

FOUNDATION FOR FUTURE SUPPLY CHAINS

ANNUAL REPORT **2022**

Delivering Solutions for a post-Covid World

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THE NEED FOR NEW THINKING ...

The over-riding ethos of the Foundation for Future Supply Chain is that solutions can only be developed through an approach which addresses the needs of people, profit and the planet.

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PREFACE

Julia Swales

Advisory Board Manager

Foundation for Future Supply Chain

The logistics and supply chain industry has never before experienced the levels of public scrutiny it has seen over the past two years. Whether issues related to PPE, the challenge of keeping shelves stocked during work-from-home orders, the surge in last mile deliveries or port congestion and shipping rates, the sector has rarely been off the front pages.

In the midst of the crisis, the Foundation for Future Supply Chain was established to provide a roadmap for senior executives and a source of impartial advice for politicians. A strategic advisory board of leading experts was brought together to examine every aspect of the industry's transformation – from the impact of the Fourth Industrial Revolution to sustainability, risk and public policy.

Each of our experts has kindly contributed a short article to this our first thought paper, 'Delivering solutions for a post-Covid world'. The articles are wide-ranging reflecting not only the areas of interest of the experts on our board, but the breadth of the logistics and supply chain itself. If you find this paper of interest, please do not hesitate to contact us for more information about the aims and aspirations of the Foundation.

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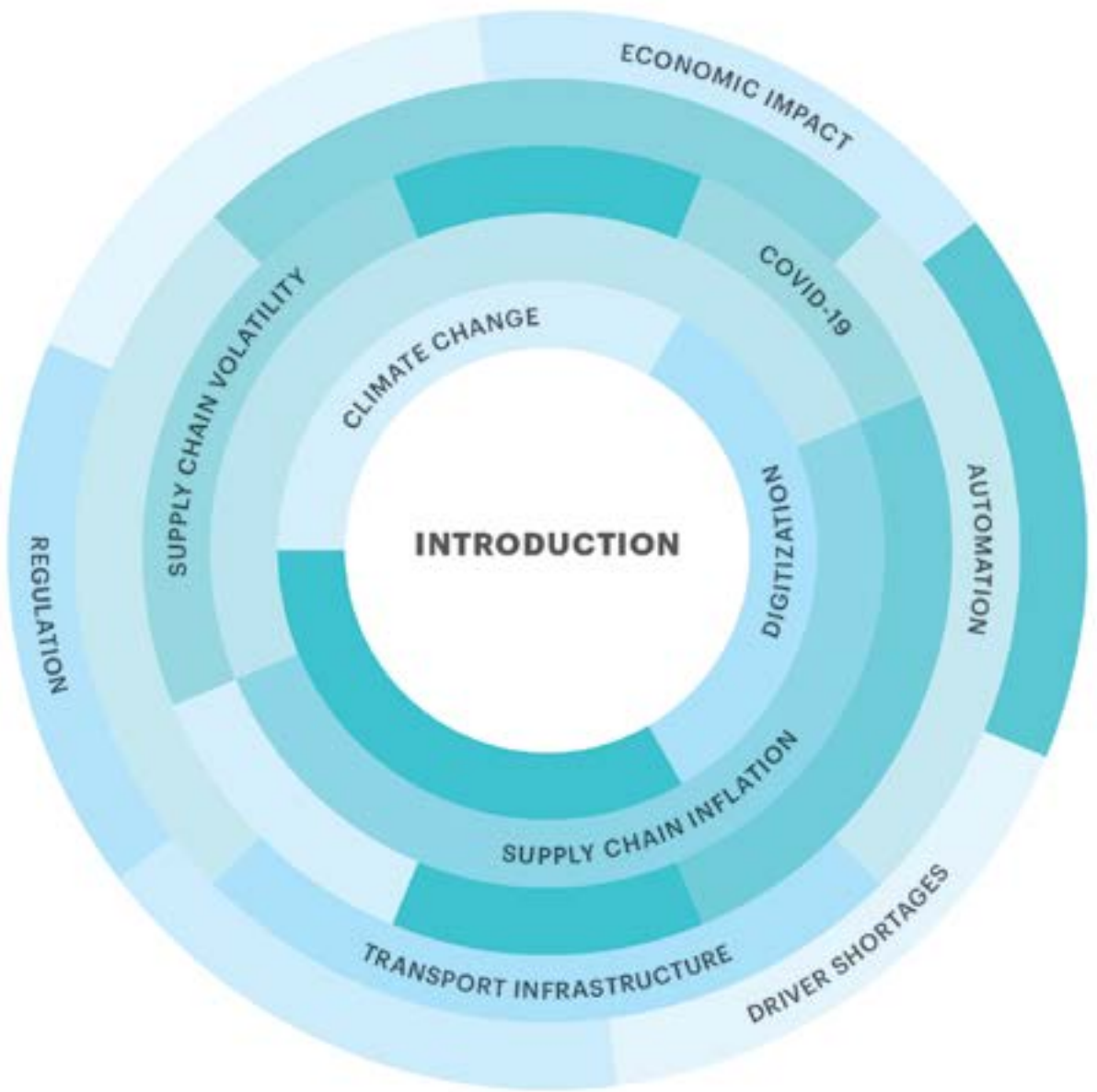


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INTRODUCTION

Supply chain dysfunction laid bare: the need for new thinking

John Manners Bell

Director, Foundation for Future Supply Chain

As we have seen throughout the last year, every new variant of Covid-19 is met by a range of new government interventions such as lock downs and travel bans designed to limit the spread of the virus and prevent health services from being overwhelmed.

The fresh regulations are primarily aimed at limiting social activity but inevitably have economic impacts, not least in terms of supply chains. Stimulus packages, loose fiscal policies and the stop-start nature of opening up and then shutting down economic activity has played havoc with logistics and transport systems which have been built on the assumption of regular and forecastable demand.

Whilst the government response to each new variant obviously prioritises public health, the knock on effect is that it creates supply chain volatility, exacerbating already severe pressures on the industry.

What seems to be a 'new normal' has seen Asian manufacturers regularly shut down output; ports and airports closed or compromised by labour shortages; ships queuing at anchor one month and sailings blanked the next; bellyhold capacity rise and fall depending on passenger travel bans; Western ports and warehouses overwhelmed and systemic driver shortages.

For importers this has resulted at various times in:

- Overstocking of inventory (i.e. when retail outlets were closed down)
- Shortages of components (i.e. when suppliers suspended production or shipments are stuck in ports)
- Higher transport costs
- Less consumer choice
- Supply chain inflation
- Higher prices for consumers

In other words, supply chain dysfunction and potentially a push back against JIT and even globalization.

Whilst this may be regarded as a 'necessary evil' in the short term, the fall out is increasingly severe felt not least by micro, small and medium-sized enterprises (MSMEs) who bear the brunt of rising shipping rates and disrupted supply. Large companies, with bigger buying power, receive preferential treatment and better rates from logistics providers, making it even more difficult to compete.

So, what's the solution? Of course, there is no single silver bullet but corporations and governments should pursue strategies and policies which result in:

- Shorter – localized and more regional – supply chains to mitigate many of the risks endemic in sourcing goods remotely.
- Container shipping fleets less focussed on ultra-large vessels limited to a small number of consolidated gateway ports. In effect the encouragement of more agile maritime operations.
- The development of an air cargo sector less reliant on passenger operations and strategy. More all-freighter solutions.
- An increased automation of ports and warehouses to remove the reliance on labour.
- A focus on the quality of the trucking sector not price. Improvement in pay and conditions to address the driver shortage.
- Digitization and subsequent digitalization of trade and logistics to improve visibility, efficient and capacity utilization.
- More investment in basic transport infrastructure such as ports, airports, road and rail.

In many respects Covid has laid bare the weaknesses of the supply chain and logistics sector. Short term fixes are few and far between so our industry must plan not for a post-pandemic world but to create models which can adapt and thrive in an environment of constant volatility

What's more, unless it gets this part right, we will see the issue of sustainability continually kicked down the road - there will always be a more pressing crisis to deal with.

In my opinion, governments around the world need a coordinated and cohesive approach rather than the knee jerk reactions to each event which characterise present practice. For its part, the industry needs to inform public policy thinking but to do so effectively, companies and the organizations which represent them need to look beyond each individual sector's silo and self-interest.

Very few governments have been able to link together many of the themes outlined above in a way which fully exploits this value creation potential. Administrations are almost invariably organized into departments – transport, trade, finance, employment, business, justice, for example – and consequently are incapable of developing policy which actually reflects modern, international supply chains. Relations between these various departments tend to be adversarial, usually squabbling

