



Data-driven supply chains in an endemic COVID-19 era

A study on how digitalisation and data
can drive supply chain strategies to navigate
the complexities of the new normal

KPMG in Singapore
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Foreword

In recent years, the supply chain industry has undergone rapid transformation. Many of these changes have been driven by technological advancements, with more businesses embracing digital transformation to ensure the competitiveness of their supply chain operations. The global COVID-19 pandemic has undoubtedly been a major factor behind the accelerated pace of change too. Together, these twin forces have dramatically reshaped how businesses operate and develop new supply chain strategies.

On the technology front, increasing digitalisation has helped businesses to boost their supply chain efficiency and agility, while providing real-time visibility and insights. Going forward, organisations are also looking to leverage data analytics and artificial intelligence (AI) to further enhance their supply chain operations.

At the same time, the pandemic has pushed organisations to adapt to shipping bottlenecks and supply chain disruptions by shifting from a “just-in-time” approach to “just-in-case”. This involves building inventory levels and stockpiles for contingencies. Additional strategies adopted by organisations to strengthen their supply chain resilience include supplier diversification and nearshoring of critical material supplies.

In the new normal brought on by the pandemic, global efforts to combat climate change and address widening issues of socio-economic inequalities have also grown in importance. Businesses around the world are increasingly incorporating environmental, social, governance (ESG) and sustainability into their corporate agenda. At the same time, stakeholder expectations on ESG have also risen. From consumers to investors, governments, and regulators, many of them are factoring ESG into their dealings with organisations.

Against this backdrop, organisations will have to proactively set out their ESG agenda to stay relevant and competitive in a post-pandemic world. To do so, they will have to leverage digitalisation and the use of data to ensure that their ESG goals are embedded in their business models and supply chain operations going forward. With increased visibility and insights, businesses can devise clear ESG strategies while reducing their risk exposure.

With the ongoing Ukraine crisis, organisations will also need to quickly assess the potential related impacts on their supply chains and work towards mitigating them.

In this report, we have brought together an industry point of view on the digital transformation of supply chains today and how it represents an opportunity for organisations to better manage the complexities of the future, including their ESG goals.

At KPMG in Singapore, we have been working with organisations to drive their supply chain transformation strategies while responding to evolving stakeholder expectations. If you like to discuss any aspect of our approach, please contact us to learn more about how we can support your business.



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Digitalising and transforming global supply chains

The global supply chain has been in the spotlight for the past two years, with many businesses caught off guard by the widespread disruptions caused by the COVID-19 pandemic. The transport and logistics industries bore the brunt of the immediate impact and today, businesses reliant on these sectors continue to cope with disruptions to product flows across global, regional and domestic supply chains.

Conversations around supply chain resilience have only become louder, as organisations look to reshape their strategies to confront the increasing volatility and uncertainty on multiple fronts. To cope in this new normal, the supply chain industry can rely on multiple approaches, namely supply chain diversification, adopting a “just-in-case” strategy, embracing digitalisation, investing in Cognitive Decision Centres and growing digital talent.



Supply chain diversification

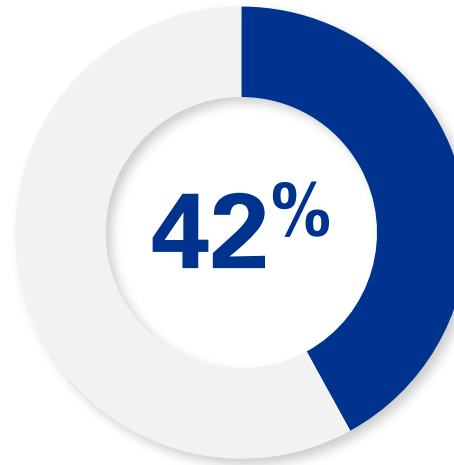
To mitigate the impacts of the pandemic, some organisations have turned to supply diversification as one of their first strategic responses. According to KPMG's 2021 CEO Outlook survey, 42 per cent of business leaders in Singapore have diversified their sources of supply chains to build greater resilience.

Companies are also focusing on nearshoring of critical material supply and putting in place more robust disaster recovery plans in anticipation of future shockwaves to the global supply chain.

