



cutting through complexity

Conflict minerals and beyond

Part three: Optimizing the
supply chain

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Abstract

The conflict minerals section of the Dodd-Frank Act focuses on supplies of tantalum, tungsten, tin and gold sourced in the Democratic Republic of the Congo and surrounding countries. It calls on companies that manufacture products containing these metals to make their supply chains more transparent. Greater transparency can help companies do more than comply with the Act; it can also enhance efficiency and sustainability and this, in turn, can lead to supply chain optimization. The purpose of this report is to show how companies can optimize the supply chain and the potential benefits and challenges of doing so. By optimizing the supply chain, companies may achieve their long-term strategic goals of reducing costs, enhancing operational effectiveness and strengthening sustainability.



Introduction

The “Miscellaneous Provisions” of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (“Dodd-Frank” or the “Act”) includes a section relating to Conflict Minerals (Section 1502). Section 1502 is intended to curb the funding of militias in the Democratic Republic of the Congo (DRC) by focusing on the supply from the area of minerals that are used to make tantalum, tungsten, tin and gold. Section 1502 requires companies reporting to the Securities and Exchange Commission (SEC) that make products containing these metals to declare whether they have determined their sources to be “DRC Conflict Free,” “Not DRC Conflict Free” or “DRC Conflict Free Indeterminable.”

The SEC’s rule calls for these companies to describe the measures taken to exercise due diligence on the source and chain of custody of such minerals, including an independent audit of the measures, if required. It also calls on the companies to describe the products manufactured that are “Not DRC conflict free” (products that contain minerals that finance armed groups in the DRC). In addition, Section 1502 requires the companies to describe the facilities used to process the conflict minerals, their country of origin, “and the efforts to determine the mine or location of origin with the greatest possible specificity.”

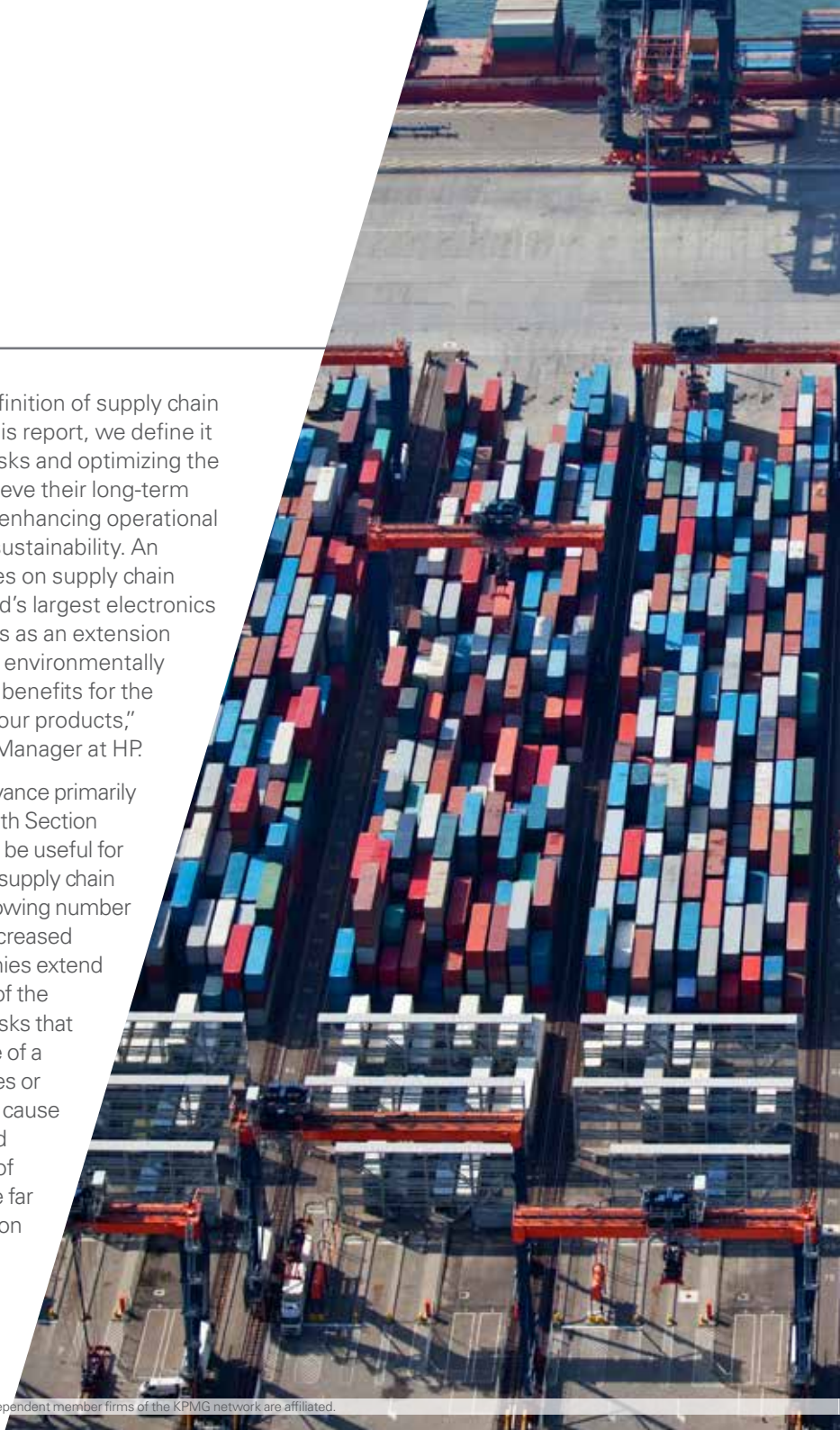
This KPMG report, *Conflict minerals and beyond: Optimizing the supply chain*, is the third in a four-part series that covers Section 1502. The first report, published in September 2012¹, focused on developing a compliance strategy. The second report, published in November 2012², covers the transparency of the minerals supply chain. The fourth report will cover reporting and disclosure. KPMG member firms believe that compliance with these regulations is not just a box-ticking exercise, but a matter of developing and adhering to a strategy.