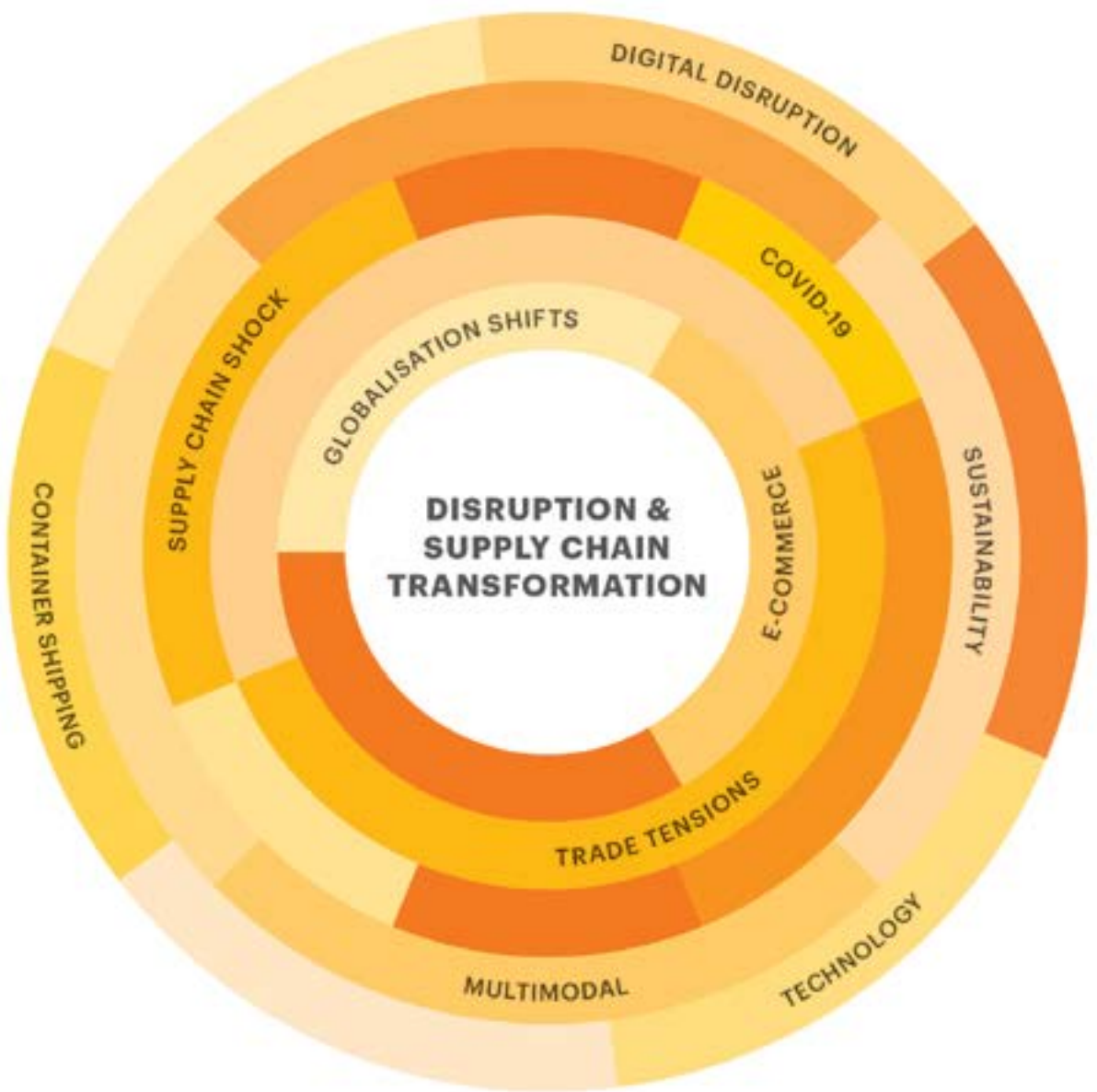
over budgets; in some ways their approach could be compared with the ‘silo’ thinking that used to characterise many manufacturing companies before the adoption of cross-functional supply chain concepts became the norm.

This must change. Governments have to recognise that if goals of economic development, employment generation and climate change mitigation are to be met, a new approach will be required. This will include cross-department cooperation with the aim of reducing trade friction; encouraging investment in green technologies; building transport infrastructure fit for the 21st century and developing a vision for supply chains which embraces many of the innovations of the Fourth Industrial Revolution.

More than anything, the Covid crisis has demonstrated the importance of the supply chain and logistics industry to modern economies and societies. It has also highlighted the huge responsibility that companies, governments and all other stakeholders have in ensuring that the sector develops in a way which enables the ethical creation of economic growth and jobs, thus lifting millions out of poverty, but doing so in a way which does not harm the planet on which we all live.

It is for this reason that the **Foundation for Future Supply Chain** has been established. It promotes best practice in the industry, acting as a guide for governments and businesses alike. It has established a forum for discussion of critical issues, bringing together industry leaders, politicians, academics and other experts in a worldwide community. It provides exclusive insight into industry perception and behaviour through the commissioning of comprehensive research programmes. It will reach out to a new generation of professionals helping the industry grow and thrive through greater levels of diversity, especially promoting the better representation of women at the highest levels.

In summary, the Foundation’s aim is to ensure that the global Supply Chain and Logistics industry is universally regarded as part of the solution to many of the world’s most pressing challenges rather than being seen as part of the problem itself.



DISRUPTION & SUPPLY CHAIN TRANSFORMATION

6 drivers of next generation rapid change

Alan Braithwaite

Chairman of Chartered Institute of Logistics and Transport's Freight and Logistics Policy Group

The seismic change in the logistics industry over the last 40 years has been driven by several factors such as global sourcing and container shipping, the centralisation of supply chain networks, advanced materials handling and information and communications technology.

Now in 2021, we are facing the zero-carbon imperative, UN sustainable goals and a shift in geopolitics. There are 6 drivers behind this: carbon and air quality; congestion and liveability; sustainability of materials; consumption channels; supply chain resilience; lot-size-one and digital capabilities.

There are implications for all these drivers, such as massive investments in energy supply, network re-design, re-shoring and near shoring, a surplus in retail space and fleet mix re-specification. These can lead in turn to operator hedging to reduce financial risk, investment delays, consumer resistance and regulatory difficulties.

So how should the logistics industry prepare for and mitigate risk?

It's clear that planning for capacity and executing to demand is an essential strategy. The decoupling of inventory within the manufacturing process provides a safety buffer to cover unexpected situations. Without the inventory at the decoupling points, a disturbance on the supplier side can have an amplified impact on customer demand.

De-coupling in the future will be centred around manufacturing capacity and its flexibility – can it be reconfigured and redeployed as needs evolve? This 'decoupling point' between lean and agile processes can be used to bring about a radical shift in economies of scale – a lower volume production becomes feasible, enabling a move towards more sustainable production and consumption.

Aligning the corporate culture with sustainability strategy

Celine Hourcade

Managing Director, Change Horizon.

As the world's eyes were on the UNFCCC COP26 discussions in Glasgow the last couple of weeks, the climate negotiations offered a powerful momentum for companies to build on and become truly sustainable. Based on the results of the first TIACA Air Cargo Sustainability Survey, run in late 2020, **81% of air cargo professionals** agree that sustainability is a real strategic priority for their companies.

While we believe that a strong sustainability strategy is critical to a successful transition to long-term business sustainability, a company needs culture conducive to its execution:

Culture is like the wind.

It is invisible, yet its effect can be seen and felt.

When it is blowing in your direction, it makes for smooth sailing.

When it is blowing against you, everything is more difficult.

- Simon Sinek, author and inspirational speaker

Sustainable business culture ensures that each brand touchpoint has a sustainability aspect, and each action of any employee no matter their function or rank is guided by sustainability principles. In other words, sustainability is an integral part of the company's DNA. Here are the 4 elements of a successful sustainable corporate culture:

1. Corporate value

When sustainability is well articulated as a core value of a company, it cannot be treated as an obligation or an added expense with no concrete benefit. This core value needs to be well communicated across the whole organization and embedded in operating procedures so that each employee is fully aligned on its importance and ready to exercise it through daily practices.

2. Audibility and visibility

The symbols of sustainability embedded in the branding elements of a company can create the feeling of solidarity and belonging. The key slogans, workspace set up, team behaviors all contribute to building a distinctive and inspiring sustainability culture identity. Employees who endorse the new way of doing business internally go on to become the premier ambassadors of the sustainability culture when facing external customers.

3. Continuous learning

Employee training and upskilling are essential to getting people up to speed and filling any knowledge gaps on an individual basis. While comprehensive development plans for teams and departments can help improve sustainability capacity on a higher level. Learning opportunities could be offered via online training sessions, interactive workshops as well as on-the-job learning.

4. Accountability

Integrating sustainability in the business goals and adding them to the performance review process can help to keep the sustainable practices on the radar and be taken seriously. Walking the talk and empowering sustainable behaviors which are embedded in the values, culture code and company vision as well as measuring and rewarding positive sustainability actions among employees are a sure way to help enable the switch to sustainable corporate culture.

The Suez Canal blockage – future risk management insights

Nick Wildgoose

CEO Supplien Consulting.

The incident in respect of the blockage caused to the Suez Canal by the container ship Ever Given, certainly focused the world's attention again onto the dependency we have on global supply chains and how vulnerable they can be. If they had not been able to move the vessel, say it had broken up as they tried to free it from the sand banks then the canal could have been blocked for months. However, this would not have been such an unprecedented situation as some journalists suggested, the canal has been closed on previous occasions in history such as following the Six-Day War it was closed for 8 years.

However, it does highlight a broader risk issue, which is that of the adequacy and the interconnections of logistical and other infrastructure and the dependency that globalised supply chains have on these key pieces of infrastructure. There has been a trend for several years for container vessels to get larger in terms of their capacity, this has been largely driven by the cost and carbon footprint advantages. It does however restrict the number of ports that can take vessels of such a size. This together with the vessels themselves creates a concentration risk around one of these major ports being closed long term due to a blockage caused by one of these large vessels or damage due to a significant weather event or a failure of some other part of the key port infrastructure e.g., electrical power. It is important that organisations consider these potential single points of logistical failure in their critical supply chains. Just looking at one of these ultra large container ships which can carry up to 24,000 containers and assuming a conservative value per container of \$20k then the value of goods on a single ship is around \$480m. Its failure to deliver on time can have an impact on many different supply chains.

This dependency on a particular part of logistics infrastructure is often overlooked in the typical risk management process carried out by many organisations. I personally have experienced this, for example, when working in the past on supply chain risk management review exercises with two large multinational companies: -

- The first company already had a well-developed supply chain risk management process. However, they were using the cheapest "ad hoc" haulage companies to service their highest value adding factory facility in Europe.
- In the other case, although the company was sourcing from a variety of suppliers in Thailand and neighbouring countries, around 80% of the profitability of that division was dependent upon the continued operation of Thailand's major port Laem Chabang.

