Blockchain applications in the government:

Whitepaper

Discover where the added value of blockchain technology lies

Discover the impact of blockchain

Blockchain is a frequently heard term for a technology that is expected to have a disruptive influence. Several governments are currently experimenting with this technology, either jointly or individually. Although its development is still in full swing and its possible applications cannot yet be stated in their entirety, they are discovering what the added value of this technology could be. The question underlying it all is this: what future impact will blockchain have on the way government processes are set up, and thus on the position the government occupies in our society? This question is particularly interesting because the government derives its societal position from its principal duty: generating public value. Blockchain has the potential to change the fulfilment of this duty, and with it the relationship between the government and citizens.

Types of blockchain applications

Several authorities are currently considering how they can innovate and improve governmental processes using blockchain. The current blockchain experiments they are undertaking are characterised by the fact that their objective, either directly or indirectly, is to optimise the services the government offers. Although the diversity of government experiments is wide-ranging in terms of the types of governmental processes on which they are focusing, a common theme does run through them, however. Here we will provide an explanation of four generic blockchain applications.

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1. Simplification of administrative processes involving many parties

Many of the administrative processes between the government and its citizens are characterised by a diversity of parties involved, and by a multiplicity of repetitive bureaucratic operations. Blockchain technology offers a simplification in terms of such processes. At the moment a government is often needed as a trustworthy intermediary ensuring that what its chain partners do is right. This will change if collaborative chain partners have simultaneous access to the same real-time information and can monitor its quality jointly. Chain partners will thus become jointly responsible for overseeing the correctness of an (automated) process they are undertaking together in relation to a citizen.

This means that less coordination – often about the data required – will be needed between various parties, or it will even be superfluous, and duplicated administration will be history. The volume of repetitive bureaucratic operations in administrative processes between the government and citizens will be reduced considerably as a consequence.

Municipality of The Hague
Electric vehicle subsidies

The Municipality of The Hague wants to simplify what is currently involved in applying for electric vehicle subsidies, thereby speeding it up. For a citizen to be eligible for such a subsidy, he or she must fulfil a number of conditions. The municipality is currently the director of a process in which various parties both within the organisation (the Subsidies and Civil Affairs departments) and outside it (the Dutch Vehicle and Driver Licensing Authority RDW, and the sectoral organisation for the motor trade BOVAG) perform a number of checks in a specific time sequence. This process is characterised by agreement between parties and repetitive administrative operations. Blockchain technology could make it possible for all the parties involved to perform their checks simultaneously. The ultimate objective is that both the citizen and the various chain partners involved have an insight into the request's status, resulting in its clearer administration.

2. Preventing rather than curing: changing the oversight process

Trust is a key value in a democracy and a constitutional state. The government functions because the citizen trusts it. Nevertheless, governmental operations always need public, democratic oversight. Mistakes can be made unexpectedly in governmental transactions, where the citizen becomes a victim. Putting such mistakes right currently takes a great deal of time and only occurs retrospectively. On the one hand the blockchain technology makes it possible to store data safety and to prove authenticity. It's then easy to establish where, when and who made a mistake in the governmental transaction. On the other, the technology also enables conditions to be attached to a transaction, before it may take place. Setting up so-called *smart contracts* lets blockchain technology function as a precondition for governmental transactions. This largely prevents inaccuracies from occurring, and retrospective checking becomes superfluous.
Setting up a governmental process in such a way differs strongly from the current set-up, where on the basis of available data, it is difficult to establish who, where and when a mistake was made in a governmental transaction, and correctness is only checked retrospectively. The blockchain technology enables the government to deal satisfactorily with errors that have been made, and to prevent any inaccuracies instead of curing them. This puts trust at the core of its operations, rather than oversight.

