

## IPS Forum on Innovation: Disruption or Evolution in Supply Chain

By Faizal Bin Yahya

### Executive Summary

The IPS forum on “Innovation: Disruption or Evolution in Supply Chain”, conducted under Chatham House Rule on 1 September 2020, discussed key topics surrounding innovation, digital transformation, and emerging technologies within Singapore’s supply chain and logistics ecosystem. Several speakers shared their views with recent examples from their sectors, followed by a discussion with the audience:

- The speaker from a research institute talked about the disruption to global supply chains caused by the pandemic and what businesses can do to emerge from the crisis stronger.
- The speaker from a leading tech company shared about a host of deep technologies that are transforming the supply chain sector, and the role of artificial intelligence in industry transformation.
- The speaker from a leading bank highlighted investment opportunities in the supply chain and logistics space and emphasised strong digital leadership in driving organisations in the new normal.
- The speaker from a leading food manufacturer described the organisation’s ongoing transformation journey into a product-driven and supply-chain food business.
- The speaker from a leading communication company shared about the organisation’s digital transformation from a newspaper company into a digital company and multi-industry investor.
- The speaker from a logistics company shared about the firm’s log tech innovation and applications across a variety of industries and use cases.

The audience took an online poll asking how companies organised themselves to invest in innovation. The ensuing discussion included questions on approaching innovation, seeking buy-in from stakeholders, and improving capacity.

### Introduction

In general, companies in the supply chain ecosystem are facing an unprecedented era of change with the advent of Industry 4.0, growth of digitalisation and evolving customer

expectations. The rise of the “Amazon effect” has shifted distribution patterns as demand rises. Customers’ demands for rapid fulfilment are forcing businesses of all types to warehouse their goods much closer to intermediate and end customers. At the forefront of this disruption are start-ups and new entrants that are pioneering innovations across all levels of the value chain. This momentum is driven by the phenomenon of heightened expectations from customers, which has seen more intricate supply chain networks being formed and constantly evolving for “immediate” customer gratification. In this context, data analytics and Internet of Things (IoT) start-ups have the potential to transform supply chain forecasts, inventory management and labour management. Blockchain technology enables logistic companies to establish failsafe digital contracts. Driverless vehicles and drone technologies are revolutionising the speed and flexibility of last-mile delivery.

There are vast opportunities to be tapped to improve performances and serve customers better. With the fast pace of disruption in the sector, supply chain company incumbents as well as new entrants have leveraged a strategy of mergers and acquisitions (M&A), and funding and development of start-ups, either internal or external to their organisations in their drive towards innovation. However, for an innovative business model to be effective, companies have to be open-minded to new ideas and processes that could transform their business models. Given the accelerated changes occurring in the supply chain and logistics landscape, the innovators among companies would need to complement their customers’ business models so that their innovative products can “hit the ground running”. This is a mutually beneficial relationship as incumbents gain the opportunity to learn from agile emerging start-ups to deploy the newest digital capabilities to customers, in return the start-ups gain credibility, brand awareness, and access to large customer bases.

A digitally integrated value chain could potentially benefit from improved forecasting, flexibility in scaling capacity and the addition of machine learning and AI (Artificial Intelligence) techniques to data analytics. In addition, innovation with technology also enables traditional companies to develop new business ventures that would not only transform their existing business models but also create new opportunities for employment and revenue streams for their respective companies.

The online forum was convened by the Institute of Policy Studies (IPS) in partnership with Lancia Consult. It was co-moderated by Dr Faizal Bin Yahya of IPS and Mr Jeffrey Cronkshaw from Lancia Consult. The aim of the online forum is to examine the drive towards innovation and the potential applications of innovative technologies to overcome challenges in the evolving supply chain environment, which forms the backbone of most industries.

### **Supply Chain Innovation in the New Normal**

The speaker from a research institute shared that the COVID-19 crisis was unique in that it brought about simultaneous supply and demand shocks to the global supply chain. While the industry is familiar with the necessary response needed for siloed supply and demand shocks, it was not adequately prepared to manage the evolving impacts of both. As a result, the crisis has created severe instability and disrupted continuity in global supply chain networks, damaging their robustness and causing a delayed recovery.

As governments scramble to flatten the COVID-19 infection rate curve, they unwittingly squeeze the economy out by flattening the business curve beyond minimum business capacity. As such, there needs to be more discussions about the robustness of the economy rather than focusing on the recovery of the economy. Certain innovations that are emerging can help companies optimise their business capacity.

