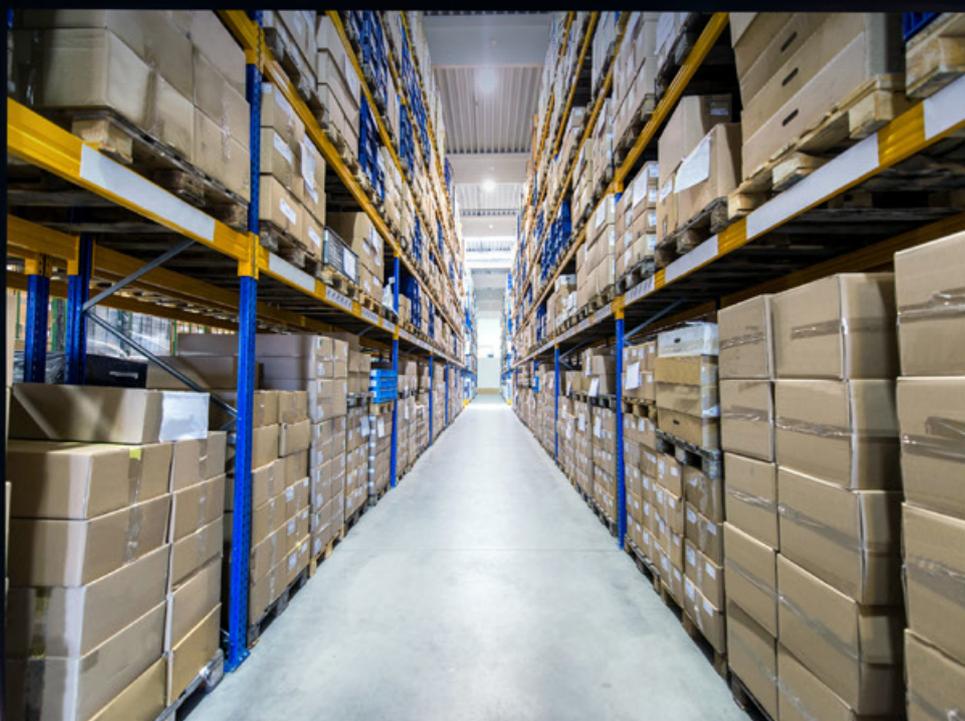


STRENGTHENING
**SUPPLY CHAIN
RESILIENCE**
THROUGH RISK ASSESSMENT



BUREAU
VERITAS

NAVIGATING A COMPLEX LANDSCAPE



Facing numerous supply chain layers, increased forms of disruption and tight operational constraints, organizations are in search of the most effective and cost-efficient ways to manage and reinforce their supply chains.

To mitigate risk along the entire chain, companies are now inclined to structure a risk-aware culture that corresponds to robust digital platforms that support their risk management processes at an operational level. The goal is to enable the identification of all threats and assess their risks, while also providing a high-level view from which they can evaluate their aggregate risk exposure.

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SUPPLY CHAIN 2021 AN OVERVIEW

In the last 20 years, the global supply chain has experienced exponential growth as well as an ever-deepening complexity. Multiple waves of delocalization—outsourcing manufacturing in search of economies of scale and cheaper sources—have exposed operational risks to the international network in the form of delays, logistics and a blurred visibility along the chain. The COVID-19 pandemic, with a constrained restart of activities, has further compounded and laid bare supply chain weaknesses in every industry.

While supply chain disruptions occur in every sector, some are harder hit than others and face specific—and particularly difficult—challenges. In a 2020 survey of 60 senior supply-chain executives across industries and geographies, 73% experienced problems with suppliers, while 75% had problems with production and distribution as a result. However, in the food and consumer goods industry, 100% had faced production and distribution problems, and 91% had encountered issues with suppliers¹.



By putting supply chain weaknesses under the microscope, the pandemic has prompted supply chain executives to rethink their processes regarding these challenges. Recent events have demonstrated that to create a resilient supply chain and mitigate operational impacts, businesses must reinforce a risk-aware company culture with the right tools and processes. This includes a digital platform to exploit data and manage the entire network toward reactive adaptation and improvement.

