

JLT SPECIALTY AUTOMOTIVE SUPPLY CHAIN DISRUPTION REPORT 2018

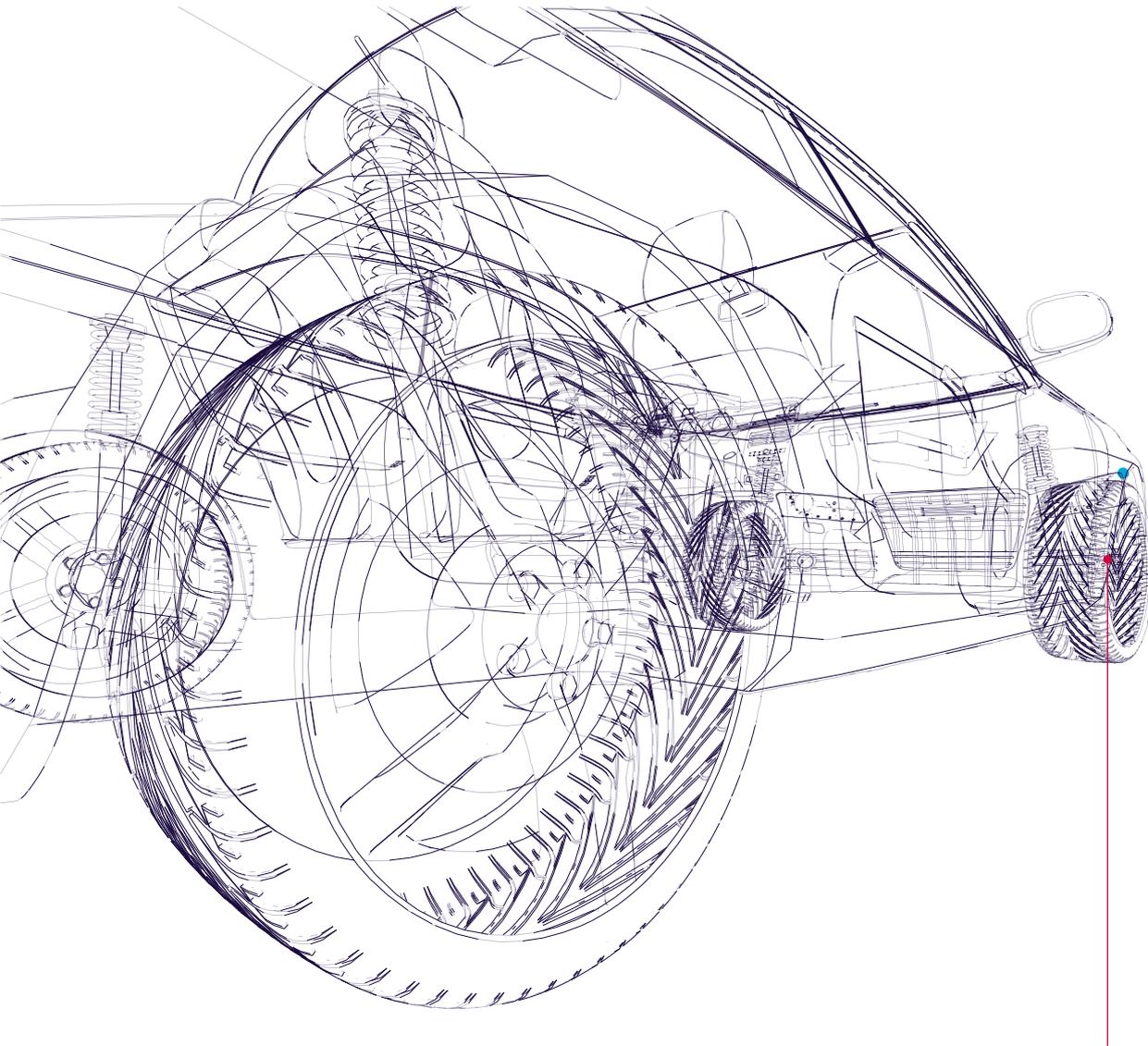


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DISRUPTION VULNERABILITIES AND VISIBILITY IN THE AUTOMOTIVE SUPPLY CHAIN

Mapping the what, when, where and why of disruption risk today.

