

Issue: Ethics and the Supply Chain

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# Can businesses police the behavior of global suppliers?

## Executive Summary

Under pressure from a growing movement of activists determined to make supply chains more ethical, businesses that once disclaimed responsibility for their overseas suppliers' behavior are re-examining that stance. Companies are scrutinizing the supply chain on questions ranging from environmental standards and product safety to the treatment of workers. Some businesses are adopting corporate responsibility codes, while others are wielding new technologies to enhance transparency. As they try to meet this challenge, companies are confronting numerous obstacles, including far-flung supply chains and regulatory standards that vary by country. But the consequences of failure can be high: Bad news about a company's supply chain can damage reputation, depress sales and alienate investors—and the negative reviews can spread quickly in today's hyperkinetic information environment. These are among the issues companies and their critics are debating: Do ethical supply chains enhance profitability? Is it possible for a company to ensure its supply chain is ethical? Are voluntary standards, industry certifications and governmental regulations doing enough?

## Overview



Because of problems with its supply chain in China, Lumber Liquidators has seen its stock price plunge and its CEO, Robert Lynch, resign. (Scott Olson/Getty Images)

A little more than a year ago, Lumber Liquidators was on top of the world. The Virginia-based company was the largest retailer of hardwood flooring in North America, with net sales topping \$1 billion annually and a stock price that had soared to more than \$51 a share from \$14 in 2011.<sup>1</sup>

Then, on March 1, 2015, the CBS News program “60 Minutes” reported that the company's Chinese-made laminate flooring contained levels of formaldehyde—a known carcinogen—that were six times greater on average than California law allowed, with some samples 20 times the legal limit.<sup>2</sup> That led to a review by the U.S. Centers for Disease Control and Prevention, which reported this past March 22 that the flooring in question could result in an additional six to 30 cases of cancer in every 100,000 people.<sup>3</sup>

In an interview for the CBS report, Lumber Liquidators founder and Chairman Tom Sullivan said that the Chinese mills supplying the flooring were supposed to be meeting the requirements of the California law. But when CBS sent undercover investigators posing as buyers to these mills, employees told them that the mills were falsely labeling the laminate flooring as meeting the

California requirements.

Following the CBS report, the company's fourth-quarter sales dropped 13.7 percent compared with the same period in 2014, its share price plunged to less than \$13 in early April of this year, and its CEO, Robert Lynch, resigned. Lumber Liquidators posted a fourth-quarter loss of \$19.8 million.<sup>4</sup> To make matters worse, the company was hit with \$13.1 million in legal penalties after acknowledging that its Chinese suppliers had imported wood from forests in eastern Russia that provide habitats for endangered species such as Siberian tigers and Amur leopards.<sup>5</sup>

Even as it initially disputed the findings of the CBS report, Lumber Liquidators in May 2015 suspended selling all laminate flooring made in China. This March the company agreed to pay \$2.5 million to California state regulators to settle charges relating to the safety of the flooring, while not admitting wrongdoing.<sup>6</sup>

If ever a case illustrated the need for companies to closely scrutinize their supply chains and avoid vulnerabilities that can arise from failing to do so, Lumber Liquidators would be it. And the flooring retailer is hardly the first company to face questions about its supply chain. Since the 1980s and '90s, activists around the world have been documenting problems that run from dangerous working conditions and tainted materials to environmental degradation and exploitative labor policies, often relying on “naming and shaming” the firms they regard as bad actors.

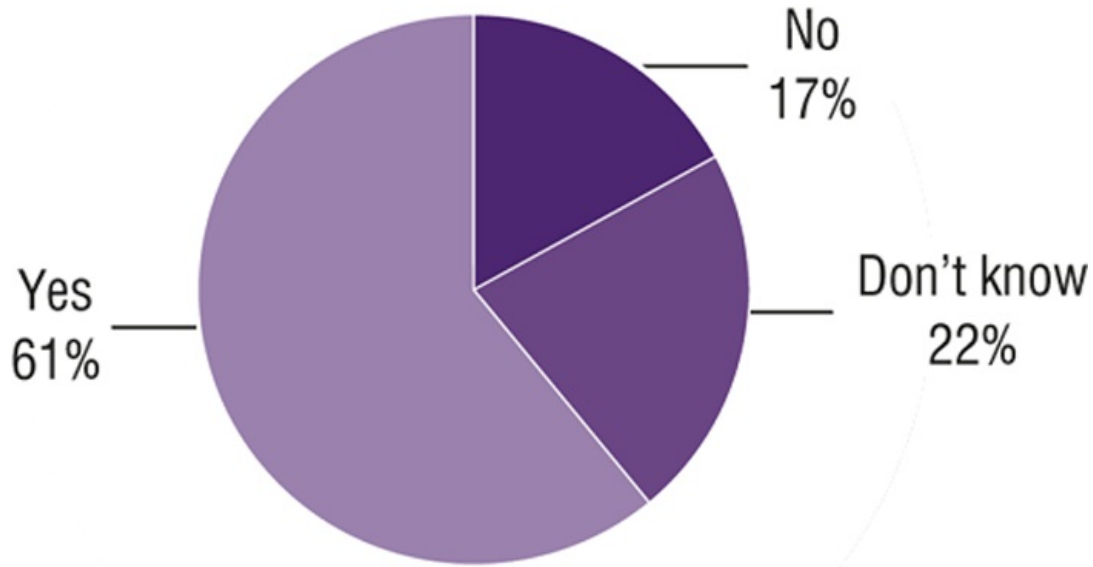
Companies that once disclaimed responsibility for what happens in overseas suppliers' facilities are gradually re-examining their chains and accepting more obligations for what occurs there, prodded by a growing movement to make global supply chains more ethical. Many have developed corporate social responsibility (CSR) programs and codes of conduct; others are adopting technologies to increase transparency, such as using radio-frequency tags that store information on the provenance of a product.

But as Lumber Liquidators' travails show, progress in creating ethical supply chains has been halting because of the complexity of the task, according to experts. Supply chains are longer and more dispersed in a global economy, and the chances for problems to develop have multiplied, these experts say. One supplier could be making its employees work long hours, while another could be spewing waste into a river. And global corporations often remain unsure where responsibility for such problems rests.

Another challenge in creating ethical supply chains is that norms vary from country to country. Companies procure materials, parts or food in far-off places that often don't have the same laws, standards and cultural expectations as the United States and Europe. Despite that reality, many Western consumers expect companies to maintain Western standards. People want to know whether the farmer who grew their coffee beans was compensated fairly, what the cattle that became their cheeseburger were fed and whether the minerals in their mobile phone's components helped finance guerrilla fighters in a war zone.

### Millennials: Ethical Behavior Increasingly Important

Do you think the issue of responsible sourcing is gaining more visibility in the United States?

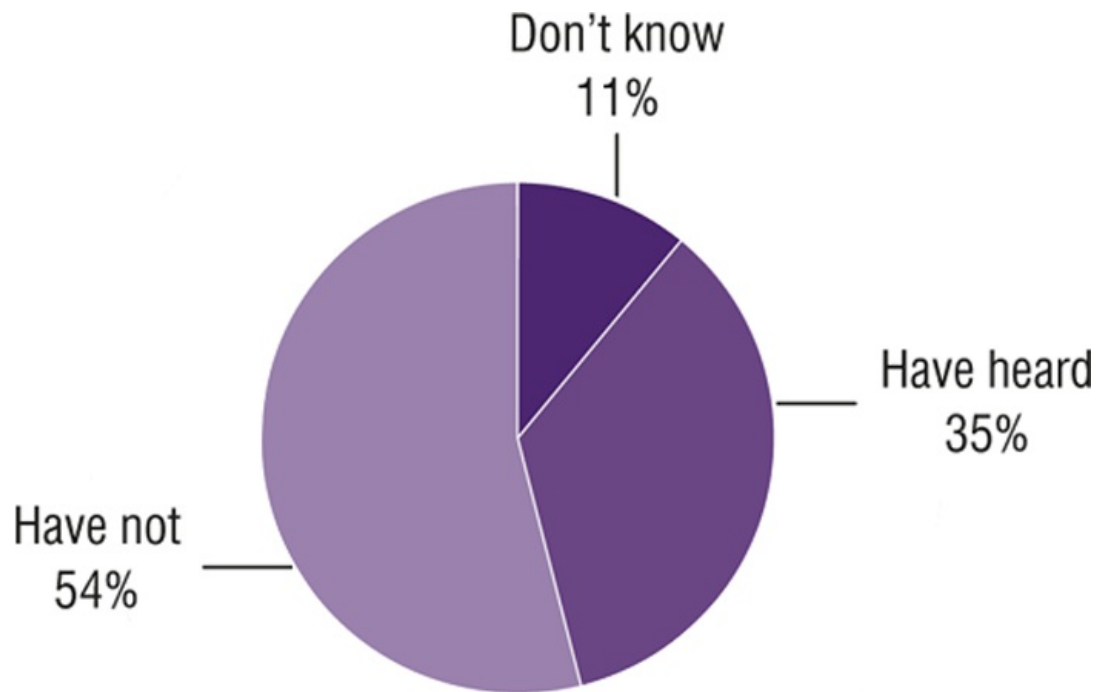


Note: Based on a 2015 online survey of 500 Millennials in the United States.

