



● Beyond the storm:
how organizations can
transition from survive
to thrive in 2023

BSI Supply Chain Risk Insights Report

January 2023



By Royal Charter



Contents

Foreword by Susan Taylor Martin, Chief Executive Officer, BSI	3	Chapter 1: Navigating the journey ahead	7	Chapter 3: Powering up the engine room	34
Executive Summary	4	Leading from the front	9	Moving up the C-suite agenda	36
Conclusion	43	The 'end of the holiday'	10	Demystifying the supply chain	39
Appendix	44	Looking through the lenses	14	Three tech priorities for 2023	40
		Understanding starts with self-knowledge	17	The opportunity gap	41
		Two tracks to success	19	Time to thrive	42
		Cyber in the spotlight	20		
		The upside of risk	21		
		Chapter 2: Handle with care	22		
		The regulatory wheel keeps turning	25		
		The human factor	27		
		A delicate balancing act	28		
		One size does not fit all	30		
		No time to lose	31		

Foreword

When times are tough, it can be tempting to look down, even look away. But if you want to see the way forward, you need to look up – because opportunity is always in front of us. The challenge is recognizing it.

At BSI we don't claim to have all the answers, but we want to be agents of positive change and are committed to collaborating with like-minded organizations to build a better global supply chain. Together.

There is no doubt that 2022 was another turbulent year with the convergence of multiple risks affecting all organizations. Our collective task now is to move beyond the storm and successfully chart a course which leads to a more sustainable future.

To help do this, we've asked a team of our experts to share their latest thoughts on supply chain best practice, the innovation pipeline and key global trends. As you will read, having strong and agile leadership, a clearer focus on digital risk, improved self-knowledge, a keener radar for regulatory changes, a tailored approach and a faster adoption of emerging technology at the top of an organization's 'to do' list for 2023 could really help the transition from survive to thrive.

We hope that you will find these insights engaging and action-provoking and I look forward to building on them with you over the year ahead.



Susan Taylor Martin,
Chief Executive Officer, BSI

Executive summary

Organizations approaching 2022 with hopes of a calmer period of readjustment and realignment for the global supply chain didn't have to wait long for a rude awakening. Just weeks into the year the conflict in Ukraine intensified rumbling geopolitical tensions and triggered wide scale price inflation and a cost-of-living crisis that is still exerting a vice-like grip on many of the world's biggest economies. Include a succession of devastating climate events, an acceleration of regulatory activity and the lingering effects of COVID-19 and it all adds up to a highly challenging landscape.

But with challenge comes opportunity and as organizations prepare for another tough year ahead, our risk management experts and advisors from all over the world have identified six business imperatives which can help decision makers move beyond the current storm and begin the transition from survive to thrive:

01

Strong and agile leadership is required to reset a commercial strategy for the next stage of the supply chain journey.

This direction has to come from the top and factor in space for organizations to manage disruption effectively.

04

Getting ahead of regulations can get you ahead of competitors.

With regulatory regimes evolving quickly, an astute radar means more time to plan and introduce new processes.

02

Organizations need to urgently address their digital risk.

Recent BSI client research of over 150 clients revealed that 73% of organizations were significantly concerned about the risks posed by the accelerated digitization of supply chain, but that not one organization had resolved the risks.

05

A tailored approach can cut through complexity.

With different sectors and different markets facing different challenges, each needs to be treated on its own merits.

03

Improved self-knowledge is the key to better supply chain understanding.

Organizations investing in technology that can put them on the front foot when it comes to their supply chain environment are taking positive and beneficial action.

06

New challenges require new technology.

For many organizations, emerging technology can act as the bridge from survive to thrive.

Advisor profiles



Mark Brown

Global Managing Director,
Digital Trust Consulting Services, BSI

Mark has over 30 years of expertise in cybersecurity, data privacy and business resilience and has previously held global leadership roles across industry and professional services. He brings a wealth of knowledge on the expanding cybersecurity marketplace as organizations grapple with digital transformation and addressing new technology that brings new business opportunities and risks, with a sharp focus on proportional and pragmatic response based on his practical industry leadership experience. Mark is internationally recognized as a leading authority on the management of digital risk, presenting a focus on the way technology can enable business strategies.



David Fairnie

Principal Consultant,
Supply Chain Security, BSI

David is a senior international risk management executive and team leader with 25 years of corporate and operational experience and an exceptional track record of delivering enterprise solutions on major critical infrastructure and supply chain projects globally. He has a proven and demonstrable track record of developing and successfully implementing high-level supply chain security strategies and solutions for global corporations, aimed at mitigating political, strategic and operational risks to position his client organizations as recognized international leaders in supply chain security initiatives.



Ryan Lynch

Practice Director,
Sustainability, BSI

Ryan has worked with organizations across multiple regions and industries to design creative solutions to drive organizational improvement, improve upon social/environmental impacts, and mitigate and remedy risks. He leads BSI's strategy to align their standards, services, technology and global resources to the UN Sustainable Development Goals. He and his team work with their clients to develop and deliver innovative approaches related to clean energy and climate action, circular economy and waste, recent work in global supply chains, among other challenging areas.



Tony Pelli

Practice Director for Security
and Resilience, BSI

Tony is an experienced supply chain risk consultant with a broad range of specialized skill sets, including conducting end-to-end, enterprise-level supply chain risk assessments for clients and their supply chain partners. As a member of BSI's Advisory team, he designs and implements supply chain security programmes and management systems. Tony has also designed loss prevention and security assessments, mapped security and business continuity risk in supply chains for Fortune 500 companies, and assisted in the successful implementation of supply chain security procedures, including for CTPAT certification.

Advisor profiles



Jim Yarbrough

Global Director,
Supply Chain Solutions, BSI

Jim Yarbrough leads BSI's team of supply chain risk analysts and assesses the potential threat of security, corporate social responsibility, and business continuity risks to countries and businesses worldwide. These assessments are integral to the Supply Chain Risk Exposure Evaluation Network (SCREEN) tool. He also provides information and analysis about the threat to international cargo to governments around the world and to a number of Fortune 500 companies.



Kimberly Rodriguez

Consultant/Manager,
Sustainability, BSI

Kimi is a Consultant in BSI's sustainability practice, and has established her career in sustainable supply chains, with a focus on human rights due diligence. At BSI, she supports clients across industries in developing sustainable sourcing programs for their global supply chains. Additional responsibilities include conducting current state and benchmarking analyses on sustainability programs, and developing social compliance trainings, including for forced labour and modern slavery, for clients and their suppliers.

Additional Contributors:

Erica Bressner

Intelligence Analyst over Europe

Marianna Sanford

Intelligence Analyst over North America & Central America

Jason Willoughby

Intelligence Analyst over Asia

Kara Brennon

Intelligence Analyst over South America

Paul Raw

Senior Consultant, Supply chain security, EMEA

● Chapter 1: Navigating the journey ahead



When we published the 2021 version of this report twelve months ago, we were experiencing unprecedented supply chain disruption triggered by the triple threat of a global pandemic, irreversible climate change and geopolitical uncertainty. A year on, trading conditions are even more challenging following nine months of conflict in Ukraine. Additionally, increasing inflation and the resulting cost-of-living crisis have thrown the global economy into further turmoil.

Alongside this we're seeing a rapid acceleration of supply chain reliance on digital supply – post-COVID-19, it's estimated that the digital transformation journey has compressed a typical five-year journey into less than twelve months.

As a result of all these factors, the convergence, connectedness and complexity of supply chains have intensified the pressure on organizations to a point where it feels like they are walking a future-defining tightrope – get it wrong and things can start to fall apart but get it right and the opportunities are transformational.



Leading from the front

As we embark on another year where the only certainty is uncertainty, organizations that are agile enough to reset their commercial strategy for the next stage of the journey can move beyond the storm and accelerate their transition from survive to thrive.

This driving force needs to come from the very top as Jim Yarbrough, Global Director, Supply Chain Solutions, BSI, points out: “It’s a really tough environment at the moment, but supply chain continuity requires investment from the top down and what organizations really need right now is strong buy-in from top level leadership and management. It’s critical to get people across the organization culturally to understand that their suppliers are part of their business and that helping their suppliers to thrive will ultimately help their own business thrive too.”

“From a business point of view there’s not a huge amount you can do to control inflation, for example, but what management can do is allow the organization enough wriggle room to manage disruption as efficiently as possible as it’s clearly unrealistic to think that everything’s going to run on peak performance 100% of the time. Thinking of the organizations who we feel are already thriving, I can draw a straight line between the investment that the organization has made up front to help suppliers become resilient and their own business fortunes.”

“It’s critical to get people across the organization culturally to understand that their suppliers are part of their business and that helping their suppliers to thrive will ultimately help their own business thrive too.”

**Jim Yarbrough, Global Director,
Supply Chain Solutions, BSI**



The ‘end of the holiday’

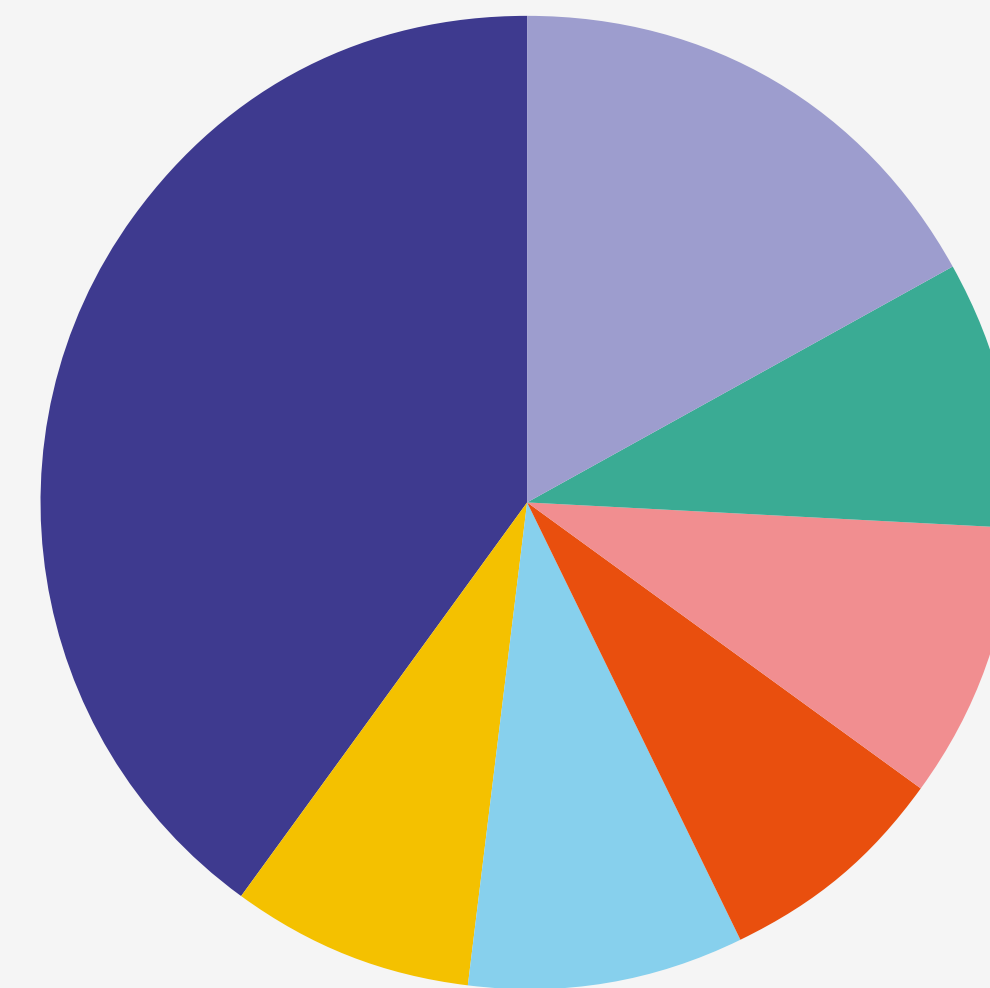
Today, the supply chain is struggling to keep up with an uncertain market and Tony Pelli, Practice Director, Security and Resilience, BSI, describes this year as the ‘end of the holiday’ with a changing landscape of labour, transport and energy costs plus ongoing geopolitical uncertainty and industrial action: “We’ve gone beyond one single issue. All of these challenges combine to create a complex, fast-moving and higher risk environment where the reliability of supply chain has changed forever. As a result, diversifying your supplier chain is now a business imperative if you want to de-risk operations. But moving to places like Vietnam and Taiwan or nearshoring in places like Mexico also brings new and different challenges, from infrastructure to security, so it’s important that organizations balance the risk correctly to make the right decisions for them.”

