



# Securing the end-to-end supply chain

September 2019

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September 2019

# Freight in transit is freight at Risk

This whitepaper is sponsored by:

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Copywriter: Malcolm Wheatley

Design: Loop Associates

Images: Istock

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ISBN 978-87-971558-1-3

Global cross-border trade in physical goods amounts to almost \$20trn. And it's not an exaggeration to say that global cross-border trade underpins the entire global economy.

Yet the vast majority of those goods travel by land, and by sea, where they are vulnerable to a wide range of threats. Threats that show no sign of abating.

In recent years, many businesses have woken up to supply chain risk. They map their suppliers' locations, and conceive of back-up plans and alternate sourcing strategies. The Japanese earthquake and tsunami of 2011 was a huge wake-up call, and subsequent events—ranging from the flooding in Thailand to trade tensions between America and China—have done nothing to ease those fears.

But too few businesses appreciate the importance of another supply chain risk: the threats to the logistics processes that power those global trade flows, and which move freight from one part of the world to another, by sea and by road.

Piracy on the high seas, cargo theft in ports and from trucks, cargo contamination and loss due to people smuggling and drug smuggling, and employees at risk from robbery, kidnap, and extortion. To name but a few.

It is not fanciful for businesses to imagine that these might occur. On the contrary, it is fanciful to think that these won't occur.

What can businesses do to fight back? Arm themselves with knowledge and intelligence, in short. Read on to discover which knowledge, and which intelligence.



Prof. Dr. Omera Khan  
Executive Strategy Advisor

# Securing the end-to-end supply chain

For freight moving between the UK and continental Europe, the 33km cross-Channel route between Dover and Calais has obvious attractions. Relatively inexpensive, as well as quick—the ferry crossing takes just one and a half hours—it even attracts the near-constant flow of component-laden trucks heading for the UK’s largest car factory, Nissan’s assembly plant in Sunderland, 350 miles away in the north of England.

According to Port of Calais officials, over 1.9m trucks carrying 47m tonnes of freight travelled the route in 2018—slightly down from the previous year’s totals, owing to a loss of capacity for several months, after the ferry Pride of Kent was damaged in a storm. But it’s a route that isn’t without its risks, even disregarding the regular winter-time storms and high winds that restrict sailings, bringing delays and cancellations. As a natural ‘choke point’, it’s a regular magnet for striking workers and others with a grievance, such as fishermen and farmers. Twice in early 2019, for instance, strikes caused days of chaos. In March 2019, for instance, a three-day-long strike saw tailbacks reach 24km on the A16 heading to Calais, presenting an obvious target for illegal migrants and opportunistic cargo thieves. Three months later, a further strike saw a repeat performance.

Such disruption matters. At constant prices, global cross-border trade exports are 30 times larger than in 1950. And despite headwinds—‘on-shoring’, localisation, China-United States trade tensions and tariffs, Brexit and economic slowdowns—growth remains near-exponential.

According to World Trade Organisation statistics, for instance, global trade growth of 4% is expected in 2019, well above the 3% annual growth rate typical of the early years of the past decade.

But if the macroeconomic view of global trade underscores its scale and importance, the micro view—at the level of individual businesses and shippers—is less optimistic. The whole premise of global cross-border trade is that goods can be moved around the world safely, securely, and reliably, and arrive at their destination at a total landed cost that delivers a cost-saving compared with equivalent goods sourced from nearer at hand. For a European manufacturer, why source from Bangalore, Bangkok or Beijing, if it’s no cheaper, or better, than buying from Barcelona, Birmingham, or Bologna?

Put another way, any manufacturer or shipper engaging in cross-border trade has a considerable incentive to do everything possible to minimise what economists refer to as ‘trade friction’, and what the rest of us call supply chain disruption. Anything that

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Alan Braithwaite, senior supply chain adviser at consultancy firm BearingPoint



The true cost of cargo crime can be  
**5 to 7**  
times higher



The true costs of cargo crime can be a lot higher than the value of goods stolen.

disturbs the smooth flow of freight as it traverses the world is bad news.