This realisation led both companies to risk mitigation actions through logistical and sourcing changes to reduce the likelihood and impact of any potential disruptions. The importance of understanding the estimated financial impact of the failure of a particular aspect of your logistics network should be embedded in your supply chain risk management processes. The need for this is only likely to increase driven by several factors including: -

- Concentration of logistical infrastructure and hence exposures.
- The threat of climate risks to a number of these logistical structures such as ports
- Failures by governments to invest in a timely manner in infrastructure.
- Lack of understanding of infrastructure interdependencies. For example, the ability of many logistical facility to operate without electrical power can be severely restricted.

Based on your own internal data and that available in the public domain it is possible, to map out at a high level the value flows associated with your most profitable products. This is something I would urge you to do, so you are not taken by surprise by a single point of failure in your logistics infrastructure.

Covid-19 triggers for the spike in freight rates and costs

Jan Hoffman

Chief, Trade Logistics Branch

Division on Technology and Logistics, UNCTAD.

Demand for goods surged in the second half of 2020 and into 2021, as consumers spent their money on goods rather than services during pandemic lockdowns and restrictions, according to the Review of Maritime Transport 2021 (UNCTAD). Working from home, online shopping and increased computers sales all placed unprecedented demand on supply chains.

This large swing in containerized trade flows was met with supply-side capacity constraints, including container ship carrying capacity, container shortages, labour shortages and continued on and off COVID-19 restrictions across port regions and congestion at ports.

This mismatch between surging demand and de facto reduced supply capacity then led to record container freight rates on practically all container trade routes.

For example, the Shanghai Containerized Freight Index (SCFI) spot rate on the Shanghai-Europe route was less than \$1,000 per TEU in June 2020, jumped to about \$4,000 per TEU by the end of 2020, and rose to \$7,395 by the end of July 2021. On top of this, cargo owners faced delays, surcharges and other costs, and still encountered difficulties to ensure their containers were moved promptly.

Everyone is affected, but not equally.

The impact of the high freight charges will be greater in small island developing states (SIDS), which could see import prices increase by 24% and consumer prices by 7.5%. In least developed countries (LDCs), consumer price levels could increase by 2.2%.

Supply chains will be affected by higher maritime trade costs. Low-value-added items produced in smaller economies, in particular, could face serious erosion of their comparative advantages.

In addition, concerns abound that the sustained higher shipping costs will not only weigh on exports and imports but could also undermine a recovery in global manufacturing.

Sustained high rates are already affecting global supply chains - Europe, for example, has been facing shortages of consumer goods imported from Asia such as home furnishings, bicycles, sports goods and toys.

A surge in container freight rates will add to production costs, which can raise consumer prices and slow national economies, particularly in SIDS and LDCs, where consumption and production are highly depend on trade.

The high rates will also impact on low-value-added items such as furniture, textiles, clothing and leather products, whose production is often fragmented across low-wage economies well away from major consumer markets; the UNCTAD predicts consumer price increases of 10.2% on these.

The analysis further predicts a 9.4% price increase in rubber and plastic products, a 7.5% increase for pharmaceutical products and electrical equipment, 6.9% for motor vehicles and 6.4% for machinery and equipment.

The impact of the high freight rates will not be evenly spread, even within Europe, and will be generally greater in smaller economies.

It is suggested that prices would rise by 3.7% in Estonia and 3.9% in Lithuania, compared with 1.2% in the United States and 1.4% in China. This differential also reflects a greater “import openness”, the ratio of imports to GDP, which is typically higher in smaller economies.

Manufacturers in the United States rely mainly on industrial supplies from China and other East Asian economies, so continued cost pressures, disruption and delays in containerized shipping will hinder production.

A 10% increase in container freight rates, together with supply chain disruptions, is expected to decrease industrial production in the United States and the euro area by more than 1%, while in China production is expected to decrease by 0.2%.

UNCTAD emphasizes that transport costs are also influenced by structural factors, including port infrastructure quality, the trade facilitation environment and shipping connectivity, and there is potential for significant improvements.

Addressing high freight rates

Countries need to consider a portfolio of measures that span hard and soft infrastructure and services. Improving the quality of port infrastructure would reduce world average maritime transport costs by 4.1%, while costs would be reduced by 3.7% by better trade facilitation measures and by 4.4% by improved liner shipping connectivity (figures assume an improvement from the 25th percentile to the 75th percentile).

Governments need to monitor markets to ensure a fair, transparent and competitive commercial environment with more data sharing and stronger collaboration between stakeholders in the maritime supply chain.

There also needs to be continuous monitoring and analysis of trends to find ways of cutting costs, enhancing efficiency and smoothing delivery of maritime trade. Smaller economies need to diversify by graduating to higher-value-added products to be more resilient to external shocks.

In the medium to longer term, the maritime supply capacity will also be affected by the transition of the industry towards zero-carbon shipping. To ensure that the necessary investment in ships, ports and the provision of new fuels is not delayed, it will be important for investors to count on a predictable global regulatory framework.

The IC shortage - vehicle manufacturers are rethinking their supply chain strategy

Anders Petersson

Business Intelligence Director, Volvo.

The global integrated circuits shortage and the associated supply chain issues is having a huge impact on the vehicle manufacturing industry.

The IC shortage is a major issue for Volvo as well as many vehicle manufacturers. The situation is mainly consumer driven. Covid-19 has resulted in pent-up demand and then the stimulus packages to boost the economy in US and Europe, threw petrol on the fire. Also, of course, during Covid-19 ships have been in one place and containers in another, so supply chains have been and still are in turmoil.

The majority of integrated circuits are produced in Taiwan, Japan, and South Korea. Both the US and Europe have handed over all their production and we can see the negative effects of this now with the breakdown in the supply chain. These have been combined with some unfortunate events in Taiwan, Japan, and South Korea. Both the US and Europe have handed over all their production and we can see the negative effects of this now with the breakdown in the supply chain. These have been combined with some unfortunate events in Taiwan – they have just suffered the worst drought for 50 years. The world's largest third-party semiconductor manufacturer, Taiwan Semiconductor Manufacturing Co. (TSMC), had to resort to trucking in tanks of water from the island's greener south side to maintain production.

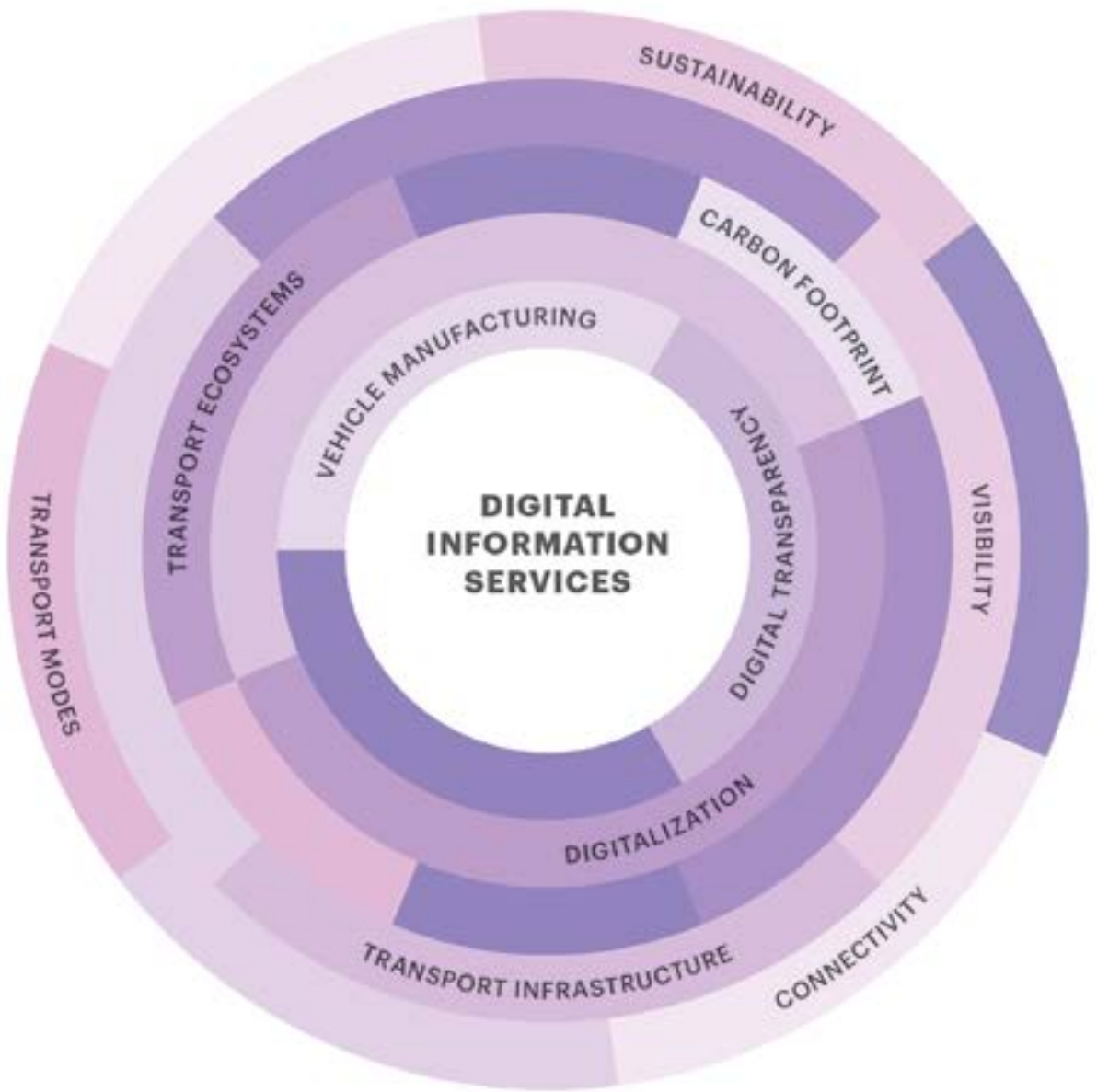
At Volvo they reduced their demand and turned off the flow as soon as Covid-19 hit. The IC circuits that were produced for the vehicle industry were instead produced for the PC industry, where demand was going through the roof. When consumer demand came back to the vehicle industry, this of course caused many problems.

