



## Recommendation 5:

**Blockchain technology**

**Faster and transparent access to public sector services**

Using '*blockchain technology*' to meet the societal need '*Faster and transparent access to public sector services*'.

### Status quo:

There are many possible ways that blockchains can make government more accountable, transparent, efficient and fraud-proof, which include contract management, electronic voting and health care. There are already several pilot projects in different countries regarding the use of block chain technology in e-health, e-resident systems, elections and especially land and property registration. A prominent country which has already several applications of blockchain technology in use is Estonia. Other countries include for example Sweden, Hong Kong, Ghana, Kenya, Nigeria or Georgia. However, despite these pilot projects blockchain technology is still in its infancy, so that there are still unknown factors and vulnerabilities.

### Recommended actions:

#### Technical challenges:

- to provide a balance between privacy and confidentiality on the one side and transparency on the other side
- resolve challenges such as transaction speed, the verification process and data limits
- provide high-performance, low-latency operations
- ensure that distributed ledgers are scalable, secure and provide proof of correctness of their contents
- energy efficiency
- ensure high level of cryptography

#### Non-technical challenges:

- *Personnel*: Recruit or train personnel in blockchain technology
- *Infrastructure*: blockchain-as-a-service or another infrastructure solutions?
- *General strategy*: Develop a strategy for shifting the public sector processes towards placing trust and authority in a decentralized network
- *Cyber security issues*: e.g. Sybil-attacks and distributed denial of service attacks)
- *Legal issues*: arising from the use of blockchain technology in the public sector on governmental level
- *Economics*: Consider the economic pro and cons

## **Faster and transparent access to public sector services**

*The societal demand for a trustworthy public sector resonates until today. This need also includes issues such as better quality public services – fairness and customer service standards in public service provision . Informants mentioned establishing trust in governance, accessing timely and accurate information, unlinking public sector and politics as some of the key needs under this header.*

*One informant expressed his opinion as: "A clear point of authority to be established (often have to roam offices because it is not clear the authority for a particular task)."*

## **Blockchain technology:**

*Blockchain is a peer to peer software technology that protects the integrity of a digital piece of information. It is a type of distributed ledger or database in which value exchange transactions (in bitcoin or other token) are sequentially grouped into blocks. Each block contains a timestamp and is chained to the previous block and immutably recorded across a peer-to-peer network, using cryptographic trust and assurance mechanisms. The data in a block cannot be altered retrospectively.*

*Though originally invented to create the alternative currency titled "Bitcoin", blockchain may be used for other cryptocurrencies as well, as the digital ledger underpinning them. In fact, not only information, but anything of value - money, titles, signatures, deeds, music, art, scientific discoveries, intellectual property, and even votes – can be moved and stored securely and privately.\**

• -MinuteVideos, Blockchain Introduction,. [http://minutevideos.com/project/blockchain-introductionmgm0hv8m/pub?gclid=Cj0KEQjw3ZSBRD1xu3qw8uS2s4BEiQA2bcfM3wG0IOXHxvCkQoPLY\\_xlLri5C9IrHMm1THERDyG34MaAizX8P8HAQ](http://minutevideos.com/project/blockchain-introductionmgm0hv8m/pub?gclid=Cj0KEQjw3ZSBRD1xu3qw8uS2s4BEiQA2bcfM3wG0IOXHxvCkQoPLY_xlLri5C9IrHMm1THERDyG34MaAizX8P8HAQ).

-Gartner IT Glossary Blockchain. <http://www.gartner.com/itglossary/blockchain>

-CIO, 4 emerging technologies that will drive digital businesses. <http://www.cio.com/article/3044067/leadership-management/4-emerging-technologies-that-will-drive-digital-businesses.html>