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Blockchain-Lab

Initial prototypes developed

A year ago, the Fraunhofer Institute for Applied Information Technology FIT opened the Blockchain Lab. Its customers come from all sectors of business. They want to know if there is any substance to the hype around the new technology. And what does it mean for their industry? The Fraunhofer experts shed light on these issues, identify use cases and develop prototypes.

“For many people, the word blockchain evokes images of payment transactions and bitcoins. However, the technology’s real potential resides above all in the realm of process traceability,” says Prof. Gilbert Fridgen from Fraunhofer FIT, who gives workshops to familiarize representatives from business and industry with blockchain.

Decentralized database

A blockchain is a sort of decentralized database. Each blockchain participant saves the complete database on his or her computer. If new data is added, the blockchain is updated everywhere. “Because each participant has a current copy of the database, it is almost impossible to manipulate,” explains Prof. Wolfgang Prinz, Vice Chair of Fraunhofer FIT. Moreover, each data block is linked cryptographically to the next, making the database even more secure. If somebody tried to change any blockchain contents, all other participants would be able to recognize this immediately.

In a blockchain, each step of a process can be securely and irreversibly recorded together with all corresponding data. This makes them ideal for internal company documentation, for instance. “It would make audits much faster, easier and cheaper if all the relevant documents were registered in a blockchain,” says Fridgen. This would establish without any doubt who did what and when and how. “The ears of all our workshop participants pricked up here. Particularly in highly regulated sectors, expenditure on audits can often run into the millions.”

Simplifying global commodity trading

Many business processes can also be effectively implemented using blockchain solutions. For example, the experts in the Blockchain Lab have developed a prototype for handling global commodity trading. It documents each step of a transaction securely, transparently and traceably – from ordering all the way through to delivery. To date, banks have acted as certification authorities that guarantee, across national borders,

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that the trading partners are solvent and meet their contractual obligations. “In the future, our blockchain solution could assume this role,” says Prinz, adding that in general, blockchain is particularly interesting for companies whose business models are based on positions of trust and confidence: “Although blockchain cannot replace banks, notaries or auditors yet, the technology offers a lot of potential in precisely this area.”

Blockchain also presents providers of online trading platforms with a challenge, as the new technology would enable buyers and sellers to conduct secure transactions with each other directly – without additional protection by the platform operator. “With blockchain technology, it would be possible to establish a new generation of the Internet. To the Internet of Things, which everyone is talking about at the moment, we could add an Internet of Confidence,” believes Prinz.

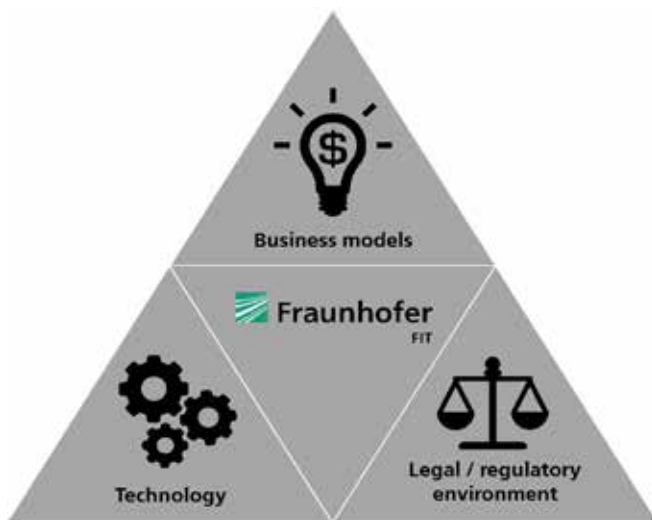
Secure proof of origin

Blockchain holds out a lot of promise for the logistics industry, too: it could document transport chains end to end, thereby guaranteeing the authenticity of the shipped object. “A blockchain solution already exists for diamond transports,” says Prinz. In addition, blockchain could be used to securely certify the origin of medicines or food and verify issues such as whether refrigeration was guaranteed throughout the transportation process.

“In collaboration with our workshop participants, we’ve identified numerous potential applications. Although we’re still just working with prototypes, development can happen very quickly. That’s why it’s important to act now to adapt business models to the new technology and use the technology to optimize processes,” emphasizes Fridgen.

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The Blockchain Lab's integrative solutions are based on the triangle of business model, technology and law. © Fraunhofer FIT | Picture in color and printing quality: www.fraunhofer.de/en/press

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