



## Minespider's Lead Traceability Project with Volkswagen.

In March of 2019, Minespider launched a project to apply blockchain traceability technology to Volkswagen's lead supply chains. The first phase of the project was to conduct a feasibility study. Lead was chosen because its supply chain lifecycle is relatively well-known, holds a relatively small number of participants, and has attracted negative attention in the media.

Lead is also one of the most important minerals in Volkswagen's supply chain; hundreds of thousands of tonnes of lead is used in starter-batteries on a yearly basis for more than 10 million vehicles. With the rise of electric vehicles in the future, it is expected that the prominence of lead will increase.

### **A Bit of Background**

The level of complexity of supply chains in the automotive sector is incredibly high. Automotive manufacturers are now facing increased scrutiny regarding the origins and the journey of raw materials from mine to automobile. The scrutiny is not without merit; raw materials sourced from developing countries are recognized as a leading cause of a wide range of human development issues and environmental degradation.

As such, authorities around the world, including governments, NGOs, and industry players, are setting guidelines or mandates for the creation of responsible supply chains.

The United Nations has made the development of responsible supply chains a key element that underpins its Sustainable Development Goals.

Consumers themselves are becoming more aware of the negative externalities of supply chains and are increasingly shopping more responsibly.

Governments are responding by implementing legislation, such as the EU regulation 2017/821 or the US Dodd-Frank act, which force organizations to adhere to stricter due diligence guidelines.

Car manufacturers have also joined forces and responded by creating their own standards to integrate sustainability into global procurement activities, such as the consortium behind the self-assessment questionnaire Drive Sustainability.

Although there is a specific focus in legislative consciousness with regards to conflict minerals, the production of any mineral that results in human rights abuse creates significant negative consequences for organizations at the end of the supply chain.

While the race for the creation of guidelines and legislation is necessary and admirable, its unintended consequence is that a single supply chain could have dozens of different standards and assessments, which both compete and overlap.

Consider that Volkswagen has thousands of suppliers in its first tier; many of those

suppliers may have their own customized standards and self-assessment questionnaires. As we venture downstream, the number of industries and standards grows exponentially.

At the moment, there is little guidance on where the overlap is between different standards and how to seamlessly adopt numerous guidelines. Especially for smaller organizations in the supply chain, it makes little economic sense to invest into all these guidelines. The complexity and entire procedure is confusing in itself. Hence the need for a simpler, more encompassing solution is clear.

**As a provider of blockchain-based traceability technology, the Minespider team was well positioned to support Volkswagen with lead traceability. They have been an industry leader for decades, setting key minimum requirements that their suppliers must fulfill, and helping to establish the Drive Sustainable self-assessment questionnaire for their supply chains.**



## Traceability project goals and achievements.

### **The first phase of the project had three overarching goals:**

1. To trace the lead supply chain as far as possible.
2. To assess the current state of the supply chains' transparency and sustainability.
3. To demonstrate Minespider's technology and receive feedback.

### **Key Achievements**

- Identified and categorized close to 1,000 companies in VW's upstream and downstream supply chain.
  - The companies were from a wide and representative variety of sizes, industries, and roles in the supply chain.
  - The identified companies were categorized in groups representing typical activities and types of suppliers. This includes, but is not limited to: mines, traders, smelters, manufacturers, car manufacturers, spare part logistic companies, spare part retailers, car repair stations, scrap car collectors, industrial recyclers, and breakers.
- Analysed and spoke with organizations to understand representative participants from every category along the supply chain, ranging in size from 2 to 10,000+ employees.
  - The analysis included research on the degree of transparency of suppliers. We looked into which social and environmental sustainability information the companies made transparent on their websites.

- Analysed more than 100 companies in more detail, with a particular focus on the Drive Sustainability Self-Assessment Questionnaire.

The Drive Sustainability Self-Assessment Questionnaire is a questionnaire which assesses the sustainability performance of automotive suppliers. The questionnaire is run by Drive Sustainable - a consortium of the world's leading automotive companies, including VW.

- We created scores for the 100 suppliers based on publicly available information for the Drive Sustainability Questionnaire.

- We developed an in-house proxy ranking system to offer insights on how the supply chains could be ranked.

- Established complete end-to-end supply chains from a lead mine/recycler to the VW plant.

- In total, thirteen individual supply chains were mapped, ten upstream and three downstream.

- Approximately 95-99% of the lead supply chain is recycled/circular and our research and findings reflected this, as the vast majority of lead ended up in circular recycling loops.

- Tested our software to gain feedback from participants who represented typical supplier categories and user scenarios.

- Analysed the usability of the software and the feasibility of implementation.

- Investigated the willingness to adopt the technology, minimum requirements and potential obstacles

when introducing the software to various suppliers.

- Considered the potential scalability for relevant types of suppliers and user scenarios.

- Carried out research amongst the participants. We created templates for what type of information relevant suppliers preferred to capture and make visible, and what they expect others to share along supply chains and on the blockchain in the future.

- We worked with the participants to understand which information they would like to be tracked, and also when, and where and which information is already tracked.

