

FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

Presented by the FIG Working Week 2019,
April 22-26, 2019 in Hanoi, Vietnam

"Geospatial Information for a Smarter Life
and Environmental Resilience"



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Blockchain as a technological solution in land administration – What are the current barriers to implementation?

Pauliina Krigsholm, Kaisa Ridanpää, and Kirsikka Riekkinen, Finland

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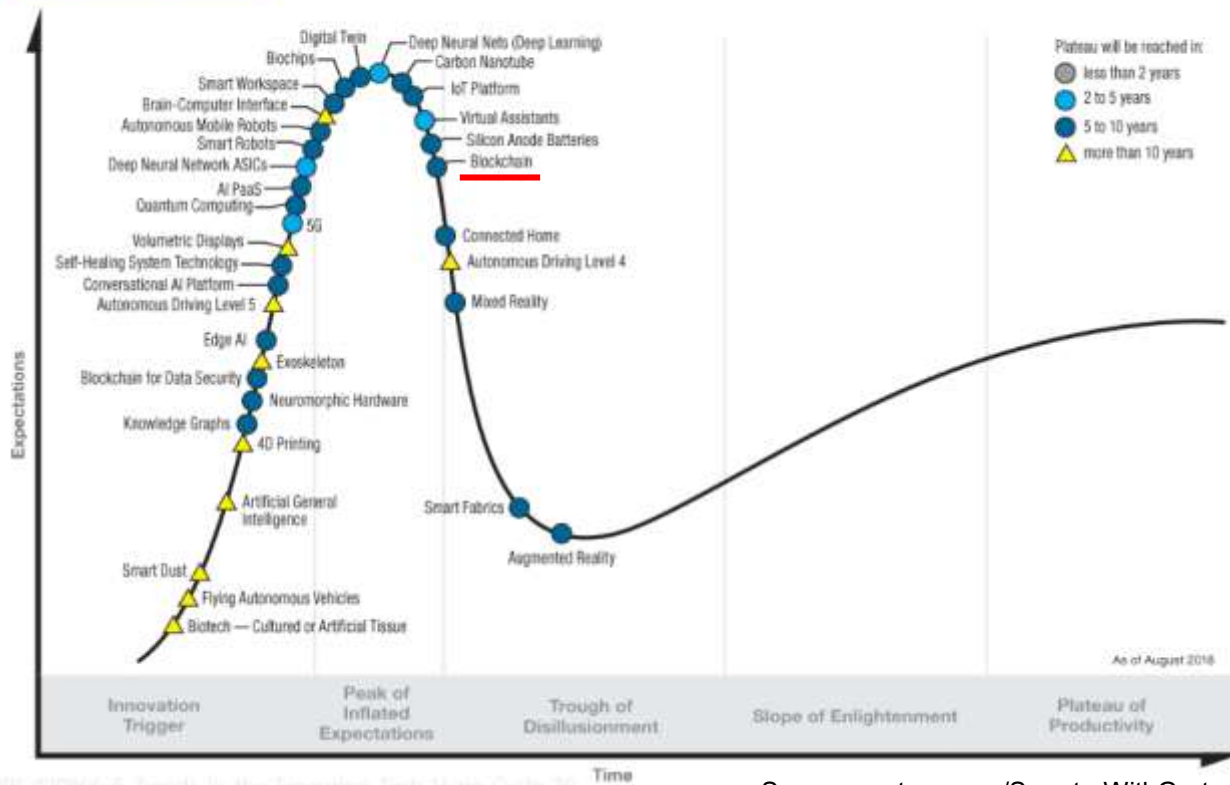
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Hype Cycle for Emerging Technologies, 2018



Source: gartner.com/SmarterWithGartner

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Research strategy

Phase 1:

- Review of blockchain terminology and key concepts
- Summary of the current state of blockchain discourse within the land administration domain



Phase 2:

- What can blockchain technology offer for land administration?
- What are the current barriers for blockchain implementation?