Pelli highlights the ongoing impact of COVID-19 and multiple lockdowns in China allied to the congestion of ports, bottlenecks, labour shortages, large scale industrial action and the ongoing conflict in Ukraine.



Top Commodities Stolen in 2022

Food and Beverage	17%
Agriculture	9%
Electronics	9%
Construction Materials	8%
Fuel	9%
Automotive	8%
Other	40%



Source: Top Commodities Stolen in 2022, Copyright BSI 2022

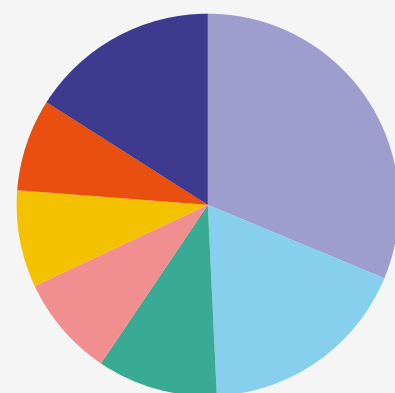
“We’ve gone beyond one single issue, all of these challenges combine to create a complex and fast-moving environment. As a result, diversifying your supplier chain is now a business imperative if you want to de-risk operations.”

**Tony Pelli, Practice Director,
Security and Resilience, BSI**

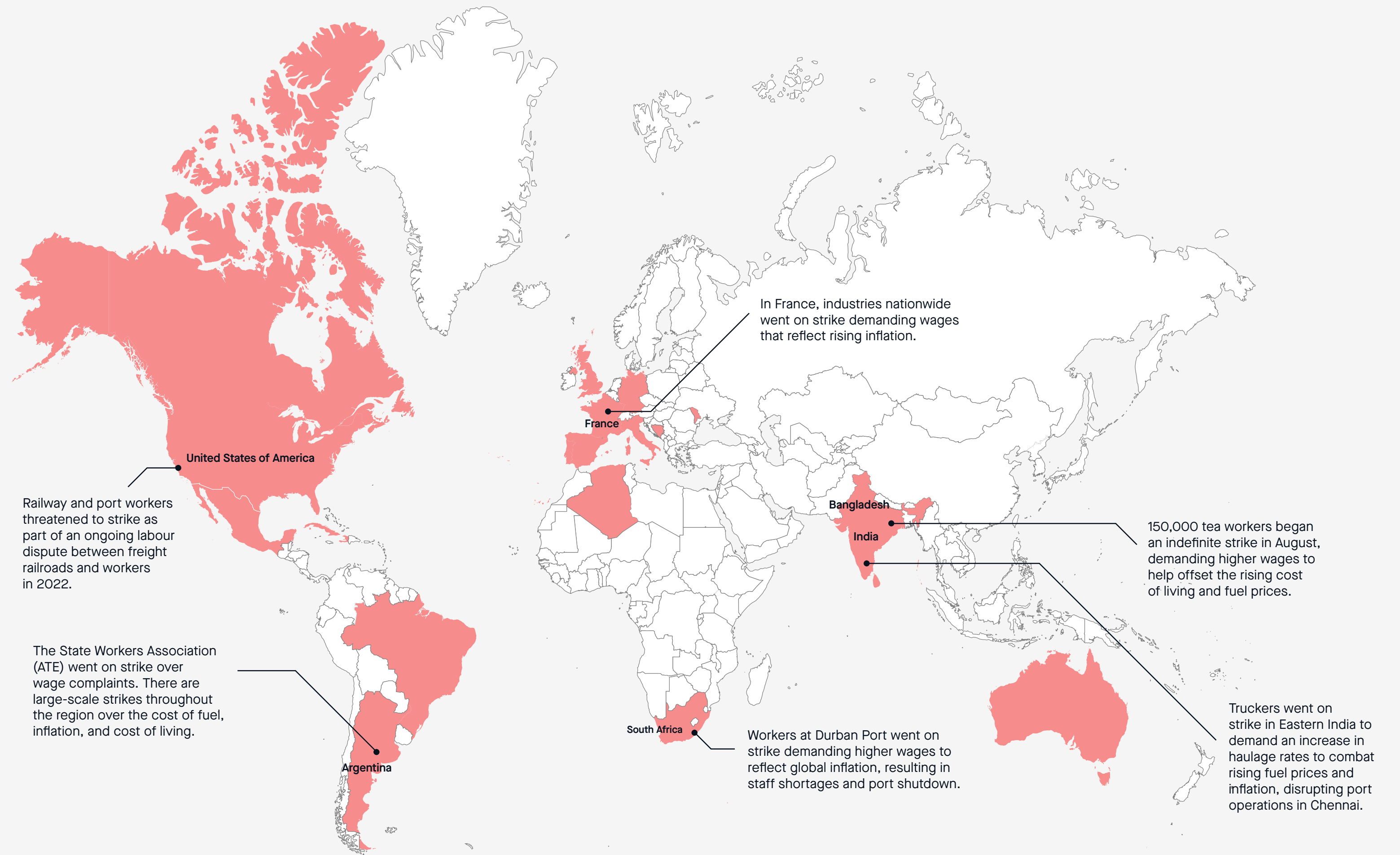
On top of these supply disruptions, BSI data is tracking the interplay between geopolitics, economics and labour unrest. Ultimately, whatever is going on in the economy matters. And as the global economy inches towards its steepest downturn since the 1970s, we are tracking further disruptions to the labour market.

This is tracked both directly and indirectly. Directly, in the form of labour strikes and labour shortages, we've seen large scale industrial action across the US, UK and other markets with the transport sector hit particularly hard – in the UK, strikes in Liverpool and Felixstowe caused huge disruption, rail networks have at times ground to a halt and one day in June saw 1,400 US flights cancelled. Indirectly, in the form of cargo theft and petty crime. But, like most emerging trends, whether technology, security, or sustainability focused, it's an opportunity to utilize technology for tools like supply chain tracing, prioritize due diligence for a more sustainable supply chain or focus on the worker.

Top Industries for Labour Strikes in 2022



Countries Experiencing Major Labour Strikes in 2022



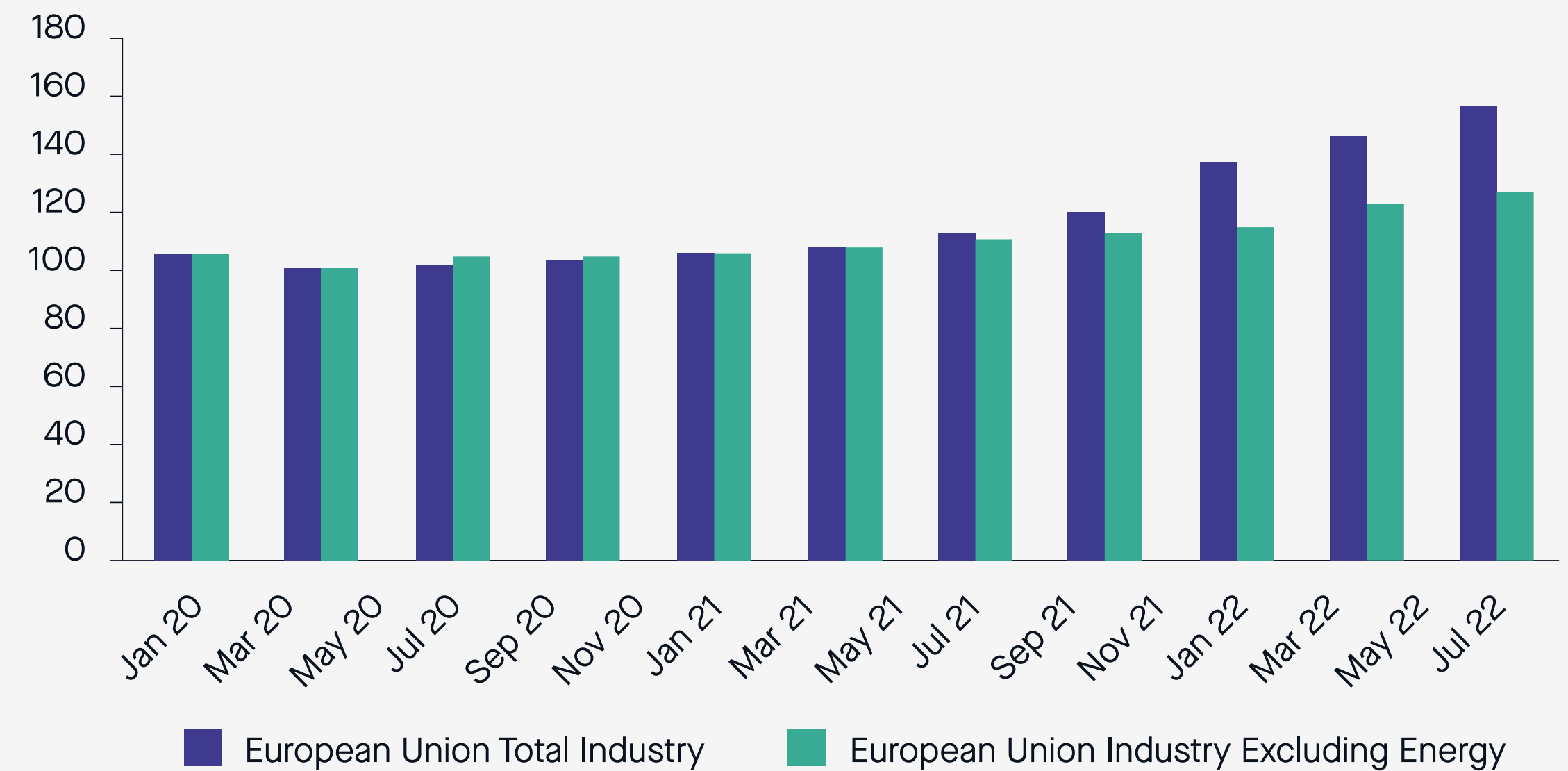
Sources: Countries Experiencing Major Labour Strikes in 2022 as of Nov 22, 2022. Copyright BSI 2022.

As referenced earlier in this report, the war in Ukraine has triggered rapid global price inflation and created major significant shortages in food and other major products such as neon gas which is critical for the manufacture of semiconductors. And the ongoing conflict is driving an energy crisis with serious implications for supply chain resilience and cargo security – this needs to be at the forefront of any supply chain professional’s mind as we progress through winter.

The European Union (EU) has already called for a voluntary 15% reduction in gas usage from its member states. As part of the Save Gas for a Safe Winter Plan (the Plan), the EU may declare a mandatory EU-wide gas reduction of 15% if a substantial risk of a severe shortage occurs. These reductions would likely impact non-critical industrial sectors as individual consumers are considered ‘protected consumers’. However, this 15% reduction could equate to extended lead times on various products, even critical ones, due to the interconnectedness of European industrial supply chains.

However, even without these mandatory gas cuts, rising energy prices have already disrupted industrial and agricultural production in Europe. Faced with these high energy prices, many industries, including chemicals, automotive and farming, and particularly those that are energy intensive, are reducing production or closing plants entirely. Again, these production cuts and closures may have significant downstream impacts throughout Europe.

Industrial Producer Prices in Europe 2020-2022, unadjusted data (2015 = 100)



Source: <https://ec.europa.eu/eurostat/documents/2995521/14698168/4-02092022-AP-EN.pdf/b3b1c540-b50f-1323-8f27-13143574871c>



Pelli points out that one of the effects of all this disruption is a clearer understanding from national governments of the impact of supply chain on national interests. This is leading to new legislation such as the [CHIPS Act](#) in the US and [GDPR regulations](#) across the EU, a combination of which are placing greater accountability on suppliers and purchasers and driving higher awareness of privacy issues across the board.

