D_BLOCKCHAIN

Blockchain / DLT Evolution

From digital Currency to „Enabler“ of autonomous Organizations

Smart Payment

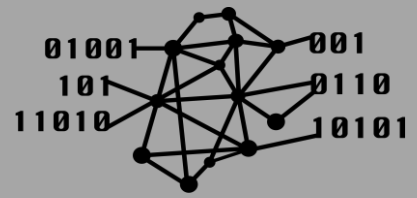
- Operational Implementation as **Bitcoin**
- Definitive, digital Identification of all Participants and Assets (Coins)

Minimization of Transaction Costs

Smart Process

- Programmable Blockchains via **Smart Contracts**
- Integration of automated Operations (e. g. Contract Handling) in Transactions

Automation of Contract Handling



Smart Organization

- Combining & Linking several Smart Contracts and Blockchains to form **Decentralized Autonomous Organizations**

Complete Elimination of Intermediaries

From Mystery to Application:
Evolution from “Mystery” to Live-Operation in a year at DB.

Mystery & Enthusiasm

- What is Blockchain?
- Where could we apply it?

10/2016

Learning & Testing

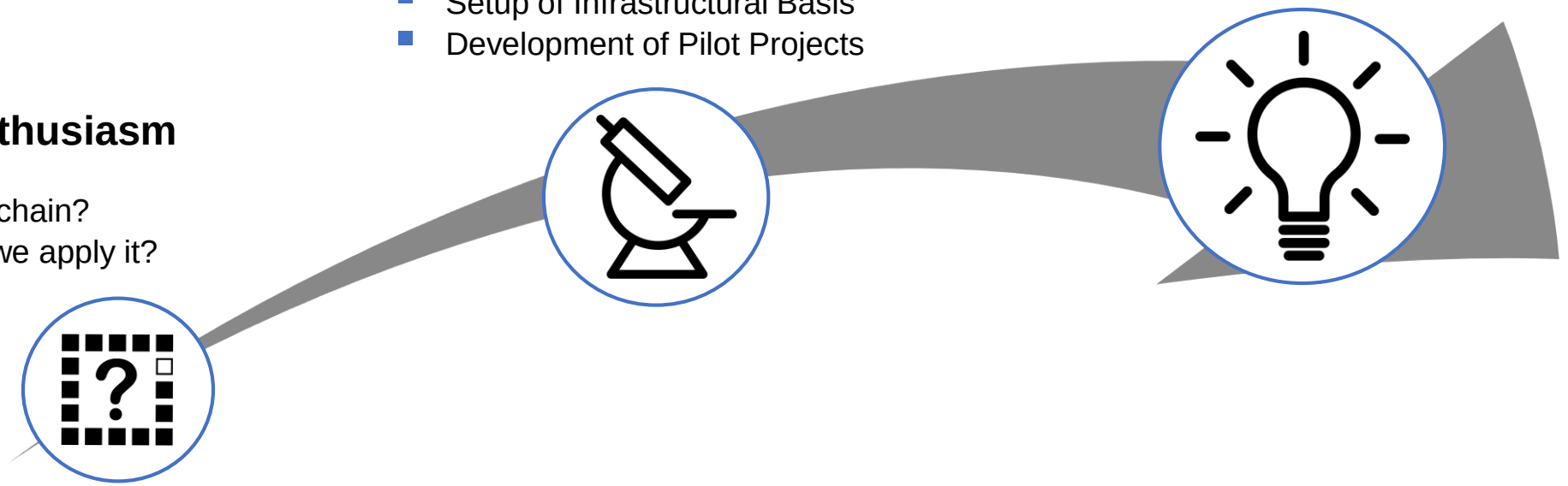
- Setup of Infrastructural Basis
- Development of Pilot Projects

