

## DWIH INTERVIEW

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### **Can you give a simple explanation of what Blockchain is and how Blockchain differs from other distributed ledgers available?**

Blockchain is a distributed ledger technology (DLT) aiming to reduce the cost of trust via transparency. The ledger is no longer stored at a single institution, but with each member of a network. If a copy of the ledger gets lost, it can be restored. Consensus in Blockchain is reached via proof of work, proof of stake, or proof of authority. Depending on the consensus mechanism, the speed for validating transactions, or “blocks,” differs. When the block is validated, it gets mined and the member obtains a mining fee. One might also think of Blockchain as outsourcing the transactions department. It puts competitive pressure on entities that currently validate data or contracts such as controlling departments, lawyers, and notaries—or, depending on the perspective, Blockchain might enable these entities to redesign their procedures. In short, Blockchain is a wonderful alternative to current solutions. Just as AI won’t replace managers, but managers who use AI will replace those who don’t, managers who use Blockchain will replace those who don’t.

While in Blockchain the information is stored in blocks that are linked to each other, alternative Distributed Ledger Technologies such as Tangle or Hashgraph use so-called “Directed Acyclic Graphs” to allow faster validation and better scalability, respectively.

In the case of Tangle, if you want to carry out a transaction, you have to approve two others. If one were to imagine this in a graph, it would look like a tangle that grows from validation to validation. Thus, consensus and mining are combined and no fee is paid for validation. Tangle’s flagship application, IOTA, aims to be the DLT for the Internet of Things.

Hashgraph uses “gossip protocol” to share information and reach consensus. One network participant is obliged to share information about transactions with multiple other randomly selected network participants. This process repeats until the information is shared with the whole network. As the information shared

encompasses not only the transaction, but also who else has received the information, every participant can estimate which events reached consensus quickly. Unlike Tangle, Hashgraph is patented technology.

### **What is one common misconception you hear about Blockchain?**

The application of Blockchain or DLT is not limited to the financial industry, even though you might think of ICOs as the first killer application. It provides an opportunity to redesign administrative processes in private and public institutions. As with the internet 15 years ago, we will see completely new services and processes based on Blockchain in 15 years' time. And in the same way that for the younger generation, internet and social networks are their daily lives, but traditional services are still offered for other target groups, Blockchain and non-Blockchain solutions will coexist. The decentralized character of Blockchain will be a challenge to our traditional ways of thinking. People should take the time to understand not only the technology, but also the different philosophy behind it.

### **Do you see a difference in how the US and Germany engage with Blockchain technology?**

The US and Germany are two hot spots of Blockchain technology. Both drive Blockchain technology with key players such as Consensus and R3 in the US or Parity and IOTA in Germany. One might say that the US Blockchain history began with the Bitcoin network, and in the beginning focused more on financial applications as in the case of R3, while German history started with Ethereum's idea of allowing smart contracts focusing more on industry applications as in the case of IOTA (with its ambition to provide solutions for the Internet of Things) or Parity (with its goal to provide interoperability of chains). The global nonprofit, The Energy Web Foundation, with its founding partners Rocky Mountain Institute and Grid Singularity indicates, though, that the DLT world is a global endeavor and usually network-based across the globe.

### **You personally work with Blockchain and the energy sector. What are some current developments in the field?**

Digitalization and decentralization as key trends match the characteristics of Blockchain and provide entry opportunities as in the case of smart meters or e-charging for Blockchain solutions.

In the energy sector, one can observe different Blockchain applications for different processes, e.g. PowerLedger for person-to-person (P2P) trading, Solarcoin for rewarding photovoltaic (PV) generation or Enerchain for wholesale trading. While these applications might provide a start to optimize processes and save process costs, most of the applications now aim to establish a platform for Blockchain-based

services/contracts. We are currently seeing a race for the platforms of the future, not only in the energy sector but also in other sectors.

### **How could Blockchain affect our everyday life?**

For any contributions, Blockchain has to outperform current solutions in speed, cost, security or convenience. Scalability of the transactions is a key challenge. The most promising way to achieve the necessary speed are consortia chains where validation of transactions can be designed on, e.g., proof of stake, and where security concerns are dealt with by Know-Your-Customer procedures. It will be wonderful to observe how citizens, companies, and political entities will deal with this new opportunity to organize processes and networks and how society will change in this regard.