Mark Brown, Global Managing Director, Digital Trust Consulting, BSI, recommends that: “Leaders would be well advised to stay close to the shifting regulatory landscape and make sure their voices are proactively being heard in the process.”

The last twelve months have also demonstrated that the US and parts of Europe don't always have the best infrastructure to deal with fluctuating demand. This has started to trigger government investment as we've seen with the [Bipartisan Infrastructure Law](#), a clear and powerful indicator that many organizations are not as resilient as perhaps they thought they were. In Europe, areas such as critical infrastructure are having new regulation applied due to shortcomings in the infrastructure and the ability to service disparate supply chains – EU [NIS 2](#) is real and will force greater focus on critical infrastructure resilience and its impact downstream to resilience across supply ecosystems.

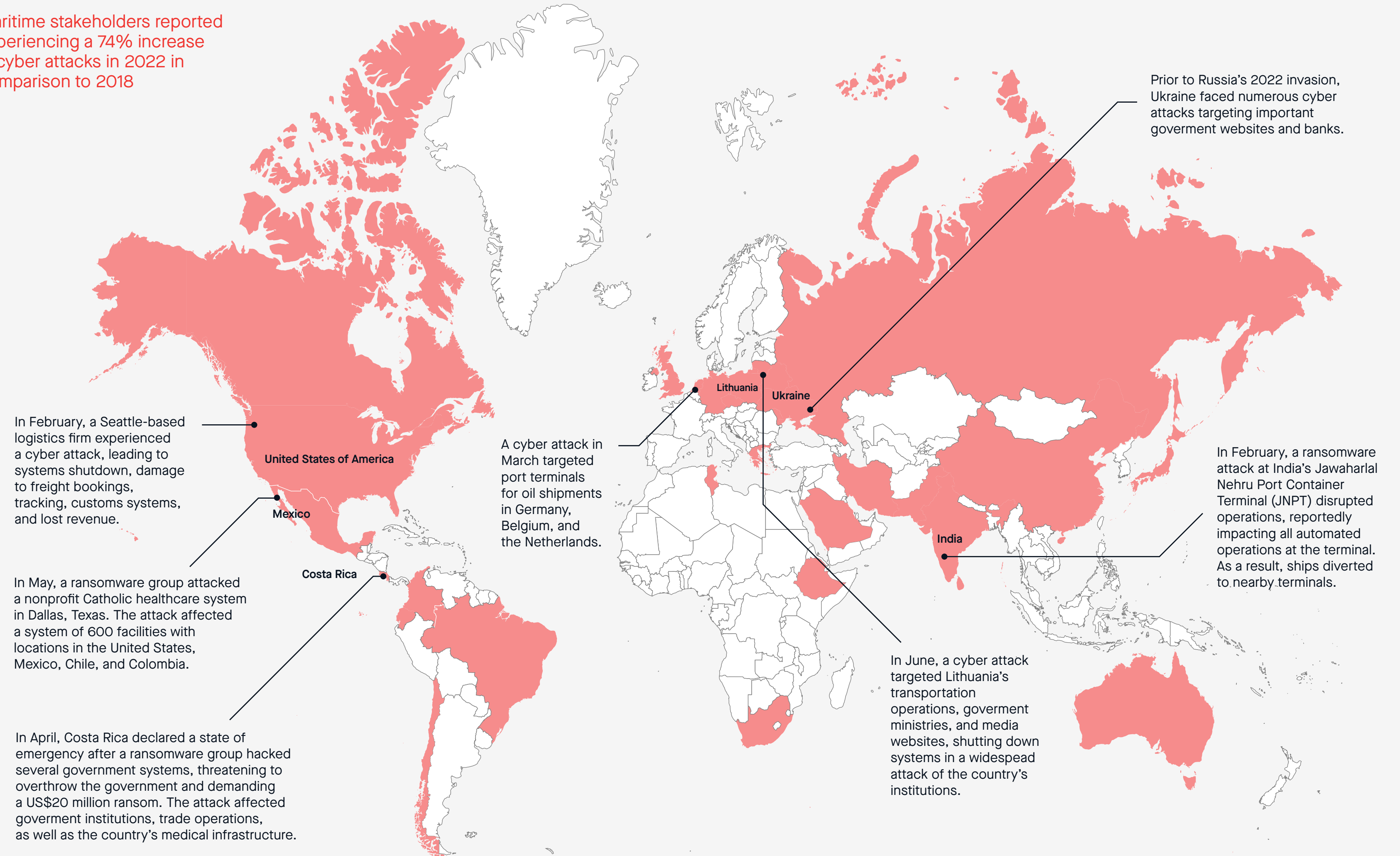
Looking through the lenses

Given the scale of developments over the last year, it's instructive to break the supply chain challenge down into different segments, or, as Marianna Sanford describes them, 'lenses.'

Sanford, Intelligence Analyst for Connect SCREEN, BSI, highlights three lenses – economic, technology and sustainability – but is keen to stress their inter-connected nature: "If you're looking through the technology and security lens, on the back of high profile cyber-attacks such as the SolarWinds and Colonial Pipeline Co. cases, we're tracking a notable increase in the frequency and sophistication of supply chain attacks: Cyber criminals are targeting an already stressed supply chain, whether it be the port of Hamburg in Europe or IT at the port of Bangladesh in Asia, and cargo thieves are targeting higher value goods, whether it be based on demand, like food and beverage products, or based on shortages, like electronic goods".

Notable Cybercrimes Targeting Supply Chains in 2022

Maritime stakeholders reported experiencing a 74% increase in cyber attacks in 2022 in comparison to 2018

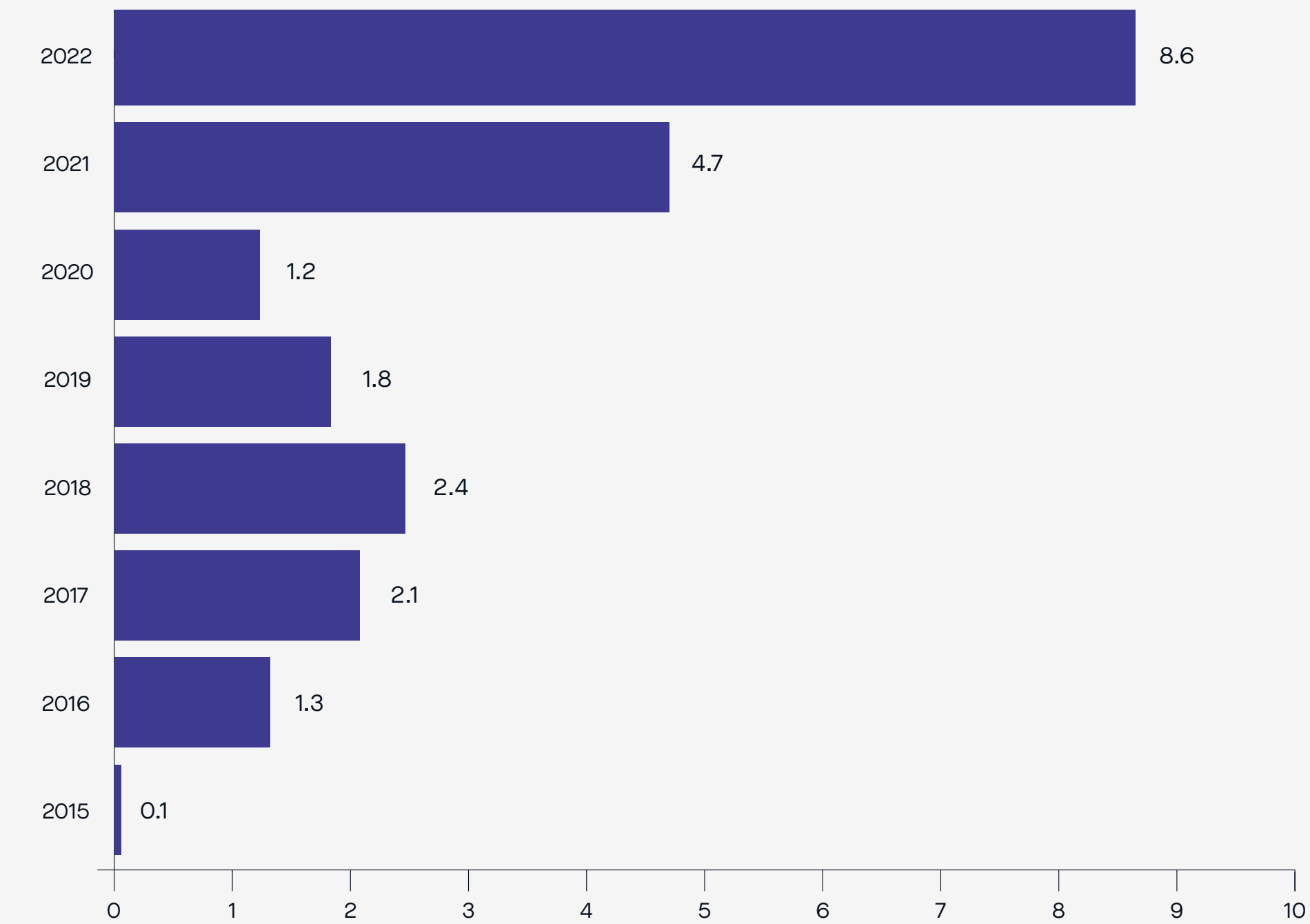


Source: Notable Cybercrimes Targeting Supply Chains in 2022, 2022 Ports and Terminals Cybersecurity Survey, Jones Walker LLP

Brown expands on the point: “It’s worth noting that the rationale for supply chain cyber-attacks is also a key factor – the increase of ransomware targeting the supply chain is significant as the perpetrators know they are likely to be paid a ransom given the impact it has not just on a single company but on a whole ecosystem of companies within a supply chain, making it more likely that the attacked company will pay the ransom to recover as quickly as possible.