Q1-Q3 2017

Understanding & Scaling

- Wirtschaftliche Potentialvalidierung
- Themenvernetzung
- Beginn Operationalisierung

from 12/2017

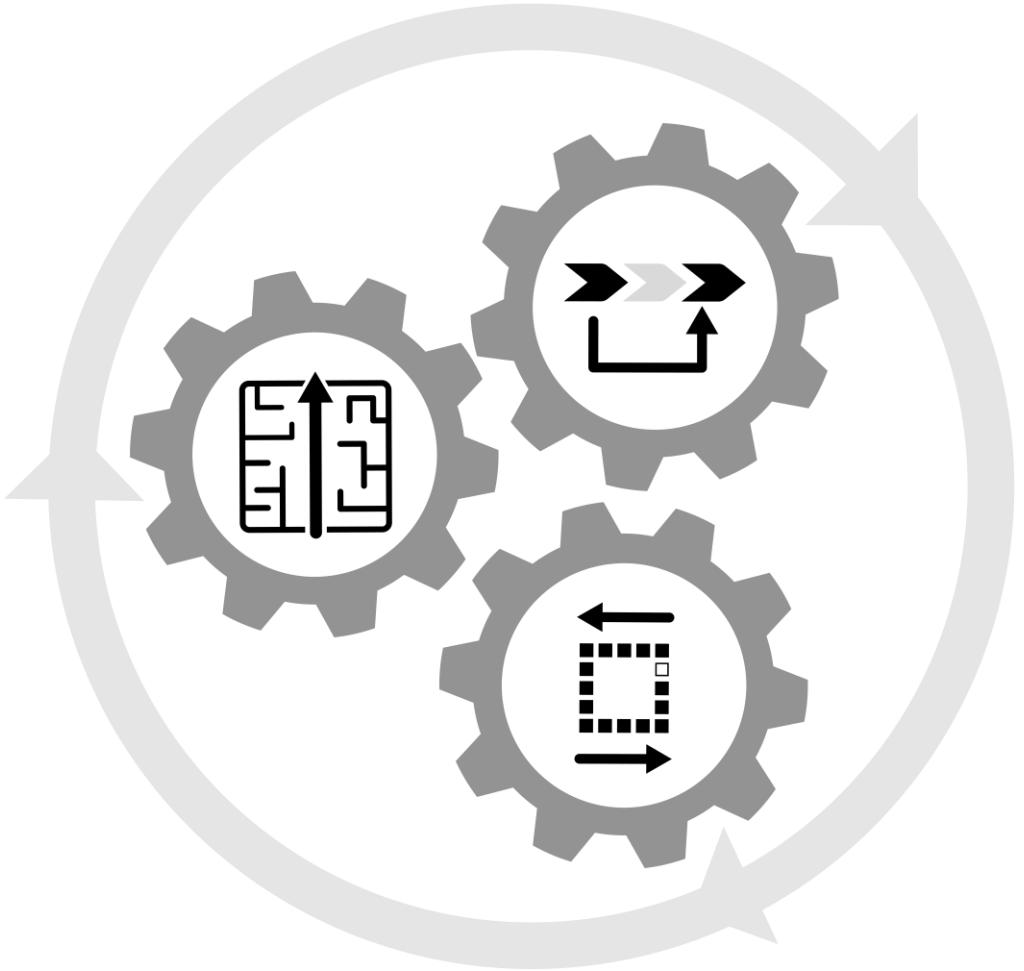


Significance of Blockchain at DB
Re-engineering: Potentials in 3 Levels

1

Process

Implementation of Blockchain on **Existing Business Processes**



2

Architecture

Revision of System and Process Landscape **of Existing Business Relationships**

3

Business Model

New Logic for existing (and new) Business Models End-to-End

Why should you collaborate with DB Systel on Blockchain Themes?
More value gained from a collaboration

Already live!

- Electricity Trading (12 Months live)
- CharityChain (3 Months live for Android und iOS public!)
- Intelligent Business Relations (Ramp-up)

Team!

