



## ***The weakest link***

Using innovative technology to find emerging supply chain risks

*Robust supply chain risk management has long been a priority at global businesses. But new developments are pushing it higher on the corporate agenda. With the stakes high, risk professionals who embrace vendor monitoring and analytics can help their companies offensively and defensively combat an ever-changing, incredibly complex threat landscape that is growing in scope and scale.*

## De facto regulators

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Corporations have long addressed supply chain risk, especially if their sourcing is global or complex. Public incidents of fraud, corruption, forced labor, trading with sanctioned entities, and other illegal or unethical business activities keep most companies keenly aware of the ethical and reputational risks that reside in their supply chains. Now, with closer scrutiny by customers, investors, and other stakeholders, as well as more-sophisticated monitoring by nongovernmental organizations (NGOs) and the media, there's no ignoring the illegal or unethical actions that could occur deep in one's supply chain.

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Socially conscious consumers, independent standards organizations, and sustainable fund managers are in effect today's new regulators. Nearly 60% of consumers—mostly millennials and Gen Zers—report they would buy or boycott a brand because of its position on a social or political issue.<sup>1</sup> As these groups demand clean, legal, and ethical supply chains and as they use technology to spot and expose violations, they can dramatically influence brand perceptions with one digital click. Human rights and environmental groups now have sophisticated tools such as satellite-based technologies to pinpoint rights violations, illegal activities, environmental issues, and other potential supplier misconduct just about as those things are occurring.<sup>2</sup> With technology at their fingertips, interested parties can now monitor, expose, judge, share, and penalize a real or perceived violation in one's supplier network in near real time—often well before even the company or its suppliers are aware. When a concerned party decides an issue is worth exposing, news of alleged violations can spread over digital, social, and mobile channels lightning fast, resulting in far-reaching impact on a brand's reputation and financial performance even if the alleged violation is later disproved.

1 More than Half of Consumers Now Buy on Their Beliefs, 2017 Earned Brand Study Reveals," Edelman Earned Brand Study, June 18, 2017; <https://www.edelman.com/news/consumers-now-buy-on-beliefs-2017-earned-brand/>.

2 Steven Livingston, "Satellite imagery augments power and responsibility of human rights groups", Brookings, June 23, 2016; <https://www.brookings.edu/blog/techtank/2016/06/23/satellite-imagery-augments-power-and-responsibility-of-human-rights-groups/>.

Add in the direct penalties that companies pay, and the financial implications of violations are even direr. Regulations covering illegal or unethical business practices are long standing in most industries, but a rise in enforcement goes hand in hand with consumers, media, and regulators, all of which can nowadays more easily detect and expose violations.

As those forces dovetail, the risks for companies that are not sufficiently monitoring their direct, secondary, and tertiary suppliers, service providers, and shippers are substantial. By contrast, companies that view their supply chain as a strategic enterprise-wide risk, that are proactive in their monitoring, and that take responsible actions when issues do arise can lessen their financial and reputational risks. They can also bolster customer satisfaction and attract new customers who increasingly reward candor, transparency, accountability, and a rapid response.

### **It's hard to combat public momentum**

Once a potential violation is visible, the mounting stakeholder response can be hard to reverse. For more than four years, NGOs have pressured a certain global food and beverage company to discontinue sourcing palm oil harvested from a supplier with documented child labor, worker exploitation, and land rights abuses on its plantations. Despite the food company's public response and transparent year-over-year efforts to extend the traceability of its palm oil supply chain to palm plantations, the pressure to do more is unrelenting.

More than 40 NGOs banded together in a November 2017 open letter to the company, demanding reforms. NGO-sponsored commercials bringing public light to the issue have received more than 4 million YouTube views. And hundreds of thousands of consumers are signing petitions urging the company to adopt a more stringent policy. Had the company known of and addressed the potential violation prior to initial NGO reports, it could have avoided or reduced years of public scrutiny.<sup>3</sup>

3 "Broad, International Coalition Calls Out PepsiCo for Ongoing Deforestation, Labor Rights Abuses in Palm Oil Supply Chain," Friends of the Earth, November 8, 2017; <https://foe.org/broad-international-coalition-calls-pepsico-ongoing-deforestation-labor-rights-abuses-palm-oil-supply-chain/>. Jennifer Elks, "PepsiCo Reacts to New Ads Slamming Doritos over Lax Palm Oil Policy," Sustainable Brands, January 16, 2015; [http://www.sustainablebrands.com/news\\_and\\_views/behavior\\_change/jennifer\\_elks/pepsico\\_reacts\\_new\\_ads\\_slamming\\_doritos\\_over\\_lax\\_palm\\_o](http://www.sustainablebrands.com/news_and_views/behavior_change/jennifer_elks/pepsico_reacts_new_ads_slamming_doritos_over_lax_palm_o).

