

CSH Policy Brief

Guaranteeing human rights in production networks: a minimal-effort solution for the implementation of supply chain due diligence laws in Europe

France and the Netherlands have implemented supply chain due diligence laws, Germany will begin to discuss one in their parliament in the coming weeks. The EU might follow soon. The intention behind this law is to prevent human rights violations that occur in the production process, such as child labor, violation of women's rights, environmental malpractices, etc. Companies that engage in human rights violations would become visible, their customers would be obliged to exert pressure to prevent these violations, as a last step even by terminating the cooperation with the violator.

As currently planned, the German law will make it mandatory for all companies with more than 3000 employees to perform risk evaluations concerning human rights violations by their suppliers and report their efforts—but not the individual evaluations—to a government agency.

The law, even though highly relevant and well-intended, suffers from four massive shortcomings.

- (1) **Incompleteness.** Even for the case that every company complies with the due diligence law, only immediate suppliers of firms larger than 3000 employees would be included in the risk analysis. The majority of companies would not be visible.*
- (2) **Non-transparency.** The companies do not need to report the names of their suppliers, hence human rights violations in a company's supply chain could easily go unnoticed if the company decides to not comply with the evaluation scheme.*
- (3) **Bureaucratic burden for companies.** The risk analysis and necessary reporting lead to bureaucratic burdens on the side of companies.*
- (4) **Institutional overheads.** Enforcing compliance will need an entirely new institution to process and audit reports, without—absent any complaints—knowing the risk analyzes and the names of the evaluated suppliers.*

Our solution rests on the observation that the data—necessary to implement the law without these shortcomings—already exists in many countries or could be obtained with a minimal adaptation in Value Added Tax (VAT) reporting. Based on VAT data, complete national production networks can be reconstructed at zero bureaucratic overhead on both, the side of companies and the involved government institutions [1]. The reconstructed production networks are complete, so that the due diligence law can no longer be evaded. For countries such as Germany and Austria, the necessary step is a minor adaptation of VAT tax reporting, where the tax numbers of companies' clients must be reported in machine readable format. In several European countries like Belgium and Hungary this is already in place.

The proposed solution is similar in spirit as anti-money laundering regulations in the banking sector that were implemented successfully in most countries in the past decades.

Why talk about this?

Every product that can be bought might, directly or indirectly, contribute to child labor, massive pollution, illegal deforestation, or human rights violations. A violation happening at one point in the supply chain of a product is passed on to every other producer in the chain until it reaches the final customer. Widening public attention towards this issue and awareness campaigns such as the Fair-Trade movement led to significant improvements especially for agricultural and textile goods [2]. For many other products, supply chains can be much more complicated, and it becomes extremely hard to trace violators. Only a few initiatives have been successful, such as the Fairphone initiative [3].

As a consequence, to incentivize European companies to assume responsibility for their supply chains, a wide range of actors have started to demand supply chain due diligence laws. Some countries are beginning to implement them. In France and the Netherlands such laws are already in place, Germany is currently in the process of passing such a law. In Austria, the topic will be debated in parliament, and the European Commission is working on a draft for a due diligence law [4].

What is the problem?

Most current plans are based on the philosophy that firms themselves evaluate the risk for human rights violations in their immediate (direct) suppliers [5]. If, hypothetically, every firm would perform these evaluations, the compliance with human rights would be enforced stepwise along the entire supply chain. However, there are several challenges for the implementation of supply chain due diligence laws.

The first is the way to obtain the supply chains. The current planning starts from a self-reporting scheme. However, this scheme **is neither efficient nor effective**. Inefficiency arises from the bureaucratic overheads for companies and government institutions. The effectiveness of due diligence laws will be severely limited if the production networks are not covered completely. They can be easily evaded. As currently planned in Germany, companies with more than 3000 employees have to evaluate their direct (tier-1) suppliers (see Figure 1a). Tier-1 suppliers are marked with “1” in the figure. If these tier-1 suppliers themselves fall below 3000 employees, the supply chain ends here, missing all the upward suppliers that could be potential human rights violators¹.

Realistically, companies are not able to report their tier-2 suppliers (or higher up in the supply chain), even if they wanted to, simply because they do not have access to the necessary information. For many companies, especially large ones, the number of suppliers increases sharply along higher tiers from in the production chain. For this reason, tier-1 information alone might be insufficient. (The planned legislation in Germany requires firms only to report on direct suppliers.)

The second issue with self-reporting is that the coverage of the supply network depends on the cooperation to truthfully evaluate their suppliers. The issue arises from the necessity to check and enforce the self-reporting standards. New administrative bodies need to be formed that build up expertise in collecting and verifying the due diligence reports obtained from companies. They have to somehow enforce measures in case of violations.

¹ Corporations are required to act only if violations in known indirect suppliers become known, which presents an obvious loophole.

Due to these obstacles in a self-reporting scheme, coverage can be expected to be relatively low, and the supply chain information will remain highly incomplete. This might render the law ineffective.