Source: Penn Schoen Berland, "Understanding Millennial attitudes towards conflict free minerals," Intel, December 2015, pp. 11, 17, <http://tinyurl.com/zszrofr>

Nearly two in three Millennials say responsible sourcing in supply chains is becoming a more visible issue in the United States, according to a November 2015 survey commissioned by technology company Intel. However, only 35 percent say they have heard of "conflict minerals," which are used to produce metals for mobile phones and other consumer electronics. The term derives from the civil wars in the Democratic Republic of Congo and surrounding countries where battling groups mine these materials to finance the fighting.

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And there is a more basic problem: Few academics, industry experts and company executives agree on what an "ethical" supply chain is. The debate "pretty much encompasses most of the issues in modern society," says Robert Klassen, associate dean of faculty development and research at the Ivey Business School at Western University in London, Ontario, who studies and teaches about managing operations and supply chains for sustainable development. Initially, ethics referred to "sweatshop" conditions and to environmental issues such as pollution or energy conservation, but the term has gradually expanded to encompass a range of social issues, including human rights, animal rights, and how food is grown and harvested.

Some issues, such as slave labor and human trafficking, are universal, affecting numerous industries. Others apply only to particular industries. In the gem trade, "blood diamonds" are mined in war zones and sold by guerrilla groups to finance the conflict. In agriculture, the use of genetically modified organism (GMO) seeds generates debate about safety. In the seafood industry, many consumers want to know about toxins such as mercury or whether the fish are sustainably caught. In the cosmetics and drug industries, animal testing draws protests.

Clear, codified international regulations for global supply chains are lacking. Companies have their own ethics codes, usually based on broad, vague frameworks from the United Nations and international standards organizations, but they may not match their suppliers' codes or those of the country in which they manufacture. "What ethics are depends on the company's own risk profile or impact areas," says Tom Smith of Sedex, a nonprofit that encourages ethical practices in supply chains. "Often companies will focus on the areas where their stakeholders are shouting."

Businesses often have touted their efforts in corporate social responsibility reports, without explaining whether and how they were implemented. In the last five years, the governments of California, the United States and the United Kingdom have adopted regulations that require companies to disclose what they are doing to investigate their supply chains and correct problems.

Sometimes, companies must balance one ethical consideration against another. If working conditions are poor because the government in a developing country either doesn't have health and safety regulations or doesn't enforce them, what's the most ethical stance for a company? Should it pull out and leave thousands jobless, or stay put and work with subcontractors, the government and workers to improve the situation?

Complicating the task is that the definition of supply chain has broadened beyond its traditional meaning as the source and movement of materials, parts and labor that make up a finished product. The term now encompasses everything from metals in the earth and seeds in the ground to middlemen who use those elements to make an intermediate component—such as foot pedals for a bicycle or a corn crop that goes to a food processor to make corn syrup—to a final product: the bicycle or the breakfast cereal that is sweetened with that corn syrup. It also includes the many people involved in the supply chain, such as the miners, farmers and factory workers.

Supply chains traditionally were linear, beginning with raw materials and proceeding on up to the finished product. But recently companies have begun to investigate circular supply chains, in which a business seeks to design and manufacture products in a way that the raw materials can be recovered and reused.<sup>7</sup>

The supply chain issue is attracting some interest in business schools, although experts disagree on how much. Tom Derry, CEO of the Institute for Supply Management, a professional organization for supply chain managers in Tempe, Ariz., says the schools offer courses in several areas of supply chain ethics, including sustainability and anti-corruption practices. But Cara Chacon, senior director for social and environmental responsibility at Patagonia, an outdoor clothing and gear retailer that bases its reputation on respect for the environment, says interest is not widespread, and more universities should offer such courses.

Business schools are increasingly offering general ethics courses, which can provide a basis for studying supply chains, even if they aren't the course's main focus, says Dan LeClair, executive vice president and chief operating officer of AACSB (Association to Advance Collegiate Schools of Business) International. "The general course becomes a platform on which you can build more specialized courses," says LeClair, whose group accredits business schools around the world. "We are seeing more of that."

Ethics needs more attention, some experts say, because bad news about a company's supply chain can damage the firm's reputation, hurt sales and dampen investor interest. The proliferation of issues (and of advocacy groups investigating each one), the growth of the bottomless information well of the Internet and the ubiquity of smartphones and social media mean that risks have increased and damage can be inflicted almost instantly, said E. Freya Williams, a communications and business strategist who is an expert on sustainability.<sup>8</sup>

"With the rise of social media, a company's ability to control its image is gone," Williams said. "Transparency is the new normal, and everything is discoverable. ... Your behavior is your brand. And your license to operate depends on behaving well." Millennials, born between 1980 and about 2004 when concern over the provenance of food, clothes and consumer goods was increasing, have embraced technologies that allow them to make informed buying decisions. Already the most populous segment of the U.S. economy, they are approaching their peak earning years and could have \$7 trillion in assets by 2020, according to Fortune magazine.<sup>9</sup> That's a market no corporation wants to alienate.

Wall Street and socially conscious investors are paying more attention to ethics, too. Morgan Stanley, for instance, has begun a division that researches companies' commitment to sustainability. "We are increasingly responding to calls from fund managers asking us for ways to analyze environment, social and governance (ESG) factors and how to incorporate that analysis into their existing methods of valuing stocks," said Jessica Alsford, head of Morgan Stanley's Sustainable and Responsible equity research group.<sup>10</sup>

As businesses and others consider the ethical dimensions of the supply chain, here are some of the questions they are debating:

## Weighing the Issues

### Do ethical supply chains enhance profitability?

The materials and parts used in a product have a direct impact on a company's bottom line. That's why companies scour the world looking for the lowest price and most reliable sources. But add ethics into the sourcing equation, experts say, and the math isn't so clear. A growing number of consumers want to buy from ethical companies. Yet the impact of ethical sourcing, in terms of costs, sales, marketing and brand reputation, depends on the type of company, its customer base and the particular ethics in question, Klassen of Western University and other experts say.

Sixty-six percent of respondents in 60 countries to an October 2015 Nielsen survey said they were willing to pay more for sustainable brands, up from 50 percent in 2013. "Consumers are trying to be responsible citizens of the world, and they expect the same from corporations," the report said. "So when it comes to purchasing, they are doing their homework. Checking labels before buying. Looking at Web sites for information on business and manufacturing practices. Paying attention to public opinion on specific brands in the news or on social media."<sup>11</sup>

On the environmental side, companies reap an obvious benefit when they make changes to their supply chain. Reducing a carbon footprint by buying parts closer to the factory or using more energy-efficient shipping methods can lower transportation costs. Whether good environmental stewardship is rewarded with increased sales or higher margins, however, depends on the company and its customers.