It's interesting to note that several producers such as TATA and BYD have said that they will start to produce IC circuits, which is a huge challenge as this is extremely complicated - they obviously feel that they need to have control of this. We are in this paradigm shift of going from globalisation to regionalization whilst still dealing with Covid-19. Companies are looking at making their supply chains more resilient, so that they can factor in this type of upheaval - they are looking at sourcing suppliers closer to home and closer to their production plants. This is already happening in different industries such as fashion, but it will take years for the automotive industry to change. A lot of the key components are produced in China, Taiwan, Japan and South Korea and will continue to be so.

The movement is there to perhaps encourage suppliers to set up more production at home, but this is a very slow process.

Many OEMs are now looking very closely at their second, third and fourth tier suppliers. Where are they? How resilient are they? What are the alternatives? They are of course following the move in Europe towards their own production of integrated circuits, just like Siemens, but it's a long-term strategy. Some of the core vehicle manufacturers have been tough and selected models that they are really going to make money on – those models will get the IC circuits and they have stopped producing other models. It's all about prioritizing, looking over the supply chain and making changes.

Volvo's quarterly reports which have just been published are good, but the supply situation is still a big problem. Paccar, for example, have stated that in the last quarter they could have sold between 7000 and 9000 more trucks in the US, but they didn't have the supplies – and that's not just integrated circuits, there are also many other supplies that are not available, such as magnesium alloys. The market is good, because the demand is there, but vehicle manufacturers are still dependent on their suppliers.



DIGITAL INFORMATION SERVICES

The late delivery of technology to trucking companies

Ken Lyon

Managing Director of Virtual Partners Ltd.

Data and information are critical ingredients to efficient logistics operations. This is hardly surprising, as almost every aspect of life in developed economies is either conducted 'online' or has an online equivalent. So it is essential for any business hoping to operate effectively, that they are able to connect and interact digitally with their clients and suppliers.

So why is there still some reluctance on the part of some road freight operators to embrace the use of technology within their operations?

On examination, the primary barriers are culture, cost, lack of tech knowledge and lack of trust and fear of transparency that technology enables.

If we take each of these in turn...

Culture

Many small trucking operations were usually founded by a single owner/operator who has provided exceptional service to a small group of customers. These relationships are often based on close personal relationships with the the managing directors/transport managers of the client firms. These bubbles of co-dependency have endured for many years while the basis of the client business required consistent, reliable transportation provision on agreed trade lanes that seldom changed.

They could operate effectively with a minimum of information sharing and when the time came to adopt technology, the email exchange of purchase orders/shipping and delivery instructions and POD's was seen as the end game.

The owner of the company was able to maintain this approach, one that was relatively low cost (although the preference would always be 'no cost') because it did not challenge the basic premise of the business and ensured the predictable cash flows and related margins. The culture of the business from day one was to maintain the customer relationship, watch every penny of expenditure (sensible) and avoid any initiatives that would change this dynamic.

Cost

The perception in many smaller trucking businesses has always been that technology always costs and advanced technology costs a lot more. This is understandable but is based on a view of the tech industry from decades ago that is no longer accurate, or relevant. Because of this mindset, there is usually no incentive to keep up with technology trends and appreciate the dramatic fall in costs of technology acquisition and application.

Only when clients insist that technology investment is required to maintain the business relationship, do these small companies respond. But they tend to do so in the absence of any kind of technology strategy and the likely opportunities to transform the operations of other areas of the business. If this was done, they may realise that a more efficient operation may result, reducing costs and providing the opportunity to gain more clients.

Limited knowledge

The interconnected nature of most logistics operations is a result of the evolution of just in time operating models. The coordinated flow of shipments and the necessary information, requires that each involved party is able to transfer and receive data at any point in the process. Any of the players not able to participate in this 'network' are a drag on the optimal performance and are either replaced or penalised financially.

Any small or medium sized truck operation should therefore have members of the management team who appreciate technology and how it should be applied. There is usually a reluctance to either hire these kind of individuals, or encourage and promote existing staff members into such a role. This is a mistake and is usually due to nervousness on the part of the owner providing management responsibilities to someone who has more knowledge and potentially more control, than they do. But this is ultimately unavoidable if the company wishes to remain relevant and competitive in a market where the most lucrative operating margins go to companies able to perform in an integrated information environment.

Lack of Trust

The time sensitive collection and delivery services that are part of almost every logistics contract can only function if supported by the transparency of information. This operational visibility enables the active (and often pro-active) management of schedules and swift response to problems. The track and trace technology introduced by the global integrators enabled them to respond and re-route shipments in the event of any disruptions. It was also a great sales pitch to customers that they could see the progress of their shipments.

This technology is now commonplace, but for smaller transport operators this operational transparency causes apprehension. The fear is that any mistakes they make will be instantly visible to their clients and operating partners. Simply put, they do not trust their own ability to perform.

In addition, they must inherently trust their partners by sharing huge amounts of operating data. This is challenging when the culture for many of these companies has always been not to share any information at all, as it provides a competitor with the advantage.

A huge shift in mindset is required because unless companies are prepared to share large amounts of data and information, they are automatically at a disadvantage to competitors that do.

Every company providing road freight services must now recognise that they are part of a sophisticated network of physical operations driven by information technology. They must adopt and embrace information systems that will not only improve their efficiency, but boost profitability by reducing mistakes and enhancing customer service. They will not be able to hire the best staff members and compete for the most profitable clients.

As a reference point, the necessary information systems and application services no longer require large capital investment as they are provided as subscription services via the internet. This is similar to the operational expense of having a phone system back in the day. More to the point, these systems can easily support the growth of the company by just increasing the monthly cost in line with the required demand.

These systems and services can be operated by a range of mobile devices extending across the company. Indeed, modern trucks already contain huge amounts of processing power that provide data to the owners and operators for enhanced maintenance and performance. Modern transportation management systems are designed to incorporate all of these technologies into an integrated operating platform.

The slow adoption of technology by many smaller truck operators will have to change if they expect to remain a relevant option. The global demand for HGV drivers is another factor putting pressure on the small truck operators. It is interesting to observe that in many other sectors of the logistics and supply chain management landscape, there are young entrepreneurs starting technology companies to disrupt incumbent operators.

The one exception seems to be physical truck operations. This may illustrate that they either have operating models that are too complex and too efficient to challenge (unlikely), or that they will soon be irrelevant as their role will be performed by the logistics companies who use advanced information systems to direct and control single owner operators, similar to e-commerce local delivery models.

Seamless transports and logistics through supply chain visibility

Cecile Strokirk

Researcher and Project Manager, Seamless Transports, at RISE AB, Research Institute of Sweden.

Transport nodes, such as seaports, inland terminals, airports, highways and railroads are hubs in a multimodal transportation network that facilitate the smooth operation of passengers and freight. They often don't work so well together, with a lack of coordination and connectivity.

The Seamless Transports project at RISE (Research Institutes of Sweden) is aiming to make these transport nodes more integrated into the transport chain. Different industries have widely diverging needs - the transport ecosystem is composed of many autonomous transport operators. For example, 90% of all goods transported in the world use maritime transport, but the goods must get to the ship then be transported from the ship using different modes of transport, which puts a lot of pressure on the seaport transport node.

Digitalization helps transport nodes to be smoothly integrated into this transport ecosystem, coordinating operations and allowing efficient transport movements between nodes. This brings a number of benefits, such as improved supply chain visibility, the integration of track and trace capabilities, as well as automation of operations, energy efficiency and cyber security.

To support Seamless Transport, approximately 22 living labs (they operate in a real-life context with a user-centric approach) are being conducted within FEDeRATED, a European financed project for digital co-operation in logistics, together with 15 partners from public sector and business. The Call for Action was in 2018, the Masterplan Jan was in Jan 2019, the Mid Term Conference was on 24th of November 2022, and the project will end by December 2023. The practical living labs focus upon how information sharing and collaboration, amongst parties along the transport chain for selected events within a transport corridor, may be empowered by digital. An example of a living lab is a project with IATA where they have 11 (sub) living labs.

In summary, the research by RISE, supported by FEDeRATED should help information to flow more smoothly through supply chains, connect transport nodes and enable the collection and sharing of reliable and trustworthy data. The living labs find business cases that work, resulting in both business and societal benefits.

Drawing the line between transparency, tech stacks and sustainability

Ruthie Amaru

CEO, Freightos.com

In an interview with Ruthie Amaru, Chief Product Officer of the Freightos Group and Member of the Strategic Advisory Board of the Foundation for Future Supply Chain, I asked her about the role of API's (application program interfaces)) in shifting tech stacks from an internal efficiency orientation to unlocking new potential for inter-company collaboration in logistics and supply chain.

Historically, the lion's share of IT investments have focused on improving existing business processes or supply chain workflows, making them more efficient, with building programmes for internal teams. Taking different tech stacks with different information and connecting companies together takes this to a whole new level and creates a lot of change.

Slack is a great example of a tech stack with very strong APIs – the application programming interface is a self-enclosed programme with hooks or doors. Anyone can take the APIs and write their own programme depending on how people want to connect with it. They made it very easy for people to connect other programmes with Slack, such as Zoom. This is very much an external play, connecting more players through Slack, rather than improving the way that Slack functions.