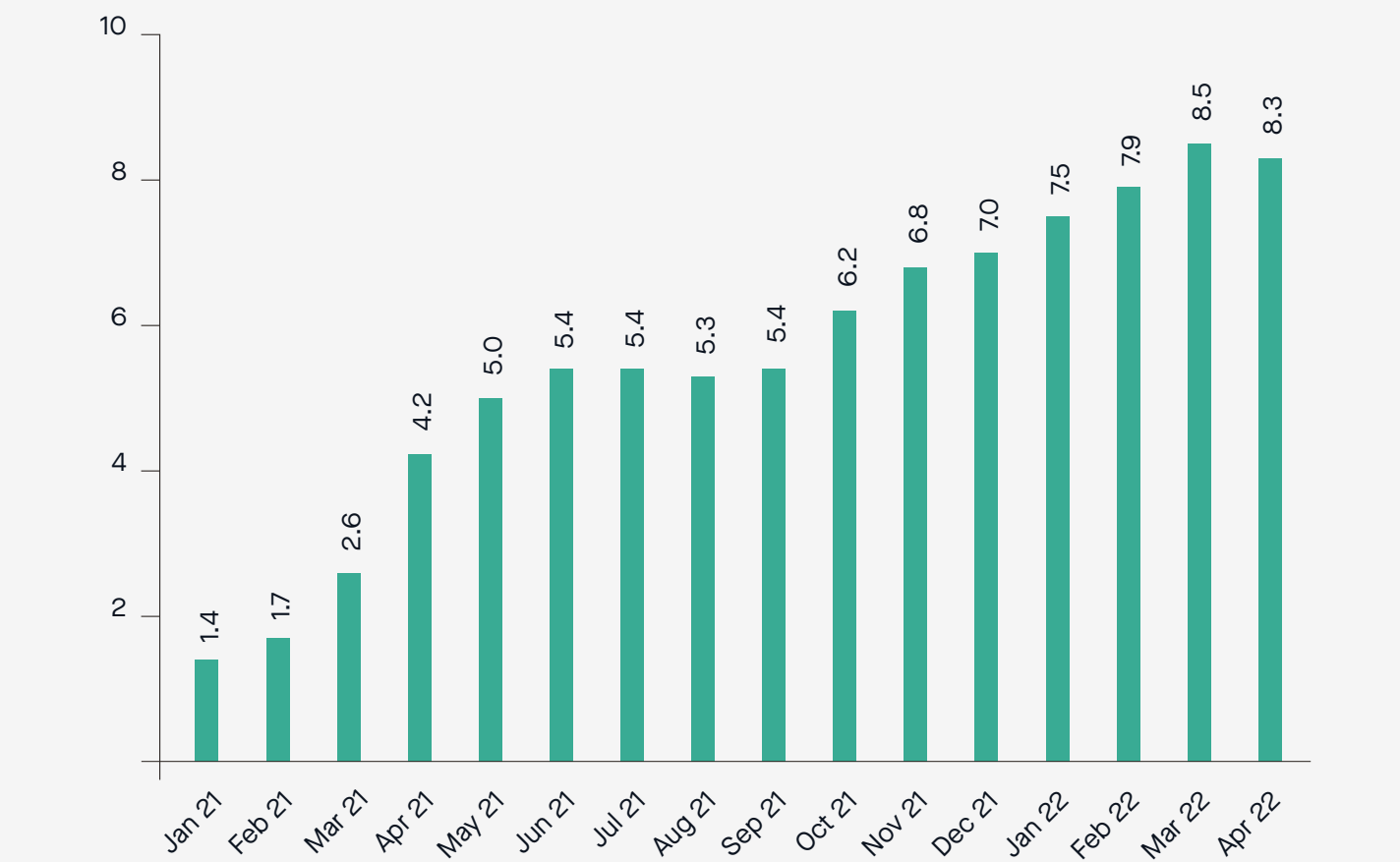
“For the last twelve months, it seems the supply chain can’t keep up with an uncertain market and this unbalanced supply and demand between countries has driven product shortages, delays and made cargo susceptible to tampering and theft. In turn, from a macro-economic perspective, this surge in demand, coupled with government policies and extraneous events like the conflict in Ukraine, are causing added inflationary pressures. This is driving, for example, inventory issues as we’ve seen with the US warehouse situation, or greater labour unrest as we’ve seen with the labour strikes across the globe which are further exacerbated by the rising cost of living and the loss of purchasing power for basic goods like food, fuel and shelter.”

Inflation (CPI) in the United States, 2015-2022



Sources: Consumer Price Index Historical Data in the United States from 2015 - Q3 2022 © Copyright BSI 2022.

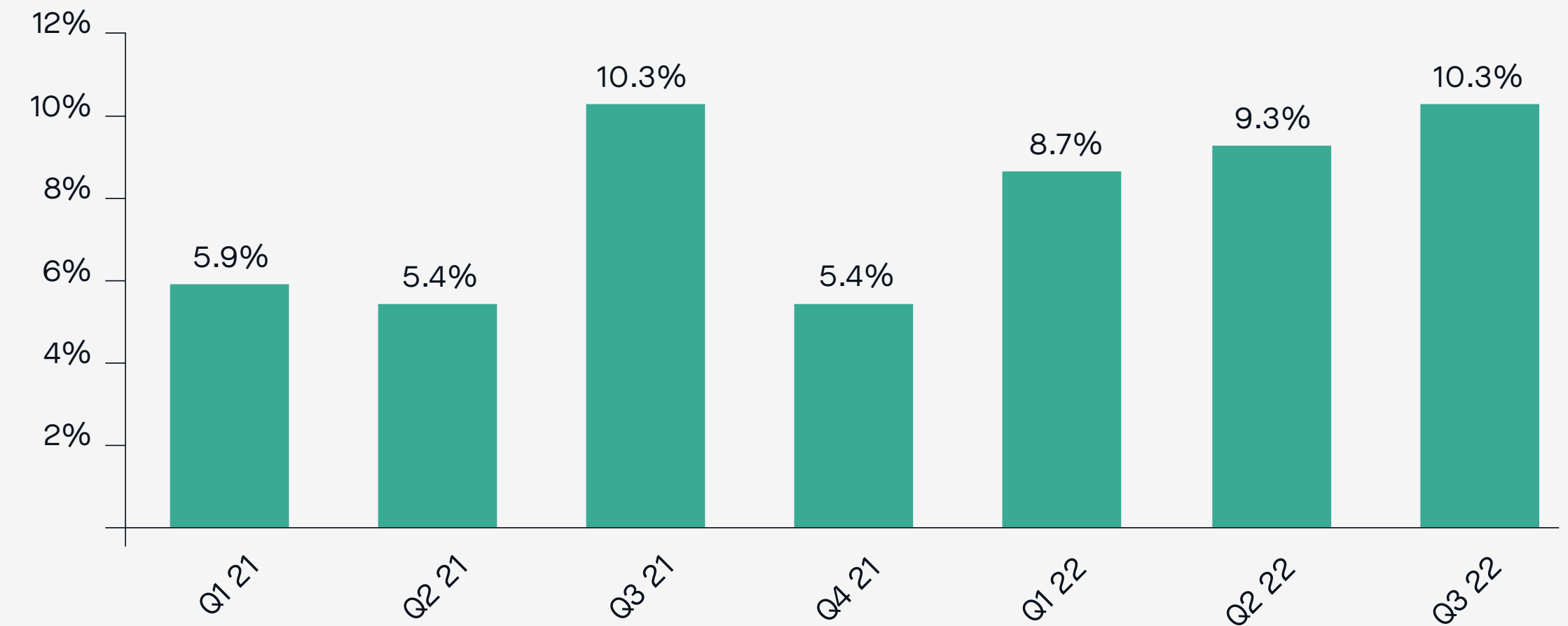
Detail: Jan 2021 – Apr 2022



Sanford quotes the comparison between average food costs which are up 10.3% for the year ended April 2022 in the US as opposed to average wages which are up just 5.1% for the year ended September 2022. This is significant as nothing happens in a vacuum and you can't divorce the loss of purchasing power from the upticks in labour strikes in already stressed industries like agriculture, on one hand, and increases in thefts of basic goods like food and fuel, on the other. When you factor in the sustainability lens and ever-evolving regulations such as the Uyghur Forced Labor Prevention Act and the Securities Exchange Commission's (SEC) proposed ruling (see Chapter Two for more details), it's clear that supply chains are vulnerable from all angles – from ESG reporting risks, to economic policies and evolving security risks.



Cargo Thieves Increasingly Steal Fuel Products in 2022



Source: Cargo Thieves Increasingly Steal Fuel Products in 2022, © Copyright BSI 2022

Understanding starts with self-knowledge

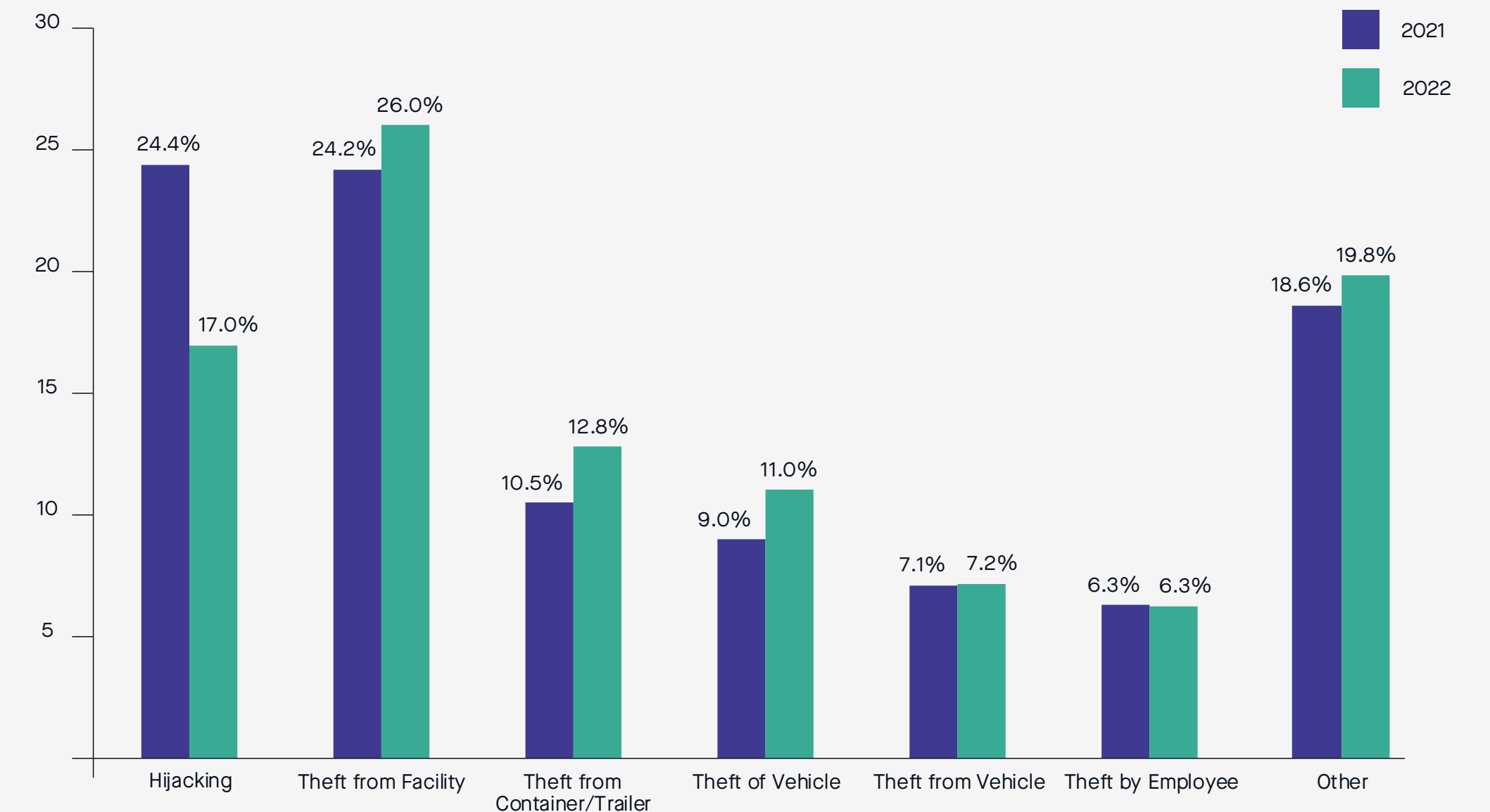
While the risk hasn't changed, the nature of the attacks and disruptions has and, with that, so have the vulnerabilities. Like Yarbrough, Sanford is convinced that strong leadership is the key to navigating this complex web: "If organizations want to understand the challenge, they need to start by knowing themselves. This comes in the form of investing in data analysis, IoT, AI, cloud computing, information security and predictive analysis which build a more layered approach to security to prevent risk and put organizations on the front foot. Of course, to do this successfully, the technology needs to be properly implemented – if not, it can actually have the reverse effect and increase the digital risk.

"Ultimately, you should treat an organization like a person – so, as I would advise a person to tackle uncertainty with self-knowledge, I would advise an organization to do so similarly. From an internal perspective, that's about understanding your tools and knowing your supply chain better, whereas from an external standpoint, it means learning your environment and understanding why and how supply chains are adapting to the evolving security, technology and sustainability landscape, such as having a fully comprehensive understanding of the entirety of your supply chain.

Globally, for example, smugglers and cargo thieves are diversifying their methods and theft types. This past year, we tracked an increase in thefts from facilities and theft from containers/trailers, along with a drop-off in hijackings globally. Not mapping the risk of theft or smuggling within the supply chain heightens this risk of tampering along various points of the supply chain, whether it be in-transit, in a warehouse or at an unsecured lot."

Pelli agrees and thinks organizations still have work to do when it comes to better understanding their suppliers: "The relationship really starts with that first initial mapping, and you'd be surprised at the number of organizations that don't really know all the in-between points from the factory to the final point of distribution."

