

# **NEXST INSIGHTS**

## **DIGITIZING SUPPLY CHAINS**

*General release*

June 2021

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Understanding Digitalization  
Relevance to Top of Mind Supply  
Chain Strategy and Plans



## REEFKNOT

Reefknot Investments is a global Venture Capital Fund seeking to partner and actively support high growth technology businesses driving to transform the Supply Chain and Logistics industry.

Reefknot invests in founders and companies that solve meaningful problems and have the potential to make a transformational impact in the Supply Chain and Logistics sector. Additionally, Reefknot is focused on companies that develop and/or uniquely utilise Technology as a foundation or differentiating anchor for their respective business models.

Their solution areas include but are not limited to Artificial Intelligence(AI)/Deep Tech, Digital Logistics and Trade Finance.

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The Next Supply Chain (NEXST) is a think-tank initiative aimed at driving new business models and transformational technology in the Supply Chain and Logistics industry.

NEXST aims to positively create value and impact for the Supply Chain and Logistics industry, to partner with and support high growth technology businesses seeking to transform the Supply Chain and Logistics industry, and to become a global centre of gravity for all technology start-ups in the Supply Chain and Logistics industry.

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This is the 2nd year that NEXST has conducted our Supply Chain Digitization survey, and this Insight Paper is the outcome of that survey. Our 1st survey was conducted at the cusp of COVID-19 last year, with the US-China Trade War still brewing, and this 2nd survey finds us in the middle (and for some countries, hopefully towards the tail end) of the COVID epidemic. This paper seeks to not only understand the obvious pre vs post COVID impact and implication of supply chain digitization, but includes other macro-economic factors such as the continued explosive growth of e-commerce business, as well as new innovative business models and technologies that have started to gain acceptance through this period and beyond.

As the pandemic forced most economies to lock down in early 2020, many companies found themselves grappling with supply chain issues that highlighted existing inefficiencies in the system, and they faced a scenario of both a declining revenue as well as increased costs. 2020 was also a year that highlighted a wide divergence in performance among those that embraced Digitization and Supply Chain flexibility, versus those that did not.

Realising the importance of a resilient supply chain after the challenges faced in 2020, companies across regions and industries began to show an increased interest in enhancing current supply chain capabilities using technological innovation and business transformation such as supply chain visibility, data integration, dynamic planning, and having a dedicated e-commerce fulfilment strategy. In order to stay competitive globally and remain on the cutting edge of a complex business world, more companies are incorporating such technologies into their supply chain management systems today, and this survey seeks to understand these trends as well as divergences among demographics around these trends.

# INTRODUCTION



With all this in mind, we set out to find the perspectives of businesses across various geographical region and industries to investigate the mid-to-long term impact on supply chains. We also seek to understand business leaders’ awareness of different technological solutions for supply chain optimisation and their willingness to implement it to their own businesses.

There were three main categories of questions for our survey. In the first section, we asked respondents to score the impact of different focus areas on their supply chain, with 0 being the area of least importance and 5 being the highest importance.

In the second segment, we asked respondents about how their supply chain costs have been affected in 2020, and which parts are most important.

Finally, in the last segment, we asked respondents about their investment plans going into 2021 and 2022/2023. We also asked them to rank their investment priorities.

The breakdown of the survey respondents’ background is shown in the graphs below.

