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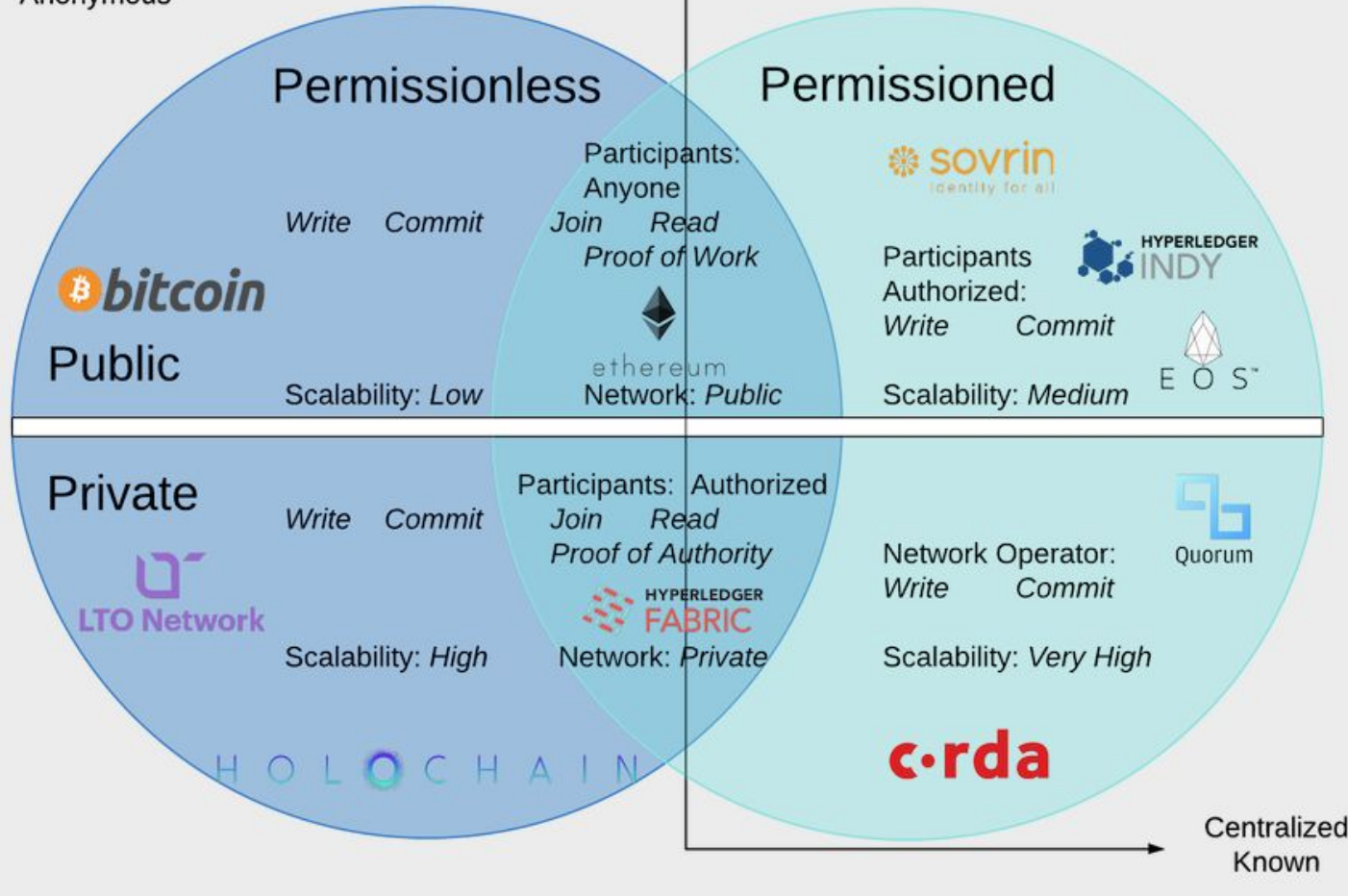
Chief Technology Office

Governor's Office of Information Technology

Blockchain Solutions Explainer



Decentralized
Anonymous





What's in it for Government?