¹ Conflict minerals and beyond. Part one: Developing a global compliance strategy

² Conflict minerals and beyond. Part two: A more transparent supply chain

There is no generally accepted definition of supply chain optimization; for the purpose of this report, we define it thus: By successfully managing risks and optimizing the supply chain, companies may achieve their long-term strategic goals of reducing costs, enhancing operational effectiveness and strengthening sustainability. An example of a company that focuses on supply chain optimization is HP, one of the world’s largest electronics companies. “Treating our suppliers as an extension of HP and doing it in a socially and environmentally responsible manner have broader benefits for the longevity, quality and reliability of our products,” says Jay Celorie, Global Program Manager at HP.

This report is intended to be of relevance primarily to companies seeking to comply with Section 1502 of the Act, but it is intended to be useful for companies that have to obey other supply chain regulations, of which there are a growing number worldwide. The array of rules has increased along with globalization. As companies extend their supply chains to every corner of the globe, they become vulnerable to risks that are difficult to manage. The collapse of a building containing garment factories or the explosion of an offshore oil well cause consumers, voters and their elected officials to focus anew on the risks of sourcing materials in places that are far from corporate headquarters. Section 1502 is one example of this trend.





Drivers of optimization

Government regulations are forcing companies to undertake a fundamental re-examination of their supply chains. Since the commodity crisis of the early 1970s, companies have learned how to cut costs to the bone by intensively managing their supply chains. They do this by sourcing globally and employing business analytics to align inventories to projected demand and product development cycles. In recent years, an extra layer of complexity has been added: government rules that force companies to take a more sustainable approach to their supply chains.

These regulations include such measures as the European Union's directive to restrict the use of certain hazardous substances³, adopted by member states in 2003, which restricts the use of six materials in the manufacture of electrical equipment. Many other jurisdictions have sought to control the use of chemicals and antibacterial agents. Some regulations target a particular product, industry or sourcing country. Others are more general, such as the UK Bribery Act of 2011, which make a company liable for any corrupt payments by a supplier acting on its behalf. The California Transparency in Supply Chains Act requires companies doing business in the state to disclose their processes to eradicate human trafficking. Section 1504 of Dodd-Frank requires companies in extractive industries to provide data about any payments to governments for the commercial development of resources.

This report argues that many of the regulations are accelerating trends that would be taking place anyway. These trends include such things as the sharpening glare of publicity. Companies are finding that the reputational risk of not optimizing the supply chain is too high. NGOs and the media are quick to trace poor working conditions in emerging markets along the supply chain to the ultimate corporate buyer. Also retailers, such as Wal-Mart, the world's largest, are asking their suppliers to assess their environmental and social sustainability. Investors, too, are increasing pressure on companies to adopt more sustainable practices. And natural disasters are causing companies to rely less on just-in-time inventory management and to build some redundancy into their supply chains so their operations can withstand an earthquake or a tidal wave.

Given the trends, the smart approach is to keep ahead of competitors and proactively optimize the supply chain. "A supplier went to a big electronics OEM and said, 'We know your materials requirements before you do. You need different plastics, because you're trailing in the sustainability rankings,'" says Barend van Bergen, Partner, Global Head Sustainability Advisory at KPMG. "Every company should ask how it can be a solutions provider by anticipating trends. If you are on the wrong end of the equation and wait for regulations to go into effect, you will be overwhelmed."

³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002L0095:en:NOT>

How to optimize the supply chain

Most manufacturers focus on five elements when managing their supply chain: cost, availability, quality (both product and service), innovation and reputation. Many companies believe that cost reduction conflicts with sustainability, and indeed it may, in the short term. But in the long term, they need to balance the goal of low costs against other objectives. Labor costs in Bangladesh's apparel industry are among the lowest in the world. But if consumers learn that a retailer has been sourcing its clothing from a sub-standard textile factory that collapses, killing dozens of workers, the reputational damage to the retailer may be considerable. The cost is not reputational alone. Ethical suppliers also tend to be more reliable. A supplier who is willing to flout rules to make a product cheaper is also likely to cut corners on quality, testing and reliability.

