

Blockchain Possibilities

Abstract

The blockchain technology is a new paradigm and part of Industry 4.0 possibilities that can influence many sectors and provide new solid solutions involving digital solutions and having higher trust in the process and outcomes. This technology is a driving force behind the next generation of Internet that can reshape many sectors. Researchers and practitioner of the blockchain technology are discovering many interdisciplinary ways to practically connected to science, technology and industry ultimately possibly resulting in new business and societal models of not just doing business but other ways of trustworthy societal behaviors.



The blockchain technology is a new paradigm that can provide efficient solutions for many old problems in public and private sectors such as lack of security, excessive bureaucracy, lack of transparency, fraud, errors, and expensive transaction fees. Blockchain is projected to transform and disrupt many industries and it can enable many other applications from digital identities to track the origin of a product. Combined digital platform and blockchain technology can bring new value not just to business, digital ecosystems but society itself.

Challenges

Blockchain development is still at its early stage. The most known application, bitcoin, became the first cryptocurrency that avoids double spending without requiring a central authority and has been the inspiration for many further applications. But the challenge of what is the right path connecting the new blockchain possibilities and realizing what can be done in the society remains an ongoing dilemma.

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How companies, societies will evolve to truly accept the possibilities of digital platforms and blockchain is not solely a technological question but also a question of the societal openness for the acceptance of the blockchain.

One characteristic of the new digital age trends is also the possibility of how to connect more fluidly the industry-academia paradigm since the digital platforms and blockchain possibilities have opened many possibilities of mutual work in this field. The most relevant characteristics of distributed ledgers can be used in different kind of scenarios involving business, individuals and society.

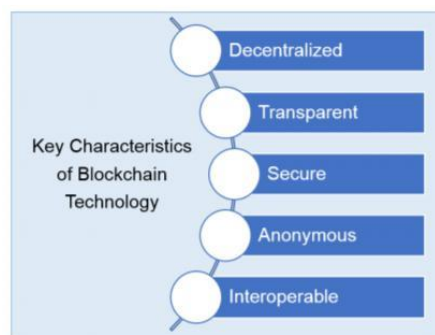


Figure 1. Blockchain Characteristics (1)

At the UNIDEMI research center, practitioners and blockchain enthusiast are involved in ongoing research on blockchain possibilities, and more over in practical applications of the technology itself in the society.

How do we solve the problem?

There are numerous benefits of Blockchain technology which have blockchain applications other than digital currency. The blockchain prospects can be used in many transdisciplinary fields and societal needs.

As part of the technological implementation and research area, the nine following Blockchain applications can be proposed:



Payment systems are the first application of the blockchain technology. Blockchain facilitates the transaction payment process by creating a decentralized shared ledger without relying on a trusted third party.

Traditional crowdfunding platforms create trust between project creators and supporters with high fees. In an *ICO model* (Initial Coin Offerings), *crowdfunding* is enabled where trust is created through smart contracts and online reputation systems which remove the need for middlemen.

Blockchain can be implemented for *voter registration, and identity verification*, and electronic vote counting to ensure that only legitimate votes are counted, and no vote is changed or moved.

Figure 2. Blockchain Application (1)



Blockchain based *smart contracts* establish and automate the process with a piece of code that resides on a blockchain and is identified by a unique address.

Using blockchain technology can speed up transactions by reducing the need for paper-based record keeping, *verifying ownership, ensuring accuracy of documents*, and transferring property deeds.

The nature of blockchain network can provide trust about authentication of *digital certificates* and make sure that there is no altered content since originally being issued.

A permissioned blockchain ledger can open new ways of automating business processes among partners without having to set up a costly centralized IT infrastructure while giving access to same data to all of the participants. Using blockchain based *supply chain solution* can provide understanding of environmental impact of products and verify the authenticity of products by *tracking the origin*. Also, using *blockchain allows data storage* to be more secure and robust against cyber-attacks and hacking possibilities.

Researchers and practitioners involved with work on blockchain in the instate have skills from various fields as computer science areas, software development, digital business and platforms, engineering and industrial management. Further developing projects and consulting companies in blockchain possibilities, skills needed to comprehend and evaluate the possibilities of blockchain include work on technical skills connected to programing, networks, data analytics, concept and software development. To understand the movement and possibilities of blockchain in any kind of area, it is also quite valuable to be able to understand the value which the blockchain process brings, not just for individual case but for the society as well. Meaning, the technical skills are and will always be needed to develop practical skills and have a technological approach towards the solution, but soft, 21 and entrepreneurial century skills are also very much need in order to design the best solution serving all parties involved. This being said, the UNIDEMI Institute is highly involved with implementation of entrepreneurial course for the students and researcher working on their startup ideas and creating new solutions from various filed. This connected approach involving many opportunities to create synergies between different industrial and scientific fields has the additional value of while working with any new paradigms, including blockchain possibilities.

References

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