The speaker shared the need for trimodal supply chains as a necessary response to an increasingly volatile environment, which is a blend of the traditional approach of lean efficiency and risk mitigation with an agility where priority is placed on speed and new opportunities. In a trimodal supply chain, both modes are blended to enable keen sensing and decision-making in a fog of uncertainty.

To achieve smoother flow in the supply chain during crisis, businesses need to identify their new normal; increase collaboration; strengthen their foundations; accelerate their digitalisation initiatives; be nimble with their strategic pivoting; and repurpose their business, if needed, into alternative areas in order to maximise their business capacity.

### **The Role of AI in Supply Chain Innovation**

Investment in AI for enterprise applications has risen rapidly in the past decade. The speaker from a tech company shared a variety of case studies where deep technologies such as AI and machine learning are enabling innovation in the supply chain ecosystem.

Facial recognition software powered by AI have enabled consumers in China to pay for their purchases using their face, or retrieve their flight details at the airport via facial recognition. AI has also been applied to traffic control, where cameras can detect vehicle type, driver profiles, licence plates, and perform counting, traffic predictions, and monitoring of speed. AI has also been applied into farming and agriculture. In China, AI machines help farmers monitor livestock for sickness, and image recognition helps farmers monitor crop growth via tracking field temperature, weather, growth stage, and growth distribution.

Closer to the supply chain industry, unmanned convenience shops use robots to restock shelves. Robots perform picking, packing and sorting in factories and warehouses, and even serve consumers in the last-mile delivery for e-commerce orders. Sidewalk delivery robots and on-road autonomous delivery vans and pods are emerging and expected to be deployable soon. Platooning technologies and autonomous ships are also emerging innovations, which have potential to transform the sector.

Striking a balance, the speaker also shared the limitations of AI in terms of practising creativity, empathy, cognition, global perspective, reasoning, and intuition, where there has been active research and experimentation to integrate these traits within machines.

## **Making the Right Investments in Supply Chain**

The speaker from the banking sector shared his perspective of how companies can identify opportunities and partnerships on which to capitalise. In the past year as businesses worldwide respond to the pandemic, it has become clear which companies have been resistant to change, and which have embraced the need for transformation with courage and agility. This is a clear compass to guide business to identify the right partners to work with.

Businesses need to look for fellow digital champions: who are the players who have been able to raise money even in the COVID-19 crisis? For instance, e-commerce players, freight forwarding firms, and SaaS (software as a service) firms are emerging well and challenging incumbents who have not been able to offer digitalised channels. In these spaces, there are market opportunities in the multitude of digitally enabled SMEs that are emerging, as they are able to successfully serve the needs of the customers even during the pandemic.

How can companies capture the most value in the supply chain ecosystem? First, firm incumbents need to build agility as a core skillset in their organisations. They need to learn how to accurately identify areas to maximise value and undertake quick experiments, failing fast and learning fast. As a result, strong digital leadership is necessary to transform existing incumbents. Second, start-ups require change management skills. They need to understand clearly the needs of the incumbents and augment their solutions to address their specific pain points. Third, the industry requires the role of product managers with blended business and technical skillsets to serve as digital translators within organisations — to bring digital solutions together and translate value for the business.

## **Digital Transformation in Food Manufacturing**

The speaker from food manufacturing discussed how the success of food businesses is greatly steeped in the efficacy of its supply chain. In the midst of their transformation to become a supply chain driven organisation, his company has invested sizeable resources to digitalise their business operations, such as investing in a control tower, SAP systems, and manufacturing execution systems to transform their kitchens.

A key challenge the company identified is managing change within the workforce and acquiring buy-in within the team to embrace transformation to their roles and job processes. In the last few years, a new corporate venture team comprising former start-up founders with track records of innovation was formed to look at business transformation from an alternative angle. This enabled the company to examine new business ventures such as online food delivery and food technologies to expand shelf life and minimise wastage. The company intends to go upstream in their value chain expansion and work with technology players to explore how technologies can aid the supply of fresh food into Singapore, as well as go downstream to expand their scale via a regional and global approach.

The food manufacturing company is also in the development phase of their own open innovation platform, which will aim to serve as a cornerstone of the firm's food innovation

strategy. It will converge key stakeholders of the Singapore food ecosystem to collaborate and innovate, and provide a launch pad for the co-developed products and services in for the company in the aviation and non-aviation innovation channels.