Trusted digital access to secure, efficient, and accurate data - for producers, consumers, businesses, and agencies

- a. Solves for cross-agency data “ownership,” enables easy auditability, allows for baked in governance and automated workflows*.
- b. Encryption, redundancy, & hashing provide tamperproof security
- c. Standard API endpoints for existing, traditional, and mobile web apps
- d. Smart contracts, transaction bundling for governance and automation
- e. Run alongside existing apps to add value through security and trust
- f. Wherever fraud occurs, blockchain can help












Use Cases - Agriculture

Food safety, contamination, recall and tracing

- Blockchain can provide an efficient and reliable solution to the urgent need for product traceability and supply chain transparency. By recording information about products at every stage of the agricultural supply chain, a blockchain helps to remove redundant processes, ensure quality control, and monitor storage conditions. Agricultural companies already monitor crops with smart IoT devices, and the application of distributed ledger technology will reinforce sensing technology by recording and verifying all data.

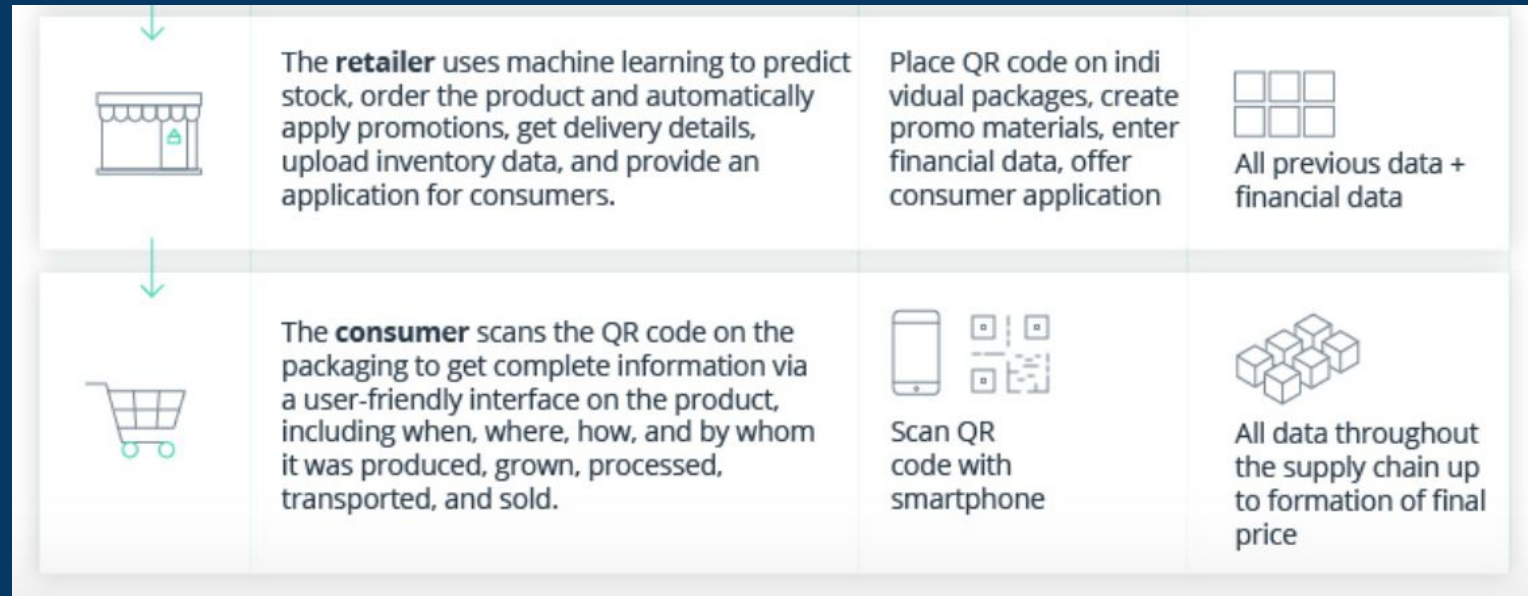
Shared Ledger

	Supply chain stage	Digital procedures	DLT process
	The supplier sells agricultural and livestock products to farmers, and this sale is registered in the DLT.	 Barcode marking	 Initial data
	The farmer/producer collects data on the product's growth (feed, pesticides, moisture, temperature, soil and stock conditions, farm location, etc.). This data is recorded and verified by the DLT.	 Collection of data during product growth	 Initial data + data on product growth
	The processor places a QR code on the packaging of the final product after inspection. This code includes all previous data along with compliance certificates.	 Certification and measurement of conditions	 Initial data + data on growth + certifications