Consider how Apple successfully navigated its response to the use of child labor in cobalt mines.<sup>4</sup> And the textbook example still holds true of Johnson & Johnson's response to the 1982 cyanide-laced Tylenol crisis which saved both the product's market share and the company's stock price. Johnson & Johnson stock, which had been trading at a near-52-week high at the time of the tragedy, dropped but then recovered to its high within two months. Tylenol's share of the analgesic market also plunged—from 37% before the event to 7%—but climbed back to 30% within a year. Analysts credit Johnson & Johnson's CEO's efforts to put consumers first—and his forthrightness with the media—for that quick market recovery.<sup>5</sup> Just as technology is helping others to watchdog brands, the right tools can help brands manage risk, move quickly when needed, and achieve positive outcomes.

### **A small chink in the chain is perilous**

A subcontractor of a US technology firm allegedly employed Russians to work on US Defense Department software without required security clearances. And even though the subcontractor's scope of responsibility within the \$614-million contract was small, its suspected security failure resulted in a civil whistle-blower lawsuit against both firms and a jointly paid settlement of \$12.75 million.<sup>6</sup>

4 Don Reisinger, "Child Labor Revelation Prompts Apple to Make Supplier Policy Change," *Fortune*, March 3, 2017; <http://fortune.com/2017/03/03/apple-cobalt-child-labor/>.

5 Judith Rehak, "Tylenol made a hero of Johnson & Johnson: The recall that started them all," *New York Times*, March 23, 2002; <http://www.nytimes.com/2002/03/23/your-money/tylenol-made-a-hero-of-johnson-johnson-the-recall-that-started.html>.

6 Spencer S. Hsu, "U.S. firms to pay \$13 million to settle claim they paid Russians for security work," *Washington Post*, November 2, 2015; [https://www.washingtonpost.com/local/public-safety/us-firms-to-pay-13-million-to-settle-claim-they-paid-russians-for-security-work/2015/11/02/abdd7d56-818a-11e5-a7ca-6ab6ec20f839\\_story.html?utm\\_term=.9a7198968f30](https://www.washingtonpost.com/local/public-safety/us-firms-to-pay-13-million-to-settle-claim-they-paid-russians-for-security-work/2015/11/02/abdd7d56-818a-11e5-a7ca-6ab6ec20f839_story.html?utm_term=.9a7198968f30).

## Technology limitations

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The very tools being used by media, regulators, and consumers to identify problematic issues can be used by organizations to spot, track, and react to supply chain incidents in a timely manner. An app that discreetly polls workers on their cell phones can help detect such vendor issues as unsafe working conditions, illegal labor, or wage violations.<sup>7</sup> Mapping technology can help brands see the potential risk in their supply chain by showing where exploitation may be occurring across the world. But those niche solutions are limited in scope. Many times a company plans to monitor a specific issue but soon realizes a broader set of potential violations represent only the tip of an iceberg that may be signaling other problems deep below. The result is a cobbling together of several disparate systems, each one focused on specific risks but none that catch either (1) supply chain risks in their entirety or (2) the cascade of risks that might follow.

Other new technologies mine the Internet to monitor for potential supply chain issues, but they require significant manual effort to distinguish true threats. Relevant information is buried in noise or false-positives, thereby making it tough to determine what actions a company should take and when. Moreover, most companies lack sufficient resources to run all potential incidents to conclusion—or even just to identify real threats. Without that capability, companies are unable to efficiently prioritize risks with the highest probability of occurrence and to handle them at the right time without trickle-down operational impact.

As companies consider making technology investments, they should carefully study their choices so they can find sustainable solutions that:

- Comprehensively monitor an ever-changing vendor population of suppliers, suppliers' suppliers, and extended third parties.
- Efficiently separate true threats from noise and prioritize based on probability of occurrence.
- Proactively protect against an expanding array of potential risks.

<sup>7</sup> Murray Newlands, "Supply Chain Transparency And The Tech Startups Creating It Which May Be The Next Disruptor," May 15, 2017; <https://www.laborvoices.com/single-post/2017/05/15/Supply-Chain-Transparency-And-The-Tech-Startups-Creating-It-Which-May-Be-The-Next-Disruptor>.

# Spotting emergent supply chain risks in a timely manner

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Four fundamental attributes of vendor-monitoring technology are contributing to a robust and efficient solution today and into the future.