At best, it adds cost. At worse, it either undermines the whole premise of cross-border trade, or inflicts actual damage on a business—reputational damage in the form of goods that don't arrive, or arrive late, or in bad condition. Nor is this all: some forms of supply chain disruption put employees in harm's way, through robberies, kidnapping, extortion or other criminal activities, such as drug smuggling or people smuggling. For long-distance truck drivers, or ships' crews in distant ports, the risks are very real.

“The range of risks faced by freight moving through global supply chains is considerable, and the longer the supply chain, the more the risks mount,” sums up Alan Braithwaite, a

senior supply chain adviser at consultancy firm BearingPoint, and a former business school academic. “And once you start overlaying specific routes, specific ports, and specific cargoes, that can add even more risk. Companies look to insurance for protection, but insurance doesn't cover the full consequential losses that may be incurred.” Indeed, freight insurers' insurance contracts cover only the direct physical value of the goods being shipped, which the consequential losses stemming from cargo damage, delay, or theft can exceed many times over. In terms of theft, for instance, one frequently-cited study estimates that the true cost of cargo crime can be five to seven times greater than the value of goods stolen, once all subsequent factors are taken into consideration.

*“Insurance only covers companies against tangible losses: it doesn't—and cannot—insure companies against consequential losses, the loss of customer goodwill, reputational damage, and the fact that production lines stand idle because a consignment of computer chips was stolen.”*

Hans Tino Hansen, chief executive at Risk Intelligence



“Insurance only covers companies against tangible losses: it doesn’t—and cannot—insure companies against consequential losses, the loss of customer goodwill, reputational damage, and the fact that production lines stand idle because a consignment of computer chips was stolen,” stresses Hans Tino Hansen, chief executive at Risk Intelligence, a specialist supply chain security risk advisory group. “In today’s lean and ‘Just in Time’ supply chains, any disruption has consequences: there are simply too many dependencies. If a product isn’t on a retailer’s shelves because it has been stolen en route, that retailer’s shelves won’t stand empty—a competitor’s product will be displayed, and a competitor’s product will be sold.”

Consequently, says Hansen, companies are increasingly wanting to be in control of the entire end-to-end supply chain, from sourcing in (say) Japan, to ‘final mile’ delivery in (say) Munich.

“Up to now, they’ve been used to thinking of supply chain risk in very broad terms—supplier failure, natural disasters and so forth,” he sums up. “Increasingly, they’re now homing in the very specific logistics process risks that they incur as part of their overall supply chain risk, seeing this as an area of vulnerability where they’re able to exert more control, and make a meaningful difference. It’s no longer enough to simply know that a ship has sailed, or a freight shipment has been dispatched: more and more, they’re demanding more granular information, so that they can exercise more oversight and control.”

### Freight flows under threat

The challenge, therefore, lies in both understanding the risks to which freight shipments are exposed as they move along the world’s supply chains, as well as where specifically those risks might arise. Moreover, adds Hansen, it’s important to focus on the real risks involved, rather than on sensationalised apparent risks fuelled by media-led misconceptions. “Without the full picture, there’s a two-fold danger: firstly, that businesses don’t adequately protect themselves against the real risks they face, and secondly, that they spend money unnecessarily, protecting themselves against risks that have been over-estimated,” he notes. “Especially when businesses open up new supply routes, or move assets into unfamiliar areas, getting hard, fact-based data can be a challenge”.

And it’s a challenge that shouldn’t be underestimated. For just as global cross-border trade has boomed, supply chains have also lengthened. Simply put, it’s far from unusual for products that might once have been assembled largely from domestically-sourced parts to now contain a significant proportion of imported components and materials—and imported not just from nearby countries, but from the other end of Europe, or indeed, the other side of the world.

Put another way, huge numbers of businesses are now characterised by multiple inbound and outbound logistics flows, each flow beginning or terminating in far-off locations. And in each case, decisions about modes of transport, routes, stopping-off points, and ports, have very real consequences, affecting individual freight shipments’ risk profiles.