Given the fact that all five elements of supply chain management are closely interwoven, all need to be tackled at the same time. Ensuring a continuous **availability** of materials requires the development of a resilient supply chain that is capable of withstanding supply interruptions. This entails building redundancies into the system so that if one supplier fails, another can replace it. But it also means that companies must be able to "see" through several layers of the supply chain, so that they can predict when a problem is likely to occur and react accordingly. "Most companies don't have this degree of visibility," says Bala Lakshman, Director, Strategic Services, at KPMG in the US. "They only know their immediate suppliers and so they fail to foresee supply interruptions. The lack of transparency causes them to come unstuck."

Compliance with Section 1502 of the Dodd-Frank Act requires a much greater amount of supply chain transparency than companies are normally accustomed to. It may take a long time to be able to drill down

to see where their tantalum, tungsten, tin and gold (3TG) come from, but the process of finding out will enhance the visibility of the supply chain and strengthen resiliency. Complying with such regulations may involve additional costs in the short term, but as systems and processes are established, these incremental costs are likely to drop significantly or disappear altogether.

Maintaining the appropriate **quality** of materials requires a similar degree of transparency. In Europe, companies that found horse meat in their beef products in early 2013 claimed to have bought their meat supplies from reputable sources, but none of the retailers had checked thoroughly. There was a weak link in the supply chain, and their controls were not good enough to spot it. The supply chain requirements of meat buyers may be less complex than for manufacturers using 3TG, but they both need to be able to see who is supplying what from where.

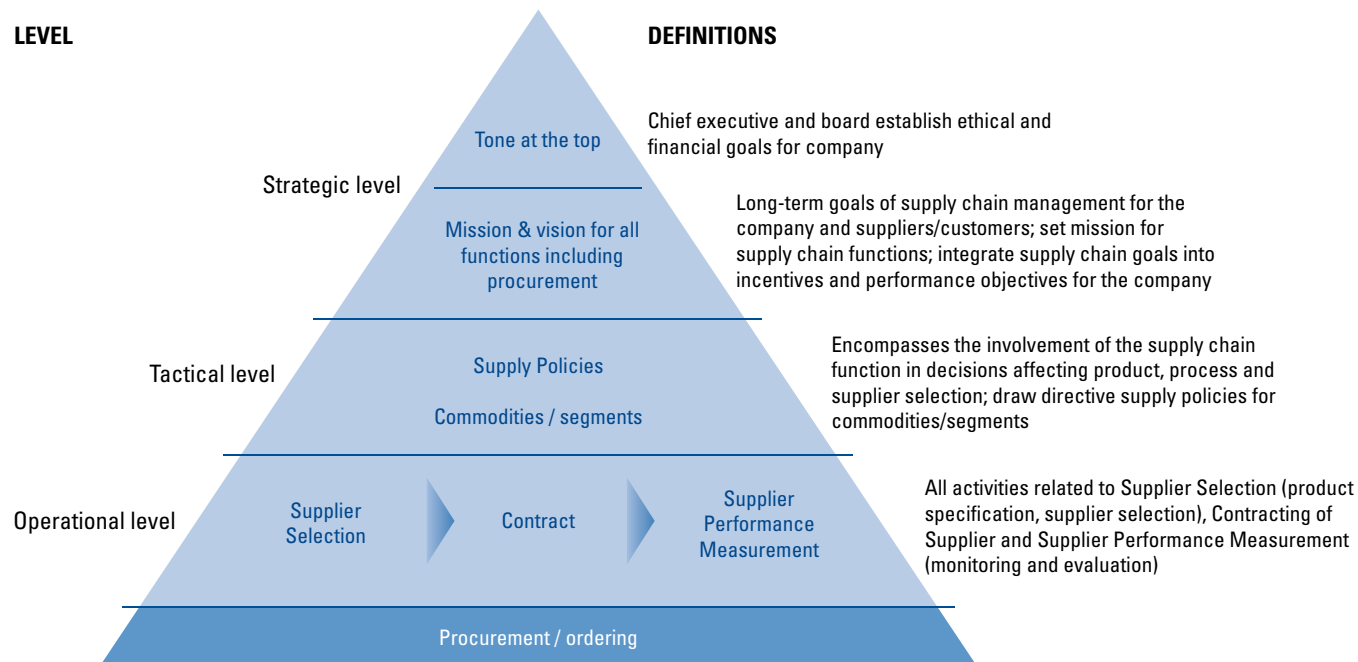
All of these risks ultimately affect a company's **reputation**. "Companies that buy materials and components from developing countries can no longer tell their customers and shareholders that they don't know where the inputs come from or about the conditions under which they were made," says Lakshman. "This argument has failed and companies are coming to assume responsibility for sourcing products in socially acceptable ways."

Lakshman says that supply chain optimization is a continual and unending process. In many industries where product development cycles are measured in years, such as automobiles and aerospace, the choice of suppliers requires rigorous component testing; vendors cannot be switched overnight. Similarly, peeling layer after layer of suppliers consumes a great deal of time.