APIs, meet global freight

Some of the bigger B2B SaaS (software as a service) platforms also use API integrations, such as Salesforce for managing sales, extending from software that users interact with to unseen technology that connects companies through different platforms. There were many customer relationship platforms before, but they can now connect to almost anything – so for supply chain, Salesforce is connected to transport management and procurement software.

This makes a lot of sense. Fintech companies, which used to be very insular, have also realised they need to embrace interconnected tech stacks. For example, Paypal's integration with eBay was one of the primary drivers of its initial success.

It's happening slowly in supply chain and logistics, as many of the players still don't have their own internal technologies set up. CMA CGM recently set up their own API so shippers can connect into their system to book a container, all from within their own technology stacks. Maersk is now putting everything online, but it's very early days. Freightos is building piping for freight pricing, booking and management, so that carriers and freight forwarders can connect with each other. This is a prime example of API's potential; a freight forwarder could book cargo space across more than thirty airlines, while both the airline and the freight company book and manage then transaction in their own platforms.

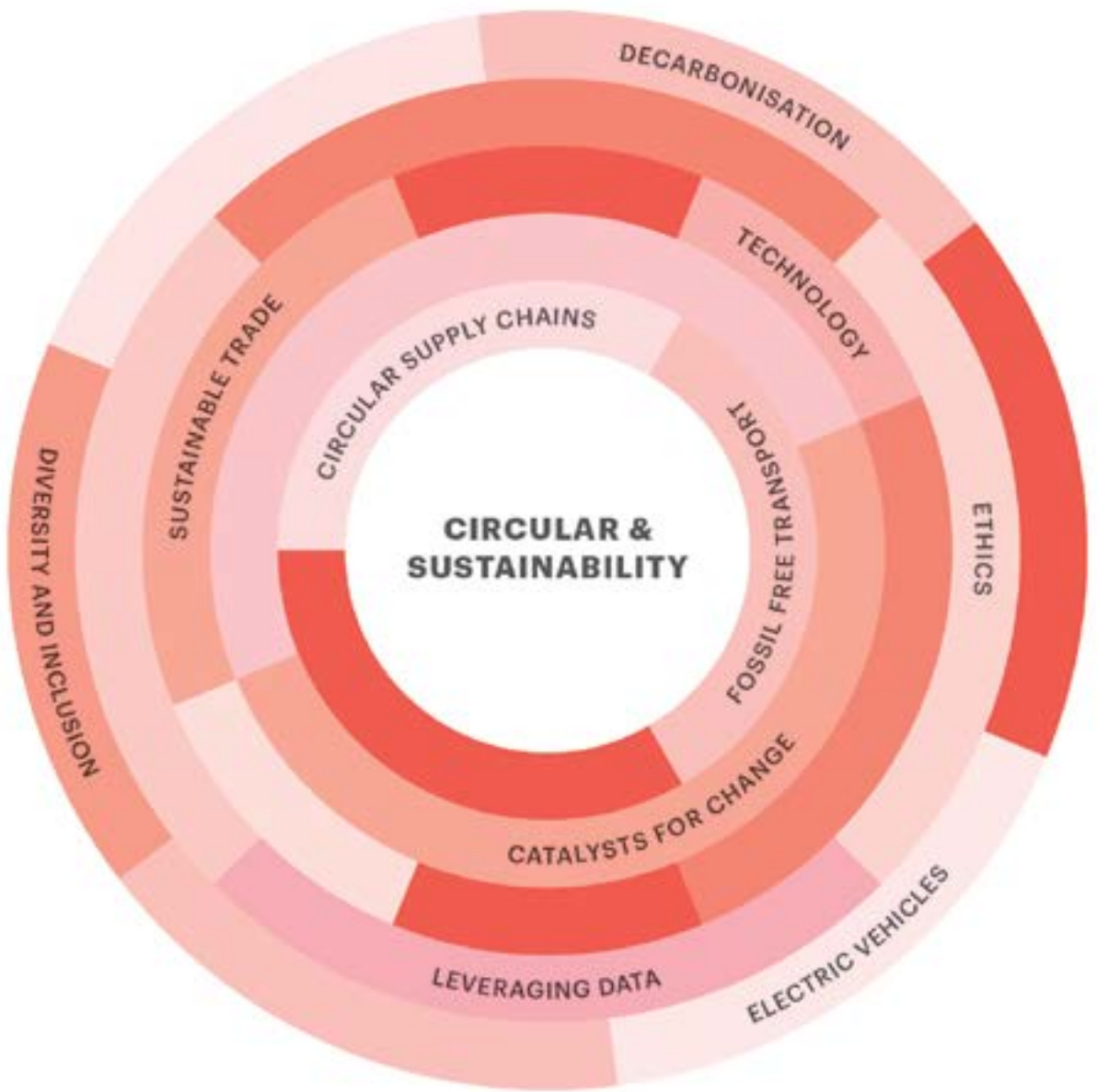
This same power of integration extends to smaller companies as well. On the Freightos platform they can upload all their pricing by leg between any two points in the world. Shippers can connect with different suppliers around the world, see the freight prices and work out the best way of shipping their products. APIs can also be used to track goods and can, for example, identify congestion in ports, where transit time will take longer.

The fundamental change that APIs have introduced to nearly every industry is quite clear. However, for logistics professionals, shifting to this approach is challenging.

Internal tech stacks in the industry rely on complicated layers of commercial relationships between carriers, layers of resellers and shippers, even though it's ultimately a box on a boat which must get to its destination on time.

When everything is opaque, with too many layers, how do you control anything? How do you hold people accountable if everything is done manually through multi-layer contracts? How do you untangle this? There are no cancellation fees, so how do you avoid overbooking? Without a cancellation fee there is very little visibility into the supply chain, so the carriers overbook to compensate, pricing is affected and the big companies win. If everything is traced back to the shipper, the government can start regulating it and the whole process becomes more effective.

In summary we need to get to the point where bookings are happening transparently and predictably, then we can start holding people accountable. Anything we can do to simplify the business environment around logistics will create massive change. Using interconnected tech stacks efficiently will have a big effect on reducing emissions in the logistics industry, as transparency is the first step towards any kind of sustainability.



CIRCULAR & SUSTAINABILITY

Was COP26 a missed opportunity for the transport and logistics industry?

John Manners Bell

Director, Foundation for Future Supply Chain

Despite all the hype, there was very little in the way of new announcements from the COP26 gathering of world and business leaders in respect to the logistics and transport industry. This should probably not have been unexpected as the power to make changes and set goals in the sea and air industry largely rests with supra-national non-governmental organisations (such as the International Maritime Organisation and the International Civil Aviation Organization). Any progress in these two sectors (or otherwise) is made through these fora, although of course pressure can be brought to bear by influential country members.

Road transport is a different case. Goal-setting is the responsibility of individual governments and this is why there has been a much more fragmented response with countries such as the UK being amongst the most aggressive in its targets. However, even this belies the reality of a global market. The development of alternative fuels and the eco-system required to support them relies on the progress of technology and global investment. Announcements to ban diesel by such-and-such a date at an individual country level are in themselves pointless unless global solutions are in place.

Summarised below are some of the main declarations made relating to the shipping, road and aviation sectors.

Shipping

At COP, 19 countries agreed to create zero emissions shipping corridors with the aim to achieve at least 6 green corridors by the middle of the decade and to scale up activity in the following years. This will involve addressing barriers, developing regulatory frameworks, information sharing and infrastructure and include voluntary partners such as ports and carriers. The so-called 'Clydebank Declaration' does not mean that all ships on these trade lanes will need to be zero emission. However, it will involve deploying new vessel technologies and putting alternative fuel and charging infrastructure in place in ports to allow for zero emission shipping on key routes across the globe. Few Asian countries have signed up, Japan being the major exception.

Whilst the declaration was largely aspirational and nebulous, the International Maritime Organisation (IMO) did come under pressure at the event from governments, including Denmark and the US, to set concrete net-zero targets. The IMO's goal of reducing GHG by at least 50% by 2050 compared to

2008, however, is not consistent with the COP26 goal of keeping temperature rises to 1.5% by the end of the century. Some commentators believe that this pressure may result in a change of policy as early as later this month at a meeting of its Marine Environmental Protection Committee.

Road

30 countries and 11 automotive companies committed to 100% zero emission car and van sales in leading markets by 2035 and globally by 2040. They said they would work together to make zero emission vehicles the 'new normal' by making them accessible, affordable, and sustainable in all regions by 2030 or sooner. A new World Bank trust fund will mobilise \$200 million over the next 10 years to decarbonise road transport in emerging markets and developing economies.

15 countries pledged to shift to clean trucks by committing to end the sale of most new diesel trucks by 2040. The UK has gone further. It announced that, 'The UK will become the first country in the world to commit to phasing out new, non-zero emission heavy goods vehicles weighing 26 tonnes and under by 2035, with all new HGVs sold in the UK to be zero emission by 2040.' Rather than make any announcement at COP, the EU is to consider a proposal to end new sales of internal combustion engine vehicles by 2035 in the coming months as well as setting targets to limit carbon emissions from heavy duty trucks.

Aviation

There were pledges from 23 countries to work towards decarbonisation in the aviation sector. However, there were no commitments to specific carbon emissions' reduction goals. Instead, it was announced that the partners to the declaration would, '...advance ambitious actions to reduce aviation CO2 emissions at a rate consistent with efforts to limit the global average temperature increase to 1.5°C' as well as to '...take into account the industry's commitment to net zero CO2 emissions by 2050'. This will include the development of sustainable aviation fuels.

The declaration committed to support the International Civil Aviation Organization (ICAO) as the appropriate forum to ensure the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to address aviation emissions. This has not pleased some lobbyists. Matt Finch of environmental organisation 'Transport & Environment' asserted: "At a COP dedicated to raising ambition, it's disappointing that these states continue to rely on the UN's deeply flawed aviation agency." He went on to say, "The signatories should follow the UK's lead and take the essential first step of including their share of aviation emissions in their individual country budgets. Clean aviation will remain grounded so long as states continue to shirk their individual responsibility to act."

