

# Black Swans and the Ostrich Paradox: **Supply Chain Resilience**

By Alan Braithwaite

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Alan Braithwaite is the Chairman of Chartered Institute of Logistics and Transport's Freight and Logistics Policy Group. He formed the specialist LCP Consulting in 1985 and during nearly 40 years has worked with around 400 companies.

Between 1987 – 2018, he was a visiting academic at the Cranfield School of Management, Centre for Supply Chain and Logistics Management and was a Visiting Professor between 2006 and 2018. He contributed to research and teaching and was acting head of supply chain research for 18 months. He is now a Visiting Fellow at Aston Business School.

In the last ten years he has taken a particular interest in freight transport policy and investment; the massive challenge of decarbonisation of freight and their supply chains is central to that work. Most recently he was a member of the National Infrastructure Commission Freight Panel which reported to the UK Government in 2019. In 2019 he also worked with Transport for the West Midlands on city centre logistics research in partnership with the University of Aston.

Alan holds an MSc in Business Administration from the London Business School and a BSc in Chemical Engineering from Birmingham University.

## BLACK SWANS AND THE OSTRICH PARADOX: SUPPLY CHAIN RESILIENCE

In 2014 the idea of Black Swan Events was not common language in Government Departments and the UN had not proposed its 17 Sustainable Development Goals for 2030. The world had dusted its hands of the SARS virus (2002/4). The financial crash was history, resulting in new regulatory regimes around the world. By 2018, the overwhelming concern for global security had become global warming based on CO2 emissions from fossil fuels and the implications of air quality on health. The geo-political implications of some countries' leadership "choices" was also a rumbling concern.

And then came the Covid-19 pandemic; it proved to be a bigger and more lasting shock than the financial crash in 2008/9 albeit with different impacts and mitigation measures. The lasting impacts on mental health, wellbeing and societal behaviours are yet to become clear.

The Ukraine war has heaped on yet more disruption and uncertainty and continues to rumble on. And now we have the Red Sea crisis. The impacts on global supply chains have been severe in many ways; for many these impacts are 'black swan' events.

When that term was first coined it was used to convey the idea of something that does not exist. Black Swans do, of course, exist in Australia and were discovered in 1697 by Dutch explorers led by Willem de Vlamingh. The term subsequently changed to become a metaphor for the idea of a perceived impossibility proving to be a reality.

Black swan events were discussed by Taleb in his 2001 book *Foiled By Randomness*, which focused on financial events. His 2007 book, *The Black Swan*, extended the metaphor to events outside of financial markets. Taleb concluded that major discoveries, events in history and artistic accomplishments are "black swans"—undirected and unpredicted. For him this would include the development of the internet, personal computing, world wars and the break-up of the USSR.

It is proposed that there are three characteristics of a 'Black Swan'. First it is not part of normal or regular expectations since it is outside previous experience and the realms of possibility, second it brings an extreme impact and third it is the subject of a considerable 'after the event' explanation. This 'post hoc' rationalisation may provide some psychological comfort and self-exoneration but does nothing to mitigate the impact.

Returning to the pandemic and the Ukraine war, the question is whether, or not, they were truly "black swans"?

In relation to the pandemic, the answer to that question is a resounding 'no'. The sources for this conclusion are twofold. First is the 2018 Global Risk Report from the World Economic

Forum. Figure 1 shows that pandemics were clearly identified as one of the top likelihoods and impacts in 2008/9/10 and emerged again as a high potential impact event in 2015.