**Fuses multiple data sources**



**Automates activities**



**Improves through machine learning**



**Presents information for effective decision making**



## Fuses multiple data sources

Many readily available solutions work from single data sources that oversimplify problems. More-comprehensive solutions harness technology and analytics to bring multiple data sources together for a wide-angle image that informs insights and actions. Each data source—ranging from internal databases to watch lists, social media, and the unindexed Web—adds a different piece of the puzzle or highlights a dimension for a big picture risk assessment. When blended through data link technologies and deep learning (a form of machine learning), the data give a holistic view that helps anticipate problems and guide remediation efforts.



## Automates activities

Automation materially speeds up scanning, data collection, and data analysis, which is critical because issue or incident identification can curtail a viral eruption by stakeholders. Among the tasks that automation can perform are:

- Incorporation of unstructured data previously too challenging to bring into the fusion process
- Searching of entities and terms
- Extraction and saving of data
- Translation of data to a form that is compatible with all data
- Sorting and prioritizing of data to make it readable and actionable.

That last step—the sifting and ranking of vast data stores—helps risk managers prioritize tasks, parse them out to specialists, and minimize the inevitable human error that results from time-intensive analysis of both low- and high-quality data.



## Improves through machine learning

Machine-learning-based tools can constantly evolve to stay current with trends and improve their risk identification abilities. For example, as open-source language evolves, solutions can update their risk and sentiment taxonomies to more effectively identify relevant data to capture. Through machine learning, such tools constantly improve their ability to filter out findings that are not true causes of alarm. As false-positives get cleared, they get fed back into the system to learn from those activities and improve future risk identification and prioritization.



## Presents information for effective decision making

Senior executives have to rapidly identify and respond to real or imminent supply chain risk based on intelligence. Clear information presentation directly affects the time required to make the best decisions. Tools with analytics yield predictive insights about current risks, and they project the effectiveness of decisions and actions. Tailored dashboards help executives and compliance staff do their jobs more quickly, efficiently, and successfully. By quantifying risk as it gets detected and by comparing it to preset risk thresholds, staff can easily see the highest priorities for investigation and know when they should act.

Technology with those four attributes will go a long way toward monitoring complex supply chain networks. But even the best technology can't stand on its own. Rather than relying on legacy data warehousing, contemporary solutions should be rooted in data lake technologies that enable the quick ingestion of large data sets and the cataloging and tagging of data in ways that make the data easily usable. The right mix of skills, too, is paramount to successfully monitor and control the strategic risk. Companies will need a multidisciplinary approach to root out risk in their supply chain networks. In addition to analytics and IT skills, knowledge of social science, law enforcement, military and intelligence community understandings, and even philosophy in the forms of epistemology and ontology is required. Teams also need the experience of former practitioners and have to acquire an understanding of industry best practices in this sphere.