INTRODUCTION

How much do auto manufacturers and Tier 1/Tier 2 suppliers really know about the risk vulnerabilities of their supply chain networks? Since disruption to the delivery of just one of the thousands of parts each car today contains has the potential to halt entire production lines, this is a critical question. The scale of the challenge is immense.

Measures to create transparency often focus predominantly on Tier 1 suppliers and even then many unknowns can remain. Research from our data partner Resilinc, indicates that [75%] of companies have no visibility into Tier 2 and beyond. It's cause for concern, given that sub-tier suppliers are at just as much risk, if not perhaps even more so.

This matters because disruption risks must not only be identified but evaluated in terms of importance before they can be effectively mitigated.

The purpose of this report is to shine a spotlight onto what risks suppliers are particularly exposed to, in order to help auto manufacturers pinpoint weak links in their supply chains so they can take appropriate action.

We will look at issues such as: what are the most frequent events versus which types of events have the biggest impact, the prevalence of man-made and natural events, what are the main emerging risks and growing threats and geographical spread and sub-tier penetration.

We will also assess the extent to which auto manufacturers and their suppliers are focussing on building up resilience, so that they can minimise the possibility and extent of downtime, and we consider what solutions and protections are available to mitigate the impact of disruption events.

In doing so, it is hoped that businesses in the auto sector can get ahead of the game, and turn risk into opportunity.

Global Automotive
JLT Specialty

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It's all about quality data: greater transparency along the supply chain can help set auto businesses apart from their rivals. The broader and deeper that knowledge is, the better auto manufacturers can mitigate risk and be agile in their response to events – and the more favourably they will be viewed by insurers”

Matt Grimwade
Head of Automotive
JLT Specialty

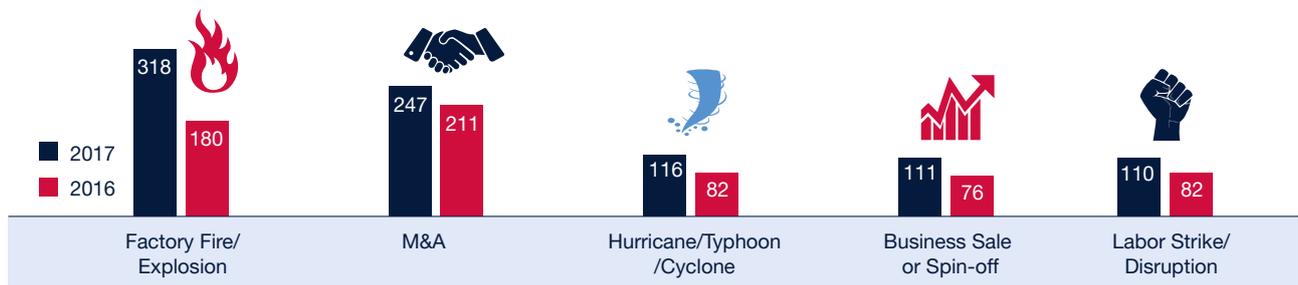
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FOCUS ON FREQUENCY – WHAT ARE THE MOST COMMON RISK EVENTS?

TOP 5 SUPPLY CHAIN EVENT TYPES (2016–2017)

The automotive industry was the most disrupted sector in 2017, with the number of disruption events jumping by 30% in a year to nearly 1,700 events, just over 1,300 in 2016. The most common types of events the automotive sector faced last year were:

TOP 5 SUPPLY CHAIN EVENT TYPES (2016 - 2017)



Source: Resilinc

The graph shows a mixture of man-made and natural events – all of which have increased since the previous year. Some are sudden, acute impact events, while others are more likely to have a gradual onset and may have a longer impact timeframe. Having to deal with both types of events, highlights the challenges businesses in the automotive sector face when it comes to mapping and contingency planning.

