



# Technology Update

## Blockchain: Innovation for Industry and Logistic

Some time when always more things in Internet of Things and machines in the smart factory communicate with each other in network the data safety and reliability, gain increasing importance. Exactly here the blockchain technology makes an on set which render the storage and safe management of data possible.

For some the blockchain is a fashion appearance but for others it is the key technology for the network in future. It is clear that in the framework of cryptocurrency bit coin developed technical model there is for a long time more than a safe finance transaction system. More and more branches discover the technology for themselves. It is interesting that block chain as bases everywhere where it goes transparent and retrowatchability follows up more or less in the areas, energy, mobility and supply chain management or in the industry as said by Prof. Dr. Nils Urbach, Professor for economy informatics and strategic IT-management at the University Bayreuth and co-founder of Fraunhof Blockchain laboratory.

How does exactly block chain function? In core it deals in with this in a technique for the management of information on transaction. In the blockchain all transactions are collated in blocks in data accumulated by which a block as a rule stores for a definite time period. The data are however not as with classical databanks centrally give up in a server but copied worldwide in thousands of participating servers. Before an entry can be added in a block, it must be verified and must be validated by all users of the network. A supplementary change is not possible. Along with the transactions each block receives coded information on all preceding blocks. With that manipulation-safe

block chain, which renders possible the history of all post executabilities of all transactions.

### Big potential for the industry

Along with transactions the block chain principle can record any arbitrary information and adopt with that in the accumulator and management of data of each art. The expansion of insertion possibility of blockchain is before all pushed through developer and projects which expand the technology steadily. One example is the so-called smart contracts, therefore the intelligent contracts which define the conditions for transaction and export stipulated successive business deeds automated. The smart contracts are in the form of a programme code deposited and profit from the property of blockchain. These are irreversible, transparent and require no intermediary for the winding up of business “Also for industrial applications blockchain can be of high interest. Basis is their supplementary nonvariability” clarifies Prof. Nils Urbach. Therefore the technology offers as for example non-variable storage of production data, test results or machine properties. Through that the transparency in production process clearly get increased “one further field of application is the smart factory in which machines integrated decentralized and automated with one another and with that also valuebased information exchange with one another. At this position a technology which without central instance in a decontrol network can act as well as with that exhibit manifested high data and process integrity, specially be useful” the experts add.

Block chain is based on technology and concepts which are in information technique

already known for many decades. The technology model of block chain was developed in 2008 in the framework of crypto currency Bit coin. The service of Block chain is this; in a network with unknown participant number and among participants with unknown trustworthiness without intermediary to uphold confidence and integrity. A Block chain is with this a decentralized trust databank which stores in block the steady growing lists of complete transaction. It is comparable with a chain near which at the end steadily new elements are subjoined. Hence the name block chain.

If one block is complete, this is invariably hanged on at the chain and the next is produced

whereby each block holds a test sum of the preceding blocks. The type and method indicate how a block chain links together several concepts and technologies in order to serve conscience and trust in a distributed system with unknown trustworthiness. Although already numerous firms experiment with block chain and this partly also has in insertion, the technology is at an early stage in which the expectations are still over increased. The promise to be able to transfer value manipulation safe digital, opens up many new type application perspectives.

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*Ref: VDI nachrichten, Sonderveröffentlichung, 15 March 2019, Seite 8*

### Greek Alphabet

$\alpha$ alpha	$\eta$ eta	$\nu$ nu	$\tau$ tau
$\beta$ beta	$\theta$ theta	$\xi$ xi	$\upsilon$ upsilon
$\gamma$ gamma	$\iota$ iota	$\omicron$ omicron	$\phi$ phi
$\delta$ delta	$\kappa$ kappa	$\pi$ pi	$\chi$ chi
$\epsilon$ epsilon	$\lambda$ lambda	$\rho$ rho	$\psi$ psi
$\zeta$ zeta	$\mu$ mu	$\sigma$ sigma	$\omega$ omega