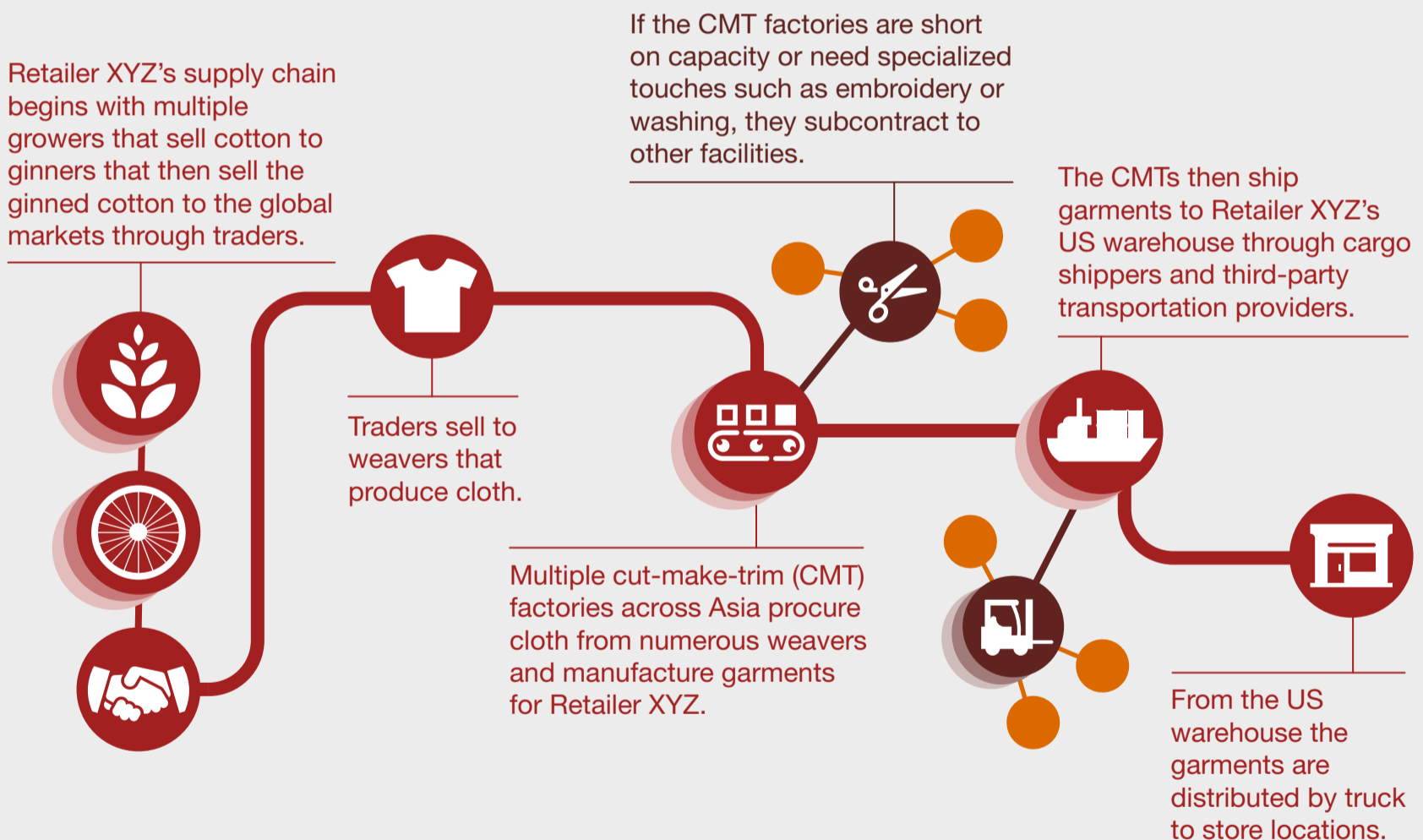


# Bringing it all together at Retailer XYZ

The garment industry is truly global. Its factories that are spread across Asia, eastern Europe, and Latin America produce garments for North American and western European brands. So it's no surprise that several decades ago, the industry was accused of supply chain violations ranging from unfair labor practices to pollution, to unsafe working conditions.

To become more transparent and accountable to their customers, global apparel companies are publishing the names and locations of their suppliers. Extended supply chains, however, are complex and can be opaque even to their owners.

*Consider the theoretical case of Retailer XYZ as it moves from disparate supply chain monitoring capabilities to a more comprehensive vendor-monitoring tool.*