Losses of  
**€154**  
million



TAPA cites losses of €154 million stolen from supply chains in Europe, the Middle East and Africa (EMEA).



A number of global manufacturers—among them BMW and the Ford Motor Company—have deployed sophisticated supply chain mapping and modelling tools in response, seeking to better understand and minimise these risks. While useful in helping to estimate time-to-recovery in the event of disruption, such tools can struggle to incorporate real-world insights and intelligence.

“Modelling can provide some indication of the frequency of a threat, provided that there is suitable data in existence,” notes **Alan McKinnon, professor of logistics at Hamburg’s Kühne Logistics University**. “But even so, it’s difficult: these are often high-impact, low-frequency threats that not only cannot be modelled on a generic basis, but which can also interact between each other.”

Back in the summer of 2015, for instance, when freight capacity was already tight as the tourist season peaked, just such an interaction occurred when the Dover-Calais route was again hit—this time by a combination of striking French ferry workers and African and Asian migrants seeking to enter the UK by stowing aboard trucks. As usual, tailbacks

stretched for miles on both the French and British sides of the Channel.

Premium expedited freight provider Priority Freight promptly saw a 300% increase in airfreight bookings, group managing director Neal Williams told global automotive logistics magazine *Automotive Logistics*, car manufacturers elected to ship by air components that would have otherwise been delivered by road haulage. And as manufacturers’ logistics partners switched loads from the Channel crossing to European air freight hubs, the number of automotive-specific large aircraft charters rose by 560%, with 78 large aircraft being chartered in a single 10-day period, and over 2000m<sup>3</sup> of material being airfreighted over a single weekend.

Security is another perennial challenge—on the road, in ports, and at sea. The European arm of the Transported Assets Protection Association (TAPA)—a worldwide membership organisation focused on reducing cargo theft within supply chains—cites reported losses reported by their members of €154 million stolen from supply chains in Europe, the Middle East and Africa

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*“Every incident we receive gives us more knowledge and intelligence which can be used to prevent subsequent cargo crimes from occurring.”*

**Thorsten Neumann, president & CEO of TAPA EMEA**



(EMEA)—the highest in TAPA EMEA’s 21-year history.

Moreover, as a membership organisation, TAPA’s figures equate to only a very small percentage of the true level of actual cargo crime. In some countries—think Mexico, Nigeria, or South Africa, for instance—it can be so commonplace that crimes are rarely reported, far less investigated. In others, cargo theft crime can be so exceptional that it goes unrecorded as such, for want of a category of crime in which to report it. According to the Theft Protection in Freight Transport and Logistics Working Group—a grouping of several German business associations led by TAPA—German law enforcement agencies, for instance, are among those failing to keep detailed cargo crime statistics.

“We may never know the true figure, but we know that it runs into many billions of euros a year,” says **Thorsten Neumann, president & CEO, TAPA EMEA**. “That is why incident reports are such a source of valuable insight, and why we welcome each and every one: because every

incident we receive gives us more knowledge and intelligence which can be used to prevent subsequent cargo crimes from occurring.” And that knowledge and intelligence, it transpires, turn out to be key in the battle against supply chain disruption—particularly security-related supply chain disruption.

#### Risks on the road

For freight moved by road, for instance, businesses must be cognizant of the threats posed by incidences of labour unrest, violent activism, terrorism, invasive vehicle entry for the purposes of smuggling, and of course simple theft. Of these, the outright theft of either entire loads or individual consignments represent the biggest threat: while the cost of an individual cargo theft may not be high, cargo thefts in aggregate can make up the vast proportion of an individual company’s actual losses—especially if its shipments are of high-risk categories such as consumer electronics or easy-to-sell foodstuffs.

Even so, threats to road-based shipments from such things as labour unrest or activism shouldn’t be disregarded. While not frequent, incidences certainly aren’t unknown. In July 2015, for instance, a convoy of seven British trucks was intercepted by around 200 French farmers and fishermen protesting about imports of foreign food, and their cargoes of fish off-loaded, tipped in the road, and doused with diesel fuel. In total, losses amounted to over €200,000.

