Blockchain-based sharing services: What blockchain technology can contribute to smart cities

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Why did we select this research?

The notion of smart city has grown popular over the past few years. It embraces several dimensions depending on the meaning of the word “smart” and benefits from innovative applications in information and computing technology to attract businesses and make the city competitive.

But when city leaders focus on technology rather than people, smart also threatens to exacerbate inequality and undermine the social cooperation essential to successful cities. Scholars increasingly emphasize that true smart cities will be those that deploy modern technology in building a new urban commons to support communal sharing. This study explains how emerging blockchain technology can contribute to support communal sharing in cities.

Key findings:

The authors state that blockchain technology provides a viable alternative to eliminate intermediaries. As blockchain lowers operational costs, it increases the efficiency of a sharing service.

> 'With blockchain technology, the world’s most fundamental commercial interactions can be re-imagined; the door to invent new styles of digital interactions in trust-free sharing services has been opened.'

In blockchain-based sharing services, **trust** is not placed in an individual, but rather **distributed** across the entire population. **Security** in blockchain-based service computing is a significant backbone of trust-free sharing services. Security is

comprised of confidentiality, integrity, and availability; it requires the concurrent existence of: (1) the availability for authorized actions only; (2) confidentiality; and (3) integrity where “improper” means “unauthorized”. As the blockchain is decentralized, the availability of blockchain data does not rely on any third parties. With private and public key cryptography, part of a blockchain’s underlying protocol, confidentiality becomes virtually indisputable. Integrity is ensured since the blockchain can be regarded as a distributed file system where participants keep copies of files and agree on changes by consensus. The history of blockchain-based applications such as Bitcoin and Ethereum has proven the sustainability and continuous improvement of security in blockchain-based service computing.

Reference

Sun, J., Yan, J., & Zhang, K. Z. (2016). Blockchain-based sharing services: What blockchain technology can contribute to smart cities. *Financial Innovation*, *2*(1), 26.