Conclusion

In summary, there was little new to come out of COP26 which will have a material impact on the transport and logistics industry. The regulatory response to global challenges (such as climate change) in the air and sea industry has been ceded to supra-national organisations such as ICAO and IMO. Their decisions, the result of long negotiations taking into account the views and interests of multiple stakeholders, can then be transposed into law by individual members. However, getting agreement amongst so many members is a difficult and long-winded process, a source of considerable frustration to many environmentalists. The alternative, individual countries taking a lead by setting their own targets, may well sound like a more dynamic approach. However, this too is futile if technologies are not sufficiently advanced or no single coordinated approach is adopted globally. It could also leave some countries' transport and logistics industries considerably disadvantaged which could have a severe economic impact on competitiveness.

The reality is that despite calls for immediate action and the associated rhetoric, the international nature of the challenges; the multi-lateral structure of supervisory institutions; the immaturity of technology and the need for coordination of a response on a global level will delay the introduction of major changes to the industry for some time. Depending on your view this is either a sensible and reasoned approach or a catastrophic wasted opportunity in the face of the so-called 'climate emergency'.

Disparity of gender in logistics

Sarah Smith

Managing Director, Ti Insight

Transport companies are offering thousands of pounds in bonuses to sign up much needed truck drivers ... but why is the industry still missing out on half of our society ... women?

The road freight market, especially across Europe, is highly fragmented made up of small, medium and large providers. So how is it that across the board they are all falling so wide of the mark when trying to encourage women drivers? For context, only 1% of truck drivers in the UK are women.

The truth is that there are many factors leading to the on-going driver shortage issue which at the moment Ti estimates to stand at +100,000 in some countries such as Poland, +75,000 in the UK and +60,000 in Germany, just to give an idea of the scale of the problem. These factors include but are not limited to: an ageing workforce and insufficient new recruits over the last 15 years; image issues of the profession; increased regulation and cost associated with becoming a driver; and not least working conditions which include issues around conditions at service stations and the very real problem of security.

But the disparity by gender is not just prevalent in the road freight industry, it's a known challenge facing the entire transport industry and it's a problem around the world.

The ITF – International Transport Federation – is working hard to call into question the additional challenges women face in the industry. In a worldwide survey of road and rail unions, 42% of women said that they had experienced incidents of violence and sexual harassment. That is a shocking statistic. But the ITF has also produced a series of inspiring films showing women around the world not just surviving in transportation roles such but succeeding and paving the way for others to follow.

So what can be done to encourage more women to join the transportation industry?

It is surely the role of governments, private companies and unions to work together to secure a fair representation of women so that they can be at the heart of ensuring that working conditions and legislation don't discriminate against women or ignore the issues that affect them in the workplace. This includes basic human rights such as ensuring toilet and washing facilities for women in truck stops, service stations and all transport workplaces. There also needs to be a cultural shift within companies to focus on attracting women drivers through flexible working patterns. Companies such as Wincanton are instigating practices which see most drivers back to their base within the day.

There is some progress. There have been recent government announcements here in the UK aimed at reducing costs and red tape to help trainees gain their licence, and more and more companies are looking at new apprentice schemes to recruit younger drivers. Research suggests that out of the 2,200 female drivers in the UK, 15% of those are aged between 21-25 showing that already more women are starting to join the industry. Let's hope that trend continues to grow and to spread across Europe.

Is carbon labelling of products a viable way of reducing carbon emissions?

Alan McKinnon

Professor of Logistics in the Kühne Logistics University, Hamburg and Professor Emeritus at Heriot-Watt University, Edinburgh.

Is it practical to measure supply chain GHG emissions at a product level. Is carbon labelling likely to induce a shift to low carbon consumption?

Trial schemes for carbon labelling consumer products began around 2007-8. Tesco committed in 2008 to carbon label all products by 2012 as part of a government-backed pilot scheme. At the time its product range comprised around 75,000 different items. They carbon labelled about 100 products then realised that, at the rate they were carbon auditing them, it would take around 500 years to label the rest, so they abandoned the programme. Carbon auditing products across the supply chain was also found to be an expensive exercise. Boots carbon-labelled 8 shampoos and it cost quarter of a million pounds.

Efforts were, nevertheless, made at the time by organisations such as the Carbon Trust to standardise the measurement of product carbon footprint. Some developed carbon footprinting software – tools for enabling the calculation and recording of direct (scope 1) and indirect electricity-related (scope 2) emissions in accordance with the Greenhouse Gas (GHG) Protocol. The collection of scope 3 emissions from upstream suppliers and logistics providers presented a bigger problem, particularly for companies with complex, global value chains. Over the past decade, however, many businesses have strengthened their ability to collect, disaggregate and report emissions across all three scopes.

Interest in the subject is now rising again but there is still the issue of validation. Who will be responsible for this? Government agencies? Carbon auditors? There is the risk that if companies feel that they can derive a financial advantage from offering lower carbon goods and services, they will be tempted to under-report their emissions, especially if nobody is monitoring this.

Added to this, there are differences in the seasonal sourcing of a product – for example, Pepsico carbon-labelled its Walker crisps, but did not vary the CO₂ figure to reflect the sourcing of potatoes from different places at different times in the year.

A big concern is, would carbon labelling induce a big enough consumer response? Choice of product is often price associated. When buying fruit juice for example, if one carton costs £3 and produces 50g of carbon per litre and one is £1 and produces 70g of carbon per litre, would the average consumer go for the lower carbon product or the cheaper one?

Is there a way forward?

The measuring of carbon emissions is advancing - Blockchain can track carbon emissions across the supply chain and start-ups such as Tracks based in Berlin have developed software that measures transport emissions and collects primary data in real time. The challenge lies in disaggregating this vehicle emissions data. The break down is from truck to pallet to case to individual product. There is a big difference between a carton of orange juice and a fridge for example. With electrical appliances, most emissions come from the use of the product, not from its manufacture and delivery.

A better way of reducing carbon emissions in the supply chain could be through 'choice editing', focusing on the behaviour of retail buyers rather than the consumers, so looking upstream rather than downstream. Buyers could source products from lower carbon producers, looking at their overall carbon efficiency and finding suppliers that use renewable or low carbon energy and transport, so railways instead of trucks for example. In this way, they take more responsibility for reducing the CO2 which is embedded in products.

It is still difficult to know what this means in practice. How will companies communicate this to consumers? For example, Budweiser beer has 'brewed using renewable energy' emblazoned on its products but there is no mention of the emissions produced during the farming of the barley and hops. Budweiser is however, aiming to reduce the emissions of its 440ml cans using bespoke aluminium manufacturing technology from EN+ Group and renewable electricity across all areas of the value chain. [Budweiser carbon footprint](#)

In conclusion, the prospect of carbon labelling is being met with understandable scepticism. As Alan McKinnon stated in a letter to the FT on the 25 November 2020 "We definitely need to increase carbon transparency across supply chains but should be wary of attempting this on a large scale at product level".

EV battery recycling

John Manners Bell

Director, Foundation for Future Supply Chain

EV battery recycling initiative addresses waste reduction, but far more besides.

Moving to a circular supply chain for electric vehicle batteries is essential to reduce tons of toxic waste ending up in landfill. However, it also has less obvious economic, security and ethical implications for supply chains.

Whilst reducing carbon emissions is at the forefront of everyone's minds, it is important to note that many decisions related to decarbonisation can have unintended consequences. To date most concerns relate to the economic impact of migrating from fossil fuels to alternative energies, but there are wider ethical, security and even environmental risks which must be taken into account.

The manufacture of battery cells for electric vehicles is a case in point. Little consideration has been given to how to deal with the estimated 250,000 tons of batteries which will reach their end-of-life in Europe alone by 2030.

This is just one of the reasons why the recent announcement by Northvolt, the European supplier of battery cells and systems, is so important. It has produced its first battery cell with 100% recycled nickel, manganese and cobalt from battery waste with a performance on a par with cells produced from freshly-mined metals. All recycling and production processes were completed in Sweden and a 'giga-plant' is presently under construction, due to commence production in 2023, which will also have the capability to recycle lithium from batteries.

Emma Nehrenheim, Northvolt's Chief Environmental Officer, commented: "What we have shown here is a clear pathway to closing the loop on batteries and that there exists a sustainable, environmentally-preferable alternative to conventional mining in order to source raw materials for battery production."

This is obviously good news in itself but it also has a number of other major supply chain implications.

- The success of European battery cell manufacturers will be important strategically to the region's automotive sector. China is the dominant manufacturer of batteries for electric vehicles and European auto companies risk losing their market competitiveness.
- Europe and the US find themselves in competition with China for many of the Critical Raw Materials used in batteries. China has spent billions in establishing control of mines and

transport systems in Africa, Asia and Latin America. Recycling batteries would help the West create self-sufficiency at a time of rapidly deteriorating relations.

- **Ethics.** Little consideration is paid to the conditions in which miners in emerging and ‘frontier’ markets work. In places such as Congo, the industry has attracted criticism for child labour practices, environmental mismanagement and the sale of conflict minerals to support local warlords.

The ability to manufacture batteries from recycled materials is absolutely critical to the future success of the EV market. Moving from linear ‘take, make waste’ supply chains to circular alternatives will be essential if environmental, ethical and security considerations are to be overcome. Northvolt’s initiative will go some way to lessen the West’s need for virgin materials, reduce end-of-life waste as well as create strategic autonomy.

The barrier to zero emission transport isn't tech, it's mindset

Essa Al-Saleh

Chairman of the Board Volta Trucks AB, CEO Agitero AG.