KEY FIGURES

\$10 TRILLION

Value of intermediate goods traded globally, 3 times the amount traded in 2000²

1 IN 20 COMPANIES

has faced disruption to their supply chain costing at least \$100 million³

180 GLOBAL PRODUCTS

are single-source in one country⁴

1. Risk, resilience, and rebalancing in global value chains, McKinsey Global Institute, August 2020, p. iv
2/3. Is your supply chain risk blind – or risk resilient?, McKinsey, May 2020, p. 2
4. Resetting supply chains for the next normal, McKinsey & Co., July 2020, p. 2

GLOBAL CHALLENGES FOR THE INDUSTRY

THE 4 MAIN FORMS OF SUPPLY CHAIN DISRUPTION

As companies around the world and across all industries rely more heavily on a globalized supply chain, they face increasing risks of disruption. The challenges they encounter fall into four main categories, affecting all industries to a different extent, and bringing specific issues to light.



KEY FIGURES

40 WEATHER DISASTERS

caused damages exceeding \$1 billion each in 2019⁵

#1 HR PRIORITY

for supply chain companies over the next 5 years: hiring cybersecurity experts⁶

1 / NATURAL EVENTS

The COVID-19 crisis has hit companies hard worldwide but is far from being the first natural event to disrupt the supply chain. Recent events, including the 2011 Fukushima earthquake and tsunami in Japan and the 2021 devastation of Hurricane Ida in the US, have seen factories routinely shut down, assembly lines halted, and transport networks brought to a standstill, resulting in supply chain disruption. While some natural disasters are unavoidable, companies aim to sufficiently protect assets and resources. For example, they manage logistics around recurring natural events such as monsoon seasons in Southeast Asia, or transport routes in the Arctic Ocean that are iced over for seven months out of the year.

3 / BOTTLENECKS & DELAYS IN MANUFACTURING & LOGISTICS

Companies that rely on a regular supply of materials and components from suppliers often face the challenges of delays and bottlenecks caused by shortages of resources, skills and means of production. Delays in deliveries also affect project and production milestones, which have a knock-on effect throughout the value chain.

Issues with logistics can impact the shipment of components and disrupt air and sea cargo travel. This became particularly evident during a pandemic, as production drops and surges have shaken the usual allocation of logistical resources and travel restrictions have limited the movement of international specialists.

2 / FINANCIAL INSTABILITY

Global production networks have evolved to optimize manufacturing costs and efficiency. However, their size, reach and complexity leave them vulnerable to delays, shortages and production halts. These problems in turn financially penalize companies, leading to payment delays, cash flow and credit problems, and even insolvency and bankruptcy.

Trade wars can also wreak havoc on supply and demand. At a pricing level, a trade dispute between countries can cause massive fluctuations in manufacturers' pricing of raw materials, which can threaten the economic balance of production or projects.

4 / CYBERSECURITY

Supply chain cybersecurity starts with suppliers and manufacturers, who need to ensure their own business continuity by keeping their IT systems secure and available, while keeping social engineering threats under control. Outside parties that make up a purchaser's supply chain—from cloud hosting providers to manufacturers and vendors—enable it to lower costs, innovate rapidly, and work more efficiently and effectively.

However, the more touchpoints involved, the easier it is for a compromise to occur within the cyber supply chain, opening a company up to threats to systems availability and breaches of sensitive data and intellectual property. This can prove expensive. The Ponemon Institute's latest Cost of a Data Breach report estimated that third-party data breaches increase the cost of such a cyber incident by an average of \$207,411⁷.

5. Risk, resilience, and rebalancing in global value chains, McKinsey & Co., August 2020, p. 2

6. Predicts 2021: Supply Chain Technology, Gartner, Dec 2, 2020

7. 6 strategies for supply chain risk management, Feb 10, 2021, Phoebe Fasulo, p.1



DIGITAL SOLUTIONS

THE SUPPLY CHAIN'S FUTURE IS DIGITAL

To overcome the numerous risks covered by these four broad categories, decision-makers are increasingly turning to digital solutions to help them monitor numerous sources, define short-term risk responses, mitigate the threat of disruption and reduce financial consequences.