Patagonia is considered a leader in lessening the environmental and social effects of the supply chain. In fact, rather than selling more products, the company urges its customers to buy less. That stance builds loyalty among its customers, who are typically avid



outdoorspeople, active environmentalists and relatively wealthy—but it's also good business. It allows Patagonia to charge high prices, such as \$200 for a jacket. And its brand reputation contributes to strong sales and hefty profits, as evidenced by Patagonia's doubling in size and tripling of profits between 2008 and 2013, the latest year figures are available.<sup>12</sup>



Engineer Laura Tripp tests fabric strength in a Patagonia lab in California. The outdoor clothing and gear retailer bases its reputation on respect for the environment. (David Walter Banks/The Washington Post via Getty Images)

For Lush, a mid-sized cosmetics company that touts its sustainable practices, using natural, non-GMO ingredients with no animal testing makes good business sense because its primary market is made up of environmentally conscious customers such as Millennials. Lush has also been shortening its supply chain to improve both its bottom line and ethical practices. “We’ve been trying to move as much as we can into a North American supply base, not just to support our local economy but also to support reducing overall greenhouse gas emissions,” says Heather Deeth, North America buying manager for Lush, which makes cosmetics in Canada.<sup>13</sup>

In terms of societal ethics, the return on investment is murky and, if it materializes, longer term, Klassen says. “If you raise wages to a living wage for a particular country, if you ensure your workers are safe ... what’s the implication for productivity at the plant?” he asks. “It’s very hard to measure directly, but the limited evidence we’re seeing is less employee turnover, which means employees should be more productive.”

Rising productivity can potentially lower operating costs, but some experts are skeptical it can increase sales. A recent report by researchers at the Ethical Trading Initiative and the Ashridge Centre for Business and Sustainability at Hult International Business School in the United Kingdom found that “most companies (even those known for their ethical approach) do not think most customers would change their buying behavior primarily because the company was known for addressing modern slavery issues. Price and quality were more critical factors.”<sup>14</sup>

But another study traced 28 percent of brand value to corporate social responsibility.<sup>15</sup> If consumers learn that a brand is exploiting its garment workers, at least some of them may not buy that T-shirt, even if it’s only \$4. If they find out there is horsemeat in the beef patties they bought at the local grocery, virtually all of them will not buy the product and sales will plummet—as Tesco, a U.K. supermarket chain, discovered in 2013.<sup>16</sup>

While tainted food and unsafe flooring will obviously hurt sales, it is unclear if companies producing sustainable products can reap higher profits by acting ethically, Klassen says. One reason is that consumers’ concerns vary so widely due to location and differing levels of awareness and education. Some consumers look for an organic label, but not fair trade. Others favor companies with a low carbon footprint but are unaware of labor conditions at overseas factories. Still others might want proof that a product’s supply chain involves no human trafficking, yet be unaware that it sources minerals from war zones.

In fact, few consumers know anything about conflict minerals, although the issue is relevant to all electronic gadgets. Conflict minerals are

gold, tungsten, tin and tantalum (all key ingredients in the parts used in mobile phones and other consumer electronics) from mines in the Democratic Republic of Congo, sales of which fund guerrilla groups involved in a civil war that has killed millions of Africans. In a survey of Millennials, chip maker Intel found that 97 percent believe it is important for a company to act in ways beneficial to society, and 80 percent think consumers have a responsibility to ensure that the products they buy don't use resources that harm society or the environment. But only 35 percent had ever heard of conflict minerals. After Intel explained the issue, 82 percent said they either owned products with conflict minerals or weren't sure.<sup>17</sup>

Despite the murkiness of the issue, experts nevertheless expect business and reputational advantages of ethical supply chains to increase and become more tangible, as the consequences of climate change accumulate and as human trafficking and other types of exploitation get more attention. A 2015 report by the management consulting firm Accenture and the World Economic Forum, which is a nonprofit dedicated to improving economic and social conditions on a global scale, said ethical supply chains can produce a "triple advantage," benefitting the business, society and the environment. The report argued that companies pursuing ethical policies could increase revenue by up to 20 percent, decrease supply chain costs by up to 16 percent, strengthen their brand value by as much as 30 percent and reduce their carbon footprint by some 22 percent.<sup>18</sup>

One caveat: The research was based on a model of a consumer-goods supply chain, not a real one. The reality, says Tim Erblisch, CEO of the Ethisphere Institute, based in Scottsdale, Ariz., is that it is nearly impossible for a company to quantify the effects of an ethical supply chain on its profitability. Ethisphere, which assesses corporate ethics and publishes a list of the "world's most ethical companies," examines the impact of ethics from a risk-mitigation standpoint, such as whether the excellence of a company's supply chain helped it avoid fines, sanctions or a recall. "People ask us for hard data on how supply chain [ethics] translates to profit," Erblisch says. "That's the holy grail. Whoever can solve that will make a billion dollars."

## Is it possible for a company to ensure its supply chain is ethical?

Companies are looking deeper into their supply chains, and at more issues, than ever before. However, the fragmented nature of global supply chains makes it difficult for businesses to know enough about, much less control, each link, experts say. The increasing complexity of products, the sheer number of suppliers and the multiple tiers involved present huge challenges for companies trying to act ethically.

A New York Times study of Apple's supply chain estimated that 90 percent of an iPhone's components come from suppliers outside the United States, including chips made in Germany and Taiwan, memory boards and display panels made in South Korea and Japan, and data chips produced in Europe.<sup>19</sup>

In the garment industry, a brand generally will know which factories it uses and may even know which companies supply the fabric. However, the fabric makers, not the brand, buy the cotton fiber to make the fabric. It might come from the spinning mills of Tamil Nadu in southern India, where girls are forced to work 60-plus hours a week for monthly pay as low as \$23.<sup>20</sup> Or it may come from a crop that was sprayed with toxic pesticides or grown from genetically modified seeds. (Some 68 percent of China's cotton production is genetically modified.<sup>21</sup>)

The many tiers can extend all the way to a person's home in a developing country. "These 'at home' workers constitute an invisible workforce, screened from any of the protections of company, national or international labor or environmental protections," said author and business consultant Dale Neef.<sup>22</sup>

Further complicating the picture is the fact that the manufacturer sometimes outsources all materials and components. In electronics, Asian manufacturers offer U.S. brands package deals that include the design, component sourcing and building of a smartphone. All the U.S. entity does is stamp its brand on the phone.<sup>23</sup>

Most companies require suppliers to agree to their codes of conduct, and audit them to make sure the codes are followed, says Dan Viederman, CEO of Verité, a nongovernmental organization (NGO). "In the last 20 years, there is not a multinational corporation in the apparel, electronics or the food/beverage sectors that does not have a code of conduct," says Viederman.

That approach isn't always effective, says Peter McAllister, director of the Ethical Trading Initiative, an alliance of companies, trade unions and NGOs that promotes workers' rights. "Underlying [the compliance approach] is the assumption that a) suppliers can comply, b) that they know what compliance is, and c) that there are laws and structures, checks and balances that enable compliance."



A garment factory in Thuan An, Vietnam. Some factories in that Asian nation make clothes for more than 30 customers and brands, and each client has a different code of conduct. (Brent Lewin/Bloomberg via Getty Images)

In addition, companies often inspect only their Tier 1 suppliers—those with which the corporation has a direct relationship.<sup>24</sup> And it is often the subcontractors beyond Tier 1 where the problems lie.

The Honest Company Inc.—which sells cleaning and other consumer products that it markets as safe and nontoxic—was recently accused of selling products containing sodium lauryl sulfate. The Wall Street Journal hired independent labs to test the company's laundry detergent and reported they found significant levels of the chemical, which can irritate the skin. In response, Honest said its detergent manufacturer, Earth Friendly Products, had said the product did not contain the chemical. Earth Friendly, in turn, said it had received the information from its chemical supplier, Trichromatic West.<sup>25</sup>

Far down the supply chain, a supplier has less incentive to comply with ethical codes. Some factories in Vietnam make clothes for more than 30 customers and brands but have no direct contracts with the brands or the retailers. Such factories are often pulled in multiple directions because each client has a different code of conduct.<sup>26</sup>

“There are stories of suppliers changing the list of rules posted on the wall, depending on which customer was coming through” for an audit, says Liam Dowd, managing director of The Ethical Corp., a consultancy and publisher based in London.

A commonly used audit procedure is the ISO 14001 standard, which involves triangulating information from three sources, says Patagonia's Chacon: interviews with workers and managers; a review of documents and records; and physical observation. “Many suppliers hide information from you,” she says. “So you need to cross check the information and try to catch any inconsistencies.”