While factory fires/explosions may be the most prevalent type of event, presenting a clear threat of sudden shocks to the supply chain, it's also worth noting that the automotive sector is particularly vulnerable to labour strikes. This risk does not feature in the top 5 most frequent events when measured across all industries.

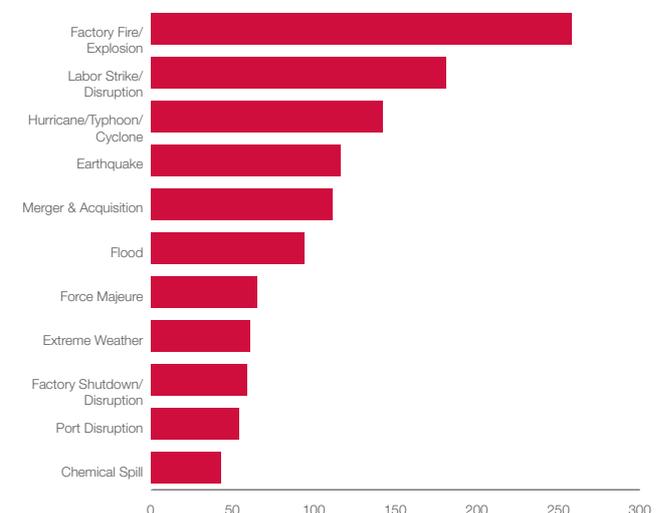
Disruption risks from Mergers & Acquisitions (M&A) activity and business sales/spin-offs have only recently entered the Top 5 (in 2015), as the global economy has become more competitive and companies increasingly seek opportunities to expand their reach or create cost synergies and other efficiency gains.

Given M&A transactions could lead to supplier manufacturing sites closing, lowering quality, and altering supply patterns, auto manufacturers will want to have this on their radars. Business relationships may also change as suppliers become part of a bigger organisation, which could reduce the priority given to a customer in terms of allocating materials or parts should supply be constrained for any reason.

The data indicates that, not only are risks becoming more frequent, there is also a growing range of risks to watch out for. Significant increases in disruption can be seen across event types as diverse as power outages/shortages, terrorism, cyber-attack and environmental hazards in the past year.

Looking at the longer term view is also telling. As you can see from the graph, earthquakes have also typically been a common disruptor to the sector over a 5-year period from 2012 to 2015. Events such as hurricanes, typhoons, cyclones and earthquakes consistently feature highly as they tend to occur across all continents.

AUTOMOTIVE EVENTS (2012 – 2015)



CYBER DISRUPTION: DEFENDING THE NEXT RISK FRONTIER

Cyber-attack disruptions recorded by Resilinc are on the rise, almost doubling in frequency in the past year, from 7 in 2016 to 13 in 2017 – a trend which shows no signs of slowing down. Though this may seem a low base, it's worth noting that this is a relatively new category to be measured, and one which could have widespread potential impact.

The rapid pace of change can leave organisations vulnerable as they rush to embrace new technology platforms to sharpen their competitive edge. The business risk will be heightened if there are deployment issues with these new platforms. Innovations such as connected vehicles or driverless cars will only increase the risk to weak areas of the supply chain if vulnerabilities in parts such as chips are exploited and supply has to be halted.

All the while hackers are becoming more sophisticated and cyber-attackers' motivations are broadening out from lone-wolves and criminal gangs to the rise of "political hacktivists" looking to bring down businesses or public institutions. Last year it was reported that several auto manufacturers¹ were forced to temporarily halt production in what appeared to be linked to the 'Wannacry' ransomware attacks – largely as a preventative measure as businesses took swift, pro-active decisions to contain the threat.

Though anti-malware protections and detection mechanisms are constantly improving, cyber-risk can be very hard to manage in supply chains. Visibility over what security suppliers have in place is vital – but extremely hard to achieve, especially further down the chain. Even then, supply chain professionals tend not to be IT experts, so may lack the expertise to know what to look for. IT experts within their own organisations tend to be focussed exclusively on internal systems – the supply chain is simply not within their remit.

As is so often the case in supply chain risk mitigation, the key here is to break down silos. Of course, external IT consultants could be brought in, but companies could derive real benefit from leveraging their internal IT expertise and capabilities in a joined-up way to fight this threat.