Other ways in which companies have tried to be more agile in the years ahead include developing alternate supply chain strategies, such as micro supply chains, supply chain segmentations, and the use of supply chain 'control towers'.

From just-in-time to just-in-case

For many industries, the COVID-19 pandemic has exposed supply chain vulnerabilities. The impetus to transform business models to build flexibility has increased in urgency. For instance, minimising inventory costs was the order of the day pre-pandemic, with companies often relying on a "just-in-time" approach to provide goods when they were needed instead of stockpiling them.



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But this waste-minimisation model became riskier as the new normal of lockdowns and other virus curbs took hold, causing long delays in supply networks.

With the pandemic exposing the weaknesses of the lean "just-in-time" model, some businesses began to pivot towards keeping larger inventories to lower the probability that any one product will sell out. The use of the "just-in-case" agile strategy has been gaining importance in recent times.

This does not mean, however, that companies will completely move away from the "just-in-time" approach. Supply chain efficiency remains critical for success. Hence, in charting their way forward, companies will need to strike a balance between both methodologies. Those able to do so effectively will be able to manage their costs while ensuring minimum disruptions to their supply chains. This would involve conducting a detailed segmentation assessment and risk assessment of their supply chains to accurately decide the extent to which they should be lean versus being agile.



How supply chains can be digitalised effectively

Today, many organisations recognise the benefits of digitalising aspects of their supply chain operations across the global, regional and local levels. While this shift has been underway for many years, the pandemic has highlighted that those with digitally connected operations have been more successful in coping with the disruptions brought on by the pandemic.

With the rise of the Internet of Things (IoT), Big Data and AI, the possibilities for supply chain digitalisation are endless. Some companies have started integrating predictive modelling and machine learning tools in their networks. This has not only allowed them to collect large amounts of data, but they are also able to analyse and interpret this in real-time to anticipate crises and guide decision making. Ultimately, supply chains are set to become more intelligent, data-driven, predictive and self-correcting in the future.

However, while organisations are spending more on digital transformation initiatives every year, many of them are still coming to terms with the magnitude of change - in technology, processes, expertise and people - that will need to happen. Often, the task of devising and implementing an

effective digital strategy may seem daunting, especially when the returns on investment are unproven.

In thinking about digitalisation, some organisations may be starting on the wrong foot by asking the wrong questions. Questions such as "do we need a data lake?" focus too much on the data systems but fail to identify the right use cases and the associated benefits of the digitalisation plan. Many of them also find that they do not have the right focus because they fail to understand the digital needs of various segments of their business. As such, digitalisation projects remain at the pilot stages because the business case for rolling them out is simply not convincing enough.

To be prepared for a world powered by data in all aspects, all businesses, especially smaller enterprises, should seize the opportunities to embark on digital retooling and upskilling programmes supported by the government or trade associations. These initiatives have seen huge government support and subsidies in recent years. Understanding what is needed for an effective digital strategy will be an important first step. It is all the more vital for business leaders to take charge in driving this across the value chain, including engaging with stakeholders and partners.





Investing in Cognitive Decision Centres & predictive capabilities

One of the ways businesses can be nudged to change their mindset about adopting digital technologies in their supply chain would be through Cognitive Decision Centres (CDCs).

At a company-level, the enterprise should explore ways to leverage publicly available data by plugging in to government data platforms or other available respectable organisation's platforms. If well-linked to a central database, CDCs can aggregate supply and demand analytics for the entire industry. It will also allow companies to have a cross-functional view of their supply chain, from sales and marketing on one end to finance and procurement on the other. Having enterprise-wide visibility over key supply chains, especially for critical items, can prove valuable for companies.

Governments can also consider leading the aggregation of data for a national or regional data platform useful for supply chains. Singapore's public sector has been leading several data-sharing efforts. The Data.gov.sg portal is one such example of a one-stop platform that provides access to publicly-available datasets from various agencies. This has been used to facilitate analysis and research. With more data points made available, enterprises will be more motivated to participate in leveraging data for supply chain transformation. This is especially since sharing of data by competitors may not always happen. Hence, aside from having the government as the intermediary to motivate data sharing, the government may also need to expect that most data ultimately made available for public consumption will not involve proprietary information.