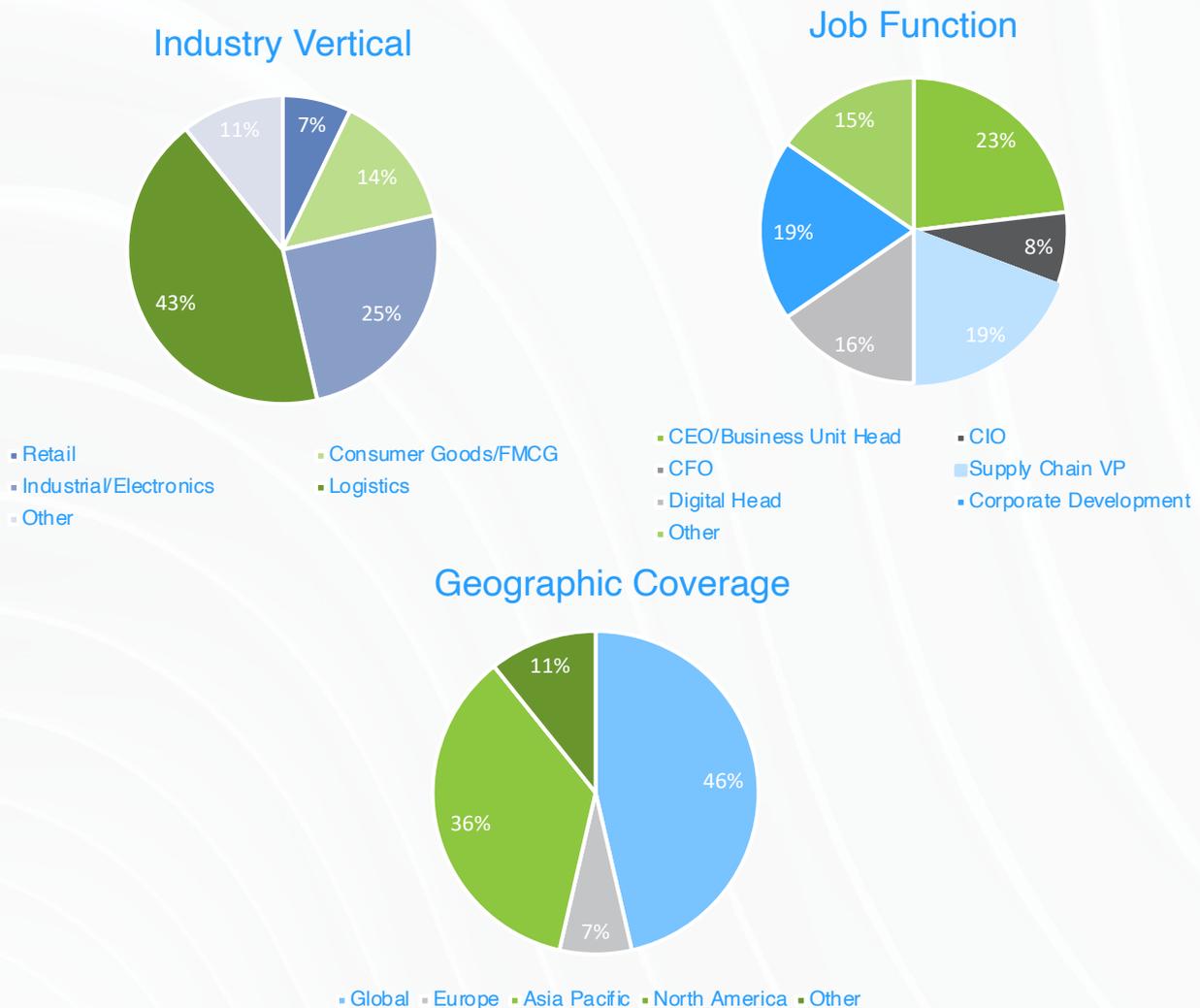


Figure 1: Demographics of Survey Respondents

We normalized the aggregate score for each of the topics, and derived the following, ranking the relative importance of question for 2021 and 2022/2023.

**List of Survey Questions**

- #1 - There is a refocused need to have more accurate and dynamic demand forecasts and predictions
- #2 - There is a greater need for better and more effective asset and resource planning
- #3 - There is a greater emphasis on understanding and have better prediction results on freight (& transport) pricing
- #4 - There will be a greater need to dynamically allocate and optimize inventory across my (multi-echelon) supply chain
- #5 - Moving goods effectively (at good service level and least cost) cross border is a much bigger problem for my business than within the local geographies
- #6 - The degree to which my organization plans to upgrade our Reverse Logistics (Returns) capability
- #7 - The degree to which my organization plans to integrate into the wider logistics (eCommerce & Logistics) ecosystem
- #8 - There will be an increased push for easy application and data integration for a more effective data sharing
- #9 - Supply Chain Visibility will continue to be critical for more dynamic Supply Chain Management
- #10 - We are planning to improve my company’s eCommerce fulfilment capability by deployment of technology
- #11 - We are planning to improve my company’s eCommerce fulfilment capability by working with selective eCommerce fulfilment partners
- #12 - Digitization of micro merchants and emergence of Social Commerce will continue the growth of eCommerce (in emerging markets)
- #13 - We plan to deploy tools or partners to support better Enterprise Working Capital management & optimization
- #14 - Ensuring the financial resilience of my Supply Chain is a priority
- #15 - Driving Supply Chain finance programs is a top priority for my company

All Responses Q1-15 (2021)

