Blockchain and e-government processes

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Abstract

Purpose

Recognition of foreign qualifications for authorising the exercise of a regulated profession gains importance in globalised economies and in international organisations such as the UNESCO. However, national procedures for such recognition have not yet experienced the transformative changes that occurred in other sectors of public administration. The study of "transborder digitisation" is still in its infancy. While governments consider the adoption of blockchain applications for the e-administration of trade-related procedures, for example customs procedures, it is timely to give some thoughts to recognition as well.

Aims

After explaining the role of recognition in international relations this article explores the features of recognition procedures that are relevant for the choice of a technology. It then aims to identify recognition authorities' needs in terms of administrative tools and to find out the options and potential benefits of blockchain technology in view of those needs. It aims to find whether there are reasons to select that particular technology rather than conventional methods. This is highlighted in a concrete description of what could be a possible configuration of a blockchain solution for recognition procedures. Since opportunities are always balanced by limitations, the article also inquires into ithe expected challenges in adopting a blockchain system between different countries' recognition authorities. The article's overall aim is to offer an assessment of blockchain technologies' potential in that field and to highlight developments in technology that could ease their adoption.

Findings

The article finds that the advantages brought by DLT technologies and the needed features of recognition processes coincide in several respects. However, some critical challenges and limitations for the application of blockchain in this field also exist. An adoption of that technology for that particular branch of public administration could occur provided that the technology continues to improve. Such improvements include interoperability, interface with

other protocols and legacy databases, portability, and a higher degree of safety regarding privacy.

8. Conclusion

In an increasingly globalised world, the interest for projects of "transborder digitisation" or "cross-border digitisation" gains momentum. At the same time, recognition of foreign professional qualifications becomes increasingly relevant for individuals and for regulatory authorities, as people are increasingly moving across borders. Blockchain has never been considered in the realm of official recognition of foreign qualifications for authorising the exercise of regulated occupations, but there may be understandable reasons for this apparent lack of interest thus far. This may have to do with the caveat formulated by Gürkaynak, Yılmaz, Yeşilaltay, and Bengi (2018), namely that "talking about blockchain's future at this very early stage is almost like speculating about the future of the internet back in the 1980s". In the past year, however, besides the exponential progress in technology several changes occurred. Those developments make it necessary to provide a fresh insight into this issue.

First, academic recognition, the twin brother of professional recognition, has gained political profile in the international community with the conclusion of the UNESCO Global Convention, which also sets out several common principles on recognition. Second, a few countries have implemented systems of electronic diplomas, in addition to CeDiplomas already launched by individual universities. Third, systems of digital identities (DIDs) and self-sovereign identities (SSI) have emerged on the marketplace and are in use. And fourth, international work on blockchain in particular standardisation has advanced, mainly under the auspices of the ITU. Taken altogether these recent developments are paramount for the topic at hand.

This article contributes to research on two scores. First it confronts the functionalities of blockchain with the needs of recognition stakeholders, and concludes that they coincide nicely (Section 5). Second, and more importantly, it analyses all potential challenges or limitations of blockchain in view of the constraints imposed by recognition and proposes ways to solve or go around them (Section 7). Based on that, and on a concrete possible configuration of a blockchain recognition platform proposed in Section 6, this article concludes that while blockchain offers several opportunities and advantages, there remain some specific challenges that call for further technical developments before governments are expected to embark on such a project. Even though the bulk of the literature on blockchain and diploma-related issues seem to focus on the challenge of privacy, the author of this article rather opines that interoperability, portability and risk of fragmentation will need more time to be "solved" through technology developments compared to privacy concerns. The overall challenge that comes after all specific challenges are solved is to avoid that in order to meet all the constraints of recognition the blockchain solution offered is so much altered that the initial unique advantages of the technology are no longer exploited to their fullest potential, rendering the technology as such not much more attractive than any other technology.

The main functionalities (and user values) that DLT solutions carry for the purpose of recognition procedures are: trust, information exchange (transaction), transparency and traceability (Section 5). Scholarly research on the problems faced by recognition authorities, in particular issues that relate to trust and fraud, is sparse and no quantitative information exist.

Still, it can hardly be objected that a trust-related issue of some magnitude exists. In addition, it is a fact that the main role of recognition authorities consists in systematically checking the authenticity of documents and the actual content of training (curricula, examinations, experience gained at work, records of achievements, registration, etc.) in a large number of foreign countries. To make sure that authorisations to practice in a given jurisdiction are well monitored it is necessary to keep a good track record and traceability of all recognition decisions and the conditions under which they were reached. Information on recognition decisions is interesting to a number of stakeholders, which is why transparency would play an important role. Finally, recognition processes often require exchange of information (transaction) between authorities of the countries of destination and of origin.

In sum, all main functionalities of DLT solutions, the "four Ts", would be relevant in the case of an e-recognition procedure. This represents an opportunity for the adoption of blockchain.

Opportunities must always be confronted with limitations and challenges. This article identifies the following ones: interoperability, protection of personal data, user identification, portability, liability, speed, scalability, risk of overshooting, critical mass and fragmentation. The relevance of those challenges varies greatly, interoperability being probably the most serious one, and liability probably not that much.

This article attempts to point to solutions, existing or prospective, to mitigated them as technology develops and as e-government becomes a norm in public administrations. DLT has experienced remarkable improvements in the past few years and if it continues on that trajectory its disruptive potential on a wide range of private and public sectors is real. But to realise this potential, in particular in the case at hand, it is necessary that developers address the aforesaid challenges. To contribute to the work on future developments, this article offers some views on stakeholders and stakeholders' interests in the context of a possible e-government application for recognition of foreign qualifications.

A frequent mistake is to adopt a technology just for the sake of the technology. But in turn it is often too short to blame the technology after some projects failed. Whatever the technological environment, people will always remain at the centre, and the fact of the matter is that often projects fail because stakeholders' acceptance could not be mobilised, and this in turn is a result of lack of public value and poor stakeholders' management. Even in the case of recognition procedures of foreign professional qualifications, which is comparatively limited in scope, the community of potential stakeholders is stunningly broad. Hence a thorough analysis of stakeholders' interests is a prerequisite in any project of DLT-based recognition (Section 5.1).

Finally, another aspect to underscore is that in case new technologies are introduced, they shall serve good purposes, and not defeat the purpose of recognition or have undesired effects. In particular, new technologies shall serve to simplify and facilitate administrative processes, not encourage some authorities to multiply the controls and create an inflation of control items simply because it becomes possible. This is an example of what would turn many stakeholder groups against the innovation.

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