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FAIZOD.REACTIVELEDGER

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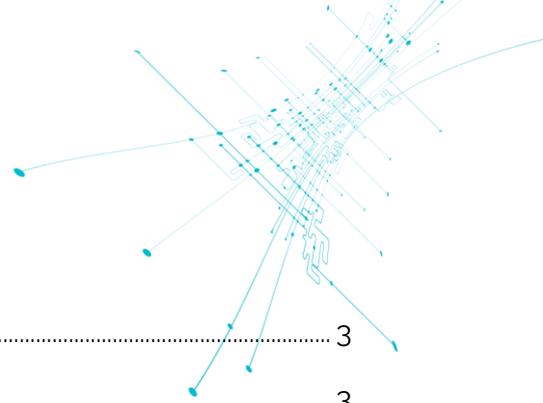
While digitalization is increasingly finding its way into the manufacturing industry, current software solutions are unable to provide the level of flexibility expected in today's world. IoT, Smart Production, and Industry 4.0 place high demands on the flexibility of processes and their according software products.

What is faizod.ReactiveLedger?

faizod.ReactiveLedger is a closed system in which changes can be made quickly and with maximum transparency, without the need for manual external access. This means the high automation of processes in a way that is smart, trustworthy, stable, and highly flexible. In this way, control is maintained with the acquisition of automation – this is made possible by Blockchain technology.

How does faizod.ReactiveLedger work?

How can confidence be created?

Blockchain is an unchangeable, highly available and distributed database in which all data can be stored in a way that is audit-proof and protected from external access via encryption. Thus, faizod.ReactiveLedger is resistant against attacks, providing tremendous security in the process execution.

Additionally, faizod.ReactiveLedger can autonomously and independently react to changes in the system by subjecting all system participants (also called nodes or peers) to pre-defined rules. One control is that all of the nodes and peers update one another while maintaining transparency, since the rules are applicable to all process participants.

The "faizod.BlockchainTrain" showcase illustrates where and under what circumstances faizod.ReactiveLedger can be used. The closed system in which a train passes through various stations depicts various scenarios.

In the system with several sections, various components are present, for example a switch point, an energy station, and switch for electricity, scanners that scan the tags on the trains, and wallets. Tags are found on the train, the containers, and the engines. Digital wallets for the components are stored in the system.

Where can faizod.ReactiveLedger be used?

Cost allocation

The Blockchain can be used in many different ways for cost allocation. Cost allocation is the process of identifying and appropriating costs to items or processes. The verifiability of these cash flows is a key factor in the success of corporate accounting.

If a service is used, the data can be written directly through the hardware as a transaction in the Blockchain. This ensures traceability because the use of the services is accurately

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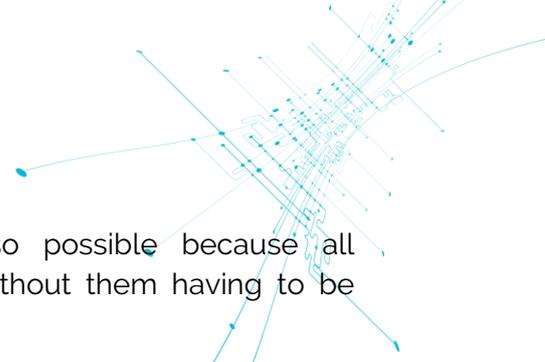
and automatically tracked. Maximum automation is also possible because all participants in the system are subject to the same rules without them having to be implemented multiple times.

In the Blockchain, a chain code is used to define assets and set up contracts. This allows for very precise instructions to be formulated and executed automatically. For example, if the use of a rail is considered a service, data on how often a train travels on this rail can be collected and the payment for its use can be made automatically. If the train needs to be serviced at the service station, the services provided can also be registered in the Blockchain and the automatic payment from the train to the service station can be carried out.