### **Digital Transformation at Communications Company**

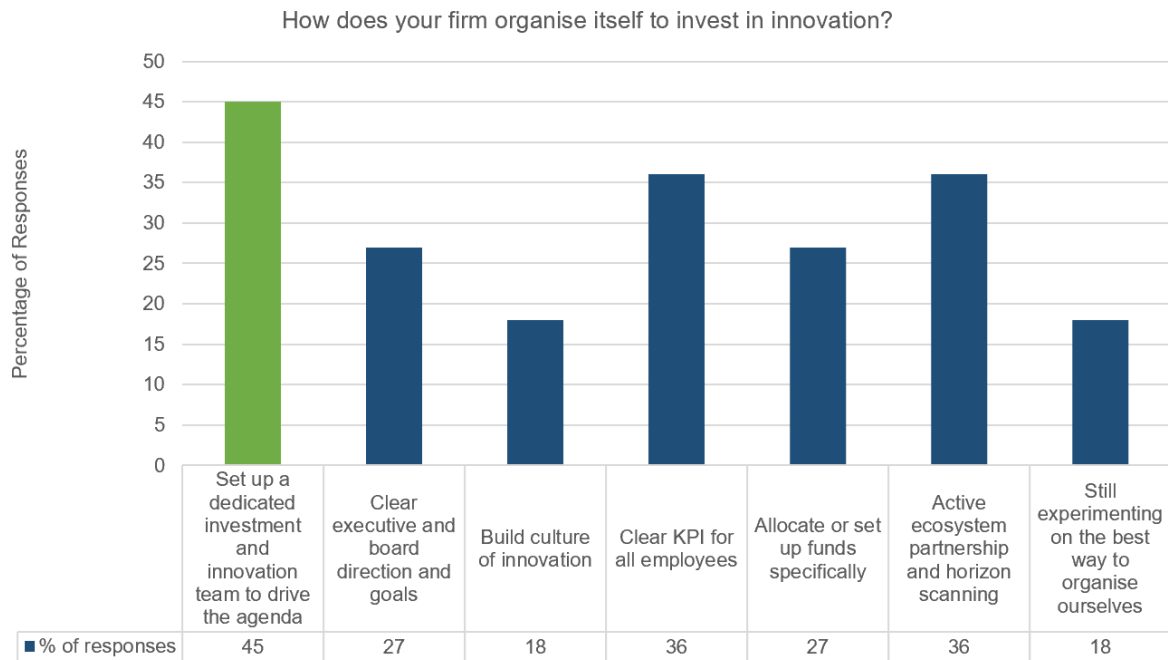
The speaker from the communications company described its transformation journey from a newspaper company into a digital company. The company's digital business unit was created to spearhead the group's digital strategy that included focusing on growing digital products and driving ownership and synergies with its core business units.

Their digital transformation strategy consisted of four stages: first, building digital capabilities across the company, equipping the organisation with the necessary skills and know-how to facilitate a digital business; second, growing innovation within the organisation through an in-house incubator and joint ventures; third, the strategic acquisitions of companies with capabilities complementary to their own; and last, embarking on investments in start-ups to develop the innovation ecosystem, and facilitating a win-win between start-ups and the company, via a S\$100 million venture capital fund. This enabled them to build a strong portfolio of ventures in media technologies, consumer services, and enterprises services.

The speaker highlighted a series of new initiatives and mindsets that has enabled the transformation journey to take off. This included facilitating open communication through open-concept workspaces and town halls; cultivating a culture of learning through events like brown bag lunches; encouraging risk-taking and entrepreneurial spirit in employees, growing collaboration through cross-functional teams; emphasising data-driven decision-making via technology and algorithms; and adopting lean start-up and scrum methodologies.

### **Audience Responses**

A poll was conducted during the online forum to determine how companies organised themselves to invest in innovation.



The responses had 45% indicate setting up a dedicated investment and innovation team to drive agenda as one of the key approaches that their firms undertook to invest in innovation. Slightly lower, at 35%, is the need to establish active ecosystem partnerships and horizon scanning. Also at 35% is the importance of setting clear KPIs for employees.

### Industry Applications and Use Cases of Logtech Innovation

The last speaker, from a transport management software SME, gave examples of a variety of cases where its software-tracking system known as logtech can be effectively applied. The tracking system was proven to be effective for a national-level project, in which the company digitalised and optimised logistics to set-up of booths across the country. The SME also served as a command for time-critical distribution at over a thousand locations.