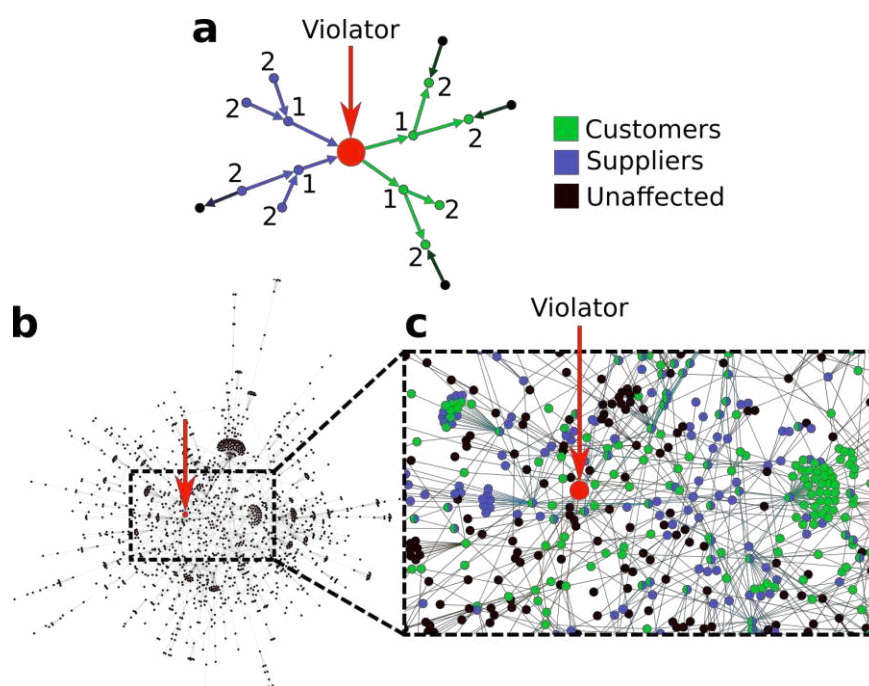


Figure 1: The basic idea behind the supply chain due diligence law is that, as a human rights violation occurs in the supply network, all companies involved in the respective supply chain are immediately identified and informed that they do (direct or indirect) business with a violator. **(a) Schematic example of a supply network.** Nodes represent companies. The arrows point from suppliers to customers in the supply chain. The node where the human rights violations occur is shown in red. All direct and indirect suppliers (customers) of the violator are immediately identifiable and highlighted in blue (green). **(b) Part of the Hungarian supply network.** We highlight a randomly chosen node as a violator (red). **(c) Blow-up of (b).** The direct and indirect suppliers (customers) of the violator are identified (blue and green). It is clear that a huge number of companies has direct or indirect connections to the company where human rights violations occur. In this example we count 406 (300) direct and indirect suppliers (customers).

Figure 1a schematically shows a tiny section of a supply network. Nodes represent companies, arrows are buyer–seller relations between companies. Goods or services flow from the origin of an arrow to its head. Suppose that the red node is a violator of human rights in the network. Figure 1a shows all of its suppliers in blue and all customers along the supply chain in green. Firms that are not affected are depicted in black. Tier 1 and tier 2 firms are indicated by 1 and 2.

Figure 1b shows a section of the real national supply network of Hungary in 2017, reconstructed from VAT data [1]. Assuming, that the company highlighted in red is a human rights violator, all the companies that sell directly (tier 1) or indirectly to it are marked in blue. The customers in the downward supply chain of the violator are shown in green. Both, blue and green nodes could then be immediately informed that they are doing direct or indirect business with a violator which could incentivize the violator to end violations, or firms could consider changing suppliers or customers.

The CSH Proposal

We propose to use existing Value Added Tax (VAT) data to implement supply chain due-diligence laws based on the reconstruction of complete supply networks. It is then straightforward to track the spread of all problematic intermediate goods once the entire supply network is known [6]. To reconstruct supply chains from VAT data the following data items are needed:

- Tax ID seller
- Tax ID buyer
- Date of transaction
- Volume of transaction (in EUR)

These data exist and are readily available on all invoices in the EU. Today, tax authorities of several EU countries (e. g., Belgium and Hungary) have this data available in machine readable form.

The supply network can then be generated from VAT data in the following way:

For every good bought or sold a VAT is added to the price of the good. Typically, small companies have to report the monthly or quarterly² aggregated difference in VAT paid and earned. This difference has to be paid (wire-transferred) to the tax authorities (see Figure 2). In double entry bookkeeping this is often mandatory for larger companies (e. g., in Austria from an annual turnover above 700,000 EUR). All individual transactions from which the aggregated VAT differences are calculated must be recorded. Countries without such a scheme would need to change to a tax reporting mode where individual—not aggregate—transactions must be reported.

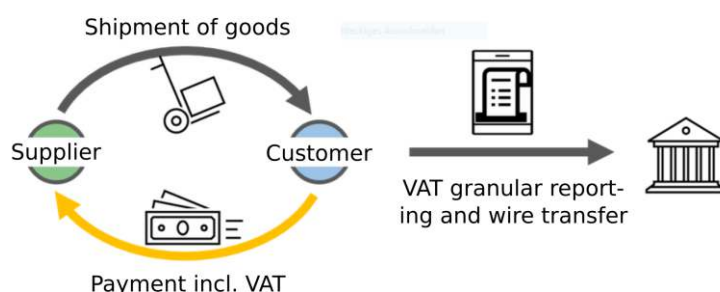


Figure 2: Schematic illustration of how to obtain supply networks from VAT data. In the EU, for every legal transaction a seller issues an invoice that contains the price, the VAT, the date and the VAT IDs of the seller and the buyer. By knowing the VAT, the actual supply of a good or service can be reconstructed.

