Notes on Blockchain

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These are my notes following the Blockchain Policy Forum I attended, hosted by the OECD. I include a few thoughts on Blockchain but have not attempted to provide a summary of the Forum.

Leading examples in the use of Blockchain can be seen in smaller countries and island states, including Bermuda, Mauritius, Serbia and Slovenia. Being small is not a disadvantage in the deployment of new technologies and may well be an advantage, especially considering, the possibilities of "leap-frogging".

Blockchain is not Bitcoin!

It is unfortunate that the Blockchain technology became conflated with Bitcoin that uses the same technology. We need to dissociate the two. Block systems are "verticalizing" to accommodate specialised needs. Different needs cause different systems to be set up by collaborating partners such as for health and education.

Why Blockchain?

A ledger of truth

Legacy databases are centred on a single source or copy of data. This creates a central point of failure, an "irresistible target" for hackers and is even subject to possible corruption of the data by people, programming or equipment failure. In a Blockchain system, data is stored in multiple locations, each being checked against all other copies of the same data, that is held by collaborating partners. For this reason, these systems have been called "trust machines". This should not be confused with the accuracy of the record being uploaded to the chain, which could be garbage in itself. The challenge is that with Blockchain, it could be "Garbage-in-Garbage-Forever", because of the resilience and security of the technology.

The challenge of identity

Confirmation of personal identity was attributed in the Forum to King Henry in 1414 who provided a letter that a traveller would carry that asked for safe passage of the traveller. The passport is the present-day version of this. Some countries have an identity document or card. It is suggested now that Blockchain be considered to support the next version of identity tracking.

Medium Term Opportunities

Specialised and secure

Blockchain systems have been described as being more robust against vandalism than any previous database system, especially those that are completely centralised. There is a risk that the particular trust model chosen could cause the Blockchain system that is used to become centralised due to political or financial reasons. The more transparent the system, the more it may be monitored to ensure there is no corruption. Once "on the block", the data cannot be removed.

New jobs

New kinds of work are emerging because of the programming and other skills needed. Suitable programme or coding courses need to be included in schooling curriculum to enable young people to have these options open to them. Policy making in new areas is challenging. The limited numbers of people with the best available skills in this area could help to provide early guidance to policy makers. A broad base of skills is needed to bridge the gap between technology development and policy.

Near-Term Opportunities

Examples of project opportunities

Identification of people – over a billion people globally do not have formal identification. This impacts on their ability to open bank accounts, find work, health care or even to register children in schools.

Money transfers and transactions – poor people pay some of the highest costs for transferring payments home. These high fees could be reduced through peer-to-peer payment systems.

Maintaining educational records – especially in the case of refugees and migrants, but also in an aging population, the lack of secure, digitised records impacts on the ability of people to gain and hold decent work.

Centralised property ownership records may be absent, unreliable, defrauded or hacked – a more secure system can help to ensure that all people and especially the poor are able to show ownership of land, which impacts on their economic well-being.

Warnings to Note

Technical expertise

The field is highly technical and potential implementers of the system may be quite un-technical. A wide range of skills is needed for any implementation, the leader of which must have sufficient understanding of the technology.

Costs and investments

Starting up a new Blockchain system may be excessively expensive. Joining with an existing system may provide reductions in costs, but the implementation team needs to fully understand what they are getting into and the consequences of their actions.

Questioning the naysayers

People who question anything new have a useful role in checking future directions. The defence of centralised databases that are under the control of a small group of people may be an indication of a problematic environment. The lack of transparency to the subjects of data and peer-to-peer checks in centralised databases need to be carefully considered.

Further Readings

The OECD Blockchain Primer

OECD Business and Finance Outlook 2018

The Blockchain Primer That George Washington Would Understand

The Language

Once a piece of information goes into a Blockchain, it cannot be changed by anyone; it is immutable.

Tokens are the commodity or asset that is registered or exchanged, such as a unit of currency or certificate of achievement.

A hash is an encrypted piece of data that may be stored in a Blockchain or database.

A Blockchain is a computer protocol. A smart contract is an additional protocol to perform a specific function.

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