That said, using a predictive supply chain toolset in these CDCs will allow organisations to identify where future shortfalls are likely to occur and allow alternative plans to be put in place. Such a tool can also act as a sandbox, where scenarios to help address potential future crises can be simulated and tested. In an increasingly volatile and fraught landscape, such predictive capabilities will allow organisations to take pre-emptive measures in reaction to new and emerging situations.

Building digital talent

Beyond having the right tools, having the right skillsets matter too. Another aspect that has placed pressure on organisations is in attracting specialist talent to drive digital transformation efforts. Supply chain digitalisation will require experts in blockchain, robotics and cybersecurity. Experts in emerging technologies such as drones for manufacturing, warehousing and distribution facilities will also increasingly be needed.



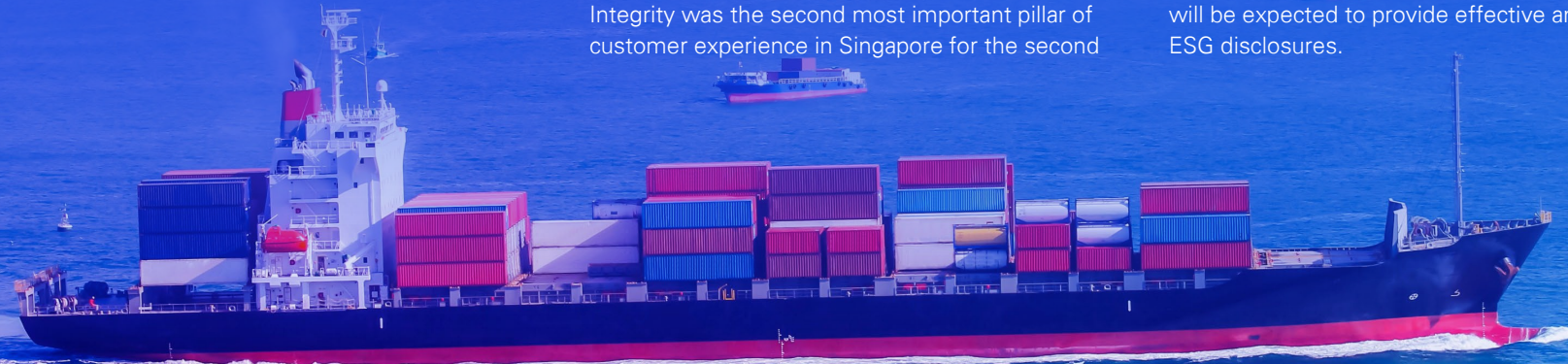
Monitoring ESG across the supply chain

Making digitalisation a priority will not only benefit organisations today but put them in good stead to tackle the challenges of the future, especially one marked by uncertainty and change. This is because digitalisation gives businesses the ability to react to trends and events more quickly.

ESG is one example of a recent trend that has gained prominence across the world. Increasingly, consumers, employees and investors today are turning towards the organisations they are associated with to fulfil their wider ESG obligations. According to the KPMG's 2021 Customer Experience Excellence (CEE) report, Integrity was the second most important pillar of customer experience in Singapore for the second

consecutive year. This suggests that brands that demonstrate their ESG commitments well can drive competitive advantage from it. Globally, studies have also shown that ESG initiatives can unlock long-term competitive value for organisations.

Investors, too, are keeping key ESG issues top of mind in making their decisions. These include environmental concerns, such as climate change, emissions and pollution as well social considerations such as workers' conditions, human rights, equality and diversity. Stakeholders are also cognizant of greenwashing and companies will be expected to provide effective and reliable ESG disclosures.





How digitalised supply chains enable ESG goals

With ESG increasingly becoming a key agenda for many, businesses will need to prioritise ethical and sustainable supply chain management. This will help build transparency and trust, which will be the key to enhancing businesses resilience and business continuity.

According to an April 2021 study commissioned by KPMG, 47 per cent of businesses surveyed have placed ESG benefits centre to their business case for digital transformation strategy and investment. This means that from responsible sourcing of materials to making sustainable choices in production, storage and transportation of goods, the supply chain industry will have reconsider their impact on the environment and society.