Court of Audit
Insight into public money

At the moment the Dutch Court of Audit ('Algemene Rekenkamer') checks the effectiveness and legitimacy of government expenditure retrospectively. It would prefer to have justification for the deployment of public resources set up differently, by moving that justification to the core of the budget cycle. This can be organised with blockchain technology, so that checking the output from governmental transactions retrospectively can be reduced or can even disappear entirely. In the future continuous, real-time audits will be possible. Through smart contracts in a blockchain, the Court of Audit will consider how checks, which now often occur when a transaction has already been implemented, can be set up as a precondition for a transaction. Trust in the legitimacy of transactions becomes more built-in with blockchain, and more permanent in nature. This will ultimately cause the element of 'time' to disappear in such processes. The nature of the checking operations by the Court of Audit will change significantly as a consequence.

3. Clear registration of ownership: information security

When information that is not publicly accessible is used in governmental transactions, it's important that all the authorised parties have access to the same confidential information (or to the part of it that is relevant to them). This currently appears difficult to achieve. At the moment the involved parties store this non-public data in their own systems. So the required information is not always available in real-time to the authorised parties. Blockchain technology ensures that all the parties involved can take the same information as the starting point for their transaction. By working in the blockchain with central cross-references that are shared decentrally with all the parties involved, rather than including documents in the blockchain, a document only has to be stored in one source. All the authorised parties have real-time access to the same information. The owner of the relevant information is clear, and when this information is no longer useful, the document can be deleted and this reference no longer works. This means that information is only accessible to the designated parties, and only for a specific period of time.

Ministry of Security and Justice
'Halt-straf' information availability

'Halt-straf' (literally stop punishment) is an intervention aimed at giving wayward youths a second chance; they have the opportunity to reform their criminal behaviour without it having any long-term consequences. Confidential data is utilised in such criminal cases, data that is still often stored locally at the various parties. To guarantee the security of the information used in 'Halt-straf' cases and to make the current working method more efficient and more effective for the youths involved, the Ministry of Security and Justice is considering how the required information could be centralised using blockchain. In the 'Halt-straf' process, blockchain can be used to share a central cross-reference decentrally, with only the authorised parties. For them, only the minimum of information they require to perform their work would be visible. Such a blockchain application avoids parties having to work with incomplete files.

4. New citizen identity: manage one's own identity details

Transparency has been the watchword for governments over the past two decades. That the promise of, and the demand for, transparency has grown since the mid-1990s is largely down to technological developments. Thus transparency is also one of the promises of blockchain technology when it comes to sharing data. The technology makes it possible to trace every transaction in the blockchain back to an actor, whether in the form of a pseudonym or not. If there is a pseudonym, the identity of the person shielding behind it cannot be discovered in the form of personal details. Thanks to blockchain technology, identity no longer takes the form of an entity, but of a collection of separate components, each managed separately by the citizen. Thanks to the blockchain, identity data is shared with more focus and thus almost never in its entirety.

Ministry of the Interior
Personal details in blockchain technology

The Ministry of the Interior is researching the possibilities surrounding the reliability of a digital identity. The growing societal awareness of personal data and the growing need for insight and control lie at the basis of this. The Ministry is investigating whether the concept of 'identity' could be replaced in existing elements like the passport and the DigiD citizen platform, by a national blockchain with personal details. This would mean that citizens would always have their complete identity with them using mobile applications, for instance, but could also determine at all times just who they would share this information with. Examples might be requesting the age of the citizen when buying alcohol, through to providing identity details when arrested. In the former case a proof of identity showing various personal details is not needed. Blockchain could let the citizen only show his or her date of birth, while the other information remains protected and private.

Conclusion

The government derives its position in our society from its principal duty: generating public value. Blockchain can exercise a disruptive influence over the execution of duties and the position of both local and national authorities, because blockchain influences the generation of this public value. Based on the generic applications described above, we conclude that blockchain sets a point on the horizon where (1) administrative processes run more efficiently, (2) the government's checking function is focused on prevention rather than cure and is decentralised to the parties involved, (3) information security can be guaranteed better in this far-reaching digitised world, and (4) the demand by citizens for more transparency is honoured by making the citizen the owner of each part of his or her identity.

Has your interest been stimulated?

The links below will give you more information about the blockchain phenomenon. Naturally you are also welcome to get in touch with one of our advisors. We will be happy to tell you more about the latest developments.

- The four basic principles of blockchain technology
- Blockchain: hype or opportunity?

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