Cargo Theft Types 2021 vs 2022



Source: Cargo Theft Types 2021 vs 2022, © Copyright BSI 2022

“If organizations want to understand the challenge, they need to start by knowing themselves. This can come in the form of investing in data analysis, IoT, AI, cloud computing, information security and predictive analysis which build a more layered approach to security to prevent risk and put organizations on the front foot.”

**Marianna Sanford, Intelligence Analyst
for Connect SCREEN, BSI**





Two tracks to success

Pelli elaborates on this point:

“Organizations who wish to thrive need to work on two tracks. The first is to understand your suppliers’ capacity for resilience which might be a factory losing power or a trucking company with a vehicle shortage. The second is to have a plan in place if those suppliers can’t deliver: Could you quickly pivot and get the right capacity in place? This will often involve diversifying and organizations will benefit if a two-track plan is in place.”

Cyber in the spotlight

Sanford wants leaders to pay special attention to cyber security: “Organizations are increasingly highlighting cyber vulnerability and ransomware as the most important emerging trend to look out for in the short, medium and long term, and they believe they will have to prepare for this by investing in their IT department and digital skills across the business. With the advances in new technology comes added vulnerabilities, especially with the rising number of connected objects.”

Brown advises that organizations have a key decision to consider. Do they leave the responsibility for cyber security to their supplier? Or do they extend their own capabilities and requirements to the supplier to ensure, as far as practically possible, that critical supplies are resilient and delivered in an uninterrupted manner? Neither option is fully resilient, but continuous monitoring and assurance over a digital supply chain is now a key issue that cannot be left unanswered and unmanaged.

Pelli makes the point that for many sectors such as transportation, logistics and food, their margins just don't allow them to invest as much as they should: “My advice in this case is for organizations to try and find quick wins for them – this may be better supply chain mapping or improving their relationship with existing suppliers, but one way or another the cyber security issue needs to be addressed.”



The upside of risk

Pelli is keen to strike an optimistic tone and emphasizes the upside of risk: “Against such a difficult backdrop, it’s easy to get lost in the negativity around risk, but for companies who manage risk well, there’s a huge opportunity for competitive advantage. Organizations who demonstrate the agility to adapt quickly are well placed to thrive – organizations who remain reactive are not.

“As we look ahead, the companies who will stand out from the crowd will incorporate risk management into their entire lifecycle, from procurement and manufacturing processes through to their transportation, logistics, and distribution processes, and even reverse logistics. We saw many examples of this in action at the height of the global pandemic when electronics companies were able to quickly pivot to areas of China that weren’t locked down or new and emerging markets like Vietnam and India. We’ll need to see more of this agility if organizations are going to make a successful transition from surviving to thriving. Supply chain risk management is no longer optional and needs to move with the pace of digital transformation evident across the supply chain.”



“Against such a difficult backdrop, it’s easy to get lost in the negativity around risk, but for companies who manage risk well, there’s a huge opportunity for competitive advantage. Organizations who demonstrate the agility to adapt quickly are well placed to thrive – organizations who remain reactive are not.”

**Tony Pelli, Practice Director,
Security and Resilience, BSI**

● Chapter 2: Handle with care



As we have seen on multiple occasions in the recent past, climate change will continue to cause major disruption to the supply chain. Clearly, it's critical for organizations to decarbonize not just for the sake of the planet but for the sake of their business performance. And people need to be right at the heart of organizations' approach to sustainability.

Too often though, organizations struggle to consolidate their overall approach to sustainability and human rights – in some cases, decision makers may be compartmentalizing the two as separate entities. But this doesn't reflect the reality.

BSI's Yarbrough says: "A sustainable supply chain has got to start with the people who are working in that supply chain. In the US particularly we have a tendency to think of sustainability as primarily about green energy and environmental issues – and yes, that's part of it, but it's also about creating an environment in which employees are safe, treated fairly and given the opportunity to thrive. Ultimately, this is what makes a supply chain more sustainable. If your employees are constantly under threat of human rights violations that is not right, most importantly, but it also causes geopolitical pressure which can lead to greater supply chain disruption. Quite simply, organizations who put diversity, employee well-being and human rights at the heart of their supply chain approach will be more resilient and there is plentiful data to support this."



"If your employees are constantly under threat of human rights violations that is not right, most importantly, but it also causes geopolitical pressure which can lead to greater supply chain disruption."

**Jim Yarbrough, Global Director,
Supply Chain Solutions, BSI**



There's a case to be made for climate change exacerbating human rights issues – picture a region where rising temperatures lead to increased migration. When workers leave their home, they can find themselves in a situation where they may be more vulnerable to forced labour and associated challenges; these challenges can ultimately lead to geopolitical unrest and potential disputes over resources. The net effect of this chain of events is that what started out as one problem grows into a major supply chain issue.

Kimberly Rodriguez, Consultant/Manager, Sustainability, BSI, sums it up well: “Organizations that address the convergence of sustainability and human rights as two sides of the same coin will deliver a bigger impact. Although it's fair to say that this is on the radar of many organizations, now is the moment to really start to accelerate these conversations.”

The experiences of the last three years have shown us that disruption is around every corner. Our opportunity now is to be better prepared for it and one of the keys that can unlock this opportunity is a better understanding of regulations.

The regulatory wheel keeps turning

In this report last year, we highlighted the fact that one certainty amid an ocean of uncertainty is that regulations will keep changing. Those organizations seeking to move from survive to thrive mode need to be not only abreast of these changes, but ahead of them. Getting your supply chain acclimatized to new regulations means more time to plan and more time to implement new processes.

If anything, this situation has been amplified yet further over the last twelve months. In the US, key pieces of legislation include the recent \$740 billion climate bill – the [Inflation Reduction Act](#) – designed to cut US greenhouse-gas emissions to levels about 30–40% below 2005 levels by 2030, and the [Securities Exchange Commission’s \(SEC\) proposed ruling requiring sustainability reporting from organizations](#) which will extend regulatory pressure around cyber security with implications for supply chain risk management.





Clearly, the former will be a huge accelerator on the road to net zero but Ryan Lynch, Practice Director, Sustainability, BSI, is keen to emphasize the ‘game changing’ nature of the SEC ruling: “Basically, the ruling recognizes that climate risks are going to have potential financial impact on the value of companies that investors put their money and faith into. It requires companies to disclose climate-related risks, so Scope 1 and Scope 2 emissions, but also Scope 3 emissions if deemed material. The latter is particularly challenging as gaining access to indirect supplier data is far from straightforward. It’s crucial for organizations to clearly identify what is relevant and in scope, establish a consistent practice of gathering this information and convert activity data into greenhouse gas emission equivalent data.”

The other major global development is the introduction of the TCFD (Task Force on Climate-related Financial Disclosures) framework which allows organizations to report risks – both physical and transition – in a consistent way. The former includes acute and chronic risks such as a hurricane or the long-term degradation of infrastructure, while the latter focuses on issues such as changing regulations, carbon pricing and evolving investor demands. It’s another cog in the regulatory wheel which just keeps turning and organizations need to have the right processes in place if they want to manage these risks effectively.

The human factor

From a human rights perspective, next year marks a decade since the Rana Plaza disaster in Bangladesh where the collapse of a building housing five garment factories killed over 1,000 people and injured a further 2,500. This came just months after 112 workers lost their lives in a burning factory a matter of miles from Rana Plaza. Together, it felt like a tragic line in the sand for forced labour and modern slavery.

But the last twelve months have seen the spotlight intensify with the introduction of the Uyghur Forced Labor Prevention Act in the US. The US Customs and Border Protection (CBP) law makes a determination that ‘any goods, wares, articles, and merchandise mined, produced, or manufactured wholly or in part’ in China’s XUAR region should be assumed to be the product of forced labour unless proven otherwise by ‘clear and convincing evidence.’

In addition, the Act required the US interagency Forced Labor Enforcement Task Force (FLETF), established by the United States-Mexico-Canada Free Trade Agreement (USMCA), to develop a strategy to prevent the import of goods made with forced labour from the XUAR, and issue guidance for importers. Part of this guidance provides detailed instructions to companies on how to conduct human rights due diligence and supply chain tracing sufficient to prove that either goods were not sourced, in whole or in part, from the XUAR, or, if they are, that they were not produced with forced labour.

Meanwhile in Europe, we’ve seen the EU Due Diligence Directive which would require EU Member States to transpose into national law a corporate due diligence duty to identify, prevent, bring to an end, mitigate and account for adverse human rights and environmental impacts.

Rodriguez assesses the situation: “Much of this regulation has been in the works for a couple of years now but we’ve seen a clear acceleration on this track, so it’s never been more important for organizations to be one step ahead of the regulations. Auditing remains a major challenge in China and this new XUAR legislation, combined with the ongoing effect of the global pandemic, is making trading more complex for many organizations all over the world.”



“Much of this regulation has been in the works for a couple of years now but we’ve seen a clear acceleration on this track, so it’s never been more important for organizations to be one step ahead of the regulations.”

Kimberly Rodriguez, Consultant/Manager, Sustainability, BSI

A delicate balancing act

Organizations are facing increased pressure over carbon reduction and Scope 3 emissions. Many have already made positive strides to reduce their own supply chain emissions and those of direct suppliers but the ability to report on indirect value chain emissions is clearly more of a challenge. This pressure is being applied by both regulators and consumers and it's likely to intensify over the coming months and years.

This level of pressure is a timely reminder of the importance of truly knowing your suppliers. On the back of a turbulent three years, the better organizations know their suppliers, the better equipped they are to adapt – the more you can measure, the more you can manage.



It's important to remember that this pressure is being exerted at a time when organizations are trying to hit ambitious targets for renewable energy. It's an aspiration shared by many but delivering it is easier said than done against a backdrop of global supply chain disruption. Whether it's the US or Europe, we simply don't have the capacity to accelerate the transition. It's not like flicking a switch – consider the example of Vietnam where there was huge investment in solar power but because the government hadn't invested enough in connecting these new solar power grids to the main grid, the country actually ended up having to vastly reduce its solar efforts.

What this example demonstrates is that often progress is a delicate balancing act – in this case the central question is: How do we shift our current production capacities to meet the increased demand for renewables? It's a big challenge, but it's an even bigger opportunity and one which will be unlocked by those organizations who put innovation at the heart of their strategy.

Rodriguez reports 'growing pains' as organizations adapt to these challenges but is keen to stress now is not the time to take stock: "It feels like we're at a critical point and although it can be tempting to reach for the pause button, leaders have a great opportunity to press on as we progress through 2023. These climate, sustainability and human rights issues have real tangible business implications and the organizations who integrate solutions to these issues into their operations early are the ones who will best adapt to the disruptions down the line and ultimately thrive."



One size does not fit all

As we assess the way forward, it's instructive to note that different sectors face different challenges, so a tailored approach is required. For example, a feature of the healthcare industry is single-use plastic items so while the priority is patient safety, there are also considerations around the disposal of medical waste, especially in such a highly regulated sector.

In the food sector, there's a clear understanding of the GHG impact and a desire to reduce emissions and promote carbon neutrality. But at the same time there's also a recognition that food production often involves a large and complex supply chain with tiers of suppliers that end up at an aggregator who may be dealing with hundreds of smallholder farms in a particular region. On top of that, crop yield climate risks pose a unique challenge for the food sector.

Another sector with its own set of circumstances is fashion. As outlined above, the Uyghur Forced Labor Prevention Act has changed the landscape significantly with many organizations now spending a huge amount of time trying to source a credible paper trail for US customs. The legislation is, of course, an important accelerator, but at the same time it's creating additional workload for organizations already buckling under multiple pressure points.

In general terms, B2B companies are feeling the pressure from their B2B customers, specifically around Scope 3 emissions which, as we've seen, are more difficult to report. If an organization wants to promote a carbon neutral product, for example, their ability to deliver a lifecycle assessment rests on full disclosure from the supplier around its components or materials. It's a pressure point and the pressure is building.



No time to lose

Lynch is encouraged to see evidence of increased awareness and action but calls for more urgency: “Legislation is starting to make a major difference across the board and I’m seeing other positive signs such as a significant uptick in outreach from private equity firms in the last year – this represents a major step forward.