Shared Ledger



Shared Ledger





Water Rights and Trading

Places: Australia, New Zealand, South Africa, PRC, USA - California

IoT monitoring data and Smart Contracts used to de-risk and verify transactions

Stepped research approach:

- Map existing tx model and regs to DLT-based software model
- Determine Data ownership/access rules
- Economic and incentive model for consensus and consortium participation
- Define MVP, scope including data infrastructure & Off-grid applications
- C/B Analysis



Digital Credentials

Identity Trust Anchor for individuals and organizations

- Higher Education - degrees and transcripts
- Professional Certifications and Licensing
- Facility licensing
- Recognition, Awards, Badging



Blockchain Blockers

New technology with developing standards and applications

- Emerging development languages and models - scarce resources
- Choosing the right chainstack that's fit for purpose
- Right-sizing the network for transactional load
- Cost/benefit of encryption and proof system

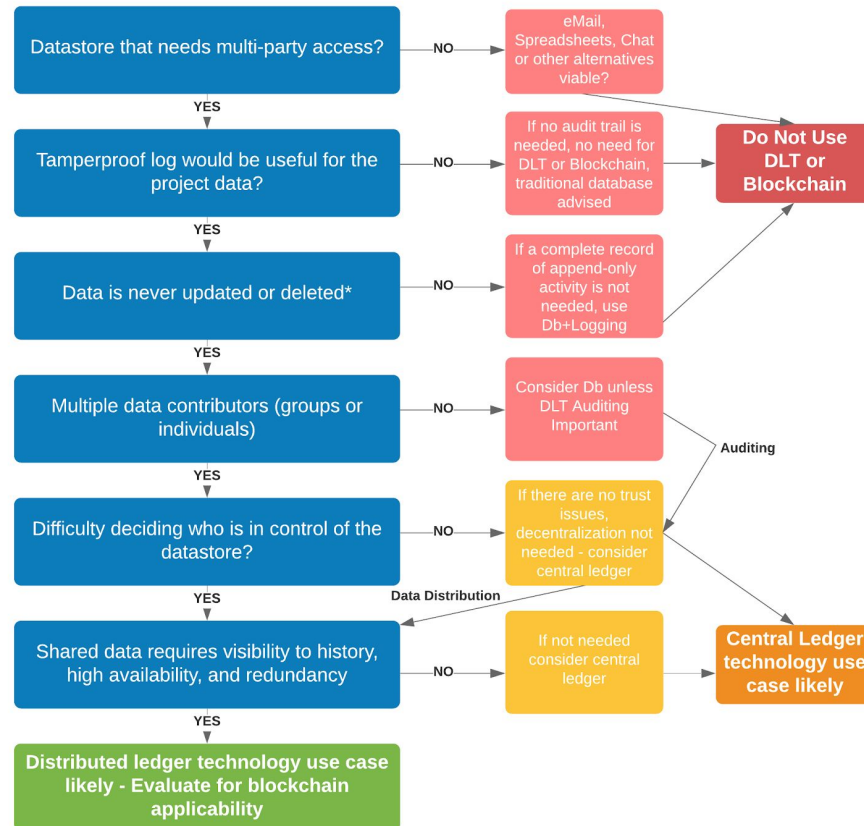
Misunderstanding and misuse

- Blockchain is not a database replacement CRUD vs. CR
- Consortium building; permissions; access & ownership of data
- Permissioning models



DLT_Decision_Tree

Thad Batt - OIT | September 9, 2019





Discussion & Resources

Resources and references for the use and understanding of DLT and Blockchain in Agriculture

- [How to Apply Blockchain in Ag - Intellias Software](#)
- [Government Blockchain Association](#)
- [IBM Food Trust Network](#)
- [Deloitte Blockchain: revolutionising the agriculture industry](#)
- [USDA Building a Vision for Global Organic Oversight Technology](#)