In the showcase, the payment for various situations can be represented by means of crypto-currency coins. There are various digital wallets, for example for the train itself or for the service station. The values in the wallet are increased or decreased according to the occurrence of specific events with coins. For example, the train can only drive through a certain section of the track if there are enough coins in the wallet, otherwise the power supply will be turned off. The transfer of value from the train to the owner of the track will be required for the train to continue on its way. If fees are due when the train passes through the service station, they will be credited to the service station and deducted from the train. The same applies to entering or staying at stations and paying for fuel or electricity at the power station. All of these payment processes occur in the background automatically according to the pre-defined rules.

Asset Management

Asset management is the monitoring and maintenance of tangible and intangible assets. It is the systematic process of acquiring and selling assets to service and use them. Effective asset management aims to save money and otherwise increase profit to individuals and companies. As assets are increasingly intangible and distributed, processes for managing them are also becoming more complex. End-to-end documentation can easily be implemented through Blockchain in the industry, leading to tremendous cost savings.

When information about assets (such as location, status, maintenance, change, value, etc.) is collected, it can be written into a Blockchain in chronological order and without missing information. Combined with Smart Contracts, this data is capable of executing if-then conditions, allowing for automatic settlement of asset purchases or sales. This means that asset management can be completely autonomous without the need for third-party supervision.

The Blockchain Train has engines classified as "valuable assets." The train has two engines, but only one is used. If the engine is switched out, this will be detected and become visible in the application due to a change in data. The operating hours counter is updated incrementally as the train passes through different service sections of the track. The status of the service is updated to 100% when the train passes through the according track section.

Security

In an increasingly digitalized world, data security plays an important role in the success of companies and organizations.. However, current data security methods often do not satisfy the needs of customers. The distributed nature of the Blockchain provides a new level of security – if one node fails, the overall system remains intact.

Common security issues are most often caused by user errors or request overloads. If one of these problems affects a node in a Blockchain, the others can continue to operate. On the one hand, data can be saved and on the other hand, this data can be made accessible to anyone who needs it. The nodes are in constant contact with one another. Self-monitoring makes security less time-consuming and costly for organizations.

Additionally, Blockchain is able to record data with consistent traceability because all processes are documented precisely and chronologically. The database is not managed by any central authority, so manipulation is considered nearly impossible.

