

DIBICHAIN: TRANSPARENT MATERIAL CYCLES WITH BLOCKCHAIN

As a resource-saving economic model, the circular economy offers a sustainable alternative to previous economic strategies. But it also presents companies with major challenges. Digital technologies are very promising in this context. In the project DIBICHAIN, the software company iPoint, in cooperation with industrial partners, is researching how blockchain technology can be applied to the circular economy.



By Dr. Katie Boehme, iPoint-systems

In times of climate change and increasing scarcity of resources, sustainable management is becoming more and more important. This also means that companies, in particular, have to rethink their business approaches. The circular economy is considered to be particularly resource-saving, and therefore future-oriented. The central idea of a circular economy is the establishment of closed material cycles: Instead of disposing of materials or components of products at the end of their useful lives, they are returned to biological or technical cycles. Recycling, dismantling, and reusing are the main focus; ideally, there is no waste. This saves valuable resources.

along the supply chain is also complex and effortful. An example: A smartphone contains hundreds of individual parts. These, in turn, consist of more than 60 different natural resources and materials. If you want to make the supply chain completely transparent, you have to trace every single one of them back to their point of origin. This is not only complicated and time-consuming, but also involves high costs. Another point: All data collected in the context of the circular economy and along the supply chain must be up-to-date, transparent, and tamper-proof.

Blockchain as key technology

For the software company iPoint-systems, digital technologies have great potential in this context. Blockchain is particularly promising, explains iPoint CEO Joerg Walden: “We are convinced that blockchain technology can be of great benefit for these challenges and for the development of circular economy systems. Because with blockchain, information can be made available to all users of the



system in a controlled manner, virtually in real time. The intellectual property of each individual is still protected, and the user retains data sovereignty. Only by consensus can the rules regarding the visibility of the data be changed. In this way, virtually everything and everyone is connected with each other, which enables completely different innovation cycles and business models.”

Blockchain not only simplifies the information flow within the company and with stakeholders. The data is also tamper-proof. Once verified, it cannot be changed or manipulated without the system noticing and the participants agreeing. The transaction can be cryptographically secured. In the blockchain, data is stored decentrally. This eliminates dependence on a single server, and several systems monitor the data flow.

Project DIBICHAIN

So far, however, not enough research has been conducted on how blockchain technology can be applied to the circular economy. In order to change this, iPoint is participating in the DIBICHAIN research project with the industrial partners Altran Deutschland, Blockchain Research Lab, CHAINSTEP, and Airbus. The main objective is to investigate the potential of blockchain for the digital representation of product cycles – especially with regard to decentralization, reliability, and counterfeit protection, but also carbon footprint, sustainable production, and recycling. As part of the German Federal Government’s blockchain strategy, which was adopted in September 2019, DIBICHAIN is funded within the framework of the measure “Resource-efficient recycling management – innovative product cycles” (ReziProK) of the German Federal Ministry of Education and Research (BMBF). The research project started in July 2019 and has a duration of 36 months.

The first step of the DIBICHAIN project is the development of a software demonstrator based on blockchain tech-

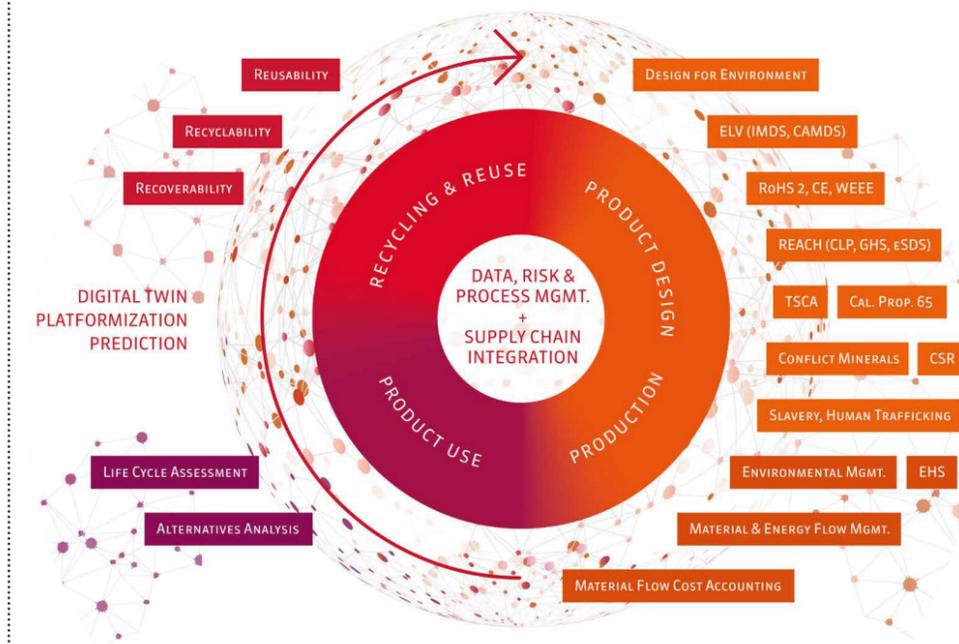
nology using the example of a bionic component produced by Airbus. The project team will use it to evaluate the suitability of blockchain for the circular economy. “The evaluation of the developed demonstrator is intended on the one hand to develop a knowledge base for the application of a blockchain for the circular economy, and on the other hand to reveal starting points for further projects in order to tap the full potential of blockchain and other distributed ledger technologies in the context of the circular economy,” says Sebastian Galindo, Project Manager at iPoint.

Many years of expertise from iPoint

iPoint is supporting the project with important expertise: “With our constantly growing ecosystem of 55,000 companies, iPoint is contributing cutting-edge technology know-how to the research project as well as many years of experience with players, due diligence processes, and problem solutions in the downstream area,” says Walden. For the software company, DIBICHAIN is not the first research project centered around blockchain technology. In early 2018, iPoint launched “SustainBlock,” a blockchain project in the area of conflict

materials that makes the supply chain digitally traceable, and thus more transparent. The SustainHub community platform also provides customers with a software solution for efficient and simple communication and data acquisition in the supply chain. The system can also be used to manage other compliance requirements in the environmental, social, and materials areas, such as the REACH Regulation (Registration, Evaluation, Authorisation and Restriction of Chemicals) and the Restriction of Hazardous Substances (RoHS) Directive.

Not only customers and project partners benefit from iPoint’s many years of experience. With its software solutions and research projects, iPoint also makes an important contribution to the UN’s Sustainable Development Goals. iPoint’s business model and business portfolio pay particular attention to both Goal 8 (Decent work and economic growth) and Goal 12 (Responsible consumption and production), whereby the DIBICHAIN project additionally addresses SDGs 13 (Climate action) and 16 (Peace, justice, and strong institutions). ■



iPoint's modular solutions for the challenges in a closed-loop product life cycle.