Such persistence can only occur when the Chief Executive Officer and the Board set the tone for the entire company, promulgating a vision and policy that all employees are expected to uphold (see illustration). If the Chief Executive Officer indicates that the company's aim is to stay out of trouble by avoiding the glare of publicity, the effect on the supply chain is likely to be different from when a corporate leader wants to do the right thing and

conduct business in a sustainable fashion. A company that wants to keep its head down may be satisfied with a certificate that gives its suppliers in the Democratic Republic of the Congo a clean bill of health. In case of trouble, it can say it tried its best. By contrast, a company that behaves ethically will make the effort to check for itself which are the best suppliers, without taking it entirely on trust.

Figure 1: Supply chain optimization requires many parts of the organization to work together.



Source: Conflict minerals and beyond Part three: Optimizing the supply chain, KPMG International, 2013

Once the tone has been set at the top of the company, executives need to implement a sustainable supply chain operationally. This entails defining the specifications expected of vendors, selecting the most suitable supplier, negotiating an agreement, placing the order, monitoring the order and evaluating whether the terms of the agreement have been met⁴. Increasingly, agreements with suppliers include the stipulation that they must comply with all regulations, such as those pertaining to Dodd-Frank. This step, in and of itself, is not sufficient for the company to comply with Dodd-Frank, however. As explained by KPMG International in parts one and two of *Conflict minerals and beyond*, companies must build their own framework for compliance by figuring out their sources and, if necessary, auditing suppliers to see whether they are complying with the legislation.

But how do companies go beyond compliance and integrate the management of the supply chain into their strategy? One answer is to develop ways of measuring performance, based on the yardsticks of sustainability as well as financial goals. The metrics for supply chain optimization are normally added to the metrics for effective supply chain management; they do not replace them.

Supply chain **management** focuses on data such as inventory turns, outage (i.e., supply interruption), cost and quality. By contrast, supply chain **optimization** will measure these kinds of data, and will add other important yardsticks to the equation. These would include: the percentage of expenditure on suppliers that have agreed to abide by the ethical principles of the company they are selling to; the number of suppliers that have been independently audited for compliance with the relevant government regulations and the policies of the company; the percentage of suppliers whose claims have been independently verified; the number of ethical code violations detected and corrective measures implemented. Companies will add or subtract different types of measurement, depending on the nature of the supply chain, government regulations,

corporate policies and the circumstance of the countries where the company is operating.

The company also needs to set up a feedback mechanism to enable whistle blowers to complain if suppliers are not living up to their commitments. If the company has received a complaint, has it investigated? If the supplier has been found to have violated a relevant government regulation or a stipulation of the company, has the company acted on this finding? Has the company ever disciplined a supplier or terminated its business relationship with the supplier? “Making an example of a habitually non-compliant vendor drives a message to firms throughout the supply chain, as well as within the company that infractions won’t be tolerated,” says Lakshman.

The Board and the Chief Executive Officer will expect the chief officers of every department to follow the supply chain policies set at the top, not just the Chief Procurement Officer. Supply chain management requires many functions to work closely together; in fact, supply chain optimization will prove impossible to achieve unless the entire enterprise operates under the same objectives. For example, departments responsible for merchandizing and product engineering need to agree to source only from ethically compliant suppliers and, if necessary, cease buying from non-compliant suppliers. By the same token, the head of sustainability (or equivalent) should be a full participant in business decisions – not just in terminating a supplier relationship but also recommending good suppliers that may have escaped the attention of the business managers.

The Chief Executive Officer and the Board will receive regular reports on whether the company’s supply chain objectives are being met. But the metrics described above will only tell them part of the story. Every year or so, senior executives in the company should engage with third parties, such as non-governmental organizations, to receive feedback on what the company is doing wrong in the field of supply chain sustainability, not just what it is doing right.

⁴ *Buying in to Sustainability: Practical framework on how to implement sustainable procurement*, KPMG Global Sustainability Services, October 2009