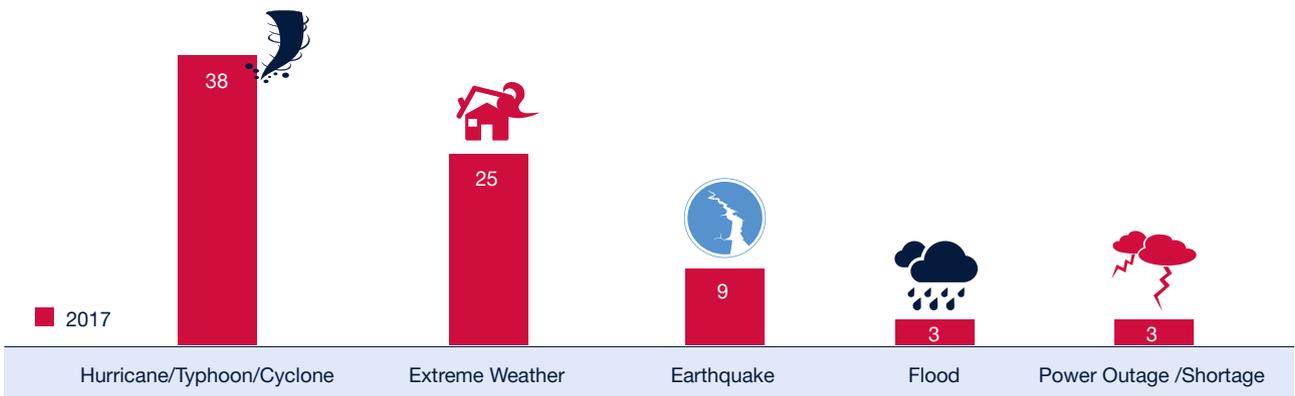
Moreover, the issue clearly goes organisation-wide: it's imperative that senior managers and Boards know what the key cyber-security risks and priorities are as regards the supply chain before making investment decisions.

¹ https://www.just-auto.com/news/vehicle-makers-on-alert-over-cyber-attack_id176577.aspx

ANALYSING IMPACT – WHAT ARE THE MOST DISRUPTIVE EVENTS?

As well as knowing what the most likely events are, it is also important to understand what the most disruptive events might be within the automotive industry, as they are not necessarily the same. In terms of the number of suppliers affected, for the automotive sector, the Top 5 highest impact events are:

HIGHEST IMPACTS EVENTS 2017 (by number of suppliers affected)



Source: Resilinc

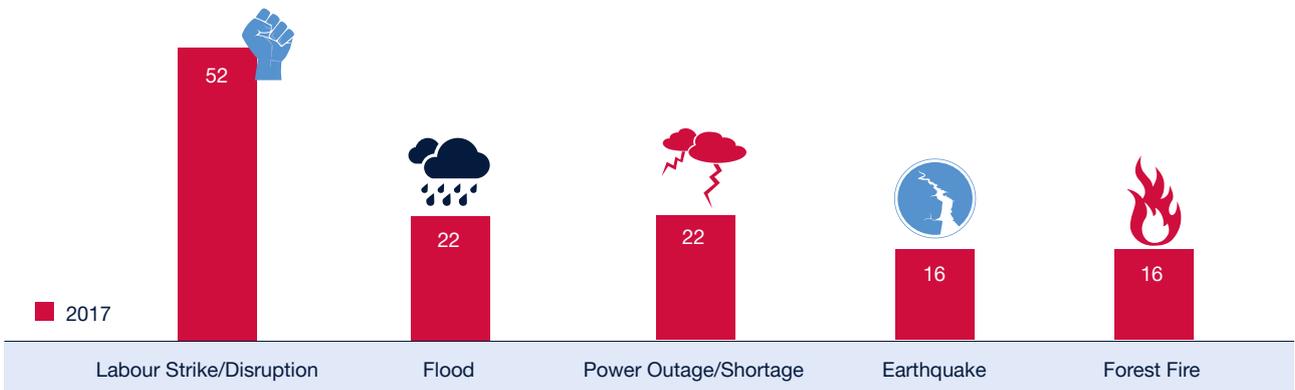
As you can see these are, in the main, naturally occurring events. Even power outages are counted as ‘natural’ rather than ‘man-made’ as they tend to be triggered by natural events such as earthquakes, severe storms, cold snaps and other kinds of ‘extreme weather’. They are therefore more likely to have a wider geographical impact, affecting more businesses.

