



Supply Chains **and the Multiverse** **of Risk**

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Introduction

From your breakfast cereal (Bienenfeld et al., 2016) to the world of illicit substances (Miltenburg, 2018), most property (both tangible and intangible) requires complex transactional supply chains for the local, regional, and global economies to function (Isik, 2010), and for you as an individual to produce and consume. We must remember that this is inclusive of thoughts and intellectual property (Ghamat et al., 2021), and I am aware that as I produce this report on a computer (Apple Inc, 2022) made of tangible and intangible elements including hardware, software, and SaaS, alongside the powering and communicative elements (Simoes, Huppes and Seixas, 2015), that I am a consumer and a producer in very large and multitudinal supply chains (Hardaker and Graham, 2008).



“ Would a lay individual or most of the population understand the intricacies of the supply chains that have provided me with the tools and utilities to complete this work, or what supply chains my work will go through or how it will be digested, copied, printed, cited, or referred to? ”

The answer is fundamentally no, however a lay individual would have expectations of traceable diligence and would expect this of organisational constructs and professionals (Ageron, Bentahar and Gunasekaran, 2020). These organisations and professionals, dependent on jurisdiction and sector, are subject to regulation, governance, profit and loss protection frameworks (Buhr, 2017), and their own internal Environmental, Social, and corporate Governance (ESG) standards (Gualandris et al., 2021).



Environmental, Social, and Corporate Governance (ESG)

– Checking at every level

What does this mean and why should you care? Well in most countries, ESG standards are being hardened (Whittaker, 2021), and the future is becoming increasingly regulated in this area through geopolitical influence.

Singapore was one of the first countries to implement environmental risk guidelines for banks, asset managers, and insurers, through the Monetary Authority of Singapore (MAS), to deal directly with natural resource organisations and supply chain clients (Monetary Authority of Singapore, 2020).

On a softer note, the European Securities and Markets Authority (ESMA) has taken a different influencing stance in publishing a roadmap of activities in 2022 to deal with transparency, green-washing, and stress-testing of sustainable finance products (European Securities and Markets Authority, 2022).

Whichever way this is analysed, the call is for a deeper and more considered evaluation of the supply chain, and all matters vending (Anin, Boso and Asamoah, 2021). This also falls in line with the requirements of goods entry regimes such as STP+ in Singapore (Singapore Customs, 2022) and CTPAT in the United States (U.S. Customs and Border Protection, 2021), which require a complete and holistic review of the entire shipping (both onshore and offshore), security, human resource, and vending process.

Enhanced traceability and due diligence

Schemes such as STP+ and CTPAT, give organisations the opportunity to have a trusted and rapid goods entry relationship with the respective countries that they have been accepted as having enhanced traceability and diligence levels with (Li, 2014).

The process is cyclical, and albeit for those organisations who have been granted enhanced import and export permissions through schemes such as STP+ and CTPAT, the supply chain can be disrupted when a lack of due-diligence and threat intelligence, leads to malfeasance and calamity (Sibanda, Zindi and Maramura, 2020).

Impact of supply chain security measures

The requirement to conduct remedial exercises of securitisation within the logistical chain combined with having to undergo a full audit of a product catalogue and organisational supply chain processes and policies (Gonzalez-Padron, 2016), can fundamentally slow down and even halt the end-to-end processes within each stage of agriculture, manufacturing, logistical supply, consumptive supply and purchasing (Frost et al., 2021). This then impacts the further use of component products within other products, especially when taking into consideration natural disaster security threat assessment matters (Inman and Blumenfeld, 2014).

When combined with the effects of the events such as a global pandemic, this can have a direct effect on us all as consumers, employees, organisational professionals, and familial entities, and so when engaging as professionals, we need to recognise that our decisions have a range of cascaded impacts (Guan et al., 2020).

Although conducting threat intelligence reviews, assessments, and due diligence has initial outlay and ongoing costs, this is nothing in comparison to the costs and reputational risks associated with ignorance or malfeasance (Greer and Purvis, 2016).