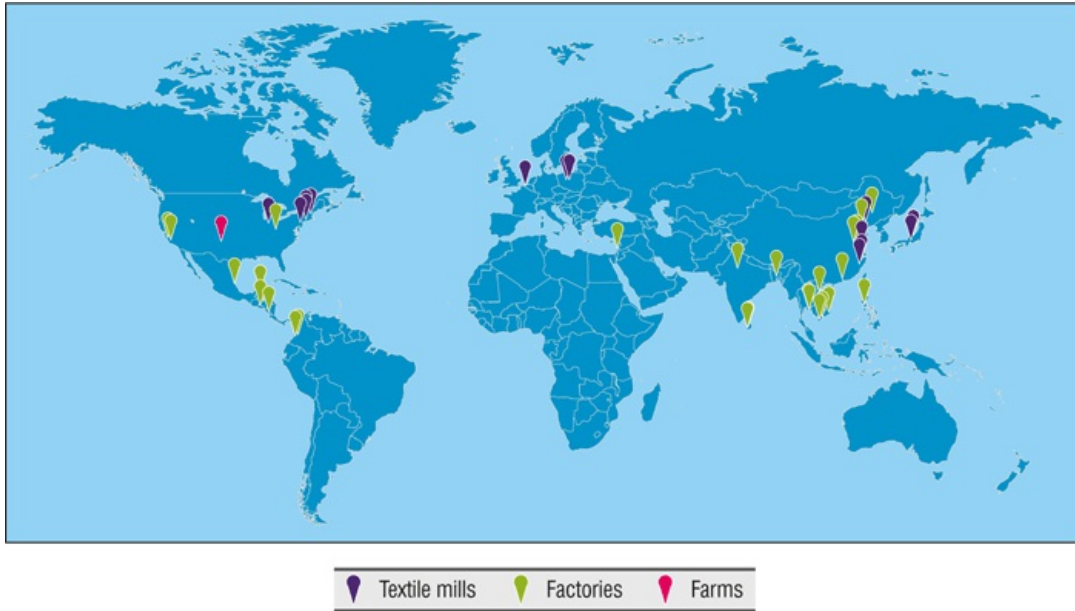
It's a cat-and-mouse game, with a complex web of conflicting interests at its heart. Governments in developing countries are hungry for foreign investment and so are sometimes reluctant to enforce domestic labor laws, according to Neef.<sup>27</sup> They know that if a factory gets too expensive to operate, the multinational can move production to another country. The population is so poor that people are grateful for any job, even at low wages. That's why “so many activists, academics and investors contend that there is essentially no other force for good, apart from the financial muscle of the buying company itself, that can hope to curb these types of practices,” writes Neef.

There also are shady labor brokers throughout the supply chain making money off the desperation of the poor. They charge people thousands of dollars to find them a job, then garnish their wages after they begin working until the fee is paid off, according to a report from the U.S. State Department.<sup>28</sup>

## Patagonia Tracks Its Global Supply Chain



## Locations of suppliers used by the outdoor apparel company



Note: Map current as of April 7, 2016.

Sources: "The Footprint Chronicles," Patagonia, <http://tinyurl.com/hfvkknv>; Drake Baer, "How Patagonia's New CEO Is Increasing Profits While Trying To Save The World," Fast Company, Feb. 28, 2014, <http://tinyurl.com/ha8smc>

Outdoor apparel company Patagonia uses sustainable materials from farms, textile mills and factories in 18 countries. The company publishes its sources on its "Footprint Chronicles" interactive map, begun in 2007. Such efforts have enhanced Patagonia's brand reputation, which contributed to a tripling in profits from 2008 to 2013.

Given the ineffectiveness of current methods of finding and correcting supply chain problems, the industry needs a better way to enforce ethical standards, says Richard Locke, provost of Brown University and one of the pre-eminent researchers of global supply chains. Locke has proposed a model that takes into account the interests of private suppliers and buyers but also folds in governmental regulatory protections. The model is based on Locke's research of the compliance and auditing programs of several major multinational corporations while he was a professor of political science at the Massachusetts Institute of Technology.<sup>29</sup>

In a tacit recognition of the failure of the compliance approach, companies have tried to collaborate more closely with suppliers, governments and NGOs. For example, Walmart and Patagonia created the Sustainable Apparel Coalition in 2009. Today, the coalition's members include retailers, brands, suppliers, NGOs and academics. It has developed a tool called the Higg Index to help companies understand the social and environmental effects of their supply chains.<sup>30</sup> The index rates a company's policies and practices in various areas, including how materials sourcing and facility operations affect sustainability.<sup>31</sup>

Some companies have started to be more forthcoming, publicly acknowledging that they don't know everything about their supply chains and inviting critics to look. Patagonia was an early leader. In 2007, the company began its Footprint Chronicles, an online interactive map that shows the locations of its suppliers and provides information on them. More recently some large multinational corporations have taken similar steps. Unilever, a food and consumer goods company, even opened its factories in Vietnam to researchers from Oxfam International, a federation of NGOs that works to reduce world hunger, poverty and injustice, in 2011 and 2012, with no strings attached. The organizations' resulting report found poor labor conditions. Rather than reacting defensively, Unilever CEO Paul Polman publicly embraced the findings. "It is fair to say that this report highlights areas where we still have a lot more to do," Polman said.<sup>32</sup>

## Are voluntary standards, industry certifications and governmental regulations doing enough?

Companies base their codes of conduct and corporate social responsibility programs on international principles and standards, as well as industry-specific certification programs. But critics say these codes are voluntary, and that the numerous standards are inadequate. Each country, meanwhile, has regulations that apply to labor, the environment and other corporate conduct, but the degree to which they are enforced varies greatly.

Among the major international guides are the United Nations Global Compact and the International Organization for Standardization (ISO),

a nongovernmental organization that develops international standards covering many industries. The U.N. Global Compact asks companies to support a set of core values, outlined in 10 principles, in the areas of human rights, labor standards, the environment and anti-corruption standards.<sup>33</sup>

In 2011, the United Nations issued its Guiding Principles on Business and Human Rights, also known as the Ruggie Principles, after Harvard professor John Ruggie, who conceived and shepherded them as a U.N. special representative. The principles carefully define corporate responsibilities, stressing that companies should respect human rights and “act with due diligence to avoid infringing on the rights of others.”<sup>34</sup>

The ISO 14000 standard and its derivatives advise companies on how to develop and monitor environmental policies. Many companies use the triangular auditing process specified in 14001 to review labor and environmental practices.

Independent third parties also offer various certifications. Social Accountability International, an NGO focused on labor rights, has the SA8000. The Ethical Trading Initiative offers its own labor codes. Fair Trade USA, which started in 1998 by certifying coffee, covers a long list of foods, including honey, wine and seafood, as well as apparel and home goods. The nonprofit organization says its certification means that workers are fairly paid and enjoy safe working conditions. It also means that the products are environmentally sustainable (no GMOs or harmful chemicals, for example) and that producers devote a portion of their earnings to local community development.

Other groups certify specific materials. For timber, the Forest Stewardship Council has an international certification for sustainable forest management. The Leather Working Group promotes sustainable and environmental stewardship practices within the leather industry. The Marine Stewardship Council has developed a standard for sustainable seafood. There are even competing standards for certifying “responsible down”—making sure there is no force-feeding or live-plucking of feathers from birds.

With all the different standards, it's hard to know what they mean, says Colleen Vien, director of sustainability at Timberland, the outdoor footwear and clothing maker. “It can be perhaps frustrating for consumers,” she says.



Rescue workers search for victims after a building collapsed at Rana Plaza in Dhaka, Bangladesh, in April 2013—the worst disaster in the garment industry's history. More than 1,100 workers died and over 2,000 were hurt. The building housed several factories. (Jeff Holt/Bloomberg via Getty Images)

Critics say the smorgasbord of standards falls short anyway. Many certifications rely on private audits, designed and paid for by corporations, according to a report by the University of Sheffield Political Research Institute. Also, a company might have a stellar certification in one area but fall down in another. For example, “the Lipton brand of tea has recently achieved the ‘green’ Rainforest Alliance Certification, despite illegal labor practices in its supply chain being widely reported,” the report said.<sup>35</sup>

Laws and regulations aren't consistent, either. In a perfect world, a country passes laws, taking cognizance of international standards, and companies comply with them, says McAllister. "In reality, [developed countries like] the United States and United Kingdom have laws in place and they are enforced. But if you go to places like India, China, Pakistan, regulations may not be in place, or often they are in place but they are not enforced. Then the room for exploitation is wide."