It’s also interesting to look at the costs in terms of days lost. As the graph below shows, labour strikes last year caused the

most downtime – a significant concern for a sector so liable to this kind of disruption, as noted above.

Of course, there are likely to be other, indirect knock-on costs in addition to the potential for lost revenue, such as reputational and brand damage, loss of competitive advantage or legal costs over any contractual breaches that arise as a result.

HIGHEST IMPACTS EVENTS 2017 (by average recover time reported after event)



Source: Resilinc

Many of these are gradual onset events, which companies can prepare for to a degree, by having well-honed impact mapping and business continuity plans in place.

However, even where the suddenness of an event makes it harder to predict, those same potential impact mapping and business continuity plans are also vital. They can help to understand which of an OEM's globally-dispersed supplier sites are most vulnerable, and which should be prioritised in terms of risk mitigation strategies and contingency planning.

As Matthew Mills, Director, Supply Chain Solutions, Resilinc explains, "Auto manufacturers need to understand exposure from a part and a whole product perspective, and harden their supply chain to those risks accordingly. Pro-actively monitoring supply chain events and then linking those events to manufacturing sites will help prioritise risk and enable contingency plans to be developed, such as building inventory or identifying alternative sources of supply. This then needs to be replicated along the supply chain."

Although taking severity of impact into account is important, that's not to say that low and medium impact events are not worthy of concern – far from it, in fact. The high frequency of these "lesser" events means that they should be taken just as seriously as rarer "Black Swan" events.

For example, there were over 1,000 "low" impact and almost 900 "medium" impact events recorded in 2017 – compared to just 15 "high" impact events, according to Resilinc.

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The potential for disruption beyond Tier 1 suppliers is a major issue. Events affecting the sub-tiers often have the biggest impact in terms of sending shocks along the auto supply chain, but this is where there is typically least visibility.

Sharon Murphy
Partner
JLT Specialty

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SUPPLY CHAIN VISIBILITY – WHERE ARE DISRUPTION EVENTS HAPPENING?

Assumptions can be dangerous things when it comes to risk management – as can be demonstrated when we look at the geographical spread of disruption events.

Risks exist across every continent but North America tops the table, with more disruption events than Asia and Europe combined. The US suffered from several high impact weather events last year, including Hurricanes Harvey and Irma. The latter took an average of 33 weeks in terms of affected sites' time to recover (TTR). It is interesting to note that North America also had the most disruption events the previous year as well.

North America's top position may come as a surprise to many, who might have expected Asia to see the most disruption, given the prevalence of extreme weather and in some areas, less robust power or transport infrastructure or factories built to lower resilience standards. This revelation makes the case for data-driven decision-making.

HIGHEST IMPACT EVENTS 2017 (by number of suppliers affected)



Source: Resilinc



Unsurprisingly, the vast majority of disruption events take place at manufacturing facilities, as the chart below shows, but disruption at other points in the supply process should not be ignored². Collectively, areas such as wafer (or chip) fabrication, warehousing and distribution accounted for a third of all events last year.

And this matters because clearly each of these processes feeds into the manufacturing process. Wafer fabrication is a case in point. With computers at the heart of cars today, even in the most basic models, the auto sector is particularly vulnerable to semiconductor supply shortages, as happened last year.

Looking at warehousing, businesses need to consider not just the strength of the physical building structure and the efficiency of the operations within it, but the robustness of the transport infrastructure immediately around it and beyond. This could include considering alternative routes or logistics nodes, should disruption occur.