Figure 1 – World Economic Forum Global Risk Report: Ranking of Likelihood and Impact of top 5 Risks

Likelihood											
Rank\Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>First</b>	Asset price collapse	Asset price collapse	Asset price collapse	Storms and Cyclones	Severe income disparity	Severe income disparity	Severe income disparity	Interstate conflict with regional consequences	Large scale involuntary migration	Extreme Weather events	Extreme Weather events
<b>Second</b>	Middle East Instability	Slowing Chinese Economy	Slowing Chinese Economy	Flooding	Fiscal Crises	Fiscal Crises	Extreme Weather events	Extreme Weather events	Extreme Weather events	Large scale involuntary migration	Natural Disasters
<b>Third</b>	Failed and failing states	Chronic disease - PANDEMIC	Chronic disease - PANDEMIC	Corruption	Rising Greenhouse Gas emissions	Rising Greenhouse Gas emissions	High structural un / under-employment	Failures of national governance	Failure of climate change mitigation/adaptation	Natural Disasters	Cyber-attacks
<b>Fourth</b>	Oil and gas price spike	Global governance gaps	Fiscal Crises	Bio-diversity loss	Cyber attacks	Water Supply Crises	Climate change	State collapse or crisis	Interstate conflict with regional consequences	Large scale terrorist attacks	Data Fraud or theft
<b>Fifth</b>	Chronic disease - PANDEMIC	Retrenchment from globalisation	Global governance gaps	Climate change	Water Supply Crises	Mis-management of population ageing	Cyber attacks	High structural un / under-employment	Natural Disasters	Data Fraud or theft	Failure of climate change mitigation/adaptation

Impact											
Rank\Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>First</b>	Asset price collapse	Asset price collapse	Asset price collapse	Fiscal Crises	Major systemic financial failure	Major systemic financial failure	Fiscal Crises	Water crises	Failure of climate change mitigation/adaptation	Weapons of Mass Destruction	Weapons of Mass Destruction
<b>Second</b>	Retrenchment from Globalisation	Retrenchment from Globalisation	Retrenchment from Globalisation	Climate change	Water crises	Water crises	Climate change	Chronic disease - PANDEMIC	Weapons of Mass Destruction	Extreme Weather events	Extreme Weather events
<b>Third</b>	Slowing Chinese Economy	Oil and Gas price spike	Chronic disease - PANDEMIC	Geo-political conflict	Food shortage crisis	Fiscal Crises	Water crises	Weapons of Mass Destruction	Water crises	Water crises	Natural disasters
<b>Fourth</b>	Oil and gas price spike	Chronic disease - PANDEMIC	Fiscal Crises	Asset price collapse	Chronic Fiscal imbalances	Weapons of Mass Destruction	unemployment and under-employment	Interstate conflict with regional consequences	Large scale involuntary migration	Natural disasters	Failure of climate change mitigation/adaptation
<b>Fifth</b>	Chronic disease - PANDEMIC	Fiscal Crises	Fiscal Crises	Extreme energy price volatility	Extreme volatility in energy and agri prices	Failure of climate change mitigation/adaptation	Cyber attacks	Failure of climate change mitigation/adaptation	Severe Energy price shock	Failure of climate change mitigation/adaptation	Water crises

This figure has been extracted and adapted from the WEF report to show how the idea of public health and pandemic issues have moved in and out of focus since the SARS epidemic. The table was constructed by the WEF researchers through polling, so this is the compiled thinking of many practitioners. That explains why the terminology moves slightly under the same general heading. In this analysis, there is no point in being critical of the failure to track pandemics as an issue. Perception of the contributors was their reality at the time and would likely be different if they were asked the same questions at the time of writing.

Second, is the author's personal experience of discussions with UK civil servants in 2010 – 2014 timeframe that stressed the concern in Government of the potential for a pandemic and the fact that planning was underway. One might have expected that such contingency planning would have been dusted off and put quickly into action? Sadly that was clearly not the case.

The conclusion from this analysis is that the COVID-19 pandemic was not a 'Black Swan'; it

was a “known” that had slipped from focus in the crowd of potential risks.

The Ukraine war was telegraphed ahead by the huge troop build up on the border yet was still treated as a complete surprise. The world simply did not believe it was going to happen. Fortunately, the Ukrainians were better prepared and the Russians were less competent than anyone expected. Referring back to the WEF Future Shocks Analysis, the closest of the most highly ranked risks was last recorded in 2016 as ‘Interstate conflict with Regional Consequences’. That can only be described as an understatement.