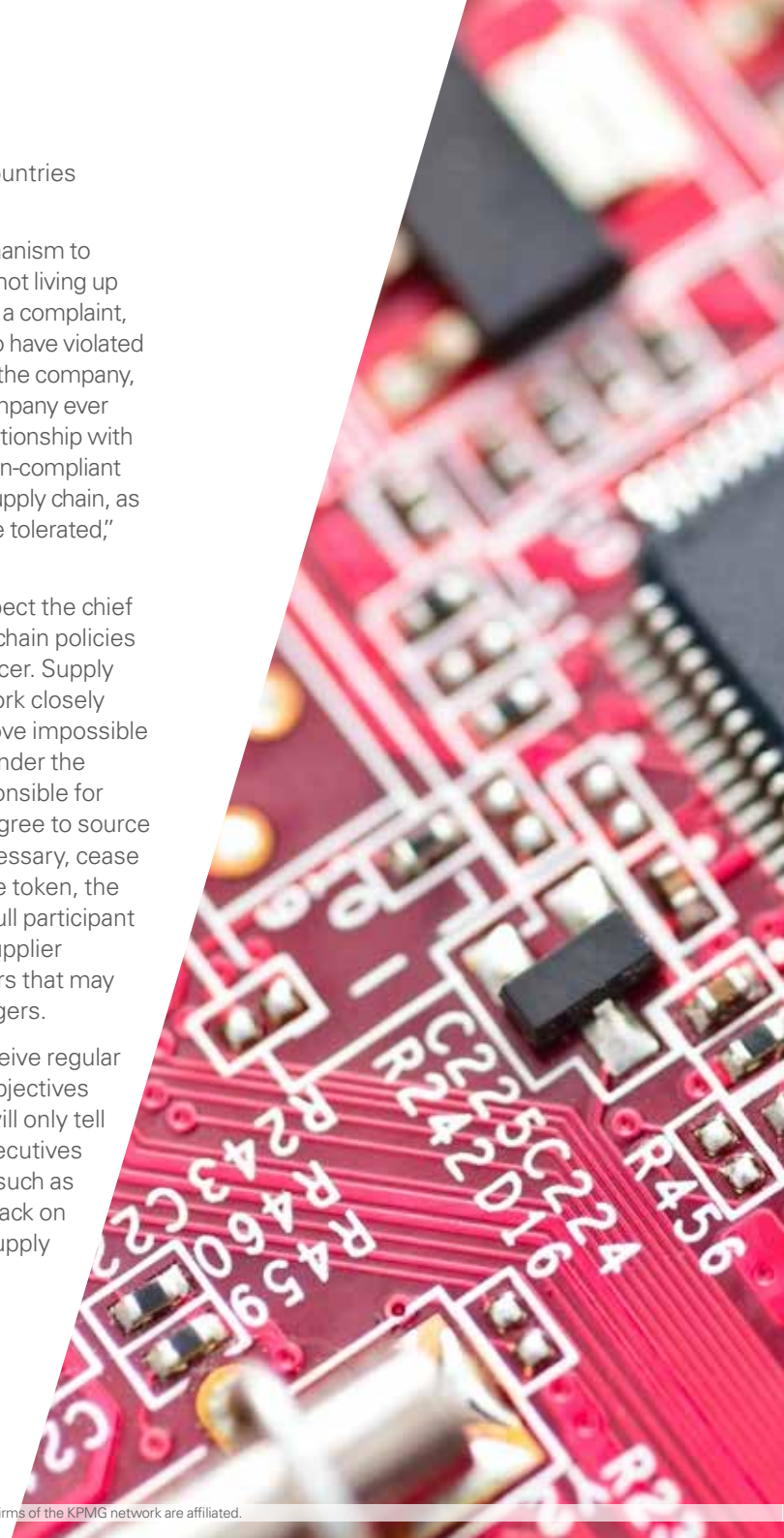


Figure 2: A number of steps need to be taken to help improve the sustainability of the supply chain.

Internal Customer	Define specification	Select supplier	Contract agreement	Ordering	Monitoring	Follow-up
Activities	<ul style="list-style-type: none"> • Define functional specification • Document technical changes • Bring supplier knowledge to engineering 	<ul style="list-style-type: none"> • Prequalify of suppliers • Create request for quotation document 	<ul style="list-style-type: none"> • Prepare contract 	<ul style="list-style-type: none"> • Develop order routines 	<ul style="list-style-type: none"> • Expedite 'trouble- shooting' 	<ul style="list-style-type: none"> • Evaluate supplier • Rate supplier • Terminate relationship with suppliers that do not comply
Sustainability issues	<ul style="list-style-type: none"> • Apply knock-out and award criteria • Include sustainability criteria, such as conflict-minerals compliance 	<ul style="list-style-type: none"> • Apply Total Cost of Ownership measures to evaluate suppliers 	<ul style="list-style-type: none"> • Include Supplier Codes in contracts • Include sustainable performance clauses 		<ul style="list-style-type: none"> • Check performance • Audit suppliers, depending on strategic relationship 	<ul style="list-style-type: none"> • Establish improvements with regard to sustainability

Source: Conflict minerals and beyond Part three: Optimizing the supply chain, KPMG International, 2013

Yellow toe caps

Intel, a leading semiconductor chip manufacturer, regards the auditing of its suppliers as an important means toward its environmental, social and governance (ESG) objectives, but not an end in itself. It cites academic studies, such as work by Professor Richard Locke of Massachusetts Institute of Technology⁵, demonstrating that the auditing of suppliers for compliance with regulations and policies did not, by itself, lead to an improvement in business behavior by the suppliers. Audits need to be combined with other measures that include building the capability to improve business practices, so that suppliers can transform themselves.

Intel has been putting its ideas into practice in its own supplier networks since 2004, as well as helping to establish and participate in the Electronic Industry Citizenship Coalition (EICC), an international member-based coalition of electronics companies aiming to build a more sustainable electronics industry. In September 2012, Intel held its first conference in China on the ESG objectives for its supply chain, inviting suppliers, NGOs, government officials and the media to learn, and then spread the word, about the company's sustainability objectives and how to achieve them. One key area of discussion at the conference was environmental health and safety (EHS). Intel followed up after the conference with two of its Chinese suppliers that wanted more help in

the field, sending EHS specialists from Intel's facility in Chengdu to theirs.