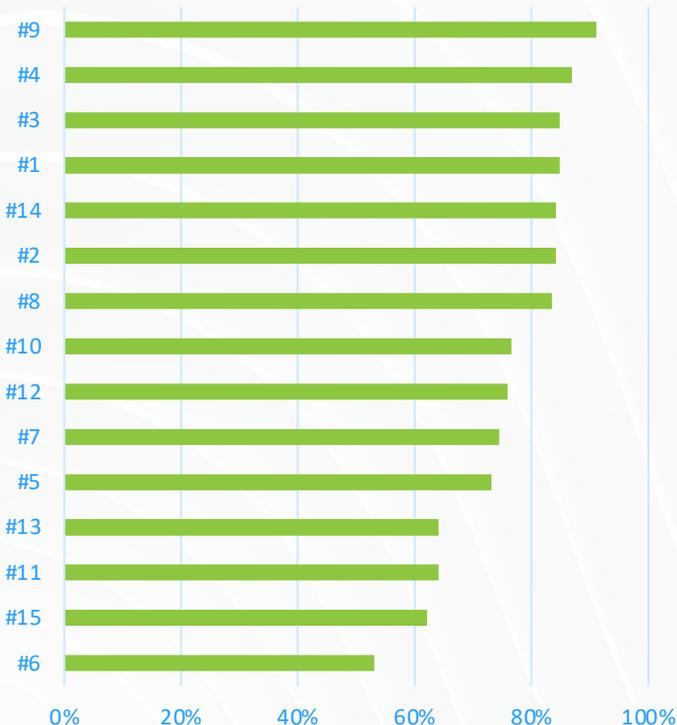


Figure 3: Impact related to 2021

All Responses Q1-15 (2022)



Figure 4: Impact related to 2022

According to the survey, supply chain visibility is the top focus area for companies in both 2021 and 2022. We also found that operational considerations trumped financial ones, where the physical and digital aspect of supply chain were better understood than the financial implications such as working capital and supply chain finance.

### Supply Chain Costs in 2020

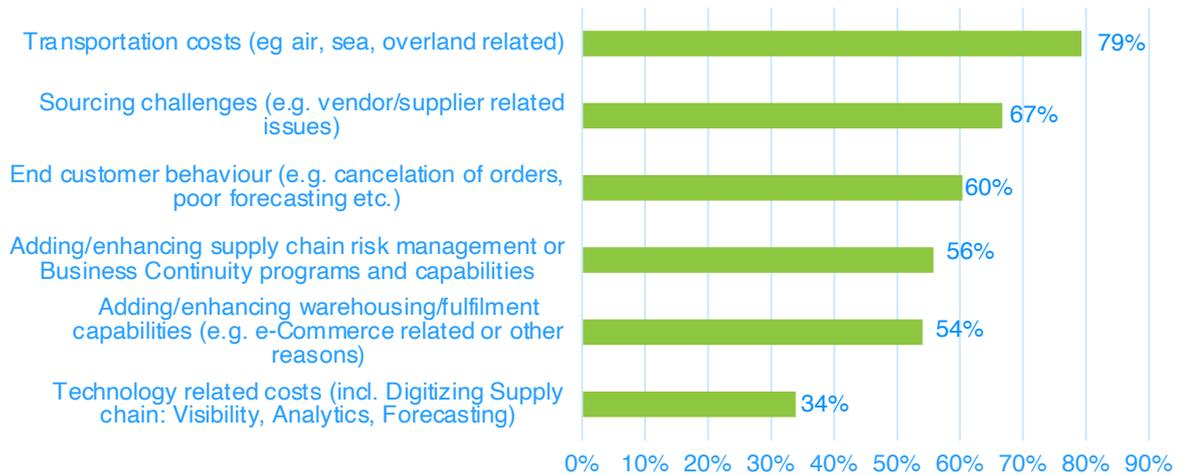


Figure 4: Supply Chain Costs in 2020

The general aggregated indications are that:

- Supply Chain Visibility continues to be top of mind across 2021 and beyond
- 2021 seems to be a year, continuing from 2020, that industry is focused on reacting to changing demand patterns, and thus areas such as demand forecasting to inventory and resource allocation planning seems to be a key focus
- While digitization overall seems to be of general importance in 2020 & 2021, technology-related costs was the least important supply chain related cost in 2020
- While industry sees a need for Supply Chain ecosystem financial resilience, there is a disjoint with putting in programs to ensure it happens

Looking ahead past 2021, there certainly seems to be a focus on direct Digitization needs (eg integration, data sharing, predictions and optimization capabilities etc.), and this will be contextualized through the lens of supply chain solutions needs in further down in this paper.

