



Observatory of  
**Public Sector Innovation**

# Uses and Limitations of Blockchain in the Public Sector

Meeting of the OECD Global Parliamentary Network

10 October 2018



 [oecd-opsi.org](http://oecd-opsi.org)

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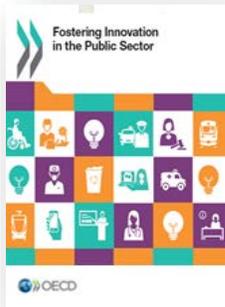
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# OPSI

OPSI is a forum for **shared lessons and insights** into the practice of innovation in government. Since 2014, it has worked to meet the needs governments around the world, providing a collective resource to identify, collect and analyse **new ways of designing and delivering** public policies and services.

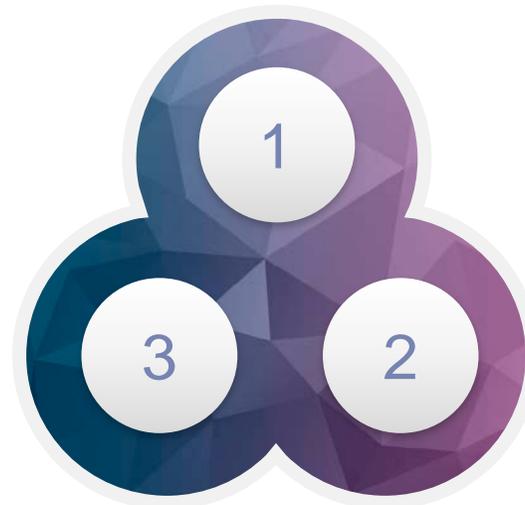
## UNCOVERING WHAT IS NEXT

Identifying new practices at the leading edge of government, connecting those engaging in new ways of thinking and acting, and considering what these new approaches mean for the public sector.



## PROVIDING TRUSTED ADVICE TO FOSTER INNOVATION

Sharing guidance and resources about the ways in which governments can support innovation to obtain better outcomes for their people.



## TURNING THE NEW INTO NORMAL

Studying innovation in different public sector contexts and investigating potential frameworks and methods to unleash creativity and innovation and ways to connect them with the day-to-day work of public servants.



