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Identifying Safeguards Use Cases for Blockchain Technology

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In 2016, the Office of International Nuclear Safeguards at the National Nuclear Security Administration (NNSA) within the Department of Energy (DOE) commissioned the Pacific Northwest National Laboratory (PNNL) to explore the potential implications of the digital currency bitcoin and its underlying technologies on the safeguards system. The authors found that one category of technologies referred to as Shared Ledger Technology (SLT), also known as the blockchain, offers a spectrum of benefits to the safeguards system. The subsequent analysis suggested that both the International Atomic Energy Agency (IAEA) and Member States can use SLT to promote efficient, effective, accurate, and timely reporting, and increase transparency in the safeguards system without sacrificing confidentiality of safeguards data. This increased transparency and involvement of Member States in certain safeguards transactions could lead to increased trust and cooperation among States and the public further strengthening the international safeguards system. However, additional research was necessary to understand the precise safeguards problem that would most benefit from a blockchain solution. To that end, in 2018, PNNL initiated a follow-on study that examined specific safeguards use cases for blockchain applications. While the intent is to identify at least one safeguards problem that would benefit from a blockchain solution, findings may also suggest safeguards would not benefit from the technology. The proposed presentation will describe the methodology developed in 2016 and the findings from the follow-on study.

Topics

TEC4

Which "Key Question" does your Abstract address?

TEC4.1

Which alternative "Key Question" does your Abstract address? (if any)

TEC4.2

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