Judy Wentz, Intel's Director of Supply Chain Environmental, Social, Governance, and her team helped organize the conference and visited one of the two companies in China about six months later. When she walked around the facility, the managers at the company showed her that they had taken their own initiative and had painted yellow on all the steel-reinforced toe caps of managers of the shop-floor workers. "While a simple act, it was a great visual reminder to employees of the reason why there is a safety element to the shoes and it showed that managers were applying their own ideas about health and safety," says Wentz. The point of this example is to show the way in which Intel wants to go beyond audit, and how a supplier has absorbed what it has learned from Intel and built up its capabilities.

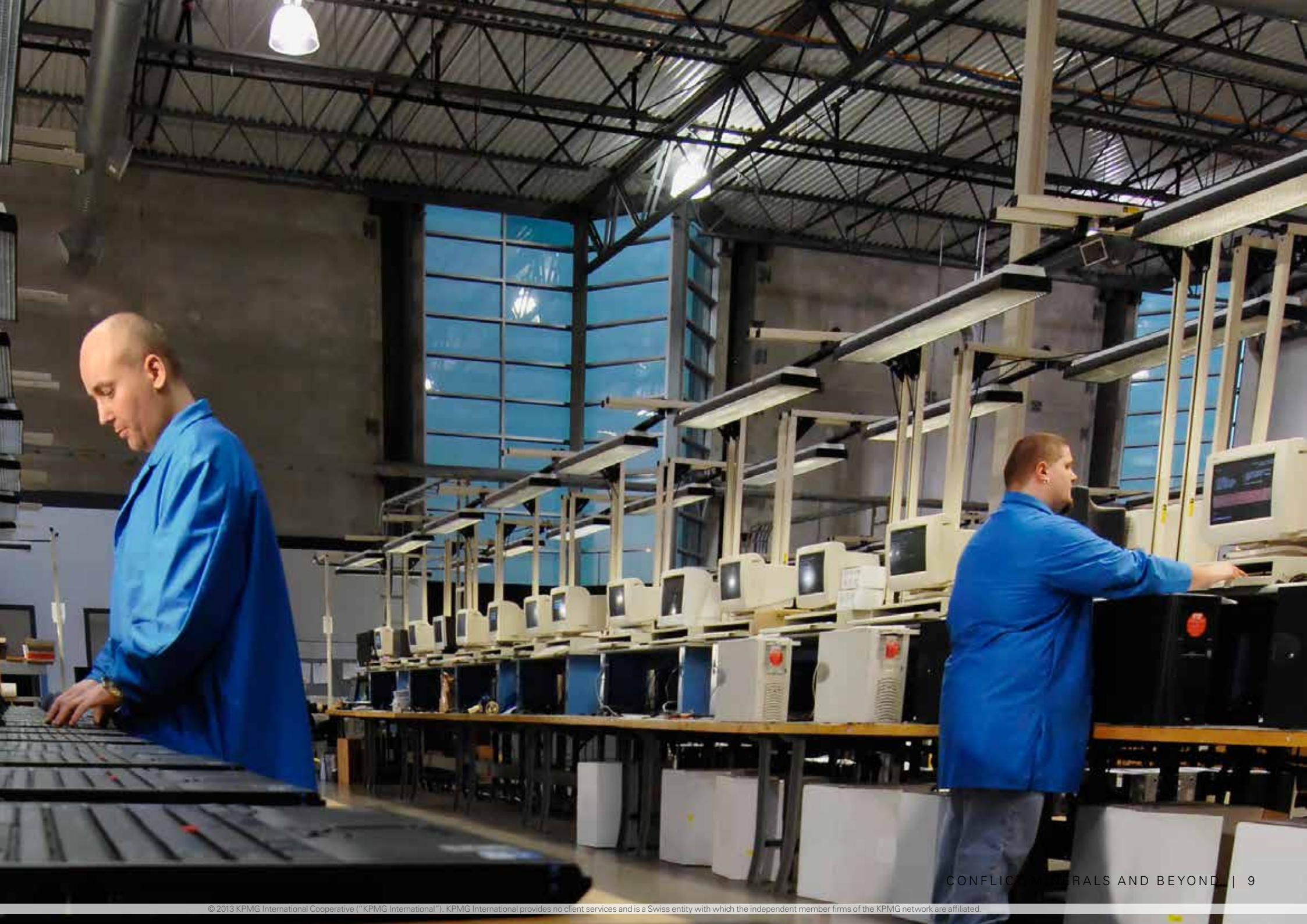
"We are trying to be careful not to say, 'Here are the five steps you need to do,' because they won't know why they are doing them. So we need to create a learning environment," says Wentz. "We wanted our suppliers to understand that this is not the 'flavor of the month' for Intel or the electronics industry, but reflects the business realities for anyone wanting to be in business long term." Intel shares ideas among its own factories about how to improve the sustainability of processes and products, and

now wants to share information with suppliers and encourage suppliers to share data among themselves.