In short supply

Semiconductor chip shortages have been slow-burning small-column news for a significant period, with the blame being laid squarely at the foot of the 2019-2022 pandemic, and varied government decisions to close the shutters on a global basis (Ivanov, 2021). Although this is a contributing factor, there are also other geopolitical considerations to be taken note of, such as how the productive supply chain is typically split across a range of geographies, alongside the sourcing of raw material such as silicon, and now with more advanced chipsets, rare earths (Khan, 2021).

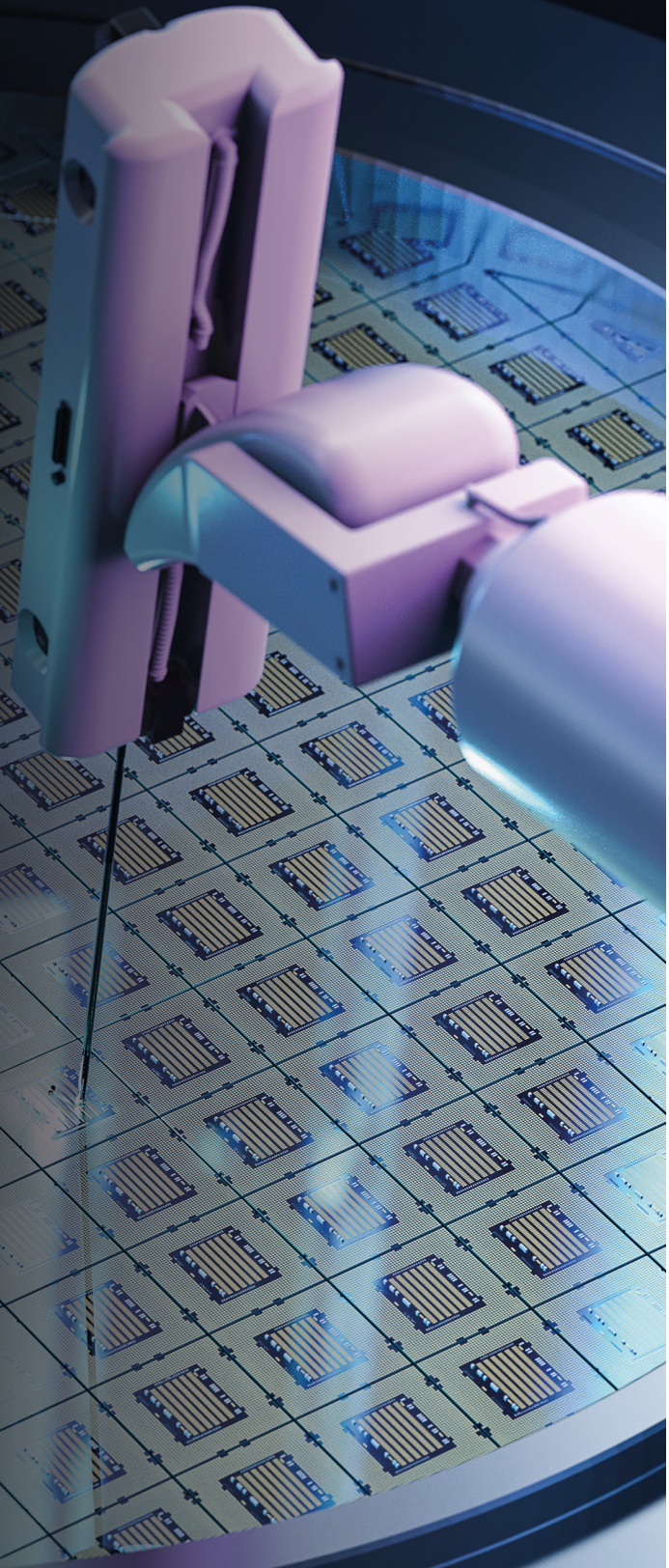
Rare earth materials are typically located in areas which are consistent with geopolitical debates, sanctioned entities, nefarious and obscure financial dealings, and ultimately the provision of questionable human labour practices (Wan, 2019).

Returning to the effects of the 2019-2022 pandemic and continued endemic, the globalised supply chain has suffered from its own success (Medina-Serrano et al., 2021). Globalisation previously meant that Multinational Corporations (MNC'S) could set up shop in most locations around the world, either in substance, by joint venture, via franchise, or through a proxy.