And yet, knowledge and intelligence can help to reduce such risks—and therefore costs, both direct and consequential. Knowledge about how to better secure and protect vehicles, for instance. Better locks, electronic tracking devices for both vehicles and cargoes, driver screening, and in particular, the use of secure parking areas, where drivers can leave their trucks to eat, shower, and rest, knowing that



*“Companies that take the trouble to assess the risks that they face, and plan routes accordingly, and which have policies about using secure parking, and which avoid using small contractors who may ‘cut corners’ when it comes to security, definitely appear to experience fewer cargo theft incidents.”*

**Lars Thomsen, head of the joint Danish-German border team in Denmark’s anti-crime Police and Customs Cooperation Centre**

their trucks—and their cargoes—will be safe, protected by fences, cameras, and sometimes security guards.

Intelligence, too, providing insights into where precisely threats are greatest, so that risk-minimising routes can be constructed, ideally incorporating secure parking areas, and updated over time as threats evolve, and new risk ‘hot spots’ emerge.

“Just recently, Sweden has become something of a ‘hot spot’, just as it was ten years ago—but in between, incidents of cargo theft had been relatively low,” says Lars Albaek, security expert and founder of Danish cargo crime security advice specialists AL-kon. “You get the sense that gangs move in, operate until things get too hot, and then move on. Basically, you’re talking about international criminal gangs, each with a different modus operandi, moving from region to region, and country to country.”

Combined together, and incorporated within risk-minimising routes and appropriate best practices and security policies, such knowledge and intelligence can make an appreciable difference to companies’ vulnerability to ground-based freight security risks.

“Companies that take the trouble to assess the risks that they face, and plan routes accordingly, and which have policies about using secure parking, and which avoid using small contractors who may ‘cut corners’ when it comes to security, definitely appear to experience fewer cargo theft incidents,” says police officer **Lars Thomsen, head of the joint Danish-German border team in Denmark’s anti-crime Police and Customs Cooperation Centre**. “The lesson is clear: use the information and best practices that are available, and minimise your exposure to cargo theft.”



### Deep-sea dangers

Freight moving by sea, and traversing through ports, faces another set of risks. At sea, vessels and their cargoes might be vulnerable to security challenges ranging from theft, armed robbery, kidnapping to hijacking. In port, vessels and their crews and cargoes face different security threats, among them cargo theft, would-be stowaways, damage, robbery, personal injury, and extortion.

And in each case, says **Henrik Kragh, chief operating officer at Risk Intelligence**, experience shows that vessel owners and shippers often lack the understanding and security intelligence necessary for appropriate risk mitigation.

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**Henrik Kragh, chief operating officer at Risk Intelligence**

“While risk perception has matured over the past decade, both operational personnel and security managers tend to be overly-focused on low-probability, high-impact risks—the so-called ‘game-stoppers,’” he notes. “In contrast, there’s general myopia around the high-probability, low-impact risks where the highest levels of vulnerability exist. Even a simple robbery can have serious consequences if something goes wrong.”

At sea, the well-documented dangers of waters off Somalia have been the focus of media attention, and the subject of at least one blockbuster movie—2013’s *Captain Phillips*, based on the April 2009 real-life seizure of the *Maersk Alabama* container ship.

But these days, according to the International Chamber of Commerce’s International Maritime Bureau, it is the waters off West Africa, and in particular the Gulf of Guinea, that represent the most danger. As its 2018 annual piracy report points out, the Gulf of Guinea accounted for all six ship hijackings worldwide, 13 of the 18 ships fired upon, 130 of the 141 seafarer hostages taken globally, and 78 of 83 seafarers kidnapped for ransom. Nor is it just ships heading into Nigerian and Ivory Coast ports that are at risk. Passing vessels, well out to sea, have been boarded, had crew kidnapped, and taken to Nigeria to be held for ransom. Southeast Asia is also a danger hotspot.

Ports pose two further distinct sets of risks, with threats to both crews and cargo, says Ian Wilkinson, port risk manager at Risk Intelligence.