“But at the same time, I’ve also detected quite a bit of ‘brake-pumping’ with higher interest rates and a volatile stock market. This is absolutely not the moment to do that.

When it comes to addressing risk, there is no time to lose, and we need to be reaching for the accelerator not the brake – we need to upskill a lot of people across many different functions within organizations.”



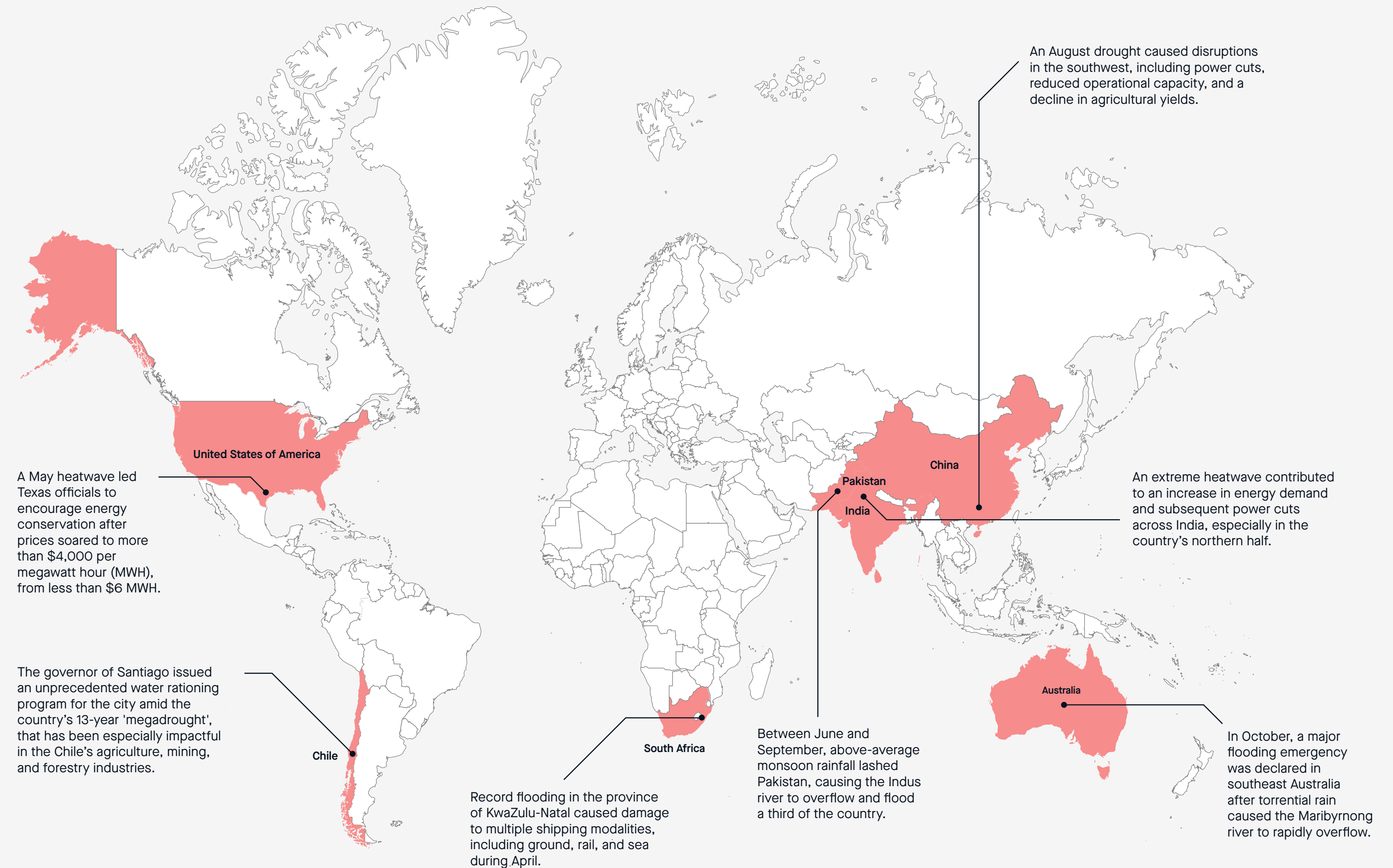
“When it comes to addressing risk, there is no time to lose, and we need to be reaching for the accelerator not the brake – we need to upskill a lot of people across many different functions within organizations.”

**Ryan Lynch, Practice Director,
Sustainability, BSI**

Sadly, 2022 will be partly defined by the intensity and frequency of major climate events. From the drought in Europe which saw the water levels of the river Rhine drop too low even for empty vessels to heatwaves, wildfires and more recently floods in Pakistan, which left an estimated 1,400 dead and a third of the country's provinces underwater. We've seen the drought in Mexico that affected the growth of pepper plants, which in turn led to the sriracha shortage and we've seen plants shutting down due to severe thunderstorms and typhoons disrupting ports in eastern China, Japan, South Korea and India. And then hurricanes have caused huge damage to nations and sectors, notably in Puerto Rico and Florida.

Lynch provides a final assessment: "We're seeing greater volatility and acceleration of events like this and, quite apart from the physical destruction and tragic loss of life, these events are having real impacts on organizations' ability to function and grow. Take droughts for example – suddenly the reservoirs are empty so countries reliant on hydropower are no longer able to produce electricity in a clean way. If organizations are not aware of the severity of these risks and how they will impact their sites and their suppliers, then they're always going to be chasing their tails instead of mitigating the risks in advance.

Various Types of Natural Disasters Cause Supply Chain Disruptions Throughout 2022



Source: Various Types of Natural Disasters Cause Supply Chain Disruptions Throughout 2022, © Copyright BSI 2022

“In the US particularly there has been misinformation but organizations need to cut through this – it all comes down to preparedness and the ability to see risk coming before it hits you. Those organizations with a sincere and long-term perspective are the ones most likely to turn risk into opportunity – for many, this takes the form of carbon reduction management and from a credibility point of view, they really should be setting science-based targets aligned with the [IPCC](#).”

“Alongside carbon we’re also seeing a real focus on water, and the organizations who are really getting ahead are the ones taking their approach a stage further and finding creative uses for infrastructure, engineering and geological expertise to help repurpose today’s capabilities for tomorrow’s more sustainable world. This is the kind of approach organizations need to embrace if they want to set themselves up for future success.”



● Chapter 3: Powering up the engine room



Technology is arguably at its very best when it helps us do the important things better. And in early 2023 there are very few things more important than the ability to transform your organization.

This is where technology can act as a gamechanger, as David Fairnie, Principal Consultant, Supply Chain Security, BSI, says: “Technology is the bridge that can take organizations from survive to thrive – the stronger we build it, the better the prospects for 2023 and beyond. And if you don’t build that bridge, then you’re in danger of slipping into the water.

“It’s probably the most important investment decision organizations can make today so getting it right is essential and getting it right depends on being properly informed – best-in-class technology and first-mover advantage will always put you ahead of your competitors.”

As referenced earlier in this report, technology needs to be properly deployed to maximize its impact – if organizations and their supply chain simply rush headlong into tech-powered decisions without due consideration of the associated risks, they could easily create the opposite effect and undermine the advantages technology can deliver.



“Technology is the bridge that can take organizations from survive to thrive – the stronger we build it, the better the prospects for 2023 and beyond. And if you don’t build that bridge, then you’re in danger of slipping into the water.”

**David Fairnie, Principal Consultant,
Supply Chain Security, BSI**

Moving up the C-suite agenda

The insights above explain why supply chain is now right at the very top of the agenda for C-suite decision-makers. Fairnie describes a 'sudden realization' of the importance of resilience where leaders have had to make very tough decisions just to survive over the last three years. But the reality is that if organizations want to thrive, they need to embrace an innovation mindset as part of their supply chain operations and do it quickly because the multitude of challenges converging on organizations of all sizes and sectors are too complex to be addressed by existing technology solutions alone. From damaging climate events and geopolitical uncertainty to the conflict in Ukraine and the ensuing inflationary impact, if organizations want to move beyond the issues and challenges of today, then they need to combine existing best practices with emerging technologies.



However, the speed of digital transformation brings challenges and risks as well as opportunity as demonstrated by a recent BSI survey of over 150 clients. 73% of respondents stated that the Chief Risk Officer (CRO)/ Chief Operations Officer (COO) was significantly concerned about the risks posed by the digitization of supply chain, but that not one organization had resolved the risks, generally because it was largely outside their control. The manner in which procurement and supply contracts had been signed did not allow for the consideration of digital risk. In the vast majority of cases, there was also no provision for ongoing and continual measurement of digital operational resilience within the value chain of the organization or the supplier of digital services enabling that value chain.

Brown expands on this point: “Your digital supply chain is beyond your control and that is a massive shift from the traditional state of affairs. The key is: Are you aware of the risks that your digital supply chain presents to you and what are you doing about it? Maintaining a level of control can be achieved through two routes – one is technology and the other is data. And the key to this is IoT, or technology, which allows you to move from an annual safety check to continuous assurance over your supply chain.

“It does this by gathering data at volumes that previously weren’t able to be collected, which can be analysed to provide leading rather than lagging indicators of forthcoming and future risk in the supply chain. The fact that digital supply chain is beyond your perimeter, and the fact you can leverage technology and data, means it is no longer just a technology issue – the Chief Risk Officer and the Chief Operations Officer are now the people who need to own the digital risk of supply chain. It can no longer be viewed solely as a procurement exercise and extends well beyond anything that can reside in the remit of the technology team.



“The escalation of supply chain and digital supply chain risk up the C-suite agenda means that today there has to be a proactive approach from the outset to the procurement of supply services. You can’t just go for the lowest cost - you have to assess the situation and understand that sometimes the lowest cost may increase risk and potentially harm your organization.”

But IoT is just one solution in an organization’s armoury – drones are increasingly being deployed to support traceability and transparency efforts and allowing us to see potential forced human labour and sustainability threats which may otherwise go unnoticed. With this kind of access, technology is able to provide real-time data feedback from the ground and help organizations make better decision.

Despite this positive progress, nobody is saying that technology adoption across the supply chain is straightforward for traditional industries with traditional practices – it requires time and effort. But it’s time and effort that needs to be invested if organizations are going to thrive, or else they could undermine their supply chain and create unnecessary complication and increased risk exposure.



“Maintaining a level of control can be achieved through two routes – one is technology and the other is data. And the key to this is IoT, or technology, which allows you to move from an annual safety check to continuous assurance over your supply chain.”

**Mark Brown, Global Managing Director,
Digital Trust Consulting, BSI**

Demystifying the supply chain

Part of the investment for the future should come in the form of education and upskilling, as Yarbrough explains: “It’s only natural that concepts like AI or IoT can feel a little intimidating at first – but you don’t need to be an overnight expert to get the best out of them and avoid creating an extended and unnecessary technical risk to the supply chain. Technology is here to demystify the supply chain for all of us and help us view and manage things in a much more realistic way. It’s a continuous improvement process and organizations need to embrace a culture of innovation if they want to feel the benefits.”

These higher levels of understanding are already clearly evident among consumers who are just a QR code scan away from a full history of almost any product they care to assess. Armed with the knowledge of a supply chain’s human rights, security and carbon footprint, consumers will have a bigger say in the conversation and organizations need to be prepared for this as they plan for the future.



Three tech priorities for 2023

In light of the elevation of supply chain risk in the C-suite agenda and the opportunity to leverage technology, the digitization of the sector and the predictive and proactive analytics of data, three key priorities for organizations in 2023 should be:

- 01** Recognize that you are not in control of your supply chain, and that it can cause risks to you that you cannot foresee, and indeed control. As a result, the key step is to map the supply chain and the critical external services which could affect your business resilience.
- 02** Examine the opportunities that arise through the deployment of technology to create a more continuous and focused insight into your supply chain. It's important to move away from annual verification to ongoing telemetry and therefore continuous assurance.
- 03** Visualize the digital supply chain from a data perspective. BSI's Brown likes to talk about "the power of 8,760" – but why this number? "The power of 8,760" takes your annual revenue and divides it by 8,760 (the number of hours in the year) – armed with this data, if an organization can see that the cost of implementing a supply chain risk management solution is less than one hour of downtime, then it really should be putting it into action. Again, this is a job for the CRO or the COO, not the technology or security teams and provides a very simple business metric by which organizations can evaluate the impact of supply chain risk.