Increasingly, there will also be a need to tap data to understand supply chain material flows. Hence, industry players will have to work towards greater supply chain visibility to assess any potential risks and negative impacts on their ESG scorecard.

The global nature of supply chains also means that having an integrated digital platform may bring real-time tracking and traceability on both direct and indirect supplies, so as to validate the ethical sourcing conditions of key suppliers. Deploying such a platform can also help to provide assurance across the entire supply chain, guaranteeing a single version of the truth for enhanced, informed and data-driven decision making.

In this regard, performance-focused CDCs are not only able to provide wider visibility but can also galvanise different players in offering essential insights that influence value and margins. With a CDC, organisations are better equipped to make effective trade-off decisions on issues such as how much stock to hold and where, or whether to have promotions to offload excess stock. These business decisions contribute towards optimising supply chains and reducing wastages, which will support the wider ESG agenda.



How digitalised supply chains can manage geopolitical risks

Global uncertainties have forced companies to relook how digitalised supply chains can better cope with geopolitical risks in the immediate term. These situations not only pose a threat to the supply of goods but can also affect their ESG objectives. The Russia-Ukraine war presents an instructive case in point, with its rapid escalation having presented additional supply chain challenges for countries across the world.

Faced with these geopolitical risks, organisations may have to reassess their strategies on where they source from, and how to secure their supplies for an uncertain future that could be marked by unexpected disruptions.



Through proactive supply chain risk management, companies are able to minimise incidents that could impact operations due to geopolitical issues. This includes the rollout of automated reporting platforms with predictive capabilities that show risk profiles and how they change over time depending on the geopolitical situation.

The heightened geopolitical volatility will mean increased uncertainty for supply chain leaders, who may find themselves struck by decision paralysis. Hence having data-powered supply chains can help businesses effectively manage geopolitical risks through creating a digital model comprising multi-tier supply chain data with predictive outcomes. This allows for assessment of risk exposure and running scenarios based on past and present data sets from external and internal sources. This will help organisations proactively manage “black swan” events and risks, enhance their network flows and strengthen their business planning processes.

Businesses will find that risk management is a multi-faceted one today. Hence having a data-led supply chain will act as both a forward-looking and defensive strategy – one that is a must-have in the endemic COVID-19 era. In this aspect, larger corporates, which have the resources and experiences, can take the lead in guiding smaller enterprises on this transformative journey. This could include providing advice or mentorship to smaller companies so that they are able to have support on the ground as they build their digital strategy.

Geopolitical risks are expected to persist in the coming years and having a business-as-usual mindset will simply not work. In the face of potential disruptions of every type and scale, businesses need to arm themselves with data-driven supply chain strategies to make sound decisions and impactful actions. The steps they take will not just influence their top and bottom lines; it may even mean survival.



How can KPMG help?

In today's increasingly turbulent times, business leaders are not just looking for solutions. They also need trusted and reliable advisors to shed light in darkness, guide them in making better decisions and drive effective transformation for the organisation's supply chain operations and ESG agenda.

KPMG recognises that and brings together leading multi-disciplinary teams from across its global network of member firms, offering deep industry expertise with an agile approach to help you unlock existing value within the enterprise and enhance your capabilities to achieve sustainable growth in the future.

Supply chain transformation

KPMG can bring to bear a suite of frameworks, methodologies and tools to help you review, design and optimise your supply chain functions. Drawing on a wealth of insight and experience, our specialists have developed a sophisticated, purpose-built digital analytics platform that your teams can leverage to pinpoint opportunities and cost-drivers faster and more effectively than before. Our proprietary operating models and technology accelerators can turbocharge your supply chain function and accelerate return on investment from transformation efforts.

ESG alignment

In addition, our deep expertise in ESG best practices can help companies in embedding ESG and sustainability principles into their business and operating model. Meeting you wherever you are on your ESG journey, KPMG firms have designed their solutions to help put ESG at the core of your operations, whether that is in ESG advisory, climate change and decarbonisation, sustainable finance or ESG assurance in audit.

If you would like to get started on your supply chain or ESG transformation, KPMG in Singapore can provide you with the tools and expertise you need to rise to the challenge.



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