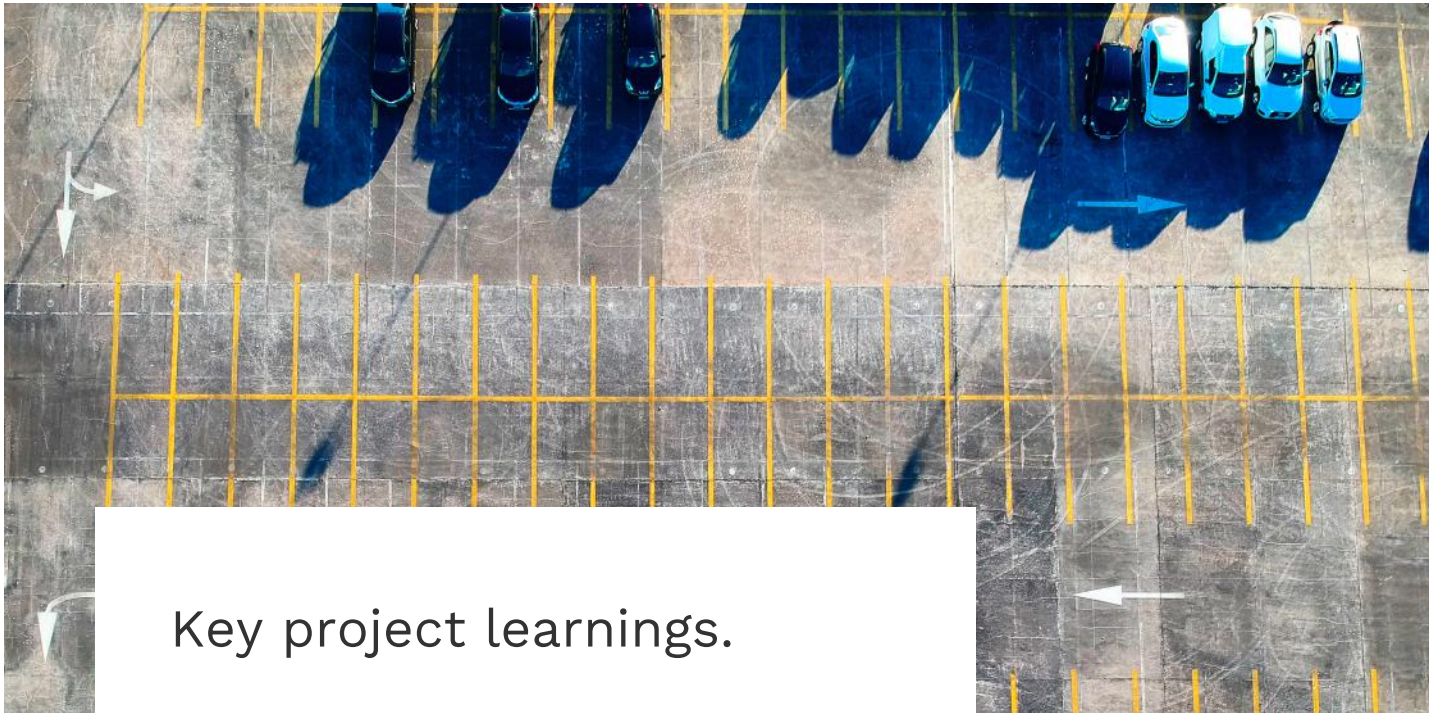
- Relevant information included basic information, such as location and human rights records, as well as more complex information, such as GHG emissions.

- We developed a model which theorizes how we could incentivize supply chain participants to become more responsible and uphold mandatory and non-mandatory standards.

- Presented feedback to VW from their supply chain participants regarding further development of their responsibility measures, user needs, and their potential use of our technology.

- We proposed a roadmap and next steps that can encourage collaboration for sustainability along complex supply chains.





## Key project learnings.

- **Operationally, we found that different types of suppliers have differing degrees of supply chain transparency for social and environmental sustainability.**

While not surprising, this means that the role of the Minespider team changes significantly from organization to organization. A supplier with low levels of transparency will require Minespider to take the role of an educator, one who can explain and provide the tools for effective due diligence. For suppliers with high levels of transparency, Minespider can offer custom templates to complement the working process.

- **Onboarding suppliers requires significant support and education.**

Companies need guidance to better understand the advantages of transparency, as well as the technology behind the Minespider protocol. This includes comprehensive onboarding processes that embrace the needs of representative types of suppliers and user scenarios.

- **Minespider's technology can provide an alternative to laborious reporting requirements.**

Many participants communicated their frustration with the work involved to comply with existing sustainability reporting requirements. They understood that our technology has the potential to simplify and reduce the workload, especially for those responsible for sales, procurement, compliance or sustainability.

**- We gained initial insights into how information is going to be stored and shared on the Minespider app.**

For the purposes of the pilot, documents were scanned and uploaded manually into the Minespider software. More automated solutions, such as an integration with SAP or compatibility with Office software will be explored.

**- Everyone interviewed recognized the balance between transparency and their need to protect business secrets.**

Any initial reluctance to provide information needs to be addressed by communicating the specific advantages for the individual supplier and the data visibility options available in the Minespider app.

**- Furthermore, reasonable incentives can foster the acceptance and implementation of higher levels of transparency: in discussion with participants on all tiers, they suggested a mix of incentives that could encourage participation.**

Suggested incentives included: easier and less time consuming communications along supply chains, providing data analytics, helping to manage standards and risks, proving a product's authenticity, and streamlining third-party verification and auditing. Some smaller or medium-size organisations are particularly motivated by being linked to larger brands such as VW for marketing purposes. In future, we will also consider offering responsible participants access to branded training materials, which can support brand awareness and affiliation along multiple tier supply chains and industries.

**In conclusion,** we identified nearly 1000 companies who are active in Volkswagen's lead supply chains. In total, thirteen individual supply chains were mapped, ten upstream and three downstream. Nearly forty companies actively participated in the first phase of the project, shaping learnings by sharing documentation and insights. Several major players in the mining and recycling business, and many other participants responsible for the due collection, transportation, further processing and trading have been identified as suppliers in Volkswagen's lead supply chains. Most importantly, we established complete end-to-end supply chains from a lead mine/recycler to the Volkswagen plant.

Interested in learning more or launching your own traceability project?

Contact us at [hello@minespider.com](mailto:hello@minespider.com)



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