Why is the transition from the internal combustion engine to a zero-emission ecosystem moving so slowly. What can be done about it?

Historically, this transition has been hindered by cost, uncertainty and conservatism in the trucking and transportation industry. However, change is essential especially given the detrimental effects of CO₂ from internal combustion engines. Therefore it's incumbent upon leaders in the sector to be catalysts and drivers towards this transition as well as having the support of government regulation. Good examples are the ban on diesel trucks in the centre of Paris from 2024 and the congestion charges in London, making the cost of driving internal combustion and/or diesel trucks much higher. This change is no longer an option but a matter of survival. In urban cities today the increase in traffic driven by population growth and increased ecommerce traffic has pushed the need to build sustainable environments and find safer solutions.

Companies like Volta Trucks aim to provide unique vehicles which are completely re-designed. Their mission is to provide zero emission trucks with people at the heart of everything, so they're not only eliminating CO₂ but also providing a safe environment for both drivers and pedestrians. Commercial vehicles represent about 4% of the traffic in an urban setting, but they cause around 70% of all fatal accidents for cyclists in a city. This is an unacceptable statistic. It is largely caused by poor visibility in the truck - the driver sits directly on top of a diesel engine with small windows and is unable to see cyclists and pedestrians around the truck. At Volta they have reimagined and leveraged technology that allows them to lower the cab to pedestrian height and provide wide visibility. They have consolidated the rear axle, the motor and the battery which is all protected by the chassis frame. That reimagination and ground up design allows Volta to lower the cab but also protects the heart (battery) of the truck, which could prevent damage in the event of an accident.

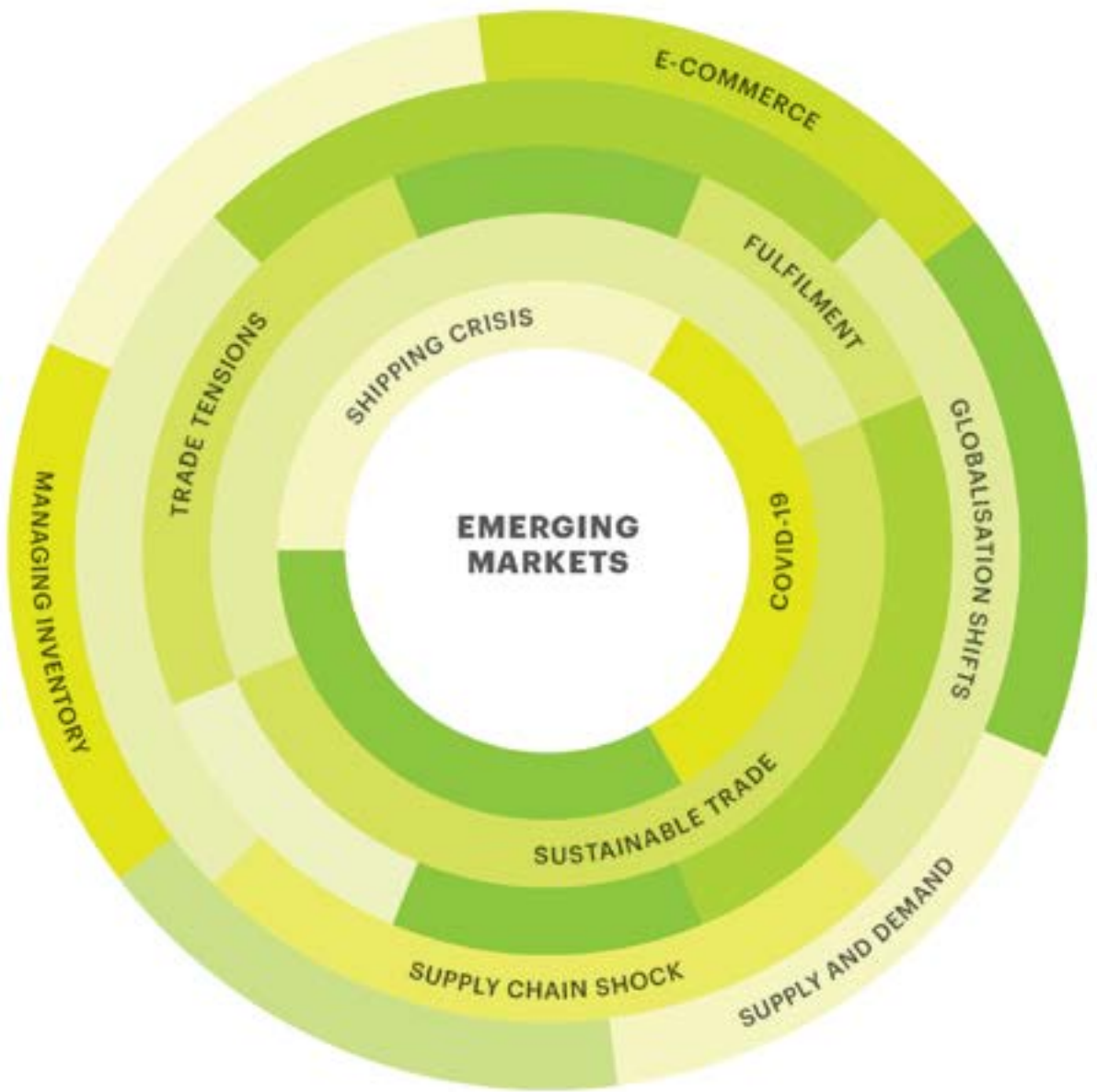
Volta have also created a new service model which makes the transition to electric easier for truck fleet operators, by providing financing and ongoing maintenance services that alleviate concerns about the residual value of the truck at the end of life of the truck. A fleet operator can have a one-stop-shop for all their questions and needs, which removes barriers and enables a smooth transition to a zero-emission platform.

The end of life of old diesel vehicles is also something that must be managed, so fleet owners have to start their transition to more sustainable truck operations now. As they go through their cycle of

investing in new trucks, they need to start making decisions. Truck cycles can last for 6-12 years, depending on the use case. Almost every fleet owner replaces a portion of their fleet every year.

Europe and North America are the most advanced in government intervention and regulation. In the short term, Europe will grow to be the biggest market in terms of transition. The US will follow, as they ramp up in transition to a zero-emission vehicle fleet or ecosystem. They'll eventually be a bigger market than Europe, but Europe will lead the way, driven by cities like Paris and London, where the yearly congestion charges are significant given the value of the truck.

In summary, what is needed is the right mindset and a recognition that climate change is a burning platform - the catalysts and the solutions are already there, so action must be taken. If the drive to zeroemissions was only led by an improvement to design and safety features, people would be slower to transition. Because it's led by cost savings and safety, it removes any excuse.



EMERGING MARKETS

Lessons to be learnt from emerging market e-commerce models

Raghu Ramachandran

Founding Partner, 13 Colony Global LLC .

The current regulatory pressures notwithstanding, China and China-based enterprises have accelerated the adoption and usage of new technologies not just in their home country but across many emerging markets. Whether it is online payments, ecommerce or last mile, new technologies and business models have evolved to meet the needs of consumers in these markets. Without the constraints of legacy systems, albeit with regulatory and infrastructure challenges, new firms have been able to develop solutions to meet the specific needs of consumers focusing on the seamless integration of '3 Ps' - Product, Payment & Packages.

China has pioneered a creative approach to e-commerce that has leveraged social media, including messaging services, along with digital payment that made it easy for millions of digitally savvy customers to shop online for most things. The retail sector continued to grow despite pandemic closures. The online retail market in China is larger than US & Europe combined, no doubt enabled by shopping platforms that have integrated what continue to remain silos in the major developed markets. The market leaders in China embraced and integrated the payment systems which started in Kenya (m-pesa), the online marketplaces in the US (eBay, Amazon), and the customer experience, including leveraging social media and messaging, to local requirements. The China model has served as a template for other emerging markets, whether it is Jio or Paytm in India, Mercado Libre in Latin America or Grab, Sea (Shopee) or GoTo group in Southeast Asia, Souq or Noon in the Middle East or Jumia in Africa.

Businesses, old and new, in ecommerce and logistics have several things to focus on to gain market leadership.

Here are a few suggestions based on my experience:

1. Understand the consumer need and manage expectations - there is no one "perfect" model to meet those needs cost-effectively

- Meeting the customer need by stocking the right merchandize at the right price
- Providing a robust payment mechanism

- Delivering goods within a timeframe the customer requests through a flexible fulfillment and delivery operation and
- Providing a delightful and seamless customer experience from the User interface to reverse
- logistics and social media interfaces.

2. Leverage data to scale and develop a network of warehouses/mini fulfillment centers closer to end consumer and meet on demand needs

3. Integrating fulfillment and managing inventory effectively across channels and developing consistent processes and operations systems for multi-channel sales

4. Low labor costs do not last forever, use alternative last mile delivery mechanisms – robot vehicles, lockers, post stations – to avoid labor resource crunch, gain efficiencies and enhance convenience in urban locations at a minimum

5. Along with automation and package pick up/drop off points there must be a partnership with in-area stores/community leaders or food and grocery delivery service providers to minimize last mile costs

6. Increasing the trust of shoppers and creating effective alternatives to Cash on Delivery (COD)

7. Creating value added solutions for both Retailer and Consumer, like a returns and repair network

8. Going upstream to source and deliver end to end services

9. Leverage local knowledge while developing digital tools to eliminate friction in the chain and provide end-to-end transparency

10. Training not just the service provider but also educating the customer on the new business landscape

Of course, the sustained success, besides challenges endemic to online businesses, is governed by the regulatory and infrastructure environment in each of the regions/countries. There is little doubt that well thought out government policies and structural reform will have the most impact to the online economy and with it growth of the logistics industry:

- Infrastructure investments in several of the emerging markets in Africa and Latin America will reduce the logistics cost and grow online retail
- Customs and regulatory consistency across regions – at a minimum – must be achieved to encourage cross-border commerce
- Regionally coordinated ecommerce and logistics standards must make it easy for entrepreneurs with local knowledge to start and develop new businesses.