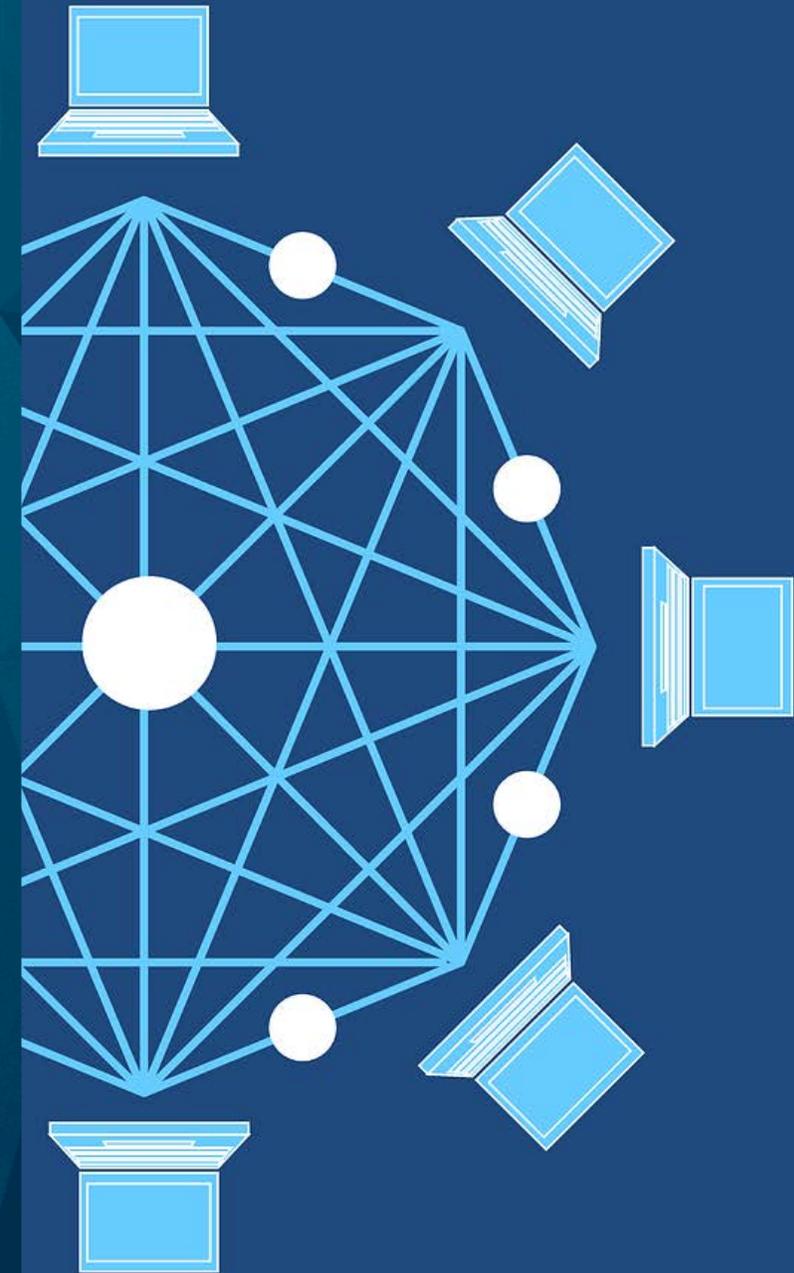
# Blockchains Unchained Guide

Many public servants have come to OPSI about how blockchain fits within government.

Because of blockchain's complexity and (and often its association with Bitcoin), it can be confusing to look past the hype and understand the potential uses and implications it can have in the public sector.

To help address this, OPSI created the Blockchains Unchained (<http://oe.cd/blockchain>) guide to:

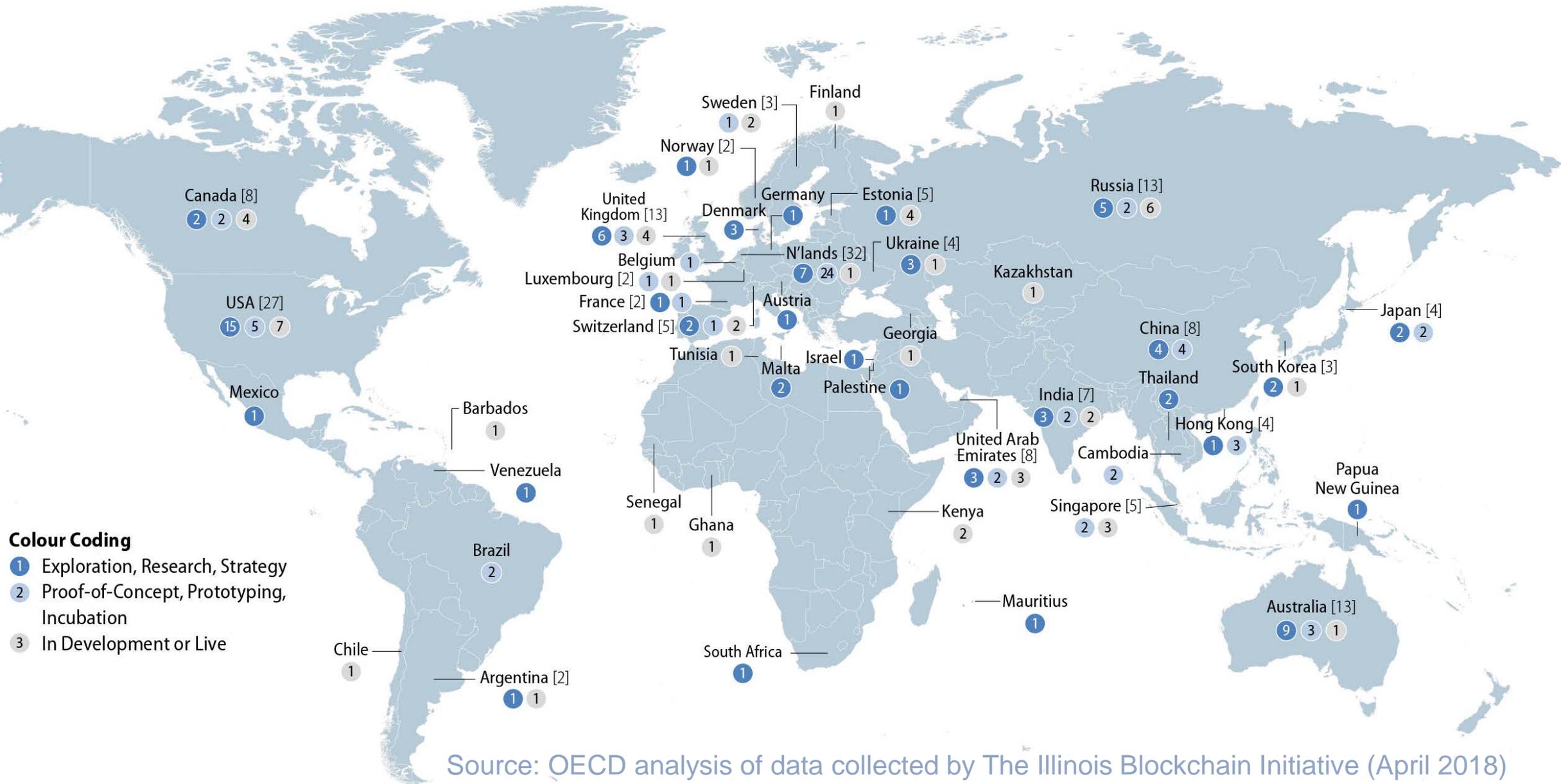
- Explain simply what blockchain is and isn't
- Make the case for public servants to build knowledge and capacity around blockchain
- Make sense of blockchain's potential impacts in government
- Explore existing public sector use of blockchain