The opportunity gap

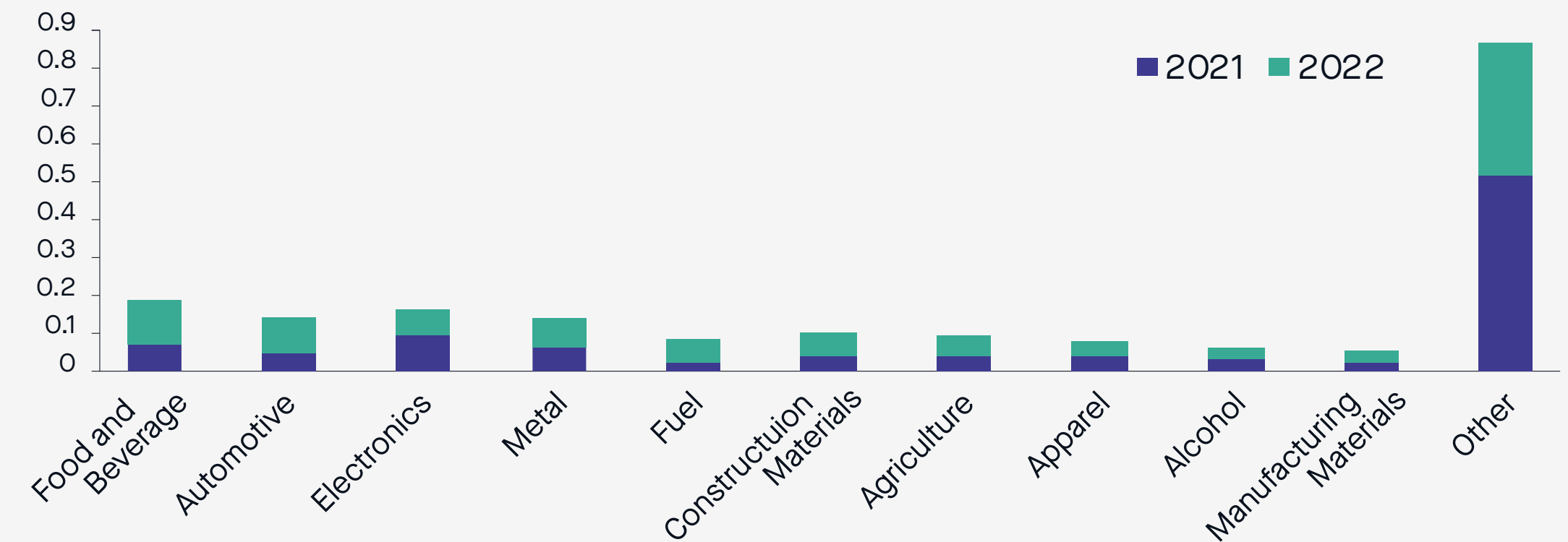
Fairnie is keen to point out that the opportunity looks different in different parts of the world: “While traditionally low-and middle-income countries often lack infrastructure, they absolutely have the chance to invest into those areas which are seen as opportunities to enhance supply chain resilience and can be supported in this by global business through foreign inward investment programmes.

This again comes back to the role of innovation in the simplification of technologies in regions where the situation is challenging – everyone’s got a mobile smart telephone, so how do we deliver a solution which gets the best out of the limited technology and infrastructure they do have? It’s all about keeping it simple.”

The cost-of-living crisis is having an impact on traditionally wealthier nations too. Fairnie reports increased rates of theft of food, beverage and commoditized goods within the supply chain. Take Europe for example. In 2022, the food and beverage industry experienced the greatest percentage increase in theft relative to other product types when compared to Q1 to Q3 in 2021. In fact, and in part due to the inflationary pressures on food and energy, in Q3 food and beverage, construction materials, and automotives were among the top product types stolen overall in Europe, accounting for 14%, 12%, and 10% respectively.

Partly as a result of the prevailing economic conditions, we’re also seeing wide scale industrial action causing major disruption at ports across the US, UK and other markets. As we’ve already seen, these key nodes within the supply chain are all inter-connected. Fairnie believes the ‘reconfiguration of global supply chains’ is going to be disruptive for at least the next two years as demand and capacity continue to prove volatile.

Top Product Types for Theft in Europe in 2021 and 2022



Source: Top Product Types for Theft in Europe in 2021 and 2022, © Copyright BSI 2022



Time to thrive

Despite the challenging environment, Brown strikes a positive note: “I’m optimistic about the future, provided organizations work together and leverage technology to drive the future resilience of supply chain. For me, data is the future of the supply chain because it gives organizations the ability to move from lagging indicators to leading indicators.

The route to gathering this critical data is through technology and the sooner organizations embrace this, the sooner they can unlock the rich benefits offered by the incredible technologies of today and tomorrow.”

Conclusion

As we have seen throughout this report, there's a great opportunity out there – but how do organizations grab it and make the transition from survive to thrive mode?

For decades, we were in a world where supply chains were predictable and the cost of labour, production and shipping was extremely effective and efficient. That's no longer the case and all of these variables are now at a higher risk than ever before, particularly when you consider today's pressures of climate change, major regulatory upheaval and 'just in time' delivery. The reliability of supply chain is completely different now. But this is the backdrop to the opportunities in 2023 and beyond.

Yarbrough closes with an upbeat assessment: "Today, resilience is mandatory. Traditionally, we needed to convince organizations that disruption could happen to their supply chain and really affect their business in a negative way. What we've seen over the last three years is that disruption is inevitable, and that resilience is mandatory if you want to thrive. To appreciate this and unlock the opportunity it presents, you need top-down buy-in."

As we've explored in this report, there are so many potential disruptions and so many changing regulations that it can feel daunting, but there is a way through it if you proactively manage risks, anticipate risks and de-risk your supply chain. Today, organizations can position themselves as thriving leaders by promoting human rights and ensuring that responsibility and sustainability are part of a company's mission. We're seeing more and more major global organizations embrace this new approach and ultimately this is what will lead to a more secure, sustainable and resilient supply chain."

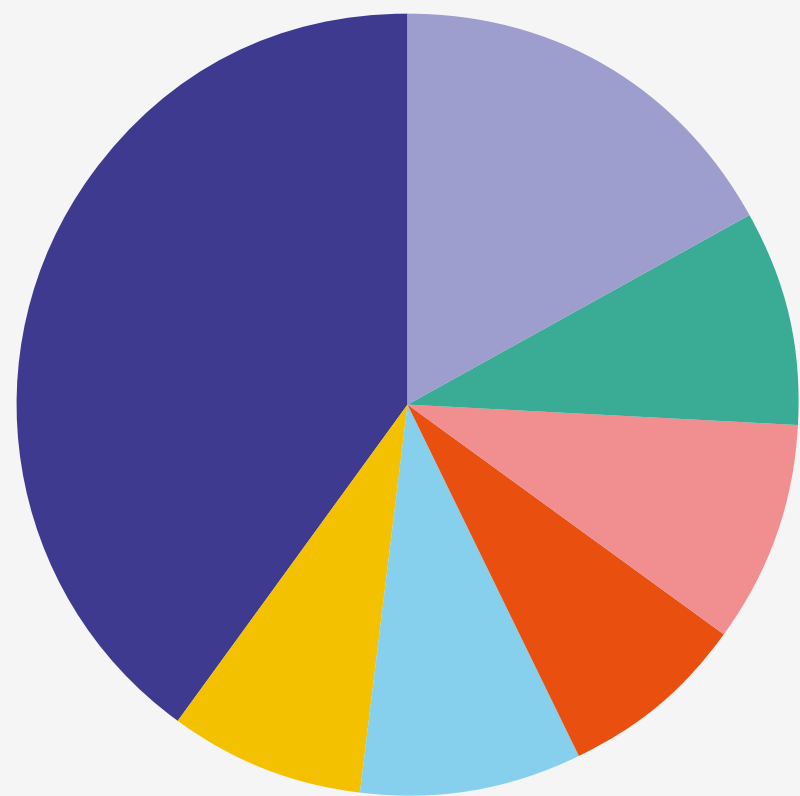


Appendix

Theft trends

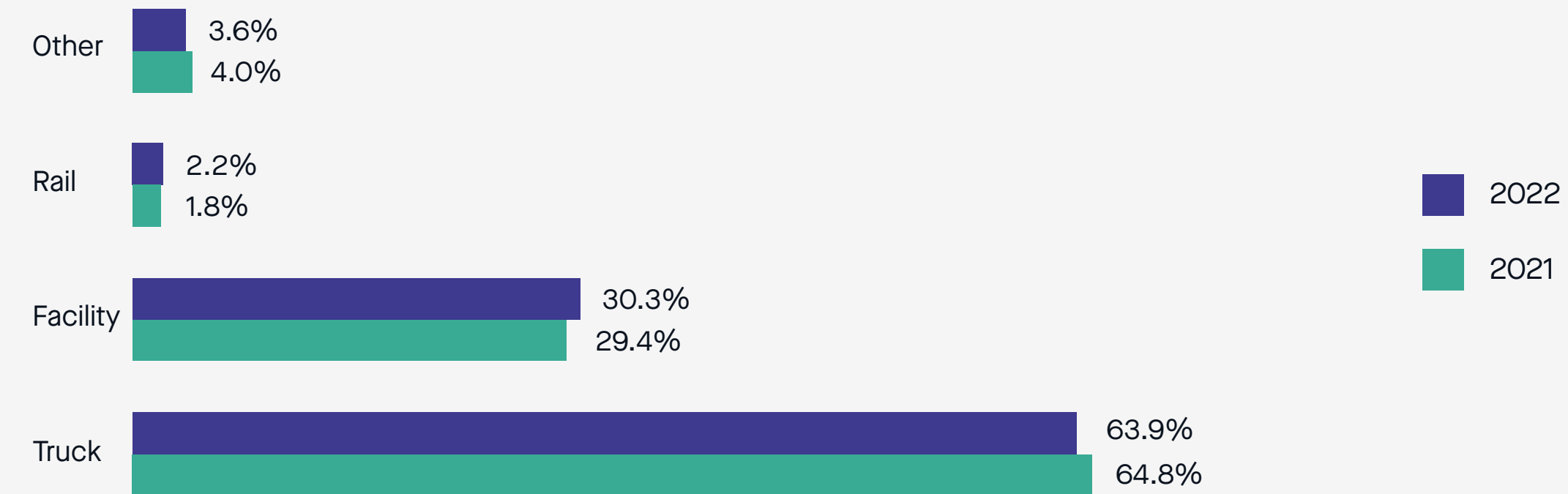
Top Commodities Stolen in 2022

Food and Beverage	17%
Fuel	9%
Agriculture	9%
Electronics	9%
Automotive	8%
Construction Materials	8%
Other	40%