Steps towards implementation

1. Slightly adapt tax reporting → For VAT reporting, all invoices must be reported with tax IDs of buyer and seller.
2. Implement supply network reconstruction algorithms → Such algorithms exist freely.

² For example, in Austria, if turnover exceeded 35,000 EUR in the previous year, the reports need to happen quarterly, if they exceed 100,000 EUR monthly, reports are due.

3. Implement interface between tax authorities and supply chain due diligence authorities.
4. Implement communication lines between supply chain due diligence authorities and companies, maybe through existing tax authority channels.

The advantages

- **Complete networks.** The VAT data allows for a complete knowledge of supply chains. This data is highly sensitive. However, it already does exist (together with the necessary data protection technology) at most tax authorities in the EU. Evasion becomes practically impossible. This way, not only human rights violations on the supply side can be traced to a company, but also human rights violations in its customers.
- **No reporting necessary for companies.** With this method, the effort for the reporting companies is kept minimal. The necessary reporting happens as a side effect of the tax declaration. No company size limits are necessary. All legal business is completely covered.
- **Minimal institutional efforts.** Problematic actors and their business partners can be identified at any position in the supply chain. Non-compliant firms are not only held accountable by due diligence, but by tax authorities. Newly created authorities observing the due diligence laws do not need to verify the information contained in the due diligence reports by corporations. They might use the existing enforcement infrastructure of tax authorities.

Positive side effects

Knowing the national production network offers several strategic advantages for public administration and environmental policy.

- **Systemic risks in national supply chains become visible.** In times of crises and potential future international trade wars, it becomes increasingly important to identify critical companies that have the potential to cause major production disruptions in the EU. These firms could be identified as relevant for national security. Policies for avoiding their default could then be designed. VAT derived production networks can be used to systematically identify such weak spots of national economies [1].
- **Spotting tax evasion.** Inconsistencies in the VAT networks point at potential points of tax evasion. These inconsistencies can be spotted and traced along supply chains. It becomes possible to detect specific and coordinated fraud. According to official estimates Missing Trader Intra-Community fraud (ger. "Steuerkarussellgeschäft") in the EU causes damages of around 50 billion EUR per year [7]. The prevention of tax fraud could be especially effective if VAT networks were shared on an EU-wide level.
- **Environmental policy.** Carbon flows, technological changes and regional development all manifest themselves in the production networks. Their knowledge can be used to design maximally effective carbon taxation at a minimal social cost. Innovative and prudent management and protection of national supply networks can present a competitive and strategic advantage for the EU economy.

Conclusion

We propose to use the unique opportunity of using existing VAT data, available to tax authorities and/or Central Banks, to reconstruct national production networks to improve the lives of humans around the world, by making human rights violations, pollution, and environmental destruction transparent along production chains. It would become possible to identify problematic aspects of the economy in terms of its resilience and strategically prepare for future crises and stay competitive in the world economy.

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Lit.:

[1] C. Diem, A. Borsos, T. Reisch, J. Kertész, S. Thurner, *Quantifying firm-level economic systemic risk from nation-wide supply networks*, arXiv preprint 2104.07260 (2021) <https://arxiv.org/pdf/2104.07260.pdf>

[2] A. Le Mare, *The Impact of Fair Trade on Social and Economic Development: A Review of the Literature*. In: *Geography Compass* (Oktober 2008) ISSN 1749-8198, doi:10.1111/j.1749-8198.2008.00171.x

[3] <https://www.fairphone.com/>

[4] <https://de.wikipedia.org/wiki/Lieferkettengesetz>

[5] Gesetzesvorschlag des deutschen Bundestags <https://dserver.bundestaq.de/btd/19/286/1928649.pdf>

[6] T. Mizuno, T. Ohnishi, T. Watanabe, *Structure of global buyer-supplier networks and its implications for conflict minerals regulations*. *EPJ Data Science* 5 (2016) 1–15
<https://link.springer.com/content/pdf/10.1140/epjds/s13688-016-0063-7.pdf>

[7] *Jährlich 50 Milliarden Schaden – Neue Betrugsmasche mit Ökostrom-Zertifikaten*, ZDF vom 7. Mai 2019
<https://www.zdf.de/nachrichten/heute/europaeische-behoerden-warnen-vor-neuer-betrugsmasche-mit-oekostrom-100.html>

About the CSH

The Complexity Science Hub Vienna was founded with the aim of using Big Data for the benefit of society. Among other things, the CSH systematically and strategically prepares large data sets so that they can be used in agent-based models. These simulations allow the effects of decisions in complex situations to be tested in advance and systematically assessed. Thus, the CSH provides fact-based foundations for an evidence-based governance.

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