamentally change the game. Competition is still based on the availability of capacity and infrastructure at the right place and right time as well as helping customers navigate a still-complex and fragmented industry. The return of fast trade growth has ensured fragmentation remains the norm: consolidation loses its appeal as most players focus on growth investments to meet the demand. Liners in particular push towards larger and larger ships, including some of 30,000 TEUs or more, causing further investment anguish among ports and terminals. The continued fragmentation paired with larger ships means alliances among the liners remain useful. Vertical integration across freight forwarding, terminals, and container shipping is considered a distraction as all players instead "go for growth."

For the freight forwarders, much of the trepidation about digital disruption is muted. Digital proves to be complementary to their services; the freight forwarders themselves digitise and cement their place as central players in the container transport ecosystem. Many new small and medium-sized exporters emerge and require freight forwarding services to reach overseas customers. Therefore, freight forwarders continue to earn a satisfactory return, while the container lines and terminal operators see returns similar to the last 25 years.

“Peak container” & consolidation

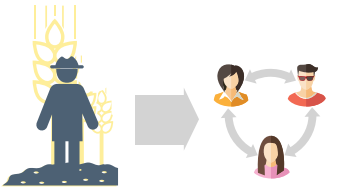
TRADE DEMAND

<1X
MULTIPLIER

FURTHER SLOWDOWN OF TRADE GROWTH

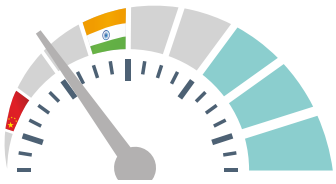
NO MORE CONTAINERISATION

MARKET STAYS FLAT AT 23%



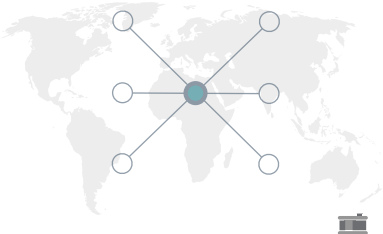
INCREASING SHARE OF “LOCAL FOR LOCAL” SUPPLY CHAINS

CHINA’S EXPORT ENGINE SPUTTERS AND INDIA DOES NOT ACHIEVE “BREAKOUT” GROWTH

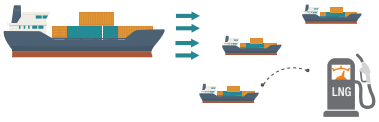


SECTOR ECONOMICS

SCALE ECONOMIES LOSE SALIENCE BECAUSE INSUFFICIENT DEMAND TO FILL SHIPS



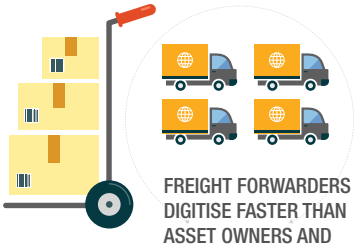
HUB-AND-SPOKE NETWORKS; MORE TRANS-SHIPMENT



DIGITAL, DATA, AND ANALYTICS ONLY AN “OVERLAY”

GRADUAL AUTOMATION, ESPECIALLY LANDSIDE (PORTS, RAIL, TRUCKS)

INDUSTRY STRUCTURE



FREIGHT FORWARDERS DIGITISE FASTER THAN ASSET OWNERS AND AVOID DISRUPTION

ACCELERATED CONSOLIDATION RESULTING IN 3-4 LEADING LINERS

VERTICAL INTEGRATION PROVES TO BE OF LIMITED VALUE

ALLIANCES LESS VALUABLE

“DIGITAL NATIVES” PLAY IN THE MARGINS; NO ENTRY BY “DIGITAL GIANTS”

"Dreadful": that was the word uttered by a container terminals group CEO during a results presentation in 2031. At some point in the late 2020s, trade had gone into reverse. Geopolitical conflict, trade disputes, growing interest in local products, and a complete revolution in manufacturing technologies had spurred a major shift towards the re-shoring of manufacturing. 3D printing had finally come of age, and was starting to be used for the manufacture of entire products, not just individual pieces – a full aircraft engine, say, instead of just one nozzle. Advanced robotics had become cheap and effective, encouraging more near-shoring and quickly displacing millions of workers who couldn't re-train fast enough. Mass "technological unemployment" was one of the most pressing socioeconomic issues of the day.[17] Dislocation and resentment fed populist, nationalist, and revisionist political movements; trade wars were already a frequent occurrence, and geopolitical conflict didn't seem far away.

> "China will turn into Japan: low growth as its population ages."
>
> – *Container shipping executive*

> "Robotics and 3D printing are going to cause the populists to come to power."
>
> – *Container terminals executive*

"Peak container" – the cresting and eventual decline of containerised trade – was at hand. Everyone in the container transport industry felt it. Liners that had over-extended themselves were overwhelmed by rates that did not cover their operating costs. Those in a stronger position quickly focused on consolidation as a survival strategy, and 3-4 major leading liners eventually formed. Terminals and freight forwarders suffered as well but had other advantages: terminals often enjoyed prime real estate that could be put to other uses, especially on behalf of e-commerce firms, and freight forwarders could re-focus their business on domestic and intra-regional cargo movements.