“Ideally, you’re looking for well-lit, fenced-off berths, with both landside and water-borne security patrols by competent personnel, vetting of stevedores and contractors, good perimeter security, and well-lit cargo-storage areas with CCTV recording equipment. But in large parts of the world—Latin America, Southeast Asia, Africa—that’s just unrealistic.”

Risks to crew, for instance, range from on-board intruders—petty criminals shinning up an anchor chain, say—to landside risks of robbery, kidnapping and extortion in and around the port. And not all intruders will shin up anchor chains: while ports are supposed to provide basic landside security, including at the gangway, the reliance that can be placed on such local measures varies widely. In many parts of the world, he says, it is much better for vessels to maintain their own security provision, and apply their own gangway security measures.

Elsewhere, the risk might be the theft of the entire container, he adds. Armed with illicitly-acquired bills of lading and other information providing insights into valuable cargoes, it’s far from unknown for organised criminals to show up in a truck with forged documentation, and make off with specific containers carrying high-value and readily-saleable contents. “It’s a huge problem, and not necessarily a third-world one,” he warns. “In Europe right now, this is very much a problem at certain ports.” Again, at sea and in port, ‘hard’ knowledge and intelligence can help owners, ships’ officers, and shippers to understand which threats they are exposed to by either a particular shipping route, or port.

Risk Intelligence’s own port database, for instance, covers over 220 global ports, says Wilkinson, with a further 20 or so scheduled to be added soon. Of these, many have been visited by Risk Intelligence security experts, each armed with a detailed and extensive checklist of security measures to be audited. Crucially, from both a compliance and duty-of-care perspective, he adds, Risk Intelligence’s coverage includes risks to crew, as well as cargoes and the vessel itself.

“The people going into harm’s way are the people on the ship, not the desk-based security manager back at the shipping company’s headquarters. And if crews feel under-informed, they’ll go onto the Internet and try to find out for themselves, possibly misleadingly. No



# Assessing port security

## What does Risk Intelligence's port security audit cover?

- Survey of port perimeter
- Condition of fences and gates
- Illumination and signage
- Landside patrols
- Waterside patrols
- Availability of CCTV equipment
- Availability of CCTV recording
- Availability of cargo screen equipment
- Cargo protection measures
- Access controls to warehouses and cargo storage areas
- Protection of buildings containing high-value cargo



ship's master wants to cancel shore leave—but if that is the correct course of action, then it's important that the master has the data on which to make that decision, and the data to be able to communicate that compellingly to the affected crew."

### End-to-end supply chain assurance

Global trade is big business. According to international body the World Trade Organisation, total cross-border world trade flows of physical goods exceeded \$19trn in 2018, up 10% from the previous year. And while growth rates vary year-on-year, growth—apart from the occasional economic recession—is always positive.

"There's a lot of talk about the end of globalisation, and the rise of re-shoring, but it isn't going to happen," says Martin Christopher, emeritus professor of logistics at Cranfield University School of Management, and an emeritus fellow of the Chartered Institute of Logistics and Transport. "The challenge lies in de-risking those trade flows: again and again, studies of supply chain risk point to reputational losses and a reduced shareholder value when supply chain interruptions occur." And increasingly, more and more parties to global trade flows are taking an interest in those interruptions, with a view to understanding and eliminating them. Global

manufacturers, shippers, importers, exporters, ship owners, logistics service providers, and even insurers. For among the steady stream of companies joining Risk Intelligence's client roster, it transpires, are businesses of all descriptions which have been told by their insurers that their due diligence and voyage risk assessment processes lack sufficient rigour, notes Risk Intelligence's Hans Tino Hansen.

"There's a growing understanding that logistics processes—especially cross-border and long-distance ones—involve heightened operational risk," he notes. "What companies don't fully appreciate is the full impact of those risks—especially the reputational impact—and how to actually mitigate those risks. And in particular, there's a myopia regarding the importance of the high-probability, low-consequence risks that most security threats constitute."

To be blunt, sums up Hansen, it can sometimes be difficult for companies' security experts to get senior management to appreciate just how many problems these can create. But that short-sightedness can be transitory, he notes.