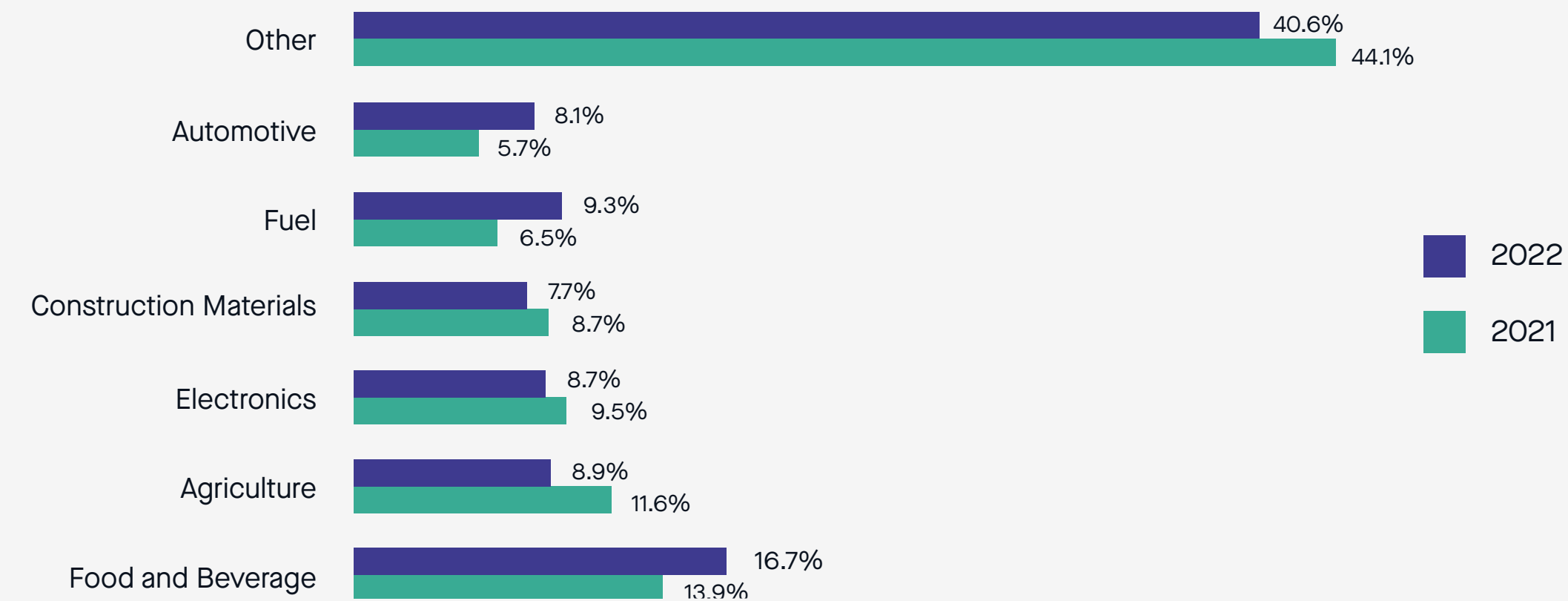
Source: Top Commodities Stolen in 2022, © Copyright BSI 2022

Top Modalities of Theft



Source: Top Modalities of Theft, © Copyright BSI 2022

Top Commodities Stolen 2021 vs 2022

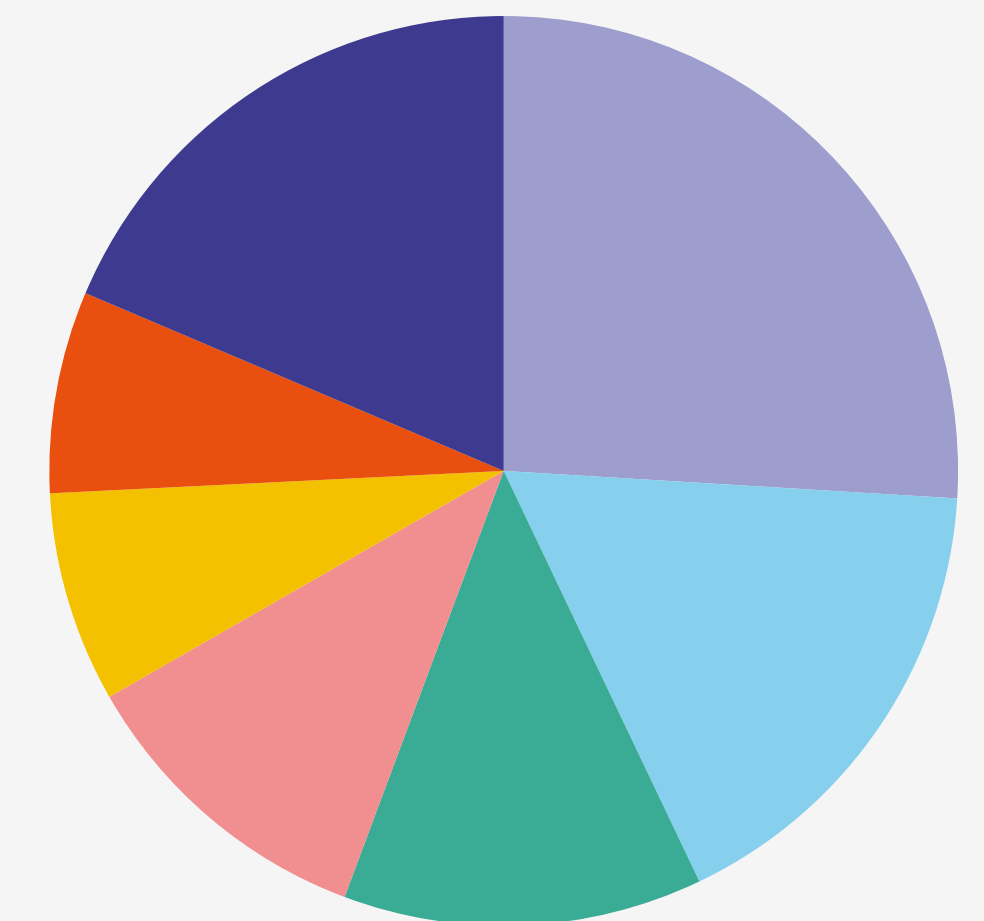


Source: Top Commodities Stolen 2021 vs 2022, © Copyright BSI 2022

Cargo theft trends

Top Cargo Theft Types in 2022

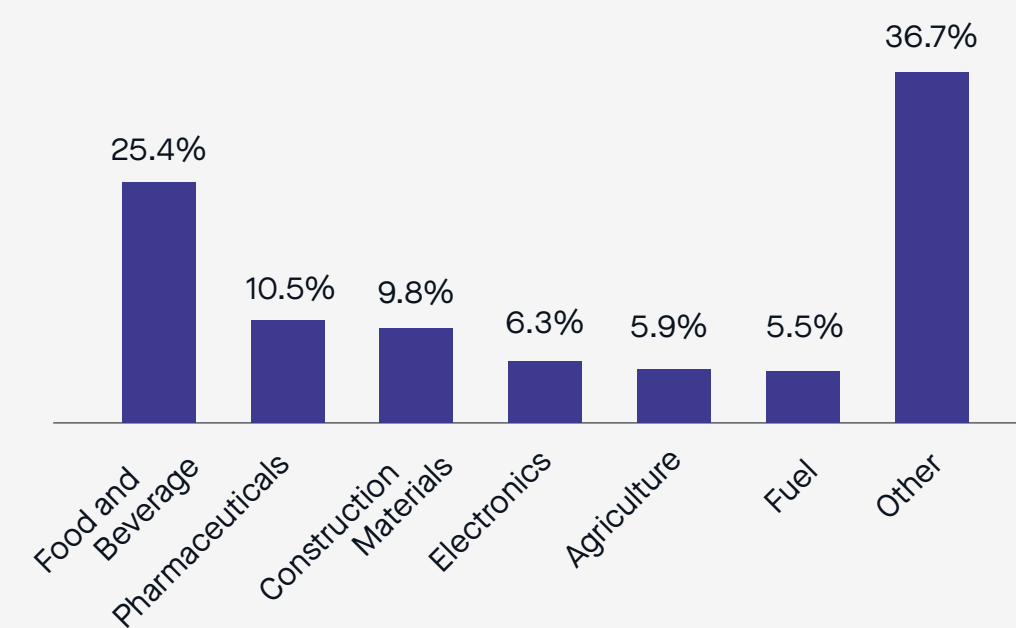
Theft from Facility	26%
Hijacking	17%
Theft from Container/Trailer	12.8%
Theft of Vehicle	11%
Theft of Employee Belongings/ Truck parts/Cash	7.5%
Theft from Vehicle	7.2%
Other	18.6%



Source: Top Cargo Theft Types in 2022, © Copyright BSI 2022

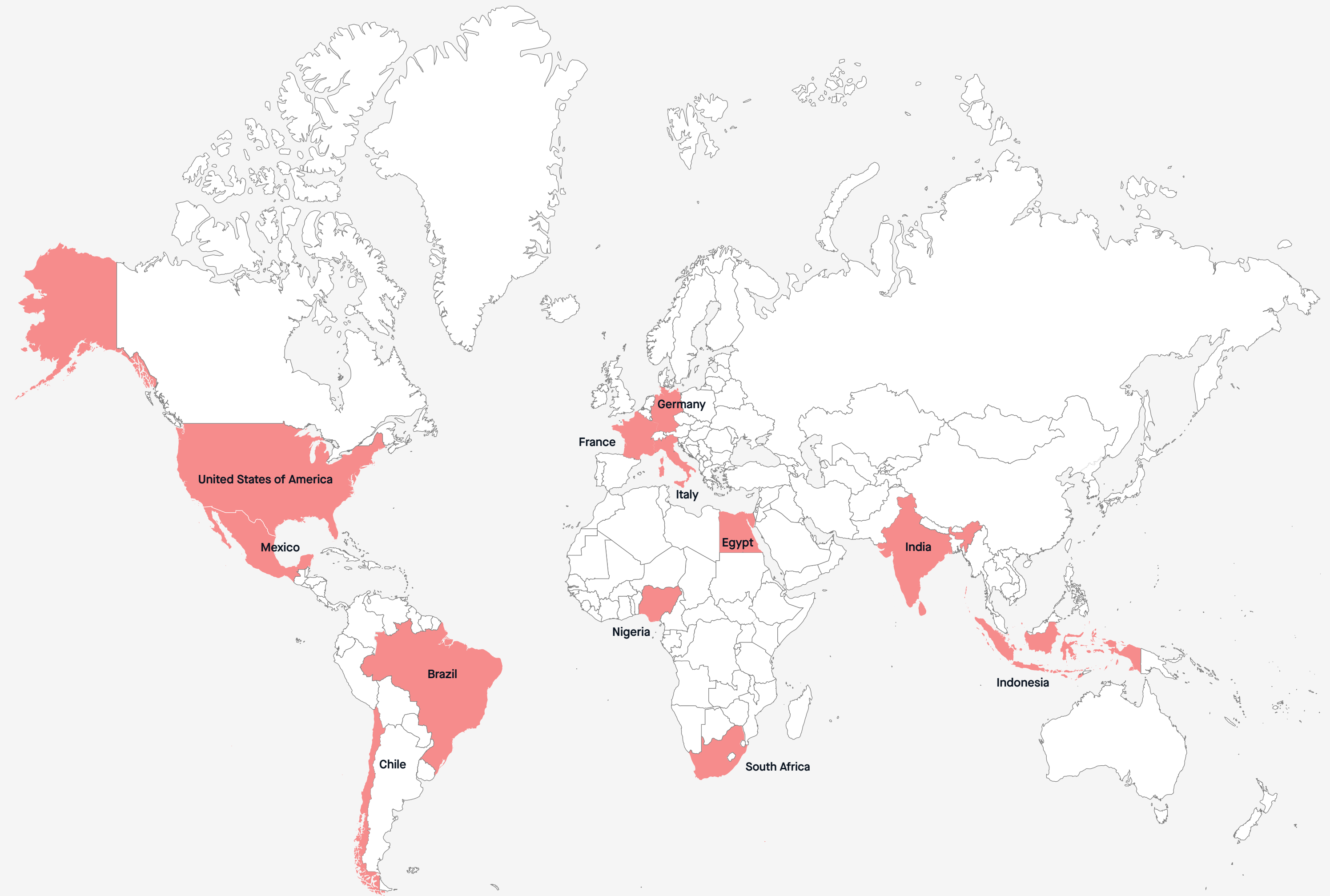
Hijacking trends

Top Products Hijacked Including Food & Beverage and Pharmaceuticals in 2022



Source: Top Products Hijacked Including Food & Beverage and Pharmaceuticals in 2022, © Copyright BSI 2022

Top countries for Hijacking in 2022



Source: Top Countries for Hijacking, © Copyright BSI 2022

bsi.



Read more about our
services and products
on our website
bsigroup.com