SUPERFICIALITY AND SUB-TIER EXPOSURE

If modern supply chains are known for their complexity, it follows that superficial risk identification and mitigation programmes are unlikely to drill down deep enough into all the various layers of risk to be fully effective. Nowhere is this more evident than in sub-tier visibility.

Resilinc's data show that last year there were almost as many events in Tiers 2 and 3 combined (nearly 7,500) as in Tier 1 (just under 7,700). It's clear that the devil is in the detail. However, according to a recent survey of supply chain professionals around the world carried out by the Business Continuity Institute (BCI)³, almost a quarter (22%) of respondents said they do not have full visibility over their supply chain.

This lack of insight may well stem from having limited resources and/or appropriate expertise to conduct such an extensive "deep-dive" into the supply chain – rather than from a lack of will. That's likely to be true even for the biggest players in the sector – because the scale of the task is just so huge.

Indeed, it's likely that these twin factors are the primary cause of many companies' weaknesses in risk analysis (as outlined in the final section of this report), which clearly has a significant knock-on effect on effective continuity planning.

² Other includes: Business services, logistics, molding, policy administration, recycling, returns & repairs, RM Processing and transportation

³ <https://www.thebci.org/news/bci-supply-chain-resilience-report-2017-launch.html>

IS THE AUTOMOTIVE SECTOR INVESTING ENOUGH IN RESILIENCE?

Despite the significant risks, analysis shows that the automotive sector as a whole is lagging behind in strengthening resilience to ensure that companies are well-positioned to maintain “business as usual” as far as possible, in an environment that can never be risk-free.

In order to measure how resilient companies are, Resilinc has developed an evaluation matrix called an “R Score”. The R score does not measure risk (in terms of events which may be outside a company’s control) – rather it is an indicator of companies’ ability to execute production according to plan. It is measured on a scale of 0-10, 10 being the highest score, although in reality a score of 6-8 denotes a best-in-class approach.

The automotive industry’s overall R score is 2.5, compared to an overall score across all industries of 2.8. However, when high tech suppliers in areas such as electrical, semiconductor and safety systems are excluded (leaving companies that supply to categories such as chassis, engines or stamped components) the automotive industry’s R score is 2.3.

FACING UP TO THE RESILIENCE CHALLENGE

This comparatively low score could suggest that auto manufacturers and their suppliers are taking a reactive rather than pro-active approach to managing disruption risks. Or it could indicate that the investments that they are making in building up their resilience are falling short of the mark in terms of their effectiveness.

More action is needed but what form should this take? Improving visibility into supplier networks is an important first step, to understand where risks may lie and how sophisticated suppliers’ own resiliency programmes are to minimise the likelihood and impact of disruption. Given the prevalence of Tier 2 and 3 events as outlined above, a focus on Tier 1 alone is unlikely to be enough.

However, few auto manufacturers currently have the internal capabilities to do all this alone – though many are taking great pains to do so. Attempting to map thousands of supplier sites around the world, analysing such a wide variety of risk pressure points which have varying degrees of predictability (or lack of), and drilling down through multiple layers of suppliers goes far beyond their core capabilities.

Against this backdrop, the option of using a specialist third party data analytics provider to deliver the required insight makes real commercial sense. It’s for this reason that JLT has partnered with Resilinc, to help clients map their global supply chains, to monitor potential failure points and improve resilience. This will help improve their risk status for insurers.

Concentrating on continuity planning is also vital. Information sharing up and down the supply chain can help turn visibility into action, ultimately reducing critical time to detect (TTD) and time to recover from disruption (TTR). Aligned business continuity strategies in which manufacturing and suppliers take a collaborative and standardised approach can also help to shape best practice and eliminate risk gaps.

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Distilling insight from large quantities of data to create real insight on key areas of exposure and specific supplier site vulnerabilities is essential if auto manufacturers are to effectively prioritise risk, prepare a plan and protect their businesses. It’s a huge challenge, but not an impossible one.

Matthew Mills
Director
Resilinc

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CONCLUSION

As both the number and diversity of disruption events increases, and with many emerging and growing threats to watch out for across every continent – from the prevalence of factory fires and extreme weather events to the rise of cyber-attacks, the risk picture is extremely fragmented. A joined-up, forward-thinking approach is therefore vital.