"After a company has been hit, we usually find that management are much more willing to invest in preparedness and mitigation: they've seen the costs and damage for themselves."

# World Snapshot Scenarios



## 1 Calais Activism - failure of delivery

Activists sever Calais-link between the UK and Europe

A shipment of various packages from an online-shop warehouse in the Netherlands is bound for a central warehouse facility in Southern England.

Given an incident involving the capsizing of a small craft with migrants attempting to cross the English Channel, NGOs and activists have blockaded the ferry port at Calais and the Eurotunnel. As the activists disrupt operations and board the ferries, the authorities quickly mop up the protest but struggle to find remaining activists aboard the vessels. This shuts down the traffic across the channel for several hours, leading to major bottlenecks at both sides of the channel.

Given that the driver of the lorry transporting the packages is unable to divert to another port due to limitations on his tachograph, it means that the packages are held. This is also true for hundreds of other shipments, with delayed deliveries and unhappy customers as a result.

## 2 Antwerp Smuggling - failure of delivery

Discovery of cocaine ruins time-schedules across North Europe

A shipment of circuits from the US is bound for a major manufacturing site in Hamburg and set to be unloaded at the port in the city.

Three days prior, the cargo ship carrying the shipment docks at Antwerp, where customs board the ship and find 8 tonnes of cocaine hidden in refrigerated containers, picked up in South America. Following the discovery, the ship is denied from unloading cargo or leaving the port during a week-long investigation, that sees several crewmembers arrested on charges of conspiracy to traffic drugs.

While the ship and its operator attempt to catch up, missing cargo with delayed expected deliveries disrupt operations along the supply chain in various sites, including the Hamburg manufacturing plant. In the end, a single container with smuggled goods on an 8000 TEU cargo ship means that manufacturers and shops cannot deliver on promised services and must take a hit with regards to reputation.

## 3 Hungary Stowaways and human trafficking - failure of delivery

Discovery of stowaways in lorry causes feta-failure

A shipment of refrigerated dairy products from Greece is being transported via truck to Denmark.

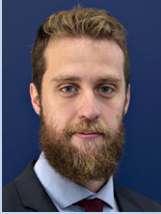
Upon reaching the border between Serbia and Hungary, customs officials discover several stowaways in the back of the lorry. The stowaways are Afghans and entered the lorry in Greece with the support of organized human traffickers.

Following the discovery, the driver is fined, and the haul is sent to destruction due to contamination of the products.





**Between Lanzhou and Moscow**  
Cargo theft - failure of delivery



World Snapshot Scenarios contribution provided by **Kristian Bischoff**. Kristian works as an analyst at Risk Intelligence, where he has a geographical focus on Northern- and Eastern Europe, providing threat assessments and analytical insights for both the maritime and land domains.



**Nigeria**  
Piracy - increased costs of insurance



**Cyber incident (Malaysia)**  
Malware causes transport chaos and lost wares



**Nigeria**  
Piracy - increased costs of insurance

#### Exchange of fire highlights threat to fuel trade

While sailing in Nigerian waters, a product tanker is attacked by several armed men in two skiffs 20 nautical miles off the coast. While attempting to hook ladders to the port-side of the vessel, the perpetrators open fire. This leads to a gunfight between the onboard security team and the perpetrators, and after failing to board the vessel, the attackers break off the attack after 25 minutes.

During the exchange of fire, the crew have mustered in the citadel. While no-one is hurt during the incident, the incident is part of driving up insurance prices for the operator of the vessel, increasing the costs of sailing in the area. While this is acceptable to the operator to some degree, too high costs of insurance and limited risk appetite may in time lead to the operator abandoning sailing in the area, as many others have done. In the end, the unstable maritime environment leads to fewer ships to handle the products from the major Nigerian oil reserves.



**Between Lanzhou and Moscow**  
Cargo theft - failure of delivery

#### Theft on the belt and road

A shipment of electronics is being shipped along the Chongqing-Duisburg railway link.