The answers in the survey led to 6 top supply chain technology insights.

1. **The digitization of e-commerce fulfilment capabilities is a higher priority in the logistics sector than in other industries.** In addition, these capabilities tend to be of higher importance for executives in the Asia Pacific (APAC) region than for executives in other parts of the world, which also correspond to the higher investment priority in Asia. There is also an overall increasing importance of digital e-commerce fulfilment capabilities looking forward post 2021, especially in the eyes of technology leaders, such as chief innovation officers (CIOs) and digital heads as well as chief executive officers (CEOs) and business unit heads. The potential rationale of this survey outcome might be due to e-Commerce fulfilment being outsourced to logistics service providers instead of it being an in-house functionality (Figure 5).

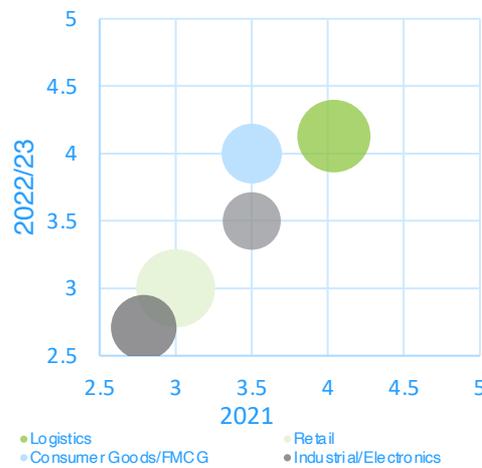


Figure 5: Impact of e-Commerce 2021 vs 2022/23 across industries

# SURVEY INSIGHTS

2. Globally, warehousing and fulfilment costs were the least affected<sup>1</sup> in 2020. Though this area contributed only a small percentage to overall 2020 cost (34%), its increasing importance amongst businesses could translate into larger future investments through 2023. Warehousing and fulfilment activities related to e-Commerce is also an increasingly important priority moving forward. Out of all industries, respondents from the retail sector seemed to perceive warehousing /fulfilment as an important focus area (Figure 6). Possibly, retail is seeing e-commerce-related warehousing /fulfilment as separate from the rest of the overall operation.

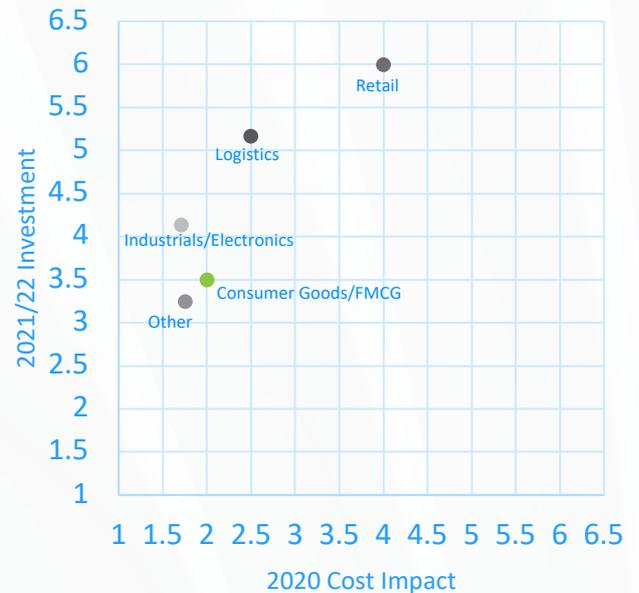


Figure 6: Impact vs 2020 Cost of Warehousing/Fulfilment

3. Supply chain visibility (SCV) will continue to play a proportionately important role across all functions, especially in the retail and FMCG industries (Figure 8). While digital heads do not seem to place as much relevance to SCV programs as compared to other functional heads, C-level executives make it their highest investment priority moving forward (Figure 7).