The WEF risk report remarks in a prescient way:

*“Future shocks is a warning against complacency and a reminder that risks can crystallise with disorienting speed. In a world of complex and interconnected systems, feedback loops, threshold effects and cascading disruptions can lead to sudden and dramatic breakdowns. We present 10 such potential breakdowns – from democratic collapses to spiraling cyber conflicts – not as predictions, but as food for thought: what are the shocks that could fundamentally upend your world?”*

It seems that Black Swan events are a convenient post-hoc rationalisation for our institutional failings to spot and plan for things that we actually knew and could have planned for systematically.

### **The Ostrich Paradox.**

Meyer and Kunreuther, academics from The Wharton School in their book the Ostrich Paradox, point to the planning for disasters being both essential and difficult for society.

Their Ostrich analogy is a provocative one as the hapless bird does not bury its head in the sand to ignore oncoming danger. It is perfectly able to run as fast as any animal and defend itself; it is simply turning its egg. The point is it is we who bury our heads in the sand.

The analysis from the World Economic Forum Future Shocks Report demonstrates this observation powerfully. The prioritisation of many risks is tough for the human mind, and it is easy to get complacent. Meyer and Kunreuther argue that what is needed is organisational structures that maximise visibility and make investment choices more equal and transparent. Their context is the humanitarian system but that encompasses natural, climatic and human disasters including pandemics and conflicts. Too often we are not prepared.

The earthquake in Turkey is an example of such failure:

- It occurred on a known seismic fault line where only the timing and scale of the tragedy was unpredictable...

- The construction techniques were compromised due to poor governance and lead to easy collapse...
- There was insufficient heavy lifting and cutting resources...
- There was a lack of innovative partnerships and rehearsed protocols, and hence a slow and inadequate response...

The disaster could not have been averted but it could have been mitigated in its severity and responded to more effectively.

Standards, contingency planning, rehearsed protocols, appropriate investment and trusted local resources offer the potential to do better. That was certainly the case in the pandemic. In the case of the Ukraine – Russia war, one suspects the Ukrainians were relatively well prepared within their resource constraints; it was the rest of the world that had been asleep at the wheel and has been in catch up mode ever since.

The following quotes underline the systemic challenge in people quantifying and prioritising risks.

- “...anchoring and confirmation biases can distort perceptions by assigning more weight to information and views presented early on”
- “group-think is prevalent when considering such a difficult and complex set of potential issues”
- “the focus on low probabilities creates a false sense of security and ignores the need to plan for the negative impacts”
- “there are very few true black swans – it is generally a case of when and how big”

### Ownership of risks and investment in their mitigation

The response by governments to the pandemic was to throw money at welfare and sectoral support; the usual budget rules were discarded in the face of the crisis. The Ukraine war has had a similar albeit more focused spending surge. But that expenditure was a reaction rather than a mitigation measure: spending cannot have been very efficient and syphoning cash from other priorities.

Meyer and Kunreuther point to the need to invest in a more integrated way across the system. Risk or vulnerability management leading to better resilience is indeed about a willingness to invest to cover potential hazards and that investment will depend on ‘your’ role in the ‘system’.

But, the risk and resilience literature does not promote widely the idea of a taxonomy of risks and the implications for the actors along the supply chain.

Figure 2. Risk Source probability vs. mitigation controllability (Source: Manuj and Mentzer)