The expected digital revolution in container transport never lived up to its promise. Industry incumbents facing significant financial duress were unable to invest in the talent and technologies to make it happen, and the tech sector lost interest once it became clear that international trade was on the decline. Container transport looked little different from today – except the container ships and terminals were starting to rust, and "growth" was no longer in the vernacular.

All in all, the container lines faced paltry returns, despite the thinning of their ranks. Terminals' revenues also suffered due to declining volumes, with some able to preserve margins by automating where possible. Meanwhile, freight forwarders proved nimble in reorienting themselves from ocean freight-forwarding to the fast-growing domestic and intra-regional trades.

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17 For a thoughtful analytical treatment of the question of automation and "technological unemployment," please see McKinsey Global Institute, Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation (2017).

It is not hard to imagine four different worlds for the container transport industry over the next 25 years. The first two – Digital Reinvention and Digital Disruption – assume digital, data, and analytics will be the most important industry trend and the real question is who leads the transformation: incumbents or new entrants? The latter two – Third Wave of Globalisation and "Peak Container" and Consolidation – assume digital is important but not a fundamental shift, and instead the real question is the outlook for trade growth. In truth, the world to 2043 will probably adopt some characteristics of all of these scenarios or surprise us with something entirely unexpected. The question then for industry players is, how can one prepare for these unknowns and steer their businesses in the face of a range of scenarios?

About TT Club

TT Club is the leading provider of insurance and related risk management services to the international transport and logistics industry. As a mutual insurer, TT Club exists to provide its policyholders with benefits, which include specialist underwriting expertise, a world-wide office network providing claims management services, and first class risk management and loss prevention advice.

Customers include some of the world's largest shipping lines, busiest ports, biggest freight forwarders and cargo handling terminals, to companies operating on a smaller scale but whose operations face similar risks. TT Club specialises in the insurance of Intermodal Operators, NVOCs, Freight Forwarders, Logistics Operators, Marine Terminals, Stevedores, Port Authorities and Ship Operators.

For further details, please see our website at www.ttclub.com.

About Thomas Miller

Thomas Miller is an international provider of market leading insurance services, and is the manager of TT Club. Founded in 1885, Thomas Miller's origins are in the provision of management services to mutual organisations, particularly in the international transport and professional indemnity sectors. Today Thomas Miller manages a large percentage of the foremost insurance mutuals and is increasingly bringing knowledge and expertise to the development of specialist insurance services businesses.

Principal activities include:

- Management services for transport and professional indemnity insurance mutuals
- Managing General Agency
- Professional services including legal and technical services, claims and captive management
- Investment management for institutions and private clients

Further details can be found on our website at www.thomasmiller.com.

About McKinsey & Company

McKinsey & Company is a global management consulting firm that serves a broad mix of private, public, and social sector institutions. We help our clients make significant and lasting improvements to their performance and realise their most important goals. McKinsey & Company was founded in 1926 and today has 14,000 consultants and offices in more than 120 cities. We are an advisor to many of the leading container shipping liners, terminals and freight forwarders.

You can learn more about McKinsey's services in shipping and ports at: www.mckinsey.com/industries/travel-transport-and-logistics/how-we-help-clients/shipping-and-ports.

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We would also like to thank Jeffrey Lawrence, the Chair of Transportation & Trade at Cozen O'Connor, for his thoughtful review and comments on the report.

Note on methodology

This research combines the insights of the TT Club Board of Directors and other TT Club members; perspectives of customers and suppliers to the container transport industry, including "digital natives" and other start-ups; and McKinsey experts and analysis. During 2017 we interviewed over 30 industry leaders and experts, representing a wide cross-section of the industry including container liner operators, terminals operators, port authorities, freight forwarders, container lessors, financial intermediaries, suppliers of digital solutions to the transport and logistics industry, e-commerce companies, and law firms, among others. We ran a joint workshop with the TT Club Board members to further develop future scenarios. No proprietary data from the participants was exchanged or used to produce this report.

For the purposes of this report, we define the "container transport industry" as container shipping (container lines), container terminals, and freight forwarding. While freight forwarders participate in a wider part of the logistics space than containerised cargo transport, trends in container transport have a significant impact on freight forwarders.

This report is structured in four chapters. Chapter One ("Where we have been") outlines the incredible history of container transport. Chapter Two ("Where we are going") explores the points of fundamental agreement and disagreement about the outlook for the container transport industry. Chapter Three ("Four visions of the future") weaves together these elements to construct four potential futures that each present very different strategic implications. Chapter Four ("Preparing for the next 25 years") provides some closing ruminations on what the container transport industry should be doing now to anticipate a range of uncertain futures.

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