In poor nations, what's considered exploitative in Western cultures may be a means of survival. Global supply chains spur economic development, providing jobs in developing countries. When Nike was being slammed in the 1990s for conditions at its Vietnamese factories, a case study by students at the Tuck School of Business at Dartmouth College found that the workers earned "a significant amount of discretionary income" that allowed them to purchase consumer goods such as bicycles. The average worker's pay at the factory was \$1.67 a day.<sup>36</sup>

A company's decision to pull out of a developing nation may not solve the larger problem, say experts. If one company decides to drop its contract with a factory, its competitors are often all too willing to step in and use those workers.

After particularly heinous disasters, multinationals have joined together to try to improve conditions. One such instance was in Bangladesh, where a commercial building had collapsed in April 2013, killing more than 1,100 workers and injuring over 2,000. The failure of the eight-story building, which housed several garment factories on its top floors, was the worst disaster in the garment industry's history. The factories at Rana Plaza made clothes for dozens of Western brands, including Walmart, J.C. Penney, Benetton and the Children's Place.<sup>37</sup>

Within months of the tragedy, international clothing brands undertook two efforts—the Accord on Fire and Building Safety in Bangladesh and the Alliance for Bangladesh Worker Safety—aimed at improving safety at Bangladeshi factories. Results have been mixed. Some factories have reinforced their buildings and upgraded safety systems, but other factories have made no progress, observers say.<sup>38</sup>

Also, the Accord and Alliance are scheduled to end in 2018. Long-term and lasting improvements may depend more on the Bangladesh government and the establishment of workers' rights or trade unions in a country with little experience of either one. The Bangladeshi government has tried to respond; it has improved the regulatory system, beefed up its budget for factory oversight and hired 263 labor inspectors, up from 68 before the collapse at Rana Plaza.<sup>39</sup>

## Background

### Early Supply Chains

Historically, trade was a local affair, powered by nearby materials. Transportation in the ancient and early-modern eras was arduous, dangerous and costly. The exceptions were long trade routes for exotic goods that only the rich could afford, such as the spice route over the Indian Ocean and the Silk Road through Central Asia.

In the 15<sup>th</sup> century, European seafaring explorers such as Christopher Columbus began searching for new lands and better trade routes by which to procure such precious goods. By the 18<sup>th</sup> century, an international network of ocean shipping had developed. The rum trade was one example of an early—and grossly unethical—global supply chain. In this triangular trade, Europeans procured slaves in West Africa and shipped them to the Caribbean, where they were forced to grow and harvest sugar cane. The cane was turned into molasses, which was then shipped to rum distilleries in New England. The rum, in turn, was shipped to Europe, Africa and elsewhere to finance the purchase of more slaves for sale in the Caribbean.<sup>40</sup>

The Industrial Revolution brought numerous transportation improvements, including invention of the steam engine and development of the railroad, that made it easier to ship goods quickly and cheaply. The Suez and Panama canals, which opened in 1869 and 1914, respectively, also opened more direct shipping routes for traders. Between 1840 and 1910, ocean shipping rates fell 70 percent.<sup>41</sup>

Henry Ford introduced the assembly line at his automobile factories in 1913. This innovation required standardized, mass-produced parts and materials such as steel for the auto bodies and rubber for tires. World War II prompted more mass production, of armaments and tanks, further institutionalizing standardized supply chains.

In the 1950s, North Carolina trucking entrepreneur Malcom P. McLean came up with the idea of making containers a standard size, which meant they could be moved more easily on ships, trucks and trains. These intermodal containers enabled ships to quadruple their cargo capacity.<sup>42</sup> Costs dropped for air shipping, especially after Fred Smith began FedEx (then called Federal Express) in 1971.<sup>43</sup>

### Supplies Go Global

In the 1980s, the Japanese—particularly their automobile and semiconductor industries—revolutionized supply chains and manufacturing through "lean production," which emphasized efficiency and minimizing of waste; total quality management; and just-in-time inventories. These techniques, combined with modern communications and computer technology and faster logistics, meant that raw materials could be ordered "just in time" to be manufactured into finished goods. Companies no longer had to store large inventories of parts.



At the same time, barriers to international trade were falling. The World Bank, the International Monetary Fund and the General Agreement on Tariffs and Trade (GATT) encouraged nations to drop tariffs and other protectionist policies that inhibited international trade. GATT in 1995 morphed into the World Trade Organization (WTO), a powerful and sometimes controversial organization that promotes international trade and serves as an arbiter in trade disputes.<sup>44</sup>

The impact of the new manufacturing systems and trade liberalization on supply chains was significant: Linear supply chains (where producer A sells to manufacturer B) gave way to a complex web of suppliers and producers across the globe. Companies developed sophisticated computer programs—called enterprise resource planning (ERP) systems—to coordinate their supply chains, and managing these chains became a specialized discipline.

Vertical integration, in which a company procures its own materials and manufactures its own products in its own factories, began to disintegrate. U.S. companies started outsourcing manufacturing to Southeast Asia where labor costs were lower, a trend called offshoring. (Other functions, such as research and development, would eventually be offshored to countries where engineering talent was cheaper as well.) Companies didn't even have to build factories; instead they contracted with manufacturing partners. Those partners eventually took over much of the sourcing of supplies. Often, all the corporation did was slap its brand on the product before shipping it to markets around the world. By 2000, 50 percent of the world's manufacturing production was located in developing countries.<sup>45</sup>

After China joined the WTO in 2001, the offshoring trend accelerated, and in 2010 China displaced the United States as the largest manufacturing nation. Not only did that vast nation seem to have an endless supply of cheap labor, but its WTO membership was supposed to assure foreign companies that factories would be protected by international law and standard business practices.<sup>46</sup>

## Supply Chains Scrutinized

Problems with supply chains go back a long way. In 1911, in an episode similar in some ways to the Rana Plaza collapse in Bangladesh, the Triangle Shirtwaist Factory in New York City caught fire, killing 146 young, mostly female and immigrant, workers. Exits were locked, and machinery blocked doors. Fire department ladders extended only to the seventh floor. Workers on the upper floors were trapped, and 40 young women jumped to their deaths. Such incidents led to the creation of the U.S. Department of Labor in 1913, the rise of labor unions and the passage of a series of federal rules and regulations that improved the safety of both food and workers.<sup>47</sup>



Cesar Chavez championed the civil rights of field workers and other laborers in the 1960s and '70s. (Cathy Murphy/Getty Images)

Another instance of supply chains gaining notoriety occurred in 1960, when a television documentary "Harvest of Shame" by famed CBS journalist Edward R. Murrow exposed the exploitation of migrant farmworkers throughout the United States, including in Florida and New Jersey.<sup>48</sup> Cesar Chavez, a Mexican-American who was born in 1927 and died in 1993, gained fame in this period championing the civil rights of field workers and other workers and for leading a nationwide boycott of grapes as head of the United Farm Workers union.<sup>49</sup>

When American companies moved manufacturing to overseas factories owned by foreign companies, U.S. regulations did not apply. In most of these countries, labor unions were weak or entirely absent, and regulations—if they existed—were lax or not rigorously enforced.

In the 1980s, watchdog groups investigated working conditions in the overseas factories of apparel companies. Horrified by what they found, these groups began "naming and shaming" some of the most popular U.S. clothing brands, including Nike, Levi Strauss and The Gap.