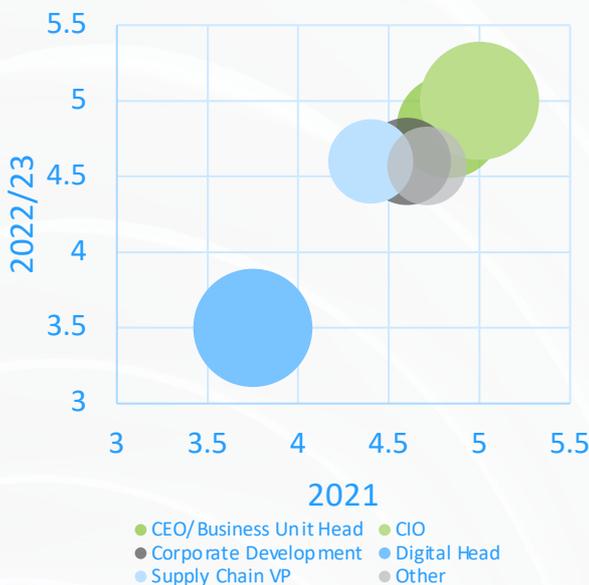


Figure 7: Impact of SCV 2021 vs 2022/23 across job functions

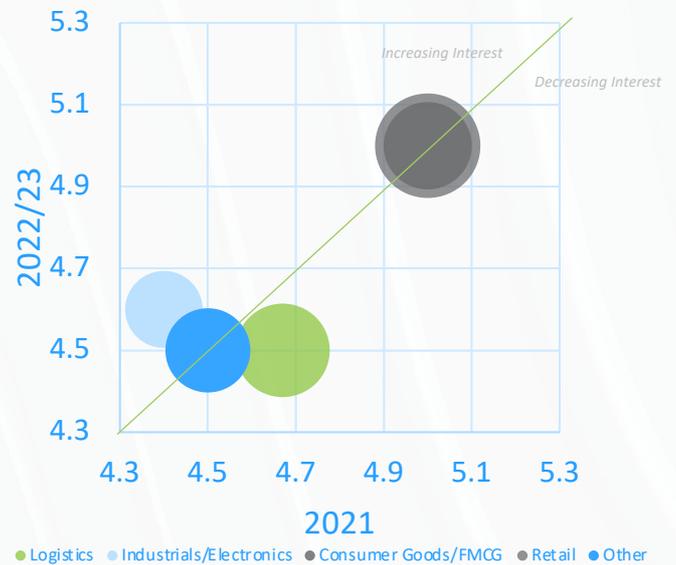


Figure 8: Impact of SCV 2021 vs 2022/23 across industries

*"I deeply believe in the higher order business value created by supply chain network visibility solutions that bring, for example, much more accuracy to order and inventory management."*

Wolfgang Lehmacher  
Supply Chain and Technology Strategist

1. In comparison with the other areas under analysis

4. **COVID-19 highlighted even more strongly the need for better and more effective asset planning, especially in APAC (Figure 9).** Interesting enough, while other industries showed an increasing appetite to improve their capabilities in the area of effective asset planning, the executives in the logistics industry show the opposite view (Figure 10).

