



Contribution ID: 265

Type: **Roundtable Member**

## Distributed Ledger Technology used in nuclear non-proliferation safeguards?

*Wednesday 7 November 2018 09:10 (5 minutes)*

Blockchain and more in general distributed ledger technologies are getting a lot of visibility in the financial world these days, being considered as real game-changers. However their recent evolutions (multi-channel ledgers, smart-contracts etc.) are still not well known and understood. They may have a huge potential changing also the way we will deal tomorrow with whatever type of transactions and transaction validation. Before using the technology or exploring its applications, the transposition of financial oriented distributed ledger concepts towards safeguards concepts should take place and the efficiency impact should be understood. Once the potential in the safeguards context have well been understood, the safeguards business processes should be analysed in detail in order to find the optimal places for implementing the technology and maximising the efficiency gain. A market survey will lead to a choice of the best solution to be used for the development of a real testbed for end-to end testing. How to evolve from a testbed, mimicking a specific and concrete situation towards analysing and concluding the usefulness in more general and overarching cases will be presented and discussed. Special attention will be paid towards encryption, robustness and immunity for cyber threats, automation, the efficient use of the block chain and smart contracts and scalability. The paper will present the methodology developed and used at JRC together with the first results and findings.

### Which "Key Question" does your Abstract address?

TEC4.1

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

TEC4.2

### Topics

TEC4

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**Session Classification:** [TEC] Blockchain and Safeguards

**Track Classification:** Leveraging technological advancements for safeguards applications (TEC)