In a recent study of 160 procurement leaders, 69% said they consider digital and analytics solutions to be more valuable than ever in the face of a “new normal,” and have greater potential to increase procurement’s effectiveness⁸. These technologies, particularly spend and risk analytics, help identify savings opportunities, and extend supply chain management to include reactive monitoring and continuous improvement.

For product manufacturing, remote monitoring initiatives—including on-time data sharing—can be used to flag problems or identify improvement opportunities. Digital diagnostic capabilities enable up-to-date equipment monitoring, helping lower costs by reducing wasteful maintenance practices. For product delivery, firms can employ digital logistics practices, using thousands of datapoints to optimize, track and optimize again with real-world inputs for quick solutions. End-to-end

digital capabilities can also boost cybersecurity and data integrity.

To implement truly responsive risk management, all digital solutions must rely on factual data flows, supported with onsite verifications and evidence. It is also crucial that companies bring together as many stakeholders as possible—as often as possible—from purchasers and suppliers to compliance inspection agencies and logistics providers. The more that different stakeholders interface on digital solutions, the more information a company can collect based on that solution. A more accurate landscape can then be used to feed the risk monitoring and response process.

8. Five themes can help procurement shape recovery in the next normal, McKinsey & Co., Jan 2021, p. 5
 9. Resetting supply chains for the next normal, McKinsey & Co., July 2020, p.3
 10. Predicts 2021: Supply Chain Technology, Gartner, Dec 2, 2020