Often in a rush to market, or for dominance, many of the due-diligence requirements, supply chain mapping, securitisation, and threat intelligence processes and checks could potentially have been glided over with a tick-box mentality, if at all implemented dependent on jurisdiction (Pandey, Singh and Gunasekaran, 2021).

It is clear that the demand for technology is reaching a critical point, and that the race to digitalisation by geopolitical influencers, governments (Hantrais et al., 2021), and MNC's is fuelling the supply chain meltdown (Sheffi, 2021). There is also a conflicting position posited within the ESG space (Tscherning and Chapman, 2021), that electric vehicles are to take over from combustible vehicles (Kaunda, 2020), and as a result the transportation market is currently being regulated in many jurisdictions to reflect this (IEA, 2021).

Where these policies collide with the supply chains, with the combustible tinder of the lack of associated relevant due-diligence and threat intelligence requirements (Wilson, 2018), the result could resemble a meltdown of globally significant proportions. If the supply chain cannot keep up at this point of inflection, how can it keep up into the future when digitalisation is mandated, and vehicles must by decree, be electric?



The mixing pot of micro and macro

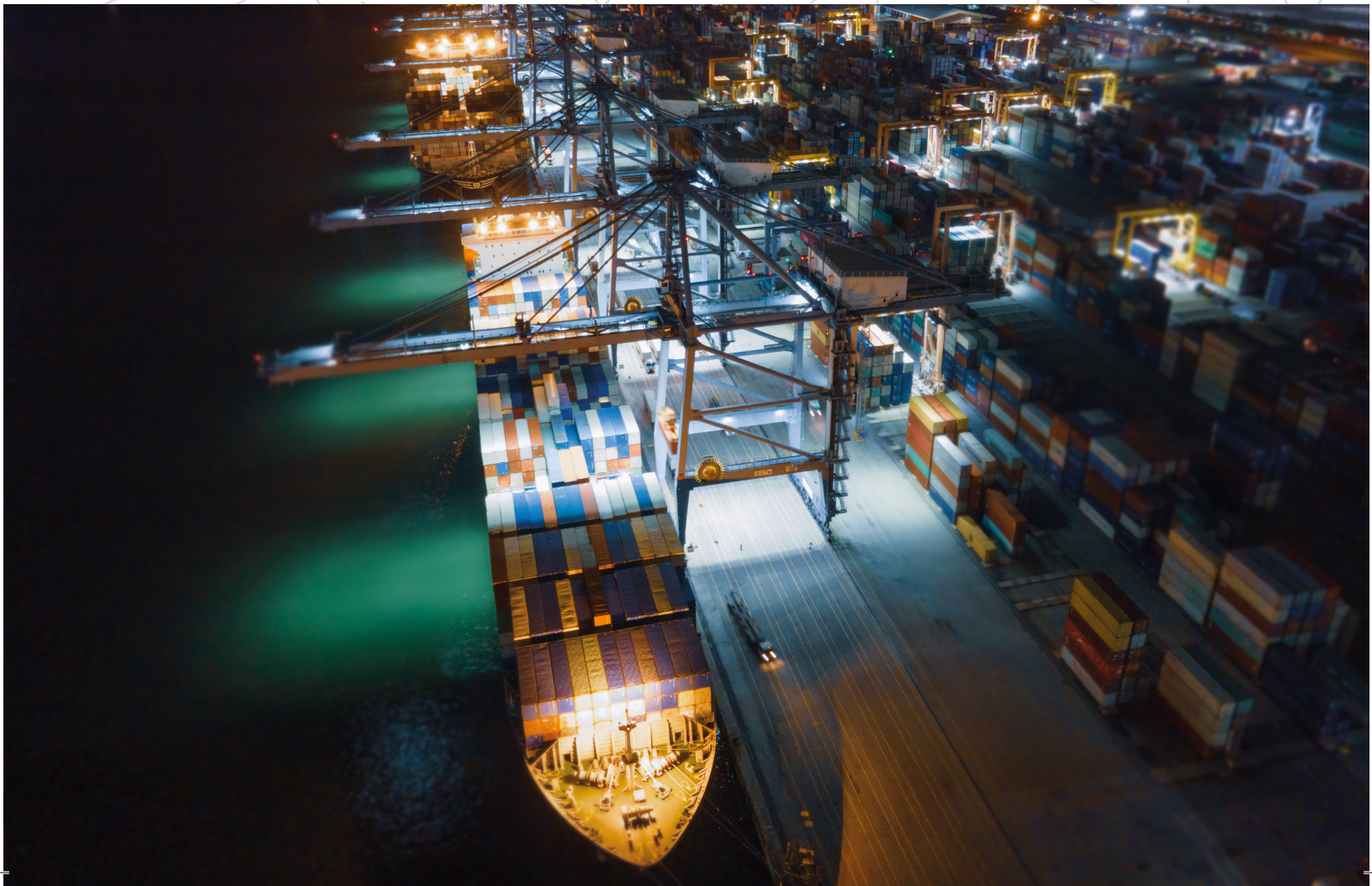
Any supply chain is a roller-coaster of checks and balances (Lei et al., 2021), which require consistent and holistic review processing, and detailed project/program/portfolio management with the associated range of quality assurance and control expected.