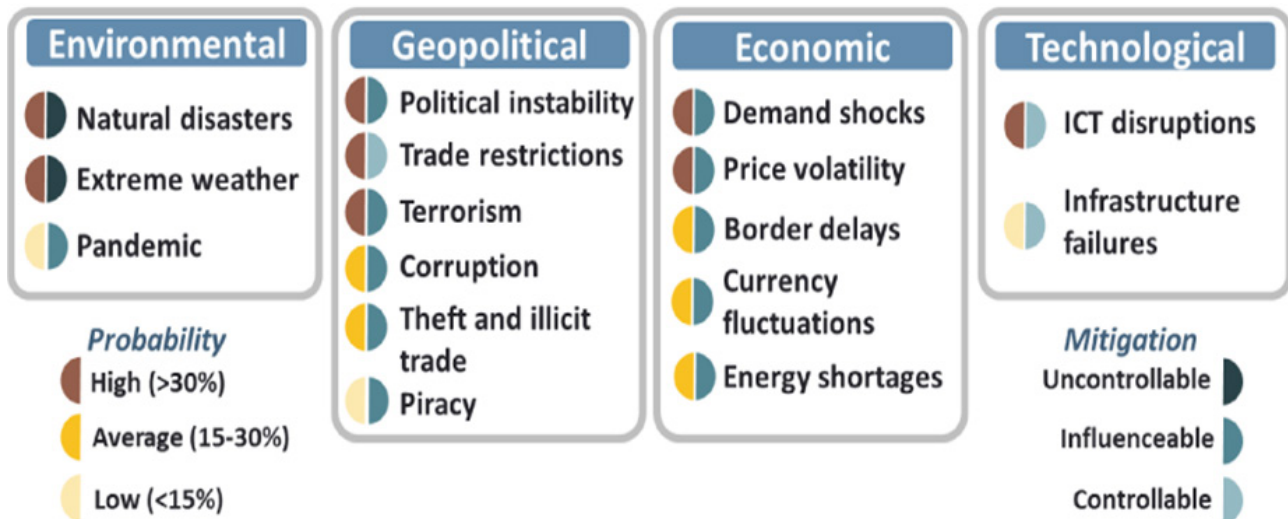
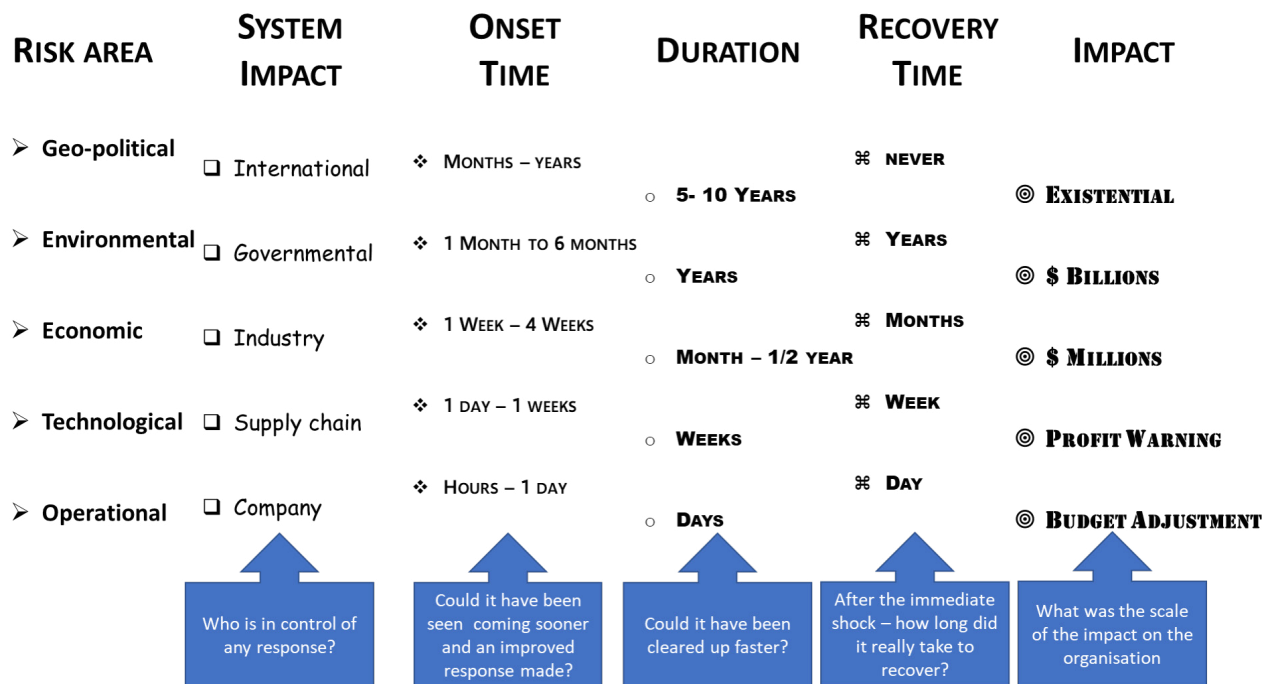