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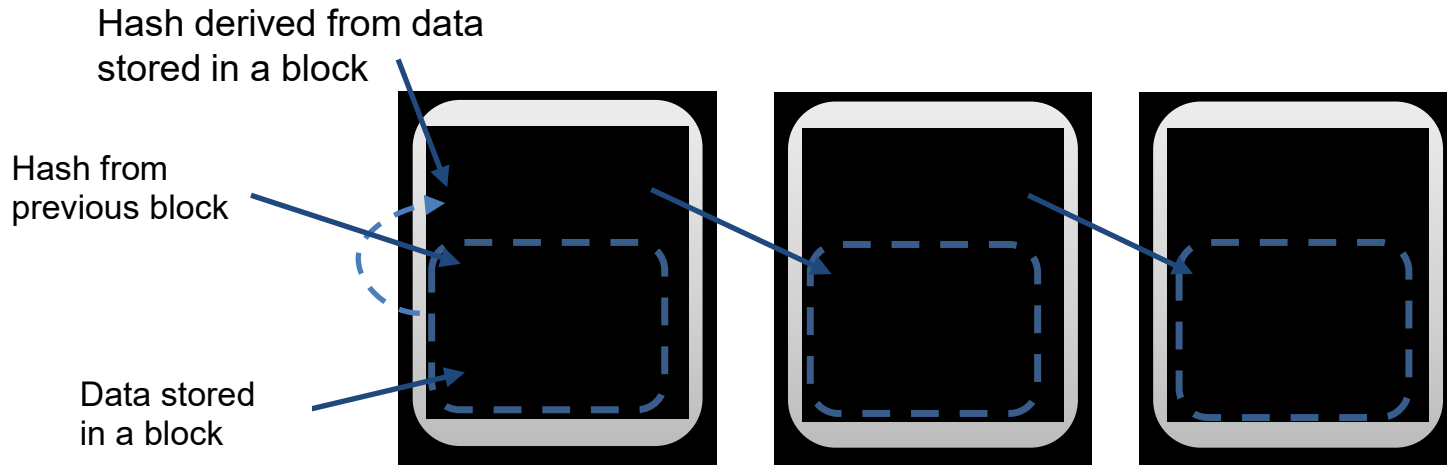
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Blockchain mechanism



Modified from Kotilainen (2017)

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When to implement?

Criteria	Land registration
Application purpose benefits from the decentralized database structure	Yes
There is a need for several users to update the database at the same time	Yes
Consensus mechanism	Yes
Modifications done in the database need to communicate with each other	Yes
Trust (or lack of trust)	Yes

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Methodology

- Qualitative approach: Literature review combined with 8 semi-structured interviews with technology experts
- Following topics were covered with each interviewee: (1) General questions about blockchain technology, (2) Technical implementation, (3) Introduction and use of (blockchain) technology, (4) Legislation, and (5) Future possibilities

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Findings I: What can blockchain technology offer?

- From technical point of view the technology does not provide much novelty
- Ability to maintain integrity, reliability, and originality of data in settings where trust is missing between parties
- Openings for new type of services that have been undeveloped due to lack of trust
- Protection since stored information is more difficult to falsify or eradicate
- High tolerance for faults

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Findings II: Barriers to blockchain implementation in land administration

Technical

Large data volumes

Complexity

Usability

Safety

Correction of errors

Scalability

Energy consumption

Social

Lack of knowledge

Values and attitudes

Surrounding society

'Deeper' issues in register keeping

Juridical

Lack of legislation

EU general data protection regulation

Smart contracts and their juridicality

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Concluding remarks

- Blockchain technology offers a possibility to make a decentralized, transparent and reliable database for storing information
- At this point there is no consensus of how (or if) the technology is going to disrupt the land administration industry
- Besides technical barriers, also social and legal barriers should be acknowledged when a blockchain implementation becomes topical

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Thank you!

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