KEY FIGURES

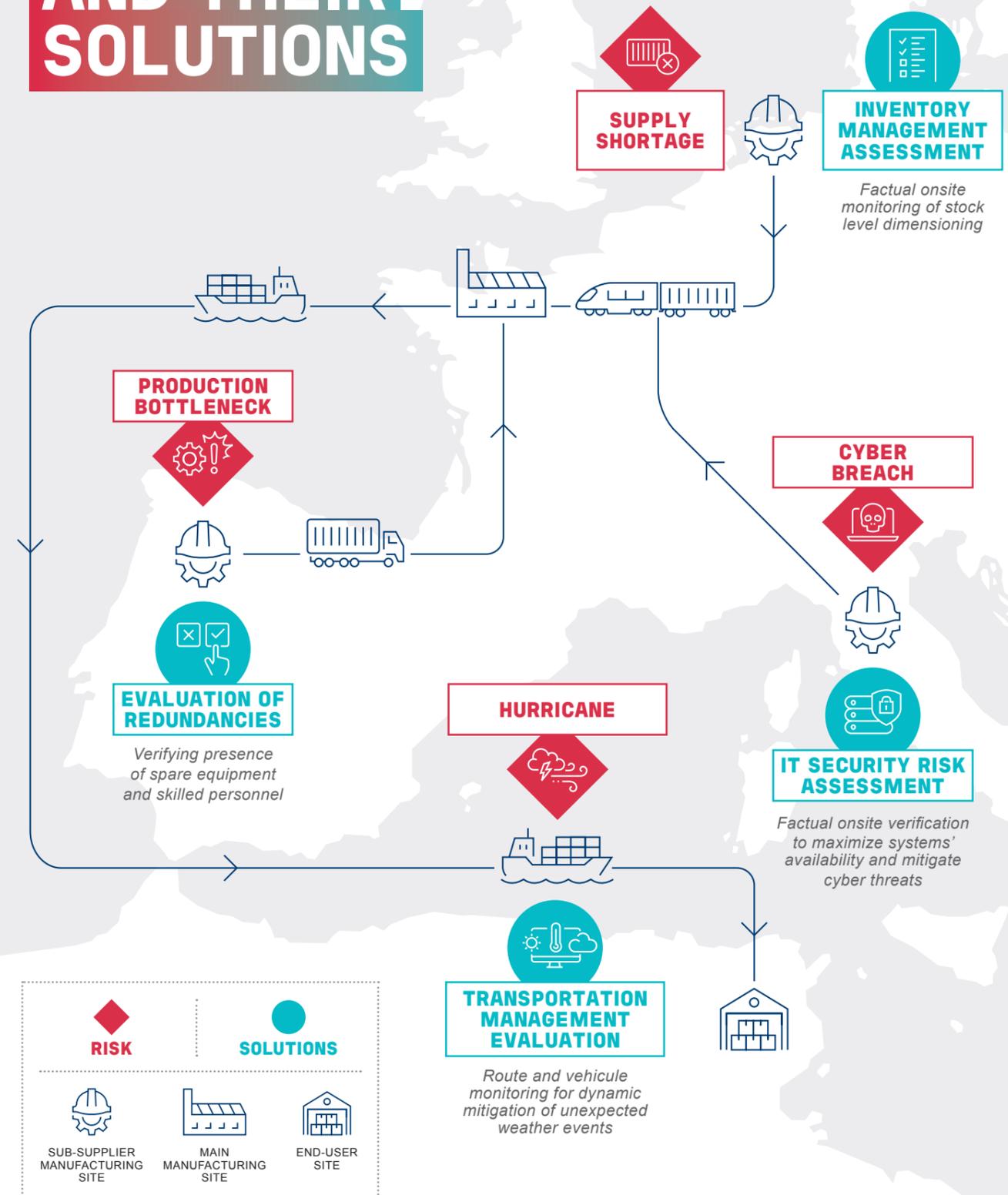
90 %

A 2020 McKinsey study of 60 senior international supply-chain executives revealed that 90% said they plan to increase digital supply-chain talent within their organizations through a combination of in-house reskilling and external hires⁹

72%

In Gartner’s 2020 study of supply chain companies, 72% said they saw technology as a source of competitive advantage¹⁰

SUPPLY CHAIN DISRUPTIONS AND THEIR SOLUTIONS





INTRODUCING Supply-R

A DIGITAL SOLUTION TO MITIGATE SUPPLY CHAIN RISK

There is an urgent need among many companies to reassess their supply chain risk, based on factual data from the field, to make sure that all elements are properly addressed, assessed and visible. As a world leader in testing, inspection and certification (TIC) services, Bureau Veritas is committed to helping companies overcome the challenge of supplier network transparency and reliability, reinforcing operational resilience and business continuity in all circumstances.

To this end, Bureau Veritas has launched **Supply-R**, a unique solution that assesses and quantifies the resilience of the supply chain. **Supply-R** brings together a customized risk assessment methodology, based on field data from independent onsite verification of critical suppliers. Resilience indexes are produced for each supply chain actor and aggregated at supply chain network level. This provides the level of granularity required to support better business decisions and minimize the risk of disruptions. All information is collected and consolidated using a

digital platform, providing transparency on the supply chain map as well as actionable risk indexes.

Supply-R is flexible and agile, enabling it to meet the needs of different clients and business sectors efficiently. It offers a customizable modular structure that addresses critical elements for a resilient supply chain. This includes business continuity, technical capabilities, HSE, data integrity, information security, logistic and inventory practices, business governance and social engagement.

“**TODAY, companies want to consider the full picture of predictable risks related to their supply chains, taking into account the fact that external factors can create disruption. They need to build and implement new processes that can fix past problems and position their organizations to operate smoothly in the future. With Supply-R, we are offering a customizable modular structure that provides transparency and addresses critical elements for a resilient supply chain.**”

Bruno Ferreyra,
Executive Vice-President
Oil & Gas Global Service Line
Bureau Veritas

A FLEXIBLE SOLUTION FOR SUPPLY CHAIN RESILIENCE

While specific risks to supply chains differ across sectors, **Supply-R** provides a holistic resilience assessment methodology that can address the needs of every industry. With fully customizable assessment protocols, a dedicated digital platform and Bureau Veritas' extensive international network of assessors, the solution meets the requirements of companies of all sizes and in all domains, from operational resilience and business continuity in all circumstances.

– A client-centric process

First, Bureau Veritas determines the parameters that reflect the specificities of the client's sector and supply chain constraints, and integrates them within the risk calculation methodology. Its experts design and customize key deliverables through dedicated workshops, leveraging best-in-class, ready-to-use checklists or fully customized lists of control points.