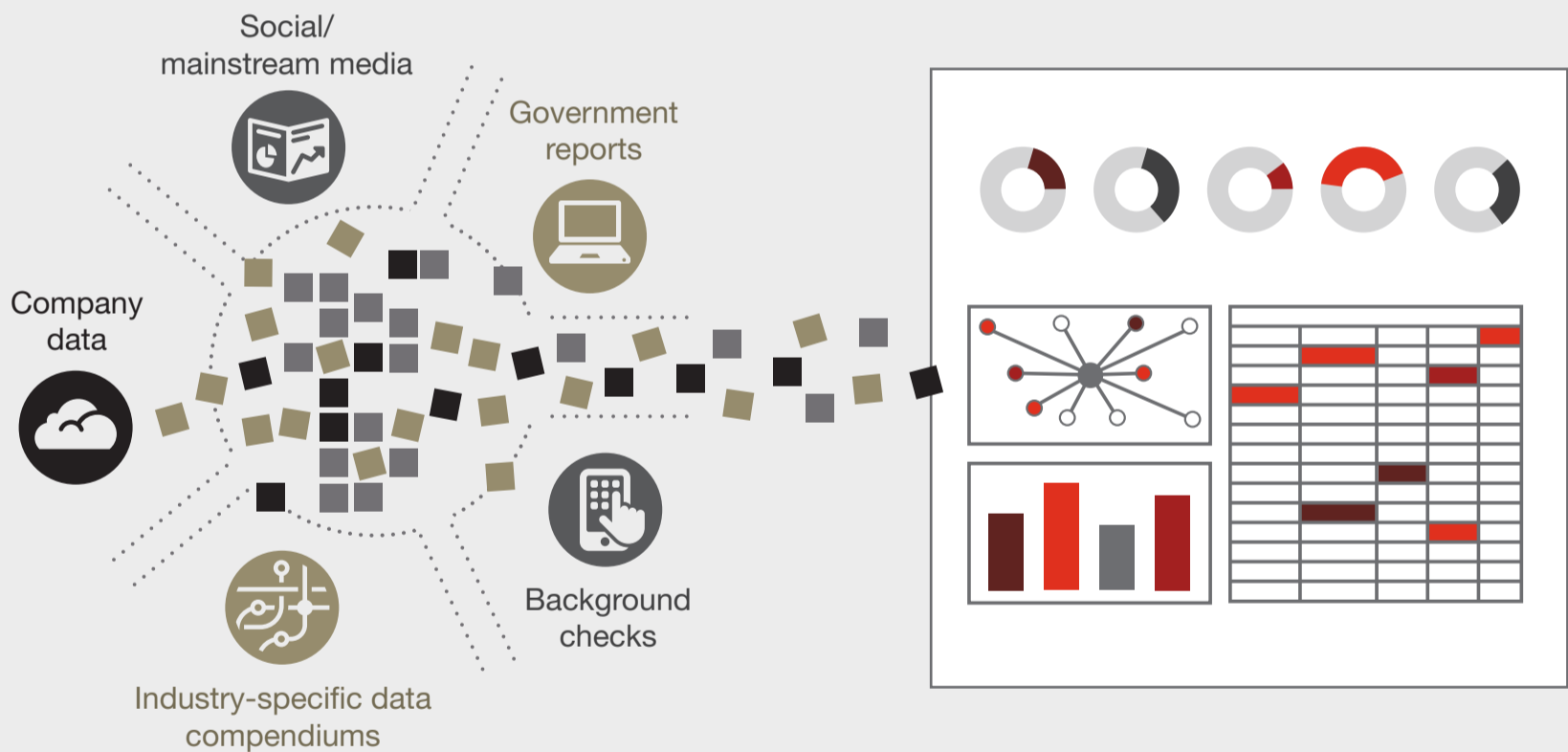


In sum, Retailer XYZ's supply chain is five nodes deep, with each node itself representing multiple vendors, warehouses, and transportation providers. And even though the true vendor count is unknown, Retailer XYZ's risk and procurement executives estimate that the holistic supply chain includes at least 500 entities.

*In the spirit of supply chain transparency, Retailer XYZ discloses information on its CMT factories. But it goes one step further. To truly monitor supply chain risk, Retailer XYZ implements a leading-edge vendor-monitoring solution.*

The monitoring tool gathers—from social and mainstream media, government reports, and other data sources—data on Retailer XYZ’s primary suppliers (the CMT factories) and any previously unknown affiliates of those suppliers. The tool recognizes that risk-related information is often shared on the Web by employees, family members, or local media, and it mines the Web for such conversations. It conducts background checks on companies and compares them with entities that are blacklisted or restricted. And it monitors these organizations for new affiliations and any yellow and red flags that surface from new data scans that align with Retailer XYZ’s unique risks.

Alerts get pushed to Retailer XYZ executives through dashboards for easy, at-a-glance insights on issues or incidents that may require quick action. Finally, so that the software improves its ability to identify true risks, alerts are constantly tracked.



With its vendor-monitoring tool in place, Retailer XYZ’s executive team can now detect potential risks early and take quick action to manage and resolve incidents as they occur. Retailer XYZ’s open and transparent communication about its supply-chain-monitoring capabilities should be received favorably by customers.

## Do you know your suppliers' suppliers?

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Multisource supply chains with many layers of middlemen pose serious challenges for mapping and observing, yet every company in the extended supply chain is a piece of the mosaic in a brand's risk profile. Most companies have at least some supply chain risk management practices in place, but their traditional investigative approach can be bolstered by the use of more-powerful technology tools.

If you're unsure whether your supply chain risk management is tough enough for the new risk environment, answer these questions:

- Can you name your suppliers' suppliers?
- How often are suppliers along your extended supply chain monitored?
- When suppliers get assessed, does that review include only regulatory standards or also potential reputational and ethical risks?
- Are you using technology effectively in the area of vendor surveillance?
- Will your consumers believe you've done all you should to prevent problems?

As consumers, investors, and standards-setting bodies become judge and jury for unethical or illegal behavior irrespective of whether allegations can be proven or where they emerge along the supply chain, rapidly and accurately predicting risk, prioritizing risk probabilities and outcomes, and taking quick, appropriate actions are critical. The right tools are pivotal in this mission. A blended, big-picture view of new and imminent risks through advanced, sophisticated technology gives companies the opportunity to get ahead of situations and deflect reputational and financial harm.

# Contact

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