Effective risk mapping and targeted business continuity planning will minimise risk and increase auto manufacturers' resilience, giving assurance to shareholders. They also represent how threats can be turned into an opportunities: leveraging supply chain insight to create a competitive edge.

Automotive businesses will be in a position to take decisions they might not otherwise have been able to make, such as knowing where they can reduce inventory buffers without sacrificing resilience. Or they might be able to gain first mover advantage by pre-planning for a specific event, potentially putting them several days or even weeks ahead of rivals.

From an insurance perspective, given the range and depth of risk discussed, it's perhaps not surprising that around half⁴ of all organisations are not insured against supply chain risk at all. Risk may be difficult to identify or quantify. Covering every risk, everywhere, is unlikely to be practical and prioritising what to cover can be immensely challenging.

However, the very scale of exposure that the automotive industry is facing demonstrates the critical importance of having policies that cover the most business-critical areas, and avoids duplications and gaps. That's why JLT's partnership with Resilinc is so powerful – by linking cutting edge supply chain analytics into our insurance solution, we can provide real breadth of business interruption coverage.

After all, supply chain insight and visibility is key to a resilient business, in the auto sector more than perhaps any other. And a resilient business is a better managed risk.

⁴ <https://www.thebci.org/news/bci-supply-chain-resilience-report-2017-launch.html>

REPORT METHODOLOGY

JLT's Automotive Supply Chain Disruption Report was produced in conjunction with global supply chain analytics firm Resilinc, and is based on analysis of Resilinc's proprietary database of global supply chain disruption information. Disruption information was compiled from survey responses with suppliers for the period January 2017 – December 2017. In addition to data on suppliers within the automotive industry, the database also contains supply chain data on industries including High-Tech and Life-Sciences/Medical Devices for comparative purposes.

ABOUT JLT SPECIALTY

JLT Specialty Limited provides insurance broking, risk management and claims consulting services to large and international companies. Our success comes from focusing on sectors where we know we can make the greatest difference, using insight, intelligence and imagination to provide expert advice and robust - often unique – solutions.

Our automotive expertise is delivering an innovative insurance solution which links cutting-edge supply chain analytics to enable the insurance market to provide a breadth of Business Interruption coverage that has previously been unavailable.

Our comprehensive solution is for automotive manufacturers and Tier 1 and 2 suppliers to respond to higher risk exposures in today's global interlinked markets.

Our team incorporates specialists from insurance broking, risk management, cyber risk, supply chain and product recall. Additionally, the team comprises of technical claim experts and contractual risk management support and has access to all of the global specialist teams within the JLT Group.

ABOUT RESILINC

Resilinc is the leading provider of supply chain resiliency solutions and delivers scalable enterprise solutions that enable supply chain professionals to gain visibility across multiple tiers of their complex, global supply chains.

With a comprehensive offering that encompasses multi-tier supply chain mapping, single points of failure analytics, global disruption event monitoring and management, mitigation workflow and part-level supply chain compliance programs for conflict minerals monitoring and business continuity planning,

Resilinc is the leader in comprehensive supply chain resiliency solutions Resilinc helps customers achieve supply chain resiliency through innovative and patented technology, an extensive resiliency-driven supply network, and a proven comprehensive enterprise scale solution that delivers strong value to both clients and supplier partners.

For more information, visit www.resilinc.com

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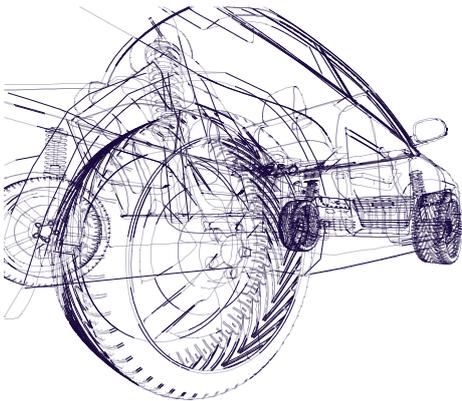
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