When allegations of underage workers, coerced overtime and dangerous working conditions in Nike's overseas factories surfaced, the company initially dismissed the criticism. "Nike's company line on the issue was clear and stubborn: without an in-house manufacturing facility, the company simply could not be held responsible for the actions of independent contractors," wrote Debora L. Spar in her 2002 Harvard Business School case study of Nike's international labor practices.<sup>50</sup>

Yet, the media spotlight did prompt the company to develop a code of conduct, which it required contractors and suppliers to follow. But with little in the way of auditing or monitoring, the code had minimal effect, according to Spar. By the mid-1990s, articles about Nike sweatshops were running in national publications, including *Time*, *BusinessWeek* and *Harper's Magazine*, and on TV, where Nike's CEO, Phil Knight, was grilled about working conditions on "60 Minutes." In 1997, the nationally syndicated comic strip *Doonesbury* highlighted the problem for an entire week. Students protested and major universities organized boycotts of Nike products.<sup>51</sup>





A worker in Laos embroiders a Nike logo at a garment factory in 1998. Nike initially denied its Asian suppliers abused workers. (Frederik Balfour/AFP/Getty Images)

A 1992 Harper's article, written by activist and chief Nike gadfly Jeff Ballinger, included an annotated pay stub from an Indonesian factory, showing how an employee would have to work more than 40,000 years to earn an amount equal to the value of the Nike endorsement contract that basketball star Michael Jordan had signed.<sup>52</sup>

Meanwhile, criticism of other retailers heated up. In 1996, activists revealed that Honduran children made a clothing line endorsed by daytime TV personality Kathie Lee Gifford and sold by Walmart. Gifford apologized, in tears, to her national TV audience. She called on fellow celebrities like Jordan to investigate conditions under which their endorsed products were made.<sup>53</sup>

Under such pressure, U.S. companies began to acknowledge responsibility for conditions in the offshore factories they hired to make their products. President Bill Clinton formed a task force of activists, NGOs and companies, including Nike, to study the issue and develop labor standards for foreign factories. Initially called the Apparel Industry Partnership, the group ultimately became the Fair Labor Association.<sup>54</sup>

The turning point came in a 1998 speech to the National Press Club by Nike's Knight, in which he admitted how much the issue had harmed his brand. "The Nike product has become synonymous with slave wages, forced overtime and arbitrary abuse," he said. He announced sweeping reforms.<sup>55</sup>

By 2000, most companies had implemented corporate social responsibility programs and written codes of conduct that covered both environmental and social issues. Various interest groups also founded their own watchdog organizations.

Questions about supply chains then extended to a range of environmental and social issues concerning many different industries, including electronics, agriculture, building materials and cosmetics. The lens has broadened to include both production issues and the materials that go into products, often all the way back to the farm and mine.

The source of metals and minerals used in jewelry became controversial in the early 2000s, in part through high-profile exposure in films like "Blood Diamond," which explored how profits from African diamonds and gold fueled brutal wars on that continent.

Other "conflict minerals," particularly those used by the electronics industry, also faced scrutiny when NGOs revealed that sales of gold, tungsten, tin and tantalum from mines in the Democratic Republic of Congo were funding guerrilla groups involved in a civil war that had killed millions of Africans. Enough Project and other activist groups started campaigns to name and shame consumer electronics brands

such as Apple.<sup>56</sup>

California in 2010 passed a law requiring corporations to disclose more information about their supply chains. The California Transparency in Supply Chains Act requires retailers and manufacturers with annual worldwide sales of at least \$100 million that do business within the state to “disclose ... their efforts to eradicate slavery and human trafficking from [their] supply chains.”<sup>57</sup>

In 2012, Apple faced more criticism when The New York Times highlighted problems at the computer company's Chinese contract manufacturer, Foxconn. The story described unsafe conditions, forced overtime and underage workers at a plant in Chengdu, China.<sup>58</sup>

## Food Controversies

During these same years, the growing, harvesting, processing and inspection of food became a bigger ethics issue for food processors, grocery stores and restaurants. The fair trade movement, which began in the mid-20<sup>th</sup> century, gained attention in the late 1990s with the founding of TransFair USA. The nonprofit organization, now called Fair Trade USA, began with a certification program for coffee and quickly expanded into other foods and beverages; it recently moved into certifying apparel.<sup>59</sup>

Dozens of other organizations sprang up to create standards and certify some aspect of the food supply chain. Some certify that animals raised for food or fiber are treated humanely (chickens raised cage-free, not force-fed); others that harvesting methods don't deplete the planet's resources (parts of Indonesia have been completely deforested to produce palm oil). Other groups were founded to certify the purity of fibers and foods, such as organically grown cotton or apples. The topic of genetically modified organisms became a hot issue, with several European countries banning GMO crops.<sup>60</sup>

A series of books and films, such as the 2008 documentary “Food Inc.,” stimulated more public concern over inhumane and unsafe practices in industrial food production and processing. As consumer awareness of such practices grew, grocers and restaurants began to identify the sources of their food. Whole Foods, which had grown from a small natural foods store in Austin, Texas, into a publicly held, national chain, developed rating systems for much of what it sells, including seafood, meats and even home cleaning products (among the factors considered in these ratings are the toxicity of ingredients, environmental impact and animal testing).<sup>61</sup>

Restaurants built their reputations at least partly on assurances that animals in their food chains were raised and slaughtered humanely. In a sign that public concern had reached a critical point, McDonald's in 2015 pledged to use only cage-free eggs.<sup>62</sup>

## Current Situation

### Awareness Grows

Consumers have a lot more information today about supply chains than they did 20 years ago. Millennials are especially tuned in to the ingredients and sources of food, clothing and other consumer goods (with the exception of conflict minerals). They also have greater access to information, through the Internet and social media.

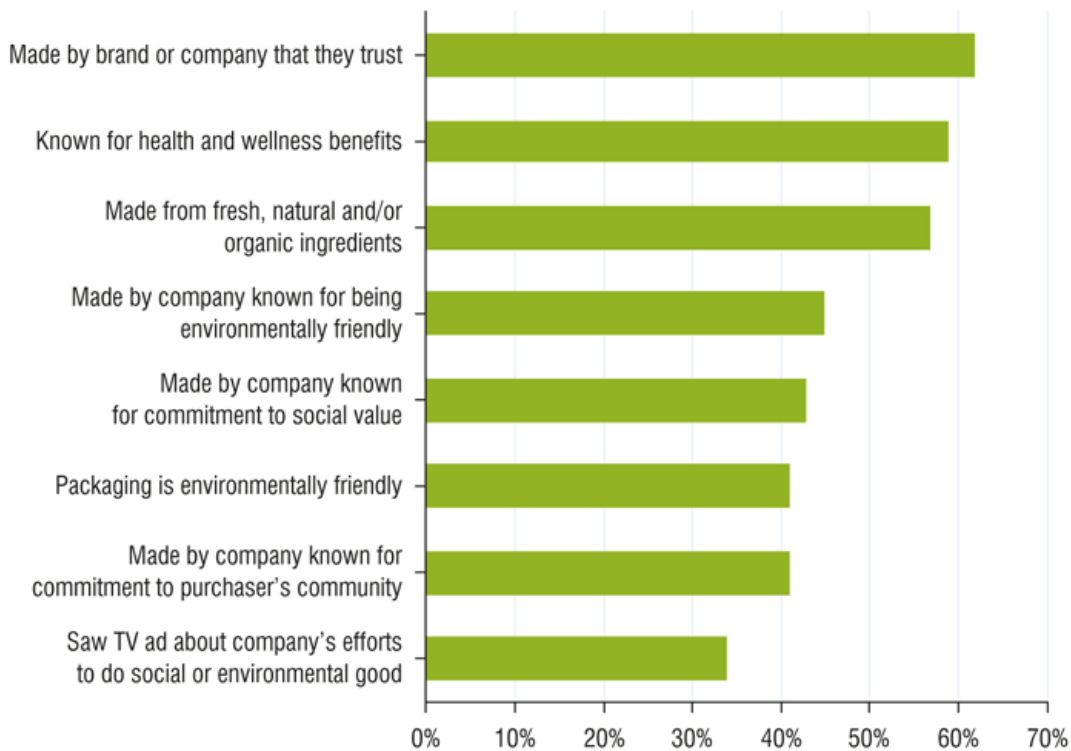
“They'll pay more for [a Patagonia] T-shirt because they know the cotton was manufactured in a much more environmentally responsible way than the four-dollar T-shirt you can buy at Target,” says Derry of the Institute for Supply Management.

### Trustworthiness, Sustainability Influence Consumers

#### Percentage of global consumers who say various factors influenced their product purchases in previous week



Phil Knight of Nike: “The Nike product has become synonymous with slave wages.” (Jonathan Alcorn/Bloomberg via Getty Images)



Note: Based on online survey of 30,000 consumers in 60 countries from Feb. 23 to March 13, 2015.

Source: "The Sustainability Imperative," Nielsen Co., October 2015, p. 5, <http://tinyurl.com/gpkdxlu>

A 2015 survey of 30,000 consumers in 60 countries found that a majority were willing to pay more for sustainable brands. More than six in 10 said they purchased items in the previous week because they trusted the companies making those products. Slightly smaller percentages said they bought items because the products were known for health and wellness benefits or were made from fresh, natural or organic ingredients. Environmental friendliness was also important to nearly half of respondents.

