Applications of Blockchain Technology in the Information Professions

What is Blockchain?

Distributed Database Technology

Information is stored in a database in which the storage devices are spread across a network

Distributed Ledger

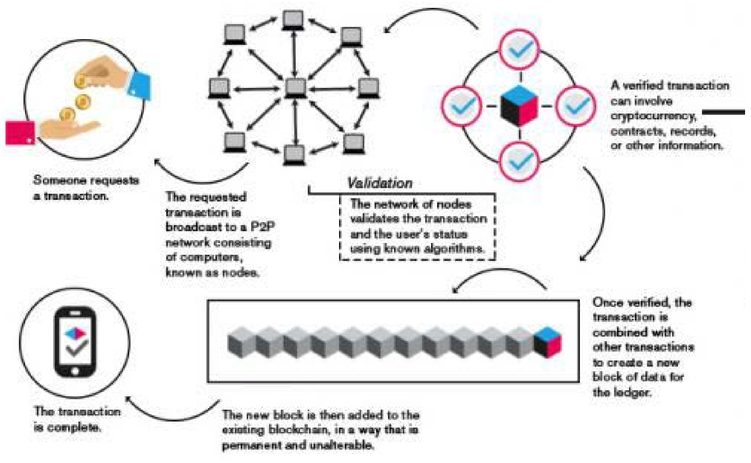
- An asset database that can be shared across a network of multiple sites, geographies or institutions
- Changes are rapidly reflected in all ledger copies
- Entries are encrypted

Blockchain

Distributed ledger in which each transaction related to an asset is recorded in an encrypted block of information and added to a chain

Definitions adapted from Walport (2016); Hammond (2018); Maull et. al. (2018)

Blockchain Technology Map



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Blockchain and Your Organization

Organizations should:

- Clearly define the operational goals or needs to be addressed to determine if blockchain or another distributed ledger technology makes sense as part of the solution
- Understand the current legal gray areas, and potential risks involved
- Estimate the costs or other resources required to design a blockchain solution and change work flows

Gaps in the Evidence Base

A stronger base of applied evidence will allow practitioners to evaluate the impacts of blockchain for the information professions. Continued research can:

- Develop and evaluate more use cases outside of the field of cryptocurrency and other financial transactions;
- Define the conditions and resources necessary both to scale up blockchain solutions, and to scale them down to the available resources of specific institutions;
- Explore the role of libraries as potential facilitators of access to and uptake of blockchain technology applications (Nicholson 2017);
- Define the enabling conditions – legal, technological and institutional – for blockchain and develop roadmaps to establish them; and
- Develop decision tree support tools to enable organizations to determine if blockchain is an appropriate tool to address their needs (Pisa 2018)

Since 2016 the International Organization for Standardization has been developing a set of 11 standards for blockchain and distributed ledger technologies, as of yet unpublished, which may address some of the above issues (ISO).

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Applying Blockchain in the Information Professions

Potential applications for blockchain include:

- Smart contracts
- Digital rights management
- Content Monitoring
- Collections management
- Records management (including land transaction data administration)

As of late 2018, most cases are proposals or prototypes, with a limited number of actual use cases. Through a grant from the Institute of Museum and Library Services, San Jose State University's School of Information is in the process of investigating uses of blockchain technology for the information professions, with findings to be published in 2019.

Research Methods

This poster synthesizes findings from research conducted in LSC 557 "The Information Professions in Society." Research methods included a literature review and consultation with subject matter experts.

Research questions included:

- What are potential uses of blockchain for the information professions, and implications?
- What is the status of case studies?
- Where are there gaps in the evidence base?

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