The SME achieved 100% rate of delivery with electronic proof of delivery completions. In another case study, in Malaysia, a popular health and beauty retailer deployed the SME's systems just before the Movement Control Order (MCO) was imposed. The improvements to delivery operations despite the MCO included 90% of time saved in reduced planning time for deliveries from two to four hours to under 10 minutes. The company was able to use split-teams of operators to plan together in real-time remotely even while working from home. Operational efficiency has been increased to 200% and the Malaysian company was able to restock all its store outlets once or twice daily up to five times a day. The billing process was up to four times faster, reducing the standard processing time of between four to eight hours to just under an hour.

As part of a collaboration with incumbents, the SME was mentored by SAP, the software pioneer with over 200 million subscribers, as one out of five technology companies worldwide

selected by SAP Singapore to be part of SAP.iO Foundry 2020, SAP's no-equity start-up accelerator. The SME received guidance and exposure to vast networks and opportunities via the programme, integrating its solution with SAP's solutions, collaborating with SAP customers, and becoming part of their fast-growing, inclusive ecosystem of partners.

## Q&A

### **1. How can companies approach innovation? Innovate from within or adopt an outside-in approach?**

The speaker from food manufacturing shared the experience of an outside-in approach, where they hired former start-up founders with the know-how and experience to make up their corporate venture team. This was done with the intention of bringing in the latest thinking and business models to allow the organisation to have visibility of the latest innovations in the industry. The speaker from the banking sector also supported the idea of external catalysts that are able to build momentum needed for organisational transformation.

The speaker from tech company highlighted the importance of diversity in organisations, where people with different backgrounds can provide fresh ideas and insights necessary for breakthroughs.

### **2. How can companies win greater buy-in for their digital transformation?**

The speaker from food manufacturing suggested that companies that embark on transformation must aim to bring success in quickly to show the stakeholders involved that transformation is a good path to pursue. This is necessary to win the support of the workforce to drive the innovation needed for the long term.

The speaker from the communications company agreed, emphasising that early success is important to win buy-in. Drawing from the company's experience, its early successful acquisitions of start-ups in the media technology and consumer services sectors were a key factor in convincing the management and the board that the transformation was a right choice.

### **3. How can companies better maximise their space capacity in terms of company assets?**

The speaker from the SME described the "ideal taxi driver" to illustrate the idea of optimised capacity. The ideal taxi spends the mornings picking up passengers at the airport, spends late mornings completing parcel deliveries, spends the early afternoons completing food deliveries, reverts to completing parcel deliveries in the late afternoons, and spends the evenings shuttling passengers back home. While this is an idealised vision of what optimised capacity may look like, the speaker said that such innovations have potential to become reality in the near future because technologies that can support such ideas already exist.

In addition, the speaker from food manufacturing gave an example closer to the organisation, where the aviation food manufacturer has opened up the spare capacity in its kitchens to help hawkers scale their businesses. Using the resources and know-how in large scale food production technologies, they have offered to help hawkers replicate their meals to cater to a

larger consumer base, both locally and globally. This initiative has appealed to many second-generation hawkers who eventually shared their recipes and entered into collaboration with the food manufacturing.

## Conclusion

The supply chain and logistics industry has been hard hit by the pandemic, but the crisis presents opportunities for the industry to reinvent and transform itself. For example, idle assets such as kitchens meant for large-scale meal preparation could be repurposed as a platform for micro food SMEs such as hawkers, to cope with more demands and reach out to new customers. A plethora of new technologies and business models such as in communications and media has enabled various transformations in the supply chain ecosystem, but the real challenge lies in integrating these innovative technologies successfully into incumbent companies. Depending on the business model and ecosystem, it is hard for incumbents to disrupt existing business models and revenue streams for future business. Therefore, it will be easier to finance and develop a start-up outside of the company and integrate the proven innovations into legacy systems. With successful partnerships and collaboration within the ecosystem, the industry will be able to leverage innovation to its advantage.

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*Faizal Bin Yahya is a Senior Research Fellow at IPS. He acknowledges the contributions of Ms Si Ngah Leong and her team at Lancia Consult in the drafting of this report.*

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*If you have comments or feedback, please email [ips.update@nus.edu.sg](mailto:ips.update@nus.edu.sg)*



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