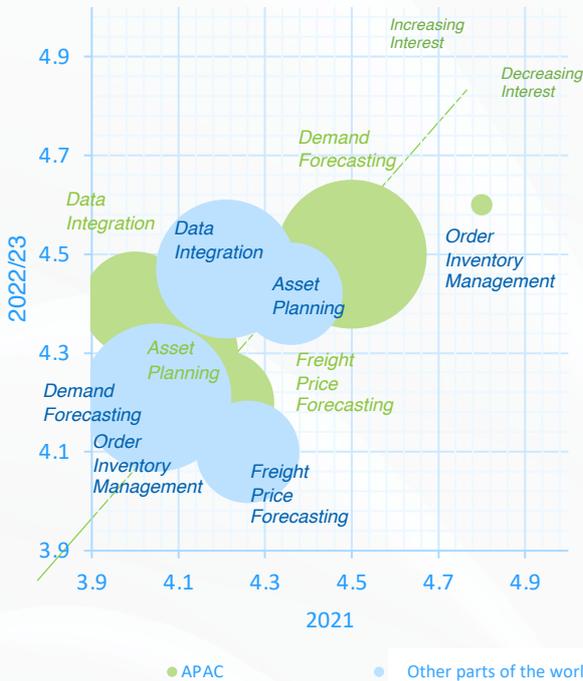


Figure 9: Impact of Dynamic Planning 2021 vs 2022/23 across geographic region

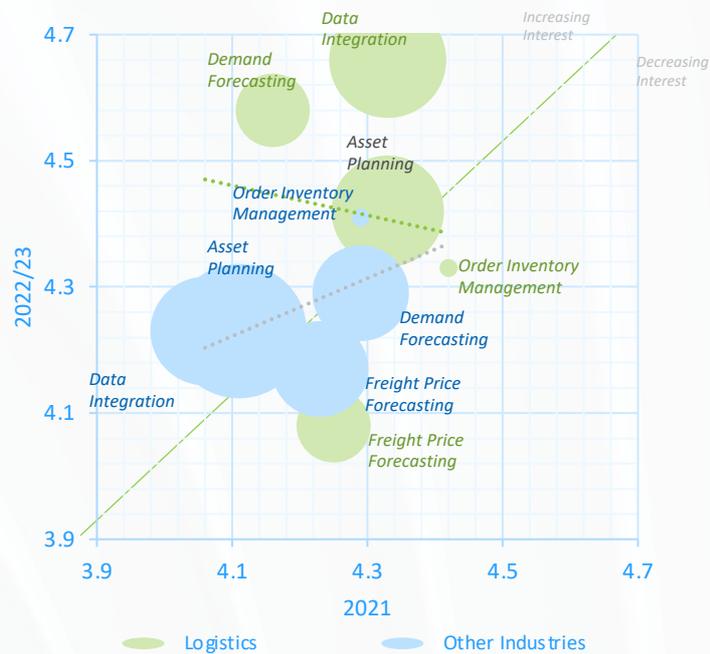


Figure 10: Impact of Dynamic Planning 2021 vs 2022/23 across industries

5. **More accurate and dynamic demand forecasts and predictions are becoming increasingly important across all functions and industries.** Supply Chain vice presidents (VPs) have a higher propensity to invest in this capability as compared to other job functions, having the highest increase in investment expectation from 2020 to 2022. Meanwhile across different industries, interestingly, the logistics industry seem to have the highest appetite to invest in this area. **However, despite the strong overall interest, investments into demand forecasting & predictions are comparatively low for the next few years (Figure 11).** It is second from the bottom after sustainability related capabilities. The divergence may result from a lack of maturity of such solutions for corporates to directly benefit from it. We believe this investment appetite will grow once there are prediction methods available that are both, more accurate and useable, especially for upstream and downstream inventory, asset, and capacity planning.

### What specific areas are you investing in 2021 and 2022?

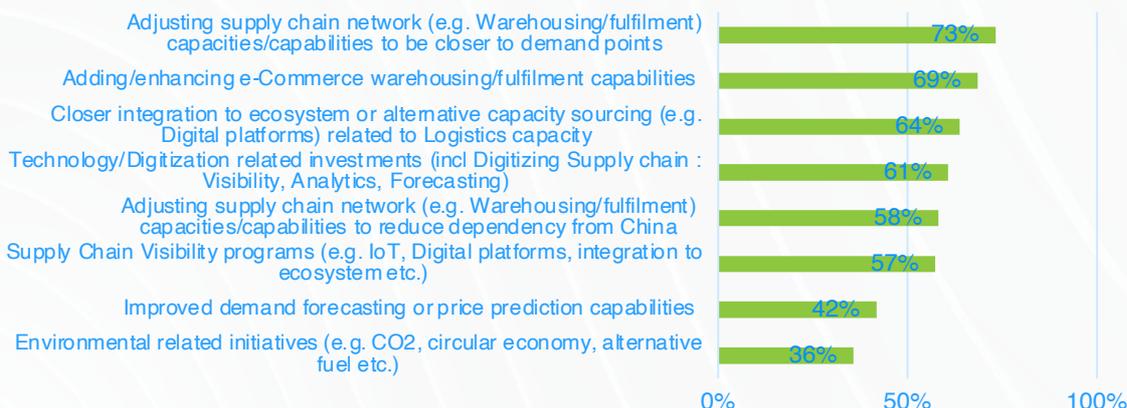


Figure 11: Impact of Dynamic Planning 2021 vs 2022/23 across geographic region

**6. Data Integration is the next big thing.** While data integration (and orchestration) as such was not a big cost element in 2020, companies are placing an increasing importance to such solutions, and this seems to become a priority for the next few years. The respondents from the logistics industry expressed a greater need for data integration than decision-makers in the other industries. This does not come as a surprise given the role of the logistics players as orchestrator of complex supply chains, as middlemen that need to seamlessly and flawlessly connect the different pieces of often fragmented systems and software across the networks and the along the chain to live up to their promises and meet customer expectations. It is worth noting the faster growing interest in data integration across the APAC region compared to other parts of the world, which may be rooted in the need for work dynamically in a fast growing region which historically showed lower levels of maturity in the respect to technological integration.