These typically should all have risk management procedures built into the standard processes, as the relevant institutes and associations which standard-set all place risk management as a priority issue which should be embedded within all documentation, project stages, and processes (Project Management Institute, 2022).

In this vein, detailed due diligence and threat intelligence on soft-service vendors, contractors, staff, investors, logistics providers, raw material and hard-service vendors, regions and locality, geopolitics, local matters of issue, and technological should be conducted (Ooms, 2022), and in a thorough manner (Smith-Roberts et al., 2021).

The reality of this is a different matter, however, as can be seen at a macro level in the case of the 1MDB scandal, and at almost every micro level when the complexities are reviewed in relation to the lack of diligence conducted on the organisations, products, people, vendors, and contractors (Abadi, 2021). This is inclusive of the mixing of funds, assets, and resources from the natural resource sector and their associated supply chains, which was subject to media reporting and alerted the relevant authorities on an international basis to criminal recidivism which needed to be dealt with by a multitude of organisations and individuals (Siddiquee and Zafarullah, 2022).

The situation displayed the power of supply chain ignorance (Carroll, 2021), as the lack of threat intelligence, assessment, due diligence, and lack of understanding of the supply chain resulted in worldwide reputational risk, and financial and prosecutorial penalties (Chen, 2019).





Shoring up the defences

The high-level and rapid commentary around supply chain activities, their symbiosis with everyday life (De Angelis, Howard and Miemczyk, 2018) and the reverberating impacts upon everything from geopolitical relations to breakfast cereal (Lu and Koufteros, 2017), gives a taste of the complexity of reviewing and securitising this overarching domain.

It is with very little doubt that supply chains require detailed and substantial diligence (Franck, 2007), with threat profiling and intelligence at the heart of any reporting or reviews. It is vital to societies across every jurisdiction that supply chains don't have any broken or weak links, and that producers, suppliers, logistics providers, purchasers, and manufacturers maintain their respective responsibilities to prevent malfeasance (Bechtsis et al., 2021).

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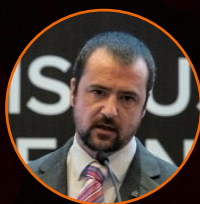
On the lips of the geopolitical community is food security, food exploitation (Friel, 2021), water security, utility security, counterterrorism, forced labour and exploitation (Islam, Deegan and Gray, 2018), human trafficking, illicit substances, fraud, money laundering, digital assets (Lo, 2021) and the metaverse, sanctioned entities, munitions supply, and the list goes on.

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As an active member of Singapore Institute of Directors, Mark offers his deep corporate understanding to peers and advises businesses on navigating complex supply chain and risk assessment ventures. He is a fellow and member of many other associations and institutes, both in terms of corporate activity, as well as security, geopolitics, military matters, and AML/Compliance, and so is well placed to advise on this basis.

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