# Potential Use Cases

Use Case	Description
<b>Identity</b>	Establishing and maintaining identities for citizens and residents (birth certificates, marriage licenses, visas, death records).
<b>Personal records</b>	Interoperable health records, insurance records, etc.
<b>Land title registry</b>	Details and historic records related to real estate and property transactions.
<b>Supply chain management, inventorying</b>	Tracking an asset from its creation, transportation, purchase, and inventorying.
<b>Benefits, entitlements, and aid</b>	Social security, medical benefits payments, domestic and international aid. Anticipatory/automated payments could be automated through Smart Contracts.
<b>Contract and vendor management</b>	Tracking and paying vendors, managing purchase commitments and transactions, and monitoring schedule performance. Can allow for perfect transparency of government expenditures.
<b>Voting</b>	Enabling new methods of digital voting, ensuring eligibility, accurate counting, and auditing (e.g., to avoid ballot-rigging).
<b>Streamlining interagency processes</b>	Blockchains and smart contracts can automate transaction handling and improve information sharing – allows each agency to better focus on their own mission and tech without as much need to consider others tech.

# 203 Blockchain Initiatives in 46 Countries



Source: OECD analysis of data collected by The Illinois Blockchain Initiative (April 2018)

# Top 10 types of projects and industries

Rank	Types of projects (count)*	Industries (count)*
1	Strategy/Research (42)	Government Services (174)
2	Identity (Credentials/Licenses/Attestations) (25)	Financial Services (74)
3	Personal Records (Health, Financial, etc.) (25)	Technology & Internet of Things (26)
4	Economic Development (24)	Healthcare (23)
5	Financial Services/Market Infrastructure (20)	Real Estate (22)
6	Land Title Registry (19)	Supply Chain (19)
7	Digital Currency (Central Bank Issued) (19)	Energy (13)
8	Benefits/Entitlements (13)	Transportation (13)
9	Compliance/Reporting (12)	Education (8)
10	Research/Standards (12)	Telecom (4)

Source: OECD analysis of data collected by The Illinois Blockchain Initiative (March 2018)

\*Initiatives may be tagged with more than one type of project/industry.

# Challenges & Limitations

## *Blockchain is not a cure-all*

01

### IMMUTABILITY

*A Blockchain is an add-only list. Once data is added, it can't be removed. Perhaps not a good fit when updating/deleting data is a regular occurrence.*

02

### DATA STORAGE

*Databases are often used to store large amounts of data (images, docs, apps, etc.). However, Blockchain is designed for small pockets of data. If data storage is needed, Blockchain may not be a good fit, or a hybrid solution may be needed.*

03

### TALKING ABOUT BLOCKCHAIN

*The act of explaining blockchain to public officials and civil servants is difficult. De-linking blockchain from Bitcoin and discussing how it can improve efficiency and strengthen mission effectiveness can help.*

04

### COSTS

*Higher short-term costs associated with a still-emerging technology prevent its widespread use. Blockchain-as-a-service products are starting to be offered that can allow for experimentation.*

05

### BLOCKERS

*People often flag issues such as energy consumption and scalability as Blockchain blockers. However, many of these are irrelevant to government Blockchain implementations (i.e., only apply to Proof of Work consensus on permissionless/public blockchains).*

06

### CODING & GOVERNANCE MODELS

*Blockchains are known for eliminating the need for central authority, but this is not entirely true. They must be coded and governed by those entrusted with key roles. Governments must build a technical knowledge base to ensure these decisions are made well (even if the actual coding is outsourced).*



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