Out of 10,000 suppliers to Intel, the company has focused on the 250 or so suppliers that comprise about 90 percent of its procurement expenditure. All 250 are required to conduct a self-assessment so that the suppliers learn how to evaluate themselves and pinpoint where there are risks or areas for improvement. Intel has set key performance requirements for ESG, including indicators for environment, labor conditions, human rights, and so on. To begin with, it has asked those suppliers that have won its quality awards to perform to a standard set by Intel, and then will roll out the standard to the remaining 250 to do so, too. By designing its supplier program in this way, Intel says it wants to switch the conversation with suppliers from compliance to continuous improvement.

Wentz explains the necessary steps thus: first, embed the supplier evaluation into the procurement process; second, conduct the due diligence on how to assess whether your suppliers are complying with the company's policies; third, as soon as possible move the conversation with suppliers from a definition of compliance to "how to let the supplier know what an acceptable level of performance is and then get them to continuously improve from there," says Wentz.

⁵ E.g., *Does monitoring improve labor standards?: Lessons from Nike* by Richard Locke, Fei Qin, and Alberto Brause MIT Sloan Working Paper July 2006



Potential

benefits of optimization

As well as gaining the advantage of successfully complying with a plethora of regulations, companies will benefit in a number of ways from optimizing their supply chains:

Better risk management

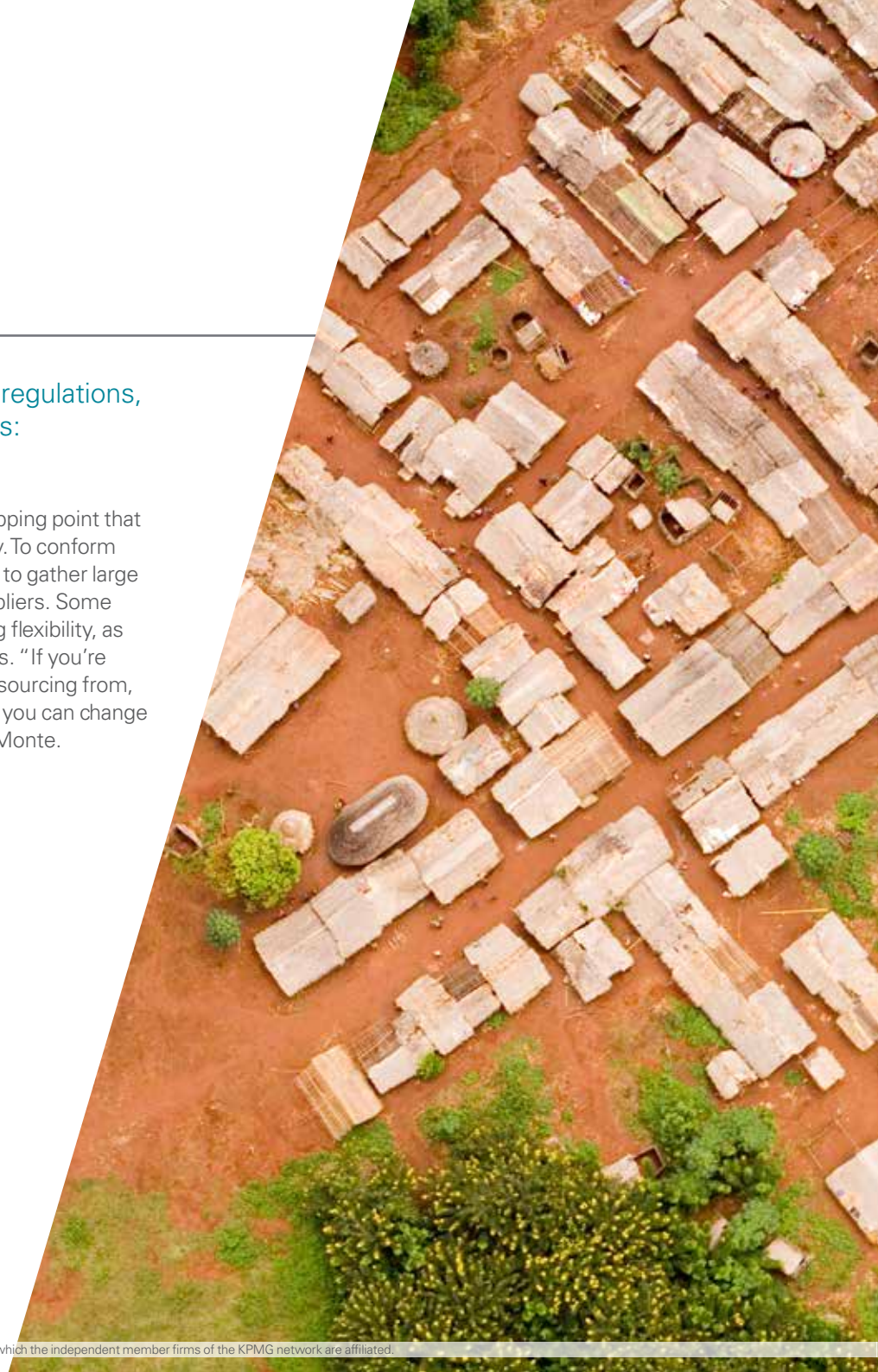
Supply chains are comprised of multiple layers of suppliers that are almost impossible to monitor without painstakingly conducting due diligence on how they conduct business. Taking the trouble to find out will help companies predict when problems are likely to arise further down the supply chain. “A company will learn very clearly to identify conflict minerals in their components and learn who their suppliers are and be able to manage the supply chain risk better,” says Frank Monte, Managing Director at KPMG in the US.

