The Benefits of Blockchain
First came the internet of information, then the internet of things. The next big thing in the evolution of internet is the internet of value, which implies that value could be transferred as easily as information. In this new era, the Blockchain technology could create major benefits:

- Distributed ledger with no single point of failure
- Elimination of third parties resulting in faster and more efficient processes
- Automatic verification resulting in faster clearing and settlement
- Irreversible
- Auditable and traceable

Blockchain – the technology behind Bitcoin
A major IT innovation known as Blockchain was invented in 2008 as the main technology behind the now famous cryptocurrency Bitcoin. The initial focus was directed at Bitcoin, which is an implementation of the Blockchain. In recent years however, the Blockchain as a technology has attracted increasing attention. It has been realized that the Blockchain, as a distributed ledger, has more potential than just enabling transactions with Bitcoins. It is predicted to be a disruptive technology for the financial system. Many startups and incumbents in the financial sector as well as other industries are racing to develop solutions that exploit the potential of the technology.

This Newsletter presents the Blockchain technology and its potential disruptiveness in the financial system.
EVERYBODY TALKS ABOUT THE BLOCKCHAIN, BUT WHAT IS IT?

What is a Blockchain?
The first and most known application of the Blockchain is Bitcoin, which is a cryptocurrency that is completely independent of states, banks and other institutions. In this application the Blockchain verifies all transactions that have ever been made and saves them in a ledger. Copies of the ledger are validated and distributed by a consensus process and all users independently verify that changes in the ledger are valid.

A cryptocurrency is a form of digital currency that uses cryptographic principles to secure all transactions and control the issuance of new units of the currency.

Before cryptocurrencies, it was impossible to safely transfer value to a distant destination without a third party, due to the “double-spend problem”, which means that digital information can easily be copied and spent twice. This implies that a sender of digital money could send a copy and keep the original. Therefore, a third party, for example a bank, is regularly used to keep track of the transactions. Via a Blockchain based transfer, the transaction is done directly between two parties and the responsibility for keeping track of the transaction is distributed over the whole network. This eliminates the need for an intermediary. Hence, some believe it is one of the most disruptive innovations since the advent of the Internet. The innovative idea of instant value transfer motivates it to be seen as the possible fifth disruptive computing paradigm:

1970: Mainframe
1980: PC's
1990: Internet
2000: Social media
2010: Blockchain?

Strategies to leverage the technology
Many firms are currently in an exploratory phase, where they are testing the Blockchain technology internally in their own research labs. The full adoption of the Blockchain technology will probably take years, but the participants need to set their strategies to be able to reap the value of the new technology.

Companies have to invest in expertise and technology, while preparing for industry-wide change. If current business model is under threat of disruption, the impact of such disruption must be mitigated. To develop the technology it is suggested to set up a new organization, separated from the already existing infrastructure and corporate hierarchies.

A common platform and standards need to be established and the Blockchain technology will only work at its full potential in a network. A suggestion is therefore to form strategic alliances to develop a Blockchain for mutual benefits.
THE BLOCKCHAIN TECHNOLOGY

POTENTIAL APPLICATIONS ARE MANY, BUT IS IT REALLY DISRUPTIVE?

The potential applications for the Blockchain are many

1 Payments
An inter-bank payment today needs to be processed by several institutions such as banks, clearing houses and a central bank. This process can often take one or more days, particularly during weekends. The Blockchain technology will facilitate faster and cheaper payments for a number of parties, such as consumers, small businesses, corporations and financial institutions.

2 Issuance and transaction of securities
The existing process for issuing and trading stocks is very slow and inefficient because of third parties that have to be involved. It will be possible for companies that wish to go public to issue their shares directly via a Blockchain, and the shares can then be traded in a secondary market on top of the Blockchain.

3 Smart contracts
A smart contract is a contract that is self-administered and self-executed when certain predetermined criteria are met. The creation of the Blockchain was a breakthrough for smart contracts since it is the perfect place to store such a contract due to its cryptographic security and immutability.

A smart contract in a Blockchain is able to securely hold and release funds since it is assured from tampering through decentralized storage and execution. It will further increase speed and efficiency and allow parties that are mutually distrustful to safely engage in a contract and execute transactions without the need for a third-party intermediary.

4 Smart property
Smart contracts can be used in a larger extent than for just digital assets, it can be embedded in physical objects and make these objects transferable. Thereby a physical property becomes a smart property. By connecting an object to the Blockchain with a unique identifier, the object can be controlled, exchanged, and the entire history of transactions can be tracked through the Blockchain.

Disruptive potential for certain parts of the financial system
The Blockchain technology allows for cheaper and more efficient payments, transactions of securities and contracts. Hence, it has potential of being a disruptive technology. It will also help users to do what they are already trying to do, but more easily and effectively, which is another indicator of a disruptive technology.

Even though the Blockchain technology might become a disruptive technology, it does not necessarily mean that banks and stock exchanges will file for bankruptcy. Instead, they are already experimenting with the technology and could disrupt themselves rather than being replaced. However, there might be some areas in the financial system that risk being displaced making the innovation disruptive for those. Areas that risk becoming obsolete include:

- Registers (e.g. Euroclear Sweden)
- Settlement systems (e.g. CLS)
- Clearing systems (e.g. Bankgirot)

LINQ – NASDAQ’S BLOCKCHAIN

Nasdaq has, through a partnership, developed a permissioned Blockchain that is called Linq, which is supposed to replace the current system for stocks in private companies in the United States. Fredrik Voss, vice president of Nasdaq Blockchain innovation, argues that since everything is managed through the Blockchain protocol the need for third parties has been reduced.
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