BUSINESS MODEL INNOVATION OF BLOCKCHAIN-BASED ENERGY TRADING PLATFORMS

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Overview

The decentralized ledger technology Blockchain provides a way to realize new marketplaces and smart services for connected energy systems [1,2,3]. As in many other digital domains, the underlying business models of Blockchain-based energy trading and clearing platforms are not yet clearly defined. Currently, two types of platforms are emerging: On the one hand, consortia such as VAKT or the Energy Web Foundation, which include startups, utilities and multinationals, banks, sometimes even NGOs, envisage or have already established platforms. On the other hand, individual companies pursue and provide integrated solutions for specific markets, for example, IBM's Blockchain energy platform project that is directed towards the Chinese market. The paper identifies the main communalities and differences of business models between the two major types of Blockchain-based energy platforms.

With the digitalization and decentralization of energy supply in both developing as well as industrialized countries, marketplaces are likely to be offered by multiple players for various types of functionalities beyond peer-to-peer trading, such as electric vehicle metering and settlement, carbon credits and certificates, etc. This research paper's second intent is to investigate how far reality diverges from the founder's vision of these applications, and what the value-added of a Blockchain-based solution is, compared to a conventional solution, e.g. an easily verifiable Proof-of-Origin of renewable energies.

Methods

Around 6-8 semi-structured interviews with corporate decision-makers and energy/ Blockchain experts form the base for an assessment and the conceptualization of the main features of existing and future business models. The interviews also serve as a reality check to validate or disconfirm the functionalities of different platforms and marketplaces.

The interviews are scheduled to take place in the first two months of 2019. They are part of a research project called ETIBLOGG (**E**nergy **T**rading v**I**a **B**lockchain-Technology in the **LO**cal **G**reen **G**rid), which is funded by the German Federal Ministry of Economic Affairs and Energy and tests market mechanisms and the required IT infrastructure, based on Blockchain, in a consortium consisting of five industry players, two academic institutions and a Fraunhofer research institute.

Results

As the field of peer-to-peer energy trading based on decentralized ledger technologies is very dynamic, the results of the interviews and the conceptualization of the business models cannot be foreseen, but in the current stage of the ecosystem they are likely to reveal that the interests of members and stakeholders in consortia differ from single-company platform providers, but the underlying business models follow relatively similar mechanisms, with fees for each transaction, sometimes complemented by a fixed subscription rate for the platform.

Regarding the discrepancy between hype and reality of Blockchain-based energy applications, first real Blockchain elements have been integrated in decentralized energy trading platforms. However, they typically cover only a small part of the entire transaction. For example, in VAKT the distributed ledger technology only takes records of the transactions at the beginning of the process [4].

Conclusions

At the current stage of investigations, it is not yet clear whether any of the two organizational models (single platform supplier versus consortium-based platform) will become the dominant design in future peer trading platforms. Consortia bear advantages regarding taking into account diverse interests of members and a system of stronger checks and balances than single providers, but the collective decision processes may lead to inefficiencies and delays.

The insights of the analysis will be used for the design, clearing and settlement mechanisms of market platforms in the ETIBLOGG project. In collaboration with the other partner organizations in the consortium, different peer-to-peer trading scenarios (shopping mall, a combination of residential and commercial neighborhoods, etc.) will be simulated and optimized based on the research paper's conclusions.

References

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