Upon arrival at the Moscow railway yards, it is discovered that the seals on several containers are broken and wares are missing. According to the investigations into the theft, the last time the cargo is sure to have been secured was at Lanzhou, effectively meaning that the theft may have occurred on any of six stations along a 4500 km long stretch of railway in three countries.

Among the missing cargo are parts of the electronics shipment, meaning that customers will be missing wares ordered weeks in advance. This also damages the reputation of the carrier, and if more incidents occur along the same route, logistics operators may end up moving away from the land-based to maritime shipping to secure their supply-chains.



**Cyber incident (Malaysia)**  
Malware causes transport chaos and lost wares

#### Malware causes transport chaos and lost wares

A highly potent ransomware attack exploiting a software vulnerability hits a Malaysian telecoms provider based in Kuala Lumpur. The hackers then access the user archives of the provider, and large numbers of users are sent phishing mails regarding an essential update for their systems. Clicking links in the email, ransomware is downloaded, and the systems are locked down. The ransomware quickly spreads across multiple private and commercial users and within hours, computers across Malaysia are infected. At several of the major ports, lacking extensive cyber-security knowledge and procedures, regular operations are crippled as operating systems are down within an hour.

Data on thousands of shipments are lost, and days and weeks are spent opening containers manually to establish the content and locating the owners. With Malaysian ports being predominately transit ports, the incident sends ripples throughout the global supply-chain as missing wares, raw materials, and other production goods are delayed.

# Geopolitical threat



Given the highly interconnected supply-chains of today, resource mining, production, transport of all types of wares are extremely susceptible to fluctuations in stability, peace and security across the world.

The actions of nations, no matter whether they are domestically focused economic policies or proclamations of military engagements, all affect other states in some way or another and to a minor or major degree.

While insurgencies and civil wars have increasingly been at the forefront of news and media coverage, the risk related to inter-state competition and conflict remain. Even competition between states short of war can have major effects on international supply-chains, as distrust over intentions or imposition of sanctions may cause uncertainties over the robustness of supply, security of transport and access to consumers. Similarly, nationalist sentiments stoked by some governments may cause incidents between local and guest workers or minorities, closing down production sites as tensions build or violence erupts as seen in the 2009 Shaoguan incident. All of this can be hitting businesses hard even before the first shots of inter-state conflicts are fired.

While kinetic conflict may not just affect transport corridors due to military operations, inter-state conflict can also adversely impact the allocation of important resources, the

priority of some industries over others, as well as divert manpower from production, transport and other civilian sectors into military forces or in support of military-oriented industries. High-value and strategic resources have always been fought over and usually continue to be produced to finance conflicts, but little bits and pieces essential for peacetime supply-chains across the world may not be the priority during high-intensity wars of survival.

Beyond the issues of choices made by certain state and non-state actors, are the events out of human control that still impact supply-chains such as natural hazard. While the most obvious cases are high-profile emergencies such as earthquakes, tsunamis, and forest fires that physically damage infrastructure and block roads, other examples of smaller events disrupting operations are plentiful. Heavy snowfall may cause roads to become impassable, or slow-onset conditions such as draught-periods may cause low water-levels on major rivers used for transport. It should be noted in connection with this, that climate change will likely increase the frequency and impact of such hazards, as well as mobilize grassroots activists and protests against resources and industries deemed harmful to the environment, not to mention potentially increasing international tensions over diminishing resources.



## About Risk Intelligence

Risk Intelligence provides independent, unbiased, intelligence-led advisory services to private and governmental clients on security threats and risks.

Risk Intelligence has been specialising in analysing threats from and interaction between piracy, organised crime, terrorism, insurgency and military conflicts since 2001.

We take a holistic approach to these threats and include studies into the types of organisations and tactics as well as the root causes of their existence.

Risk Intelligence advises on preventing maritime security incidents at both vessel and company level as well as providing maritime security analysis to private and governmental organisations.

We believe that a thorough understanding of threats in combination with insights into our clients' operations and needs enables us to produce high-quality threat and risk assessments and advisory services.

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