In the Blockchain Train example, scanning the sections via scanners can prevent collisions with other cars or vehicles on the track. If a route is reported as busy, a security warning is issued and the power is turned off. The duration of the operating hours of the train is also checked. If it comes to a critical state, a warning message is transmitted that it is due for service. The route to the service station is initiated automatically. In addition, the number of cars are constantly checked. If one is missing for any reason (decoupling, for example), this is reported and the according action is initiated.   Data on the temperature or state of transport of hazardous substances can be tracked throughout and thus reported accurately.
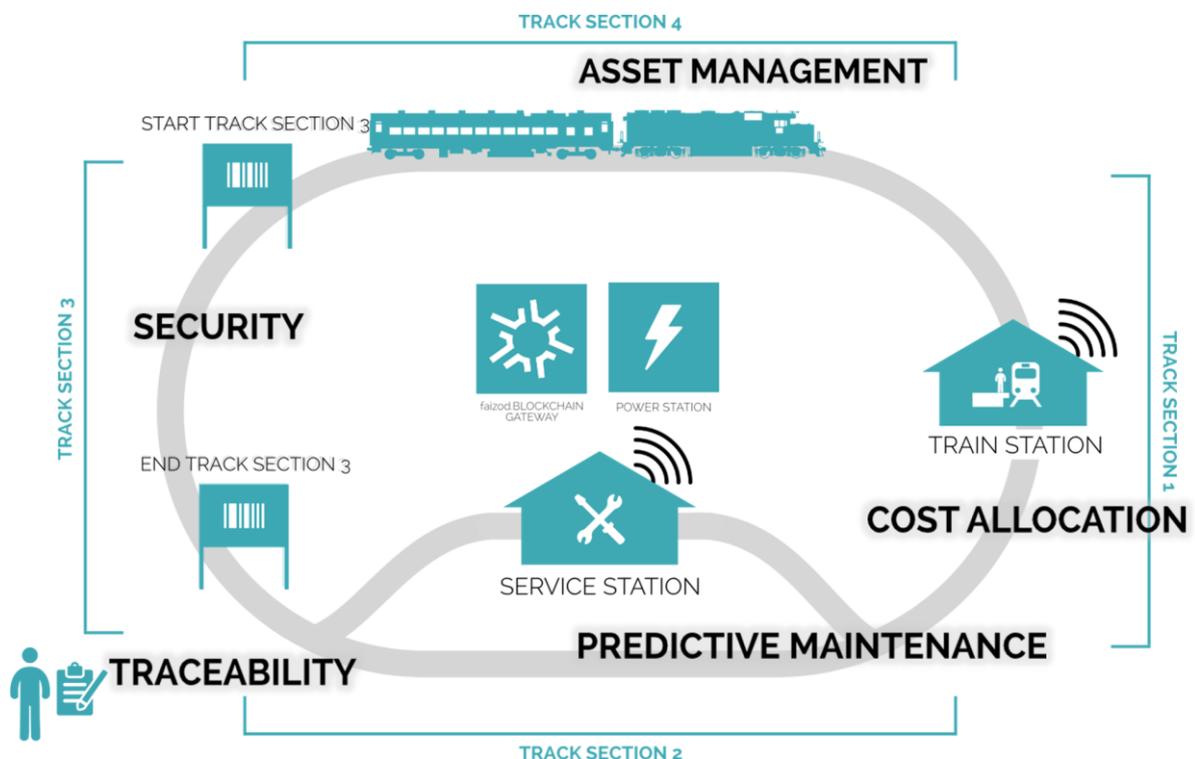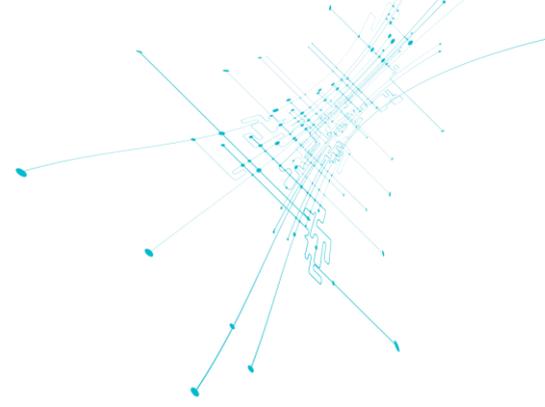
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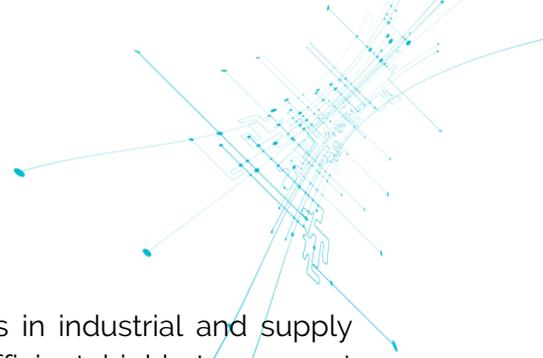
Summary

Blockchain generates the necessary trust between all parties in industrial and supply chain processes. faizod.ReactiveLedger is therefore a self-sufficient, highly transparent system that combines the requirements for flexibility and security in a globalized world.

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faizod is a solution and service provider for Blockchain technology as well as modern enterprise software solutions. Professionalism, effectiveness, and innovation have always been the core competencies of faizod on software projects of all sizes and industries.

Our mission: To help companies of various sizes and sectors reach more!

Our vision: To keep software development at a top level!

faizod is an innovative leader for Blockchain technology. Our applications and services support customers worldwide by helping them conduct business profitably, adapt continuously, and grow sustainably.