How to unlock the resource potential of undiscovered mineral deposits

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Credit: Piotr Arnoldes from Pexels

Raw materials like nickel are crucial for the production of batteries that are a key technology for low-emission mobility and the circular economy. With the demand for batteries expected to grow exponentially

in the next few years, the creation of a competitive and sustainable battery manufacturing industry will be more important than ever.

The EU-funded INFACT project is addressing this challenge by developing and testing innovative exploration technologies that are also acceptable to society. The project website points to the need to expand exploration opportunities for increasing the reserves of the EU's strategic minerals. "Chances of exploration discovery will be optimised by encouraging an effective sustainable and active exploration industry made achievable by focusing on the highest priority places (high Critical Raw Material prospectivity; low investment risk)."

The project team has finished its initial trials on three sites in Germany (Geyer) Spain (Cobre Las Cruces Seville and Minas de Ríotinto Huelva) and Finland (Sakatti) according to a news item posted on the 'Phys.org' website. In August and early September 2018 the team carried out helicopter flights at all the sites to gain a good geological understanding of the regions. The project will also use airplanes and drones in these regions as explained on the project website. It aims to create a technology certification system. The same news piece adds: "While the project is currently in an early campaigning phase the INFACT team is already planning on how the respective reference sites can contribute to technological progress in the long term."

New technologies

The partners believe the technologies are less invasive than classical exploration methods. The project website states that INFACT "addresses also the geological survey platforms from which the technologies are used, focusing on multi-sensor drones, which integrate multiple exploration methods and are expected to be one of the most disruptive innovations in mineral exploration."

The new technologies, which use several parameters, involve magnetics, electromagnetics and infrared spectroscopy. The project website explains: "The partners will apply new technologies for mineral exploration like superconducting sensors or, more precisely, superconducting quantum interference devices (SQUIDs). These are the most sensitive magnetic field sensors for geophysical applications and their exceptional performance will be demonstrated in the project." The partners hope that other fields such as hydrogeology and environmental monitoring will also benefit from INFACT's innovative technologies.

The ongoing INFACT (Innovative, Non-invasive and Fully Acceptable Exploration Technologies) project focuses on stakeholder engagement to raise awareness of sustainable exploration methods. "Improved license to operate could potentially result in access to prospective areas that have remained under-explored due to social opposition," notes the project website. In addition, INFACT will develop a "Discovery Roadmap" to help make the EU "a more attractive target" for the mining industry and investors.

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