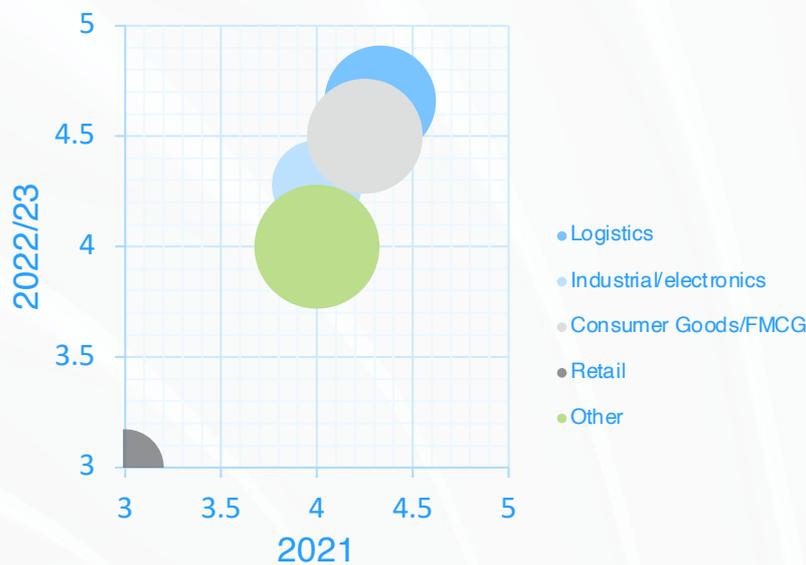


Figure 11: Impact of Data Integration 2021 vs 2022/23 across industries

*“The trend of needing better data integration across different parts of the value chain is very consistent with what I see happening in other domains, like finance and marketing, in large organisations. Bringing together the data Eco-system of internal and external data, and across partners in a value chain, sets an invaluable foundation for a data driven supply chain, no matter the industry”*

Bharathi Viswanathan  
 VP Tech Services, APAC, and Global Martech Platform Services  
 The Coca-Cola Company

While there has been general consensus that the macronomic and black swan events (including COVID-19) over the past year or so has indeed pushed forward the importance and need for digitization, this paper outlined medium and longer-term digital implications to supply chains. While there has been validation from this paper of a continued major adoption of various technologies across the supply chain and logistics industry across the next few years, there are some gaps and potential areas of concern that have been identified. Addressing these development areas ensures a more sustainable technology adoption going forward.

### **Organizing a digital supply chain**

The COVID-19 pandemic in 2020 has shown the importance of having a nimble supply chain that is quick to react to changes in demand. The disruptions that will continue to emerge from the unknown is acknowledged to be better mitigated by the greater use of solutions like application and data integration, that would allow closer relationship and collaboration between parties. Additional mitigating solutions are real time supply chain visibility and dynamic planning, supporting the requirements around reshoring and de-risking networks. As regions are impacted differently and present different dynamics, corporates are in addition adopting more localized technology-related strategies, while maintaining efforts on digitizing their supply chain backbone globally. The understanding of the above technologies are key to facilitating an efficient and flexible supply chain.

As technological solutions become more integrated and foundational for efficient and effective supply chains, organizations need to decide whether and how much these Digital Supply Chain capabilities need to reside in-house, and which can and should be secured through partnering with other solution and external service providers. There will correspondingly be a need for strong digital innovation teams to identify and formulate the necessary strategies and tactics, for setting up strong change management and program management skills to facilitate these fundamental organization shifts.

### **Sustainability**

As expectations across society and economies continue to evolve especially from the impact of macro-economic and black swan events, it becomes increasingly important that the supply chain operations and technology evolution is done through the lens of sustainability. That is, a balanced approach towards economic, ecological, and societal needs. As regulatory and commercial pressures mount on companies towards being carbon neutral, technology will also be key to achieving an environmentally sustainable supply chain through programs such as carbon tracking and reverse logistics, as highlighted in a previous NEXST Insights Paper. While environment-related initiatives and finance sustainability programs were ranked in the 2020 survey as the least important areas of investment in 2021 and 2022, we believe that these need to be looked at in parallel with existing and future supply chain (and digital) enhancement initiatives, to enable a seamless progression towards a more sustainable supply chain.

# CONCLUSION

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