NGO studies, special interest group investigations and government reports are usually available online. Concerned about deforestation? Global Forest Watch crowdsources information from around the world to put together an interactive map. Want to know how to find non-GMO foods? Whole Foods publishes a list of certified non-GMO foods on its website.

With so much information available, corporations have begun to realize they have nowhere to hide. If they don't know what's going on in their supply chains, someone else will, and they'll tweet about it. "In today's world, transparency is just a given. The lack of it makes companies look increasingly out of date," business strategist Williams wrote in her book.<sup>63</sup>

Given that, smart companies don't issue knee-jerk denials when confronted with evidence of poor working conditions at their factories, says Viederman. "The first 10 years companies were fighting or claiming that they had it under control by doing social audits," he says. No more. Companies are even working with NGOs like Verité, which campaigns against child labor, slavery and other social ills, to uncover problems.

Shareholders are paying closer attention, too. Ceres, a Boston-based nonprofit organization that promotes sustainability, tracks 101 commitments on sustainability that companies made in response to shareholder pressure in 2014 and 2015. They include pledges to reduce greenhouse gas emissions and adopt sustainable agriculture practices.<sup>64</sup>

Some companies are shortening their supply chains in an effort to be better corporate citizens. One recent example is Marriott International. It announced in March that it is contracting with Standard Textile, which has factories in Georgia and South Carolina, to make towels for its nearly 3,000 hotels in the United States. The towels had been made in China and Jordan. Besides creating jobs in the United States and boosting the national manufacturing economy, Marriott expects the change to reduce greenhouse emissions by eliminating more than 300 oceangoing cargo shipments a year. The move also should generate goodwill for Marriott, Carl Winston, director of the Payne School of Hospitality at San Diego State University, told USA Today. "It's a nimble move for a giant company to make," he said. "At the end of the day, will it make people go to their hotels? I don't know."<sup>65</sup>



## Transparency on the Shelf

Companies also are exploring new ways of monitoring their supply chains and providing as much information to consumers as possible. They are using tags that store information on a product's provenance using technologies such as radio-frequency, bar codes and QR (Quick Response), a machine-readable code consisting of black-and-white squares, typically used for storing URLs or other information for reading by the camera on a smartphone. The tags can even be carried to the retail level, to be scanned by and read on a consumer's mobile phone. The tags can carry information themselves, or point to a website that includes the information.

Just as clothing labels carry information on the type of material and where the garment was made, technology tags could include more detailed information. "If I'm interested in, say, food safety, the technology can tell me not just about this type of chicken, but *this* chicken," according to Steve New, associate professor of operations management at the University of Oxford's Saïd Business School. Switcher, a Swiss textile company, uses labels with a code that consumers enter on a website to get information about its supply chain.<sup>66</sup> U.S. company Applied DNA Sciences has developed a method that uses plant DNA to tag materials as varied as fabric and electronics.<sup>67</sup>

New regulations designed to shed light on global supply chains have helped drive the transparency. Yet companies' efforts to comply with these regulations and act ethically have in some cases shown just how difficult it is to untangle global supply chains.

One important area is the "conflict minerals" used in electronics. Under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, publicly held U.S. companies are required to disclose in their filings to the U.S. Securities and Exchange Commission whether any tin, tantalum, tungsten or gold used in their products came from illegal mines in the Democratic Republic of Congo. But five years after passage of Dodd-Frank, companies are still struggling to comply, according to a study by Tulane University: 90 percent of the 1,262 companies that filed conflict-mineral reports in 2014 said they couldn't determine whether their products were conflict-free.<sup>68</sup>

The U.S. government didn't do any better. The Dodd-Frank law required the Commerce Department to compile a list of refiners and smelters tied to militia groups, but the department has admitted that it found the task impossible.<sup>69</sup>



Young boys at work at a mine in the Democratic Republic of Congo, a nation that has been at war since 1997. Guerrilla groups are selling minerals to earn money for weapons. (Per-Anders Petterson/Getty Images)

On the human trafficking front, the United Kingdom in 2015 became the first country to pass a supply chain transparency law, implementing rules similar to California's on slavery. Strengthened U.S. procurement rules on human trafficking took effect that year, requiring prime federal contractors and subcontractors to be more proactive in investigating labor practices and to look at lower levels of their supply chains. These rules arose from a 2012 executive order from President Obama, and from provisions in the 2013 National Defense Authorization Act.<sup>70</sup>



In Congress, Reps. Chris Smith, R-N.J., and Carolyn Maloney, D-N.Y., in 2015 introduced the Business Supply Chain Transparency on Trafficking and Slavery Act, which is similar to Britain's law. As of mid-April 2016 it had not come up for a vote.<sup>71</sup>

Watchdog groups, meanwhile, have been keeping the pressure on, checking to see whether companies are complying with the California and federal regulations and suing when they find discrepancies between their filings and real-world conditions. In a lawsuit against Costco Wholesale Corp., plaintiffs—mainly consumer groups—say shrimp sold by Costco had been fed fish meal that came from fishing boats using slave labor. Because Costco's disclosure statements said it did not have slave labor in its supply chain, the company deceived and misled consumers, the suit charges.<sup>72</sup>

The basis for this suit and others is the California law on human trafficking. Nestle, Hershey, pet food maker Iams and others have been sued for discrepancies in their filings. Critics of these suits, however, warn that legal action is counterproductive. "What started as a legislative effort [in California] to educate consumers and incentivize good corporate citizenship," said corporate lawyer Daniel J. Herling, "is quickly becoming a vehicle for private class actions against companies making this information available—even though the Act itself nowhere authorizes private lawsuits seeking damages."<sup>73</sup> The suits, he and others said, could lead to companies providing less information about their supply chains.

## Looking Ahead

### New Pressures

While the effectiveness of regulations remains unclear, observers predict more are in store, especially on the issue of human trafficking and slavery. It's likely that the sunshine laws passed in California and the United Kingdom will be replicated in many countries, including the United States, says Smith of Sedex. "It's a matter of when, not if."

Other pressures, however, may provide stronger incentives for companies to clean up their supply chains. As ethical behavior becomes a bigger factor in consumer purchases, especially among Millennials, businesses that aren't clean could be at a competitive disadvantage, say analysts.

Bad supply chain news may not only affect sales, but for public companies it could also influence the investment choices of a generation just beginning to invest in 401(k)s and IRA retirement plans. According to a study by the United Nations and Accenture, 69 percent of CEOs expect investor interest to be an increasingly important motivation in incorporating sustainability in business practices. Some 76 percent believe that incorporating sustainability will drive revenue growth and new opportunities.<sup>74</sup>

Complicating things is the continued evolution of what makes a supply chain ethical. "If you look at the big scandals of the last couple of years, many people didn't see them coming," says Smith. Building safety in overseas factories, for example, didn't become a priority until Rana Plaza collapsed. "Now, it's the biggest issue in the supply chain," he says.



Tom Smith of Sedex: "If you look at the big scandals ... many people didn't see them coming."

Although ethics always included environmental stewardship, the 2015 international agreement on climate change increases the pressure. The agreement requires signatories to cut greenhouse gas emissions significantly over the next century. Some companies already have goals on lowering emissions and using less resources, but Patagonia's Chacon thinks the agreement will prompt business to devise ways to stop using fossil fuels altogether.

Lowering emissions, saving money and being closer to its supplier were the reasons Lush, the cosmetics company, switched from Asian package suppliers to North American ones, says Deeth of Lush's North America. The company uses millions of small black pots, made from post-consumer recycled plastic, for its lotions.

In fact, emissions could become the next area of regulation for businesses, according to Derry of the Institute of Supply Management. He notes that the amount of emissions created by shipping materials and products long distances is bound to draw scrutiny. "I have no doubt that we'll see increasing regulation and legislation on this across all industries and all geographies," he says.

