

Digitalising the mining & metals global supply chain: 2019 sustainability update

By Rebecca Campbell, Clare Connellan, Kirsti Massie, Emily Holland and Margaret Spicer

As corporate responsibility evolves, and the focus on corporate sustainability grows, more businesses in the mining and metals and related sectors are referencing the long-term potential of blockchain technology and platforms to address challenges associated with mineral provenance and supply chain transparency. Here we provide an overview of key developments we've been monitoring since our last report, including: regulatory and enforcement updates, information on the Responsible Minerals Initiative (RMI)'s Blockchain Guidelines, and a survey of industry pilots.

Regulatory and enforcement landscape

Digitalisation is emerging as a key driver in transforming the mining and metals industry's engagement with states, customers, communities, employees and the environment, from upstream exploration, valuation and extraction to market. Blockchain, famously described as "a technology in search of a problem," is being considered as a tool to support and to be used alongside AI, IoT, advanced analytics and other technologies to build platforms that achieve business goals associated with increased security, efficiency, transparency, traceability and cost savings.

The market for blockchain technologies and platforms is embryonic; industry agreement on key components is lacking. Like other emerging technologies, blockchain was introduced without unified standards for mass adoption, although efforts to address this gap by domestic and international technical standard-setting bodies, industry-driven processes, and ESG initiatives are currently underway.

In parallel, the legal and regulatory framework relevant to the management of human rights risk and broader sustainability issues in corporate operations and supply chains continues to expand, with some evidence of increased enforcement actions, including the recent US Customs and Border Protection detention order targeting Artisanal and Small-Scale Mine (ASM) gold from eastern DRC.

The indications that blockchain is being discussed, or at least considered, in relation to the eventual fulfillment of ESG reporting and compliance goals are growing. It remains to be seen whether blockchain technologies and platforms emerge as viable tools enlisted at scale by companies seeking to address first productivity, efficiency and KYC concerns, and later an expanding set of ESG disclosure and due diligence requirements and expectations, and in reference to standards that are becoming more mature.

Key regulatory dates

- By 2020, countries implementing the Extractive Industries Transparency Initiative (EITI) standard must ensure that companies that apply for or hold a participating interest in oil, gas or mining licences or contracts in their countries disclose the names of beneficial owners.
- On May 31, 2020, US conflict minerals disclosures on Forms SD are due to the Securities and Exchange Commission. California, Maryland, and Oregon have all passed policies with regard to the state purchase of electronic products that may contain conflict minerals, and Massachusetts has signed a commonwealth procurement resolve.
- On January 1, 2021, the EU conflict minerals regulation takes effect, requiring importers to trace and report the source of the conflict minerals they use, and to demonstrate that they have been responsibly sourced.

Industry regulation

The trend toward self-regulation continues, as major minerals exchange platforms and industry associations announce requirements and issue new guidance documents and tools. The London Bullion Market Association plans to approve a process for companies using blockchain to track the movement of gold by the end of the year. By 2025, the London Metal Exchange (*LME*), reportedly supporting a consortium initiative to build a blockchain-based system to track the trade of certain metals, will allow only responsibly sourced metals to be traded on its exchange.

Last year, inspired by the uptake of RMI's Conflict Minerals Reporting Template and its underlying data exchange standard, the RMI published Blockchain Guidelines to promote alignment of mineral supply chain due diligence across different industries. The Guidelines aim to create an interoperable ecosystem with standardized data and shared standards. Little commentary on uptake of the first version, which focuses on upstream actors, is available; companion guidelines for downstream actors are expected to follow once testing concludes.

Challenges have already been identified: among them, the reality of applying foundational or industry performance standards to ASM producers that typically operate outside of established mining networks, where standards are easier to verify.

Expansion of use cases

Greater convergence between high-tech and other sectors—including automotive, energy, extractives, finance, telecom and government—to pilot blockchain-enabled solutions is apparent, as is growing competition among blockchain-enabled schemes to disrupt the traditional rules of competition.

No one appears to have solved the data input challenge yet, referring to the fact that blockchain-based systems can be corrupted where individuals who tag product conspire to enter incorrect data at the outset, and pass off blacklisted ore as responsibly sourced. No one has yet demonstrated an unbroken chain of custody from mine to manufacturer and credibly linked ore to ultimate product at each processing stage. Once that is demonstrated, it remains to be seen whether blockchain can be harnessed to track the achievement of performance standards related to human rights, fair labour practices, environmental standards, anti-corruption and other factors.

Predictions and conclusions

As industry continues to explore blockchain technologies and platforms, time will tell if these tools can provide a reliable and scalable means of achieving the increasing demands of supply chain diligence standards.

Recent blockchain-enabled industry milestones

2018

October:

- UK developer Circular announces first mine-to-manufacturer traceability of Rwandan tantalum powered by blockchain, and built on a system using facial recognition and Quick Response codes.

2019

January:

- Ford Motor Company, Huayou Cobalt, IBM, LG Chem, and RCS Global announce blockchain platform pilot to trace and validate ethically sourced cobalt.

March:

- De Beers introduces diamond tracking blockchain traceability platform Tracr.

April:

- Volkswagen and Minespider, an open source, public blockchain protocol, announce pilot to track carmaker's lead supply.
- SustainBlock debuts ASM-to-end-user blockchain-based project at OECD Forum on Responsible Mineral Supply Chains.

August:

- A consortium involving BNP, HSBC, Cargill, Rio Tinto and others announce first fully integrated trade finance blockchain, expanding on Singapore iron ore end-to-end LOC transaction.
- Volvo Cars announces implementation of first blockchain traceability system to track cobalt in electric vehicle batteries in conjunction with Circular, and using Oracle's blockchain platform.

October:

- MineHub Technologies launches mining and metals trading blockchain platform in collaboration with IBM, ING Group, Wheaton Precious Metals, Ocean Partners USA, Kutcho Copper, Capstone Mining and White & Case LLP.

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