- Develop a consistent postal network and address system – within country and region
- Encourage outside investments in the ecommerce ecosystem

While China was the model for platform and functionality integration, the western customer experience, and expectations model, with Amazon in the lead, serves as the benchmark for emerging platforms. Each of these platforms have been retooled to meet the local needs and experiences.

One clear theme that is emerging is the influence of China's "super app" and integrated business model taking hold across all markets. But that is just table stakes. What is more important is the influence of governments and regulators to encourage new businesses by bringing down the barriers for integrating Product, Payments and Packages in a technology platform that delights the consumer. This challenge is not limited to Emerging markets: developed nations have siloed agencies and can be unwilling to change Communication, Banking or Transport regulations that could bring these together. The pandemic highlighted the need for an integrated approach – especially for an effective Supply Chain – and my hope is we get there sooner rather than later.

Covid-19 as a super-accelerator of pre-existing supply chain trends in Asia

Mark Millar

Author of Global Supply Chain Ecosystems. Advisor, Speaker, Lecturer, Moderator

The effect of Covid-19 on global trade has been seismic. This has affected two prominent supply chain strategies - the 'China Plus Option' and 'In China for China'.

China Plus Option

Many companies who base all their production within China have been looking at diversification for some time, searching for locations with low-cost manufacturing and labour, which will supplement China or be a substitute for China.

There are now two accelerators for this - US tariffs on Chinese produced goods exported into the US, but more importantly, Covid-19. The Covid-19 lockdowns and related restrictions in China exposed just how dependent global supply chains are on one country.

The leading location being considered for production outside China, is Vietnam. It has a large population, at 98,514,613, based on projections of the latest United Nations data in 2021, and the labour costs are lower than China's. It is near to China geographically and open to foreign direct investment.

Moving production from China to lower cost locations has its risks. There has been 30 years of investment in China on an unparalleled scale and it has a very well-developed freight transport infrastructure. Other lower-cost places are far behind. Also, the highly efficient labour force is hard to replicate. It's easy to compare the hourly factory rate with cheaper countries, but the output of employees per hour can be very different.

Another risk is geopolitical. China has been hit with US tariffs on Chinese produced goods exported into the US, so Vietnam may also get hit with this in the future. Furthermore, many of these new locations under consideration for diversification of production, such as Thailand, Bangladesh and Indonesia, raise questions around transparency, governance and political stability.

In China for China

Covid-19 has also been a catalyst for products being manufactured in China to sell to China. Inbound investment over recent decades has bred a massive consumer market. China has more middle-class consumers than the whole of Europe. Because of Covid-19, China has shut down entire cities and borders, whilst global shipping and airfreight is still in a state of chaos - concentrating the supply chains in China, gets around this hiatus.

During Covid-19, the Chinese have been buying more and more goods online and together with this additional demand there has been a shift in consumer sentiment, from desiring foreign goods produced outside China to wanting Chinese-made products. Under 30's are proud of this patriotic, reverse shift.

In summary, Covid-19 has further driven the need to diversify production beyond China as well as driving reshoring and near shoring. By bringing production closer to home and shortening supply chains, fuel consumption and therefore emissions are also reduced, but it's obvious that sustainability is a by-product. The avoidance of risk and lower costs are the main drivers, which have been accelerated by the Covid-19 crisis.

Chinese multinationals in the early 20's – ready for change?

Anne Miroux

Faculty Fellow at the Emerging Markets Institute (EMI), S.C. Johnson School of Management at Cornell University.

The New Millennium has seen the consolidation of China's global economic and geopolitical power. A vivid illustration of this phenomenon is the increasing presence of Chinese multinationals all over the world, a distinct feature of the last decade. The Global Financial Crisis (GFC) of 2008 provided the opportunity for Chinese firms to substantially increase their global footprint. By the end of 2019, there were roughly as many Chinese firms in the Fortune Global 500 list (119) as U.S. firms (121); ten years earlier, the ratio was about 1:4.

The global ascension of Chinese firms directly paralleled China's economic growth, its transformation into an economic powerhouse, and its evolving institutional and policy context. Chinese firms rapidly gained scale by leveraging the growing Chinese economy and its huge domestic market. Chinese government policies, which actively guided and encouraged outward foreign direct investment (OFDI), have also played a crucial role. Hence, the rise of Chinese multinationals is a result of a combination of macroeconomic measures and efforts at the firm-level.

The Global Financial Crisis of 2008 was a turning point in the rise of Chinese firms allowing them to acquire financially distressed firms in advanced economies. Worldwide, foreign acquisitions by Chinese firms peaked in 2016, surpassed that year only by firms from the U.S.A. Many of those deals were of a size unimaginable a decade earlier. ChemChina bought Syngenta (2016), the Swiss chemical giant, and the Italian tire maker Pirelli; Lenovo acquired the IBM PC manufacturing subsidiary in 2005 and Geely, part of the Swedish firm Volvo in 2005, demonstrating their increased sophistication and scale. For a country, that for much of the 20th century, was low income and based on a mostly rural agrarian economy, such acquisitions had an extraordinary symbolic value. They highlighted a new reality. Today, Chinese multinationals have expanded all over the world, including developed markets; and most importantly, their outbound expansion is no longer confined to traditional sectors such as energy, raw materials and heavy industries, but increasingly includes services-based and consumer-related sectors.

Chinese firms' global ascension fundamentally disrupts the global competitive landscape. As we have covered in Cornell University's Emerging Markets Institute reports, Chinese firms used to be seen as competing through lower prices. While this is still the case in many sectors, price differentials have been narrowing in some areas, and Chinese firms have started to offer high-priced items in some product segments including computers and smartphones. In the same vein, Chinese firms have also improved their brand recognition ladder, with the information technology provider

Huawei, the technological conglomerate Tencent, and the bank ICBC now featured among the top global brands. In 2019, about 14% of the 500 top global brands were Chinese (as compared to 4% in 2010).

In part, this change reflects the increasing consumer power of emerging economies, where firms from China are comparatively well positioned, given their experience and familiarity with these markets. But the increased brand recognition of Chinese companies has not been limited to emerging markets. The advertising presence of Huawei and the white goods manufacturer Haier in the UK press and other media, on billboards in iconic locations in France, or major TV channels in Switzerland all show how these firms are working at building their global brands.

Innovation is another area of focus for Chinese firms, in line with the overall objective of the country to transform into an innovation-driven economy. On average, an innovation gap remains between Chinese firms and their developed country peers; for instance, based on the 2018 EU Research and Development (R&D) investment scoreboard, which provides data for the top 2500 largest R&D company spenders, Chinese firms devote on average less than half of what U.S. or European Union firms spend on R&D.

Yet, an increasing number of Chinese firms are among the top corporate R&D spenders in the world: about 12% of the top 500 R&D spenders in 2019 were Chinese firms, compared to 3% in 2010. The progress made in quality and innovation is increasingly visible in a number of technological domains where Chinese firms are either leading or near the very top – mobile payments, artificial intelligence and electric vehicles for instance. Alibaba (Alipay) and Tencent (WeChat Pay) are examples of Chinese leadership in mobile payments that can challenge their best competitors in developed markets, thereby raising the bar for global competition.

The 2020 COVID-19 pandemic is challenging the global economy in unprecedented ways. China first felt the brunt of COVID-19 and, at the time of writing this blog, the country has started the process of emerging from it. While the economic consequences of the pandemic are yet to be fully understood, the world should be watching the actions of Chinese firms carefully. Chinese firms emerged stronger and more global after the last financial crisis in 2008. Will they repeat this scenario and become even stronger and more globally resilient after the current COVID-19 crisis? “Too soon to tell” the saying goes. It applies today more than ever.

CONCLUSION

Julia Swales

Advisory Board Manager, Foundation for Future Supply Chain

Over the coming months, there are hopes that global supply chain stress will start to be on the wane. Congestion has eased at most Chinese ports but the twin ports of Long Beach and Los Angeles, which account for 40% of sea freight entering the United States, are working around the clock to address shipping container congestion. Delivery times for manufacturers worldwide are deteriorating, but supply chain bottlenecks may clear by the first quarter of 2022 as seasonal demand drops, inventories are rebuilt and consumers start to buy less goods and more services. Car manufacturers are expecting semiconductor shortages to last through much of 2022, but the industry is in the process of boosting production, with multibillion-dollar investments in building new fabs and production lines. Vaccination rates against Covid-19 are creeping higher in key manufacturing nations, making production disruptions less likely. However, it's obvious that if we can't keep Covid under control, we're going to end up having the same supply chain issues again and again, they will just keep coming in waves.

ABOUT THE FOUNDATION FOR FUTURE SUPPLY CHAIN

Established in 2021, the Foundation for Future Supply Chain is a not for profit organization dedicated to improving the understanding of some of the industry's most pressing challenges.

The Foundation provides governments, inter-governmental organizations, NGOs and business leaders with an independent source of thought leadership, addressing and advising on critical policy issues such as sustainability and ethics; security and risk; innovation and disruption; future mobility and automation.

ABOUT TI INSIGHT

Ti Insight is a leading logistics and supply chain market research and analysis company providing:

- Supply Chain and Logistics Market Research Reports
- Global Supply Chain Intelligence (GSCi) online knowledge platform
- Consulting and Market Research projects
- Training, Conferences and Webinars. Ti has acted as advisors to the World Economic Forum, World Bank, UN and European Commission as well as providing expert analysis to the world's leading manufacturers, retailers, banks, consultancies, shipping lines and logistics providers.

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