- Excellent Know-how and practical Experience, extensive Network
- Unflinching focus on getting results together, among others with ValueIT Blockchain Community

Scaling!

- Startups (Faizod, Iota, etc.)
- Big-Player (IBM, R3, Microsoft, Fujitsu, etc.)
- Science (Hasso Plattner, Frankfurt School, BC Cluster, etc.)

Market Positioning!

- Exploiting DB Systel‘s Positioning in Market[1)]
- Mutually enhanced Standing of both parties through Collaboration

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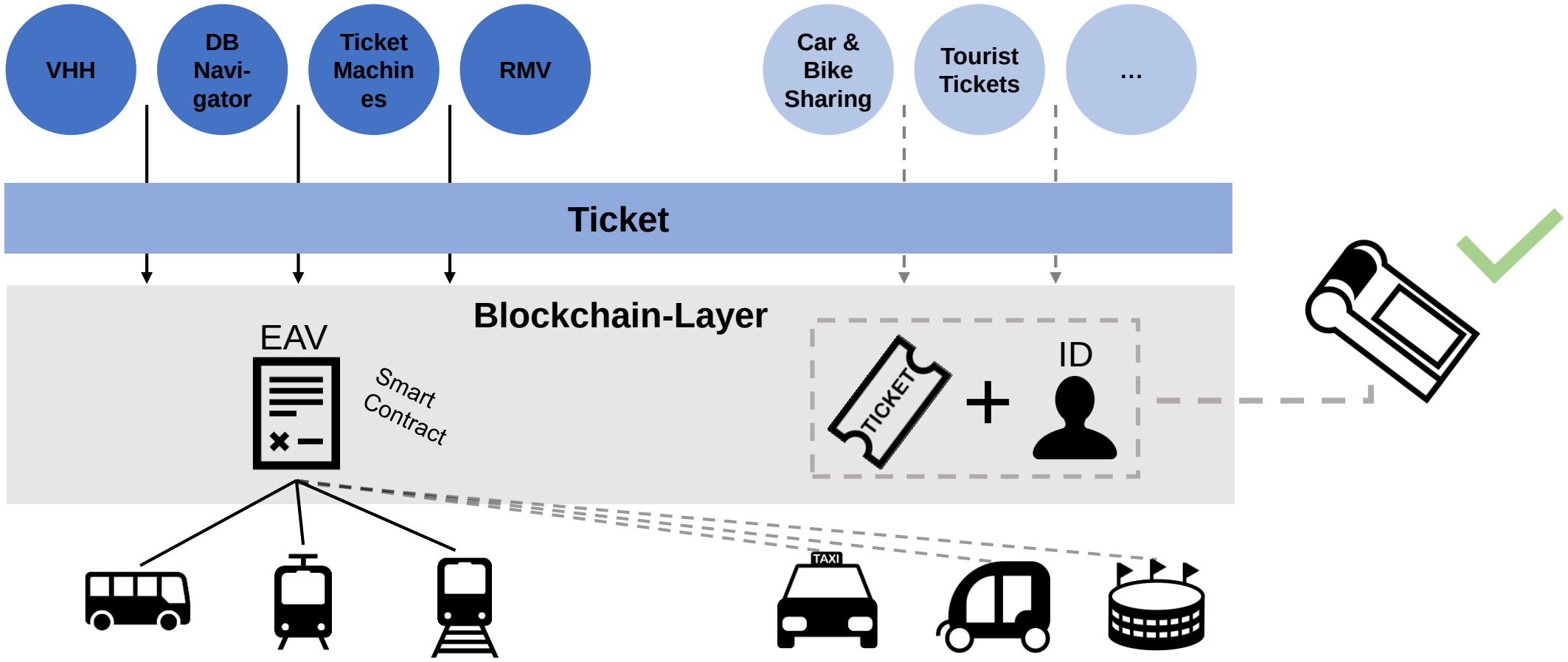