Rationalization

Many OEMs have supply chains with “long tails” (thousands of suppliers that comprise a small fraction of total procurement expenditure). By focusing on key suppliers for the purpose of optimization, there is a high likelihood that companies will bundle business with more strategic partners. One company that has had this experience is HP. As part of its conflict minerals compliance program, “We need to start where we have the most influence and train our suppliers and follow up with them to be assured that our suppliers are using the right tools and processes to focus on responsible sourcing,” says Jay Celorie of HP. “As a result, in our more strategic supplier relationships, we have more influence over our supply chain and there is a higher level of transparency.”

Flexibility

At a certain stage, companies reach a tipping point that takes them from compliance to strategy. To conform with Section 1502, companies will have to gather large amounts of information about their suppliers. Some of this is bound to be useful in improving flexibility, as well as in complying with the regulations. “If you’re not compliant in terms of where you’re sourcing from, how flexible is your supplier network so you can change suppliers to become compliant?” says Monte.





Challenges of optimization

There is no doubt that companies may benefit greatly by optimizing their supply chains, but the transformation is not easy. Among the main challenges are:

Complexity

To conduct due diligence, original equipment manufacturers can be overwhelmed by having to contact tens of thousands of suppliers. They often begin by sending out the same questionnaires, about things such as sourcing, to all of them irrespective of the size of supplier and its products. “It is only effective when companies see the intrinsic value of compliance and integrate it into their normal discussions with suppliers,” says van Bergen. “They need to make it part of the company’s strategy, tactics and operations. If they miss one of these, it won’t work.” LG Electronics refined its list of 4,000 suppliers by polling them to find out which ones used 3TG and then came up with a more manageable list of companies. “We narrowed our 3TG suppliers down to 800 – still a formidable number – to ensure transparency,” says Jacob Cho, Director, North America Standards & Environmental Affairs, at LG Electronics.

Incentives

Many companies are reluctant to drill into the supply chain, because of the high cost. The trouble is that the social and environmental cost of not doing so, in terms of carbon emissions, slave labor, conflict minerals, and so on, is not included in the market price of a

manufactured item. And OEMs and suppliers don’t want to reveal too much information to the public. “The 3TG supply chain can be difficult to trace, and the number of conflict-free certified suppliers at present remains quite small. This supply chain is also considered a piece of intellectual property,” says Cho. Suppliers need to be shown by their corporate customers that there are economic and strategic benefits from compliance.

Size

Small and medium-sized enterprises often do not have the manpower or the time to trace the origin of the materials that they buy. Industry associations and other trade groups can help by providing member firms with templates and software to enable them to conduct the necessary due diligence of their supply chains. In Korea, individual electronics companies worked on their own to comply with the European Union’s Restriction of Hazardous Substances directive in 2003, which led to the duplication of resources. Learning its lesson, the Korea Electronics Association has led an industry-wide effort to help members comply with Dodd-Frank by helping to design a software system for members that automates a lot of the form-filling and auditing of supply chains.

Conclusion

Sustainability is not just a first-world requirement anymore. Regulations promoting sustainable supply chains are spreading to parts of Africa, Asia and Latin America. Kenya has laws covering the sustainable production of energy, including charcoal⁶. Sustainability principles are now enshrined in China's company law⁷. Brazil has a national policy on the sustainable management of solid waste⁸. And regulations on conflict minerals have proliferated around the world⁹.

The best policy for companies is to take a global approach to supply chain compliance by adhering to the strictest rules in a particular jurisdiction, whether it be conflict minerals or slave labor, and applying it to the rest of the world. Similarly, the processes and practices adopted to comply with one aspect of the supply chain, such as payments to governments for resource extraction permits, can be applied to other parts of it. By taking a holistic approach to supply chain optimization, companies will gain far-reaching economies as well as smoother compliance. The upfront investment may be high but it is likely to reap financial returns for years to come.

⁶ <http://www.pisces.or.ke/sites/default/files/The%20Kenya%20Charcoal%20Policy%20Handbook.pdf>

⁷ <http://www.responsiblebiz.biz/sustainability-and-csr-come-to-china>

⁸ http://www.epa.gov/jius/policy/brazil/brazilian_national_solid_waste_policy.html

⁹ *Conflict minerals and beyond Part one: developing a global compliance strategy*, KPMG International September 2012





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