



2022-08-18

Contact
Department of Community Affairs
Jörgen Dehlin
jorgen.dehlin@lansstyrelsen.se



Proposal for a thesis on how the blockchain can be used for polls and elections

Background

The County Administrative Board Skåne, together with 12 other parties in the North Sea region, have been granted funds for the implementation of the project "Blockchain in Government" (BLING) within the framework of the EU program Interreg North Sea Region. The project started in 2019 and will end in June 2023¹.

The project is led by the city of Groningen in the Netherlands and the partnership includes the universities of Edingburgh, Aalborg, Gothenburg and Oldenburg, among others.

The project aims to investigate how the public sector can use blockchain technology to develop its service offerings to citizens.

¹ <https://northsearegion.eu/bling/>

For our part in Sweden, we put particular focus on how blockchain technology can contribute to increased transparency and dialogue between citizens and the public sector. Simply put: how can blockchain stimulate an expanded and improved citizen dialogue?

How can the blockchain strengthen democracy?

We take our starting point in a hypothesis that the blockchain can be used to develop the dialogue between the citizen and society. The key question we want to answer within the framework of the BLING project is about participation:

– how can the blockchain be used for different forms of elections, polls and referendums?

The blockchain's most important component in building democracy is that it creates trust. With the blockchain, trust can be built into the system, because there is no single actor who is in control. Instead, it is distributed across all nodes. All users who want can thus control the system.

In concrete terms, we see great potential in the blockchain as an instrument for various types of referendums and elections. The citizen casts the vote and sees that it is stored in block on the blockchain, transparent to anyone who can read code. The vote itself is stored, but the identity is not saved. It's just ticked off.

By using blockchains, a system for electronic voting can be created which makes it possible to vote from anywhere. All persons entitled to vote would be registered as users of the blockchain and every user would be assigned a vote. Users would have access to their voice through a user interface that would be accessible via an electronic device with internet connection.²

Each user would have their own password that would give access to the secret the key, which is used when the voice is registered. All votes would be saved in the blockchain in the same way as transactions. Each vote would be verified by other users before the vote becomes valid. According to the same principle as with cryptocurrencies, each vote is verified by other users via public keys.

² Matias Kytömäki, Faculty of Natural Sciences and Technology, Åbo Akademi: "The blockchain and its areas of use", 2018.



The starting point for a thesis

When we started work on the BLING project, we assumed that there were already developed solutions for elections and polls using the blockchain available in open-source; models that we could just "pick off the shelf" and use. It turned out to be wrong; there wasn't.

After detailed and careful analysis, we can state that today there is no blockchain solution that meets the requirements. We therefore have to develop our own model.

There are technical solutions that have been tried around the world. The problem is that they are either not available via open source, and therefore must be purchased under license from the users, or that they are on servers located in countries that are not approved by Swedish data security authorities or EU counterparts.

If we can develop a working blockchain solution for elections and polls, this would be of great interest and value to actors in the public sector nationally and internationally.

We therefore believe that it could be an interesting and challenging thesis, at the appropriate level of education, to develop a possible solution during the autumn semester 2022 regarding how elections and votes can be held with the help of the blockchain.

We can think of the following approach for the thesis:

- *develop a proposal for a blockchain solution that can be used for different forms of elections, polls and referendums; alternatively, see which solutions are already available via "open source" and see if these can be "converted" into a model we can use in Sweden and which takes into account that it must be on a server in Sweden.*

However, we are very flexible in how the students and their supervisors view the assignment and how, and what, they want to put into the thesis. What we want is input to build on in a long-term development work around the public sector's use of blockchain technology as a tool for democratic development.



Who are the County Administrative Board Skåne?

The County Administrative Board of Skåne, in the very south of Sweden, is a regional management and development authority working directly under the Swedish government.

There is one county board in every one of the 21 regions in Sweden and the organization of the county administrative boards dates its history back to the year 1634 and we have a broad area of responsibility. The Board works on issues concerning the environment, urban development, the labour market, competence sourcing, the business community, social development, gender equality, democracy, human rights, integration and migration, transport, infrastructure, housing and spatial planning.

The County Administrative Board's task is to coordinate these and other areas of public responsibility to achieve efficient solutions for a sustainable society in which economic development, the environment and social welfare are interlinked. The County Administrative Board also has the task of ensuring that the county's citizens receive the level of service that the Government has decided on, that municipalities and companies comply with laws and regulations and that nationwide objectives adopted by the Government are achieved in Skåne county.

Together with the 33 local municipalities in Skåne, academia, large and small companies, NGO:s, national governmental agencies, regional agencies and the inhabitants in our region we work very hard to find ways to boost the innovation and development process in Skåne from a sustainable and democratic perspective.

Contact

Jörgen Dehlin
Project curator

jorgen.dehlin@lansstyrelsen.se