Figure 2 provides one taxonomy perspective from Manuj and Mentzer. It uses 4 general areas of risk and it reaches for probability as a factor, alongside classifications of mitigation. It is interesting to note in this framework that:

- Pandemics were part of this assessment but considered low probability and influenceable; how wrong could they be?
- There is a an emphasis on probability which both the WEF and Meyer and Kunreuther show is an unreliable basis due its subjectivity in assessment and with no recognition of impact.
- The lack of context on impact and recovery – as a result piracy and pandemics are on the same page yet they are quite dissimilar.

That leaves the question as to who takes the leadership role in different classes of risk and the investment in their mitigation. Figure 3 is the author’s attempt at a structure that can help place ownership of different risks.

Figure 3. Mapping the Taxonomy of any given risk event. (Source: Author)



The boxes with arrows show the key questions at each stage. Threading any particular risk across this diagram can help to provide a perspective on that risk and its associated vulnerability impact. Using this framework to contrast some issues from Figures 1 and 2 gives the narrative:

- Questions of political stability have international system impact, take months and years to manifest themselves, can last a long time, may never lead to a full recovery and cost \$billions.
- Pandemic risk rests with government and the international system, Onset was 1 to 6 months, duration has been measured in years and the cost measured in \$trillions.
- Shipping delays across borders can take a week or two to become a reality, last for a few months, recovery (once resolved or an alternative route put in place) will be fast and the impact is a budget adjustment.

These risks are clearly not on the same page in terms of who deals with them and their criticality. And risks will often span organisational boundaries and ‘ownership’.

## The Supply Chain and Logistics Impacts

The impacts of the pandemic and the war on business and humanity have been profound – more so than the banking crisis.

In the pandemic we experienced (examples):

- The cost of shipping a container from Asia to Europe rose by a factor of 4 and it was tough to get capacity.
- Freight and logistics came into focus as ‘essential’ services.
- Micro-chips went into serious shortage causing production delays.
- Hospitality sector, service and travel businesses virtually collapsed with knock on impacts on manufacturing and international trade.
- The big winners were e-commerce, parcel delivery and virtual communications.

During the war we experienced (examples):

- A huge rise in the price of oil and gas and refined products, passing an inflationary spike through the economy.
- The interruption of grain shipments left millions in food aid shortage in sub Saharan Africa; prices rose rapidly and markets have been distorted leading to massive food inflation.

These limited examples show the far-reaching unexpected consequences of future shocks. Global trade is so inter-connected that the individual company or country may be blindsided; for them it will feel like a ‘black swan’ and certainly impossible to plan for.

## Supply chain vulnerability is a core economic tension

Much of the inherent vulnerability of twenty-first century supply chains can be attributed to their scale, distance and complexity; but these designs have been strategies from which great benefits have flowed, notwithstanding their inherent risks. For many, taking the safe course of action of avoiding such extended, complex global supply chains would have been equally risky, even to the point of being terminal.

To this inherent risk in scale and scope must now be added the increasingly difficult geopolitical, economic and climatic world. So while companies have been pushing the envelope to gain competitiveness, they have been pushing against an environment that seems to be becoming more hostile.

Failing to plan is like planning to fail; it is a potential act of self-harm even though the risk remains that the plans may not be perfect.

Goethe wrote in the eighteenth century: “the dangers in life are infinite and among them is safety”.

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Note that the analysis was completed in 2020

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## ABOUT

### 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.

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