Powered by a proprietary audit software, review of the supplier self-assessment is conducted to identify an initial risk map and gaps, and generate a preliminary set of ratings. Remote and onsite field verification audits are then carried out globally by auditors. Finally, risk maps and indexes are generated with associated findings. Bureau Veritas' portal enables clients to access customizable dashboards and monitor the level of resilience of their own supply chain. Such executive dashboards aggregate supply chain risk indexes per stream or project.

**MEASURE
AND QUANTIFY**
*the resilience along the
company's own supply chain
at global and supplier levels*

BENCHMARK
*the performance
of each supplier
against the others*



DEFINE
*continuous
improvement plans
based on the identified
risk areas*

EVALUATE
*the resilience and
quality alternative
sources to reshape
the supply chain*

KEY FIGURES

92%
*of respondents to a 2020
McKinsey survey of global
supply chain leaders said
they were planning to
increase resilience¹¹*

44%
*of McKinsey survey respondents
said they would increase resilience
even at the expense of short-term
savings¹²*

11/12. Risk, resilience, and rebalancing in global value chains, McKinsey & Co., August 2020, p. 17



SUPPLY-R CASE STUDY

ENERGY OPERATORS CHOOSE SUPPLY-R / PILOT PROJECTS

Unexpected disruptions are by nature difficult to predict. Even supply chains that are widely regarded for their resilient design are still vulnerable to the risks of unpredictable disruption. Business leaders must, therefore, have an understanding of disruption impacts, consequences and actions in order to make the appropriate trade-offs.

In 2021, Bureau Veritas successfully completed a number of **Supply-R** pilot projects designed to support oil and gas operators' business continuity and assess resilience along portions of their supply chain.

Bureau Veritas engaged concerned suppliers to perform a thorough self-assessment based on six elements:

- HSE
- BUSINESS CONTINUITY
- QUALITY ASSURANCE & CONTROL
- LOGISTICS & INVENTORY PRACTICES
- INFORMATION SECURITY
- DATA INTEGRITY

Supply-R helped suppliers identify short- and long-term areas of improvement for managing a supply chain disruption: Over 11 weeks of fast-track execution, more than 350 hours of independent onsite verification was conducted at factories on three continents across several product lines. More than 3,200 data points were collected in record time.

The pilot phase resulted in tailored risk indexes and customized dashboards to visualize the risk profiles of each supplier as well as the assessment of overall supply chain resilience. Thanks to the pilot phase, Bureau Veritas has identified more than 400 areas of improvement at the target suppliers, to drive continuous improvement and reduce the operators' exposure to supply chain disruptions.



MOST RECURRENT IMPROVEMENT AREAS IDENTIFIED AT SUPPLIERS' BASE

Visibility on **sub-suppliers' business** continuity practices

Supply chain engagement

Data classification and recovery practices

Single source of **materials and services**

Monitoring and substitutability of **single point equipment**

Substitutability of **logistical arrangements**

Inventory levels and traceability

Information security testing and governance



WORKING TOWARD A MORE SUSTAINABLE VALUE CHAIN

Bureau Veritas' Green Line of services and solutions supports our 400,000 clients to be more efficient, more methodical and more trustworthy in their journey toward more sustainable business and a more sustainable world.

Through Green Line, we empower organizations—both private and public—to implement, measure and achieve their sustainability objectives. With our expertise, we serve our clients to meet the challenges of safety, the environment, social responsibility and product or service quality all along the chain. We support our clients in their selection of

resources and during production, offering expertise at every point in the supply chain, from raw materials sourcing to product use.

The addition of **Supply-R** to our Green Line suite of solutions boosts our capacity to support companies in their objective of ensuring responsible and fair sourcing. We also help them guarantee product

traceability from point of origin through consumption.

With our contribution, our clients can measurably demonstrate the impact of their environmental, social and governance actions by making them traceable, visible and reliable. By bringing transparency, we provide the tools needed to protect clients' brands and reputations.





SHAPING A WORLD OF TRUST

Bureau Veritas is a Business to Business to Society company, contributing to transforming the world we live in. A world leader in testing, inspection and certification, we help clients across all industries address challenges in quality, health & safety, environmental protection and social responsibility.

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Shaping a World of Trust