A combination of rising labor costs offshore, particularly in China, and falling automation costs will continue to encourage companies to bring manufacturing back to the United States (or closer to wherever their end markets are), say experts such as Gary Hufbauer, a trade expert at the Peterson Institute for International Economics.<sup>75</sup>

Today's consumers, used to free next-day shipping from online retailers like Amazon, expect instant gratification in their purchases, and moving manufacturing closer means faster delivery. For example, it takes Levi Strauss a month to ship jeans from China to its Kentucky distribution center, during which time fickle fashion trends may change, leaving the company stuck with inventory.<sup>76</sup> Consumers want what they

want when they want it, and they want it tweaked especially for them. That desire for customization is another trend driving manufacturing

closer to home, numerous experts say. Eventually, 3-D printers, which can produce a three-dimensional object from a digital file, might be used in smaller, more dispersed locations to put the finishing, customized touches that meet local preferences.<sup>77</sup>

Such changes portend a reconfiguration of supply chains, which could ease some of today's ethical challenges—or create new ones. All that's known for sure is that “the changes will mark a new chapter in the history of globalization, where automation is king, nearness to markets is crucial and the lives of workers and consumers around the world are once again scrambled,” write staff writers Kathy Chu and Bob Davis in *The Wall Street Journal*.<sup>78</sup>

## About the Author

[Tam Harbert](#) is a freelance journalist based in Washington, D.C., who has covered a variety of business and technology topics, including information technology and the electronics industry supply chain and robotics, for *Computerworld*, *IEEE Spectrum* and numerous other publications. She also spent 10 years as executive editor and national editor of *Electronic Business* magazine.

## Chronology

### 1900s–1950s **Factories and mass production flourish.**

- 1906** Novelist [Upton Sinclair](#) publishes “[The Jungle](#),” exposing unsanitary and dangerous conditions in Chicago's meatpacking industry, as questions grow about supply chains and how goods are made.
- 1911** A fire in New York City's [Triangle Shirtwaist factory kills](#) 146 workers and sparks calls for reform of working conditions.
- 1913** Ford Motor's Model A car uses an [automatic assembly line](#) to save costs through mass production.
- 1947** The United States and 22 other nations sign the [General Agreement on Tariffs and Trade](#) (GATT) to reduce trade barriers, giving a boost to global supply chains.
- 1955** North Carolina trucking entrepreneur [Malcom P. McLean](#) [invents standardized containers](#) that revolutionize logistics and enable goods to be moved easily among ships, trucks and trains.

### 1960s–1990s **Technology developments enable multitiered global supply chains.**

- 1967** IBM develops IMPACT, the first computerized inventory management and forecasting system.
- 1971** Aviation company owner Fred Smith [founds Federal Express](#) (now FedEx), offering overnight shipping that dramatically changes logistics.
- 1974** First UPC [barcode is scanned](#).
- 1980** President Jimmy Carter signs the [Motor Carrier Act](#) deregulating the trucking industry; the change dramatically reduces transportation costs.
- 1983** More than 300 computers are connected via Arpanet, the forerunner of the Internet.
- 1988** MIT graduate student [John Krafcik](#) [introduces the term “lean manufacturing”](#)—a systematic method for eliminating waste—in an article about Toyota's production system. Toyota and other Japanese auto manufacturers developed practices that increased quality, lowered costs and boosted efficiency, enabling them to significantly raise market share. These practices included lean manufacturing, total quality management and just-in-time inventory control.
- 1992** Harper's Magazine publishes “[The New Free-Trade Heel](#),” criticizing labor practices in athletic equipment maker Nike's overseas factories.
- 1995** The [World Trade Organization](#) (WTO) replaces GATT.
- 1995** [U.S. imports from China](#) hit \$45 billion.
- 1996** A human rights organization stirs controversy when it reveals that [Walmart Stores' clothing](#) is made in a Honduran sweatshop. ... Life magazine runs an article alleging children sewing Nike soccer balls work 60 hours a week for as little as 60 cents a day. ... President Bill Clinton forms the [Apparel Industry Partnership](#), a coalition of companies, labor and human rights groups to draft an industry code of conduct.
- 1998** CEO [Phil Knight](#) [says](#) that Nike's product has “become synonymous with slave wages” and undertakes reforms.

<b>1999</b>	Anti-capitalist, <a href="#">anti-globalization protests rage</a> during the WTO's meeting in Seattle. ... A coalition of unions, consumer groups and others founds the <a href="#">Fair Labor Association</a> to help companies monitor global supply chains.
<b>2000–Present</b>	<b>China's manufacturing surge increases globalization.</b>
<b>2000</b>	United Nations starts a <a href="#">Global Compact</a> , encouraging businesses to adopt sustainable and socially responsible policies.
<b>2001</b>	<a href="#">China enters the WTO.</a>
<b>2006</b>	U.S. imports from China hit \$280 billion.
<b>2010</b>	California passes the <a href="#">Transparency in Supply Chains Act</a> to combat human trafficking in supply chains.
<b>2010</b>	Congress includes " <a href="#">conflict minerals</a> " provision as part of the Dodd-Frank law aimed at curbing Wall Street abuses. The provision requires companies using gold and other elements in products to review their supply chain to determine whether mineral purchases are funding armed groups.
<b>2012</b>	President Obama <a href="#">issues an executive order</a> strengthening protections against human trafficking in federal contracts.
<b>2013</b>	<a href="#">Rana Plaza building collapses</a> in Bangladesh, killing more than 1,100 workers.
<b>2015</b>	U.K. passes modern <a href="#">slavery legislation</a> . ... A series of supply-chain-related, <a href="#">class-action lawsuits</a> are filed against Costco Wholesale Corp., the Hershey Co., Mars Inc. and Nestlé. The suit against Costco alleges that the shrimp the company sells comes from forced labor in Thailand. The other lawsuits claim the candy companies continue to buy cocoa from the Ivory Coast despite the chocolate industry's pledges to eliminate that source from their supply chains.

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## The Next Step

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## Organizations

### AIM-Progress

Avenue des Gaulois 9, BE – 1040 Brussels, Belgium  
+32 2 736 03 05 or +44 20 7902 2322

<http://aim-progress.com/>

A global forum of "fast-moving consumer goods" manufacturers that promotes responsible sourcing practices and sustainable supply chains.

### Council of Supply Chain Management Professionals

333 E. Butterfield Road, Suite 140, Lombard, IL 60148  
630-574-0985

<https://cscmp.org/>

Professional association that works to advance and publish research and knowledge on supply chain management.

### Ellen MacArthur Foundation

The Sail Loft, 42 Medina Road, Cowes, Isle of Wight, PO31 7BX, UK  
+44 (0) 1983 296463

<http://www.ellenmacarthurfoundation.org/>

Nonprofit organization that promotes the circular economy—an economy that strives to produce no waste—and circular supply chains.

### Ethical Corp.

7-9 Fashion St., London, E1 6PX, UK  
+44 (0) 20 7375 1400

[www.ethicalcorp.com/](http://www.ethicalcorp.com/)

Consultancy that advises on responsible business practices, including ethical sourcing.

### Ethisphere Institute

6263 N. Scottsdale Road, Suite 205, Scottsdale, AZ 85250  
888-229-3207

[www.ethisphere.com](http://www.ethisphere.com)

Organization that publishes standards for ethical business practices, assesses corporate ethics based on those standards and recognizes top performers with the "World's Most Ethical Company" designation.

### **Fairphone**

Jollemanhof 17 Floor 3, 1019 GW Amsterdam, The Netherlands  
+31 (0)20-788 4400  
<https://www.fairphone.com/>

Social enterprise that is attempting to build a movement for ethically sourced supply chains in the electronics industry.

### **Institute for Supply Management**

2055 E. Centennial Circle, Tempe, AZ 85284-1802  
480-752-6276  
<https://www.instituteforsupplymanagement.org/>

Global organization dedicated to advancing the practices of procurement and supply management.

### **Sedex**

Southwark Bridge Rd., London SE1 9HF, UK  
+44 (0)20 7902 2320  
<http://www.sedexglobal.com/>

A nonprofit organization seeking more responsible and ethical business practices in global supply chains. It runs an online database where members can store, share and report on supply chains.

### **Sustainable Apparel Coalition**

82 Second St., San Francisco, CA 94105  
<http://apparelcoalition.org/>

An alliance of apparel brands, manufacturers, NGOs, government and academics that promotes sustainable production; it has built the Higg Index, a standard that measures environmental, social and labor impacts of the supply chain.

### **Verité**

44 Belchertown Road, Amherst, MA 01002  
413-253-9227  
<http://www.verite.org/>

An international not-for-profit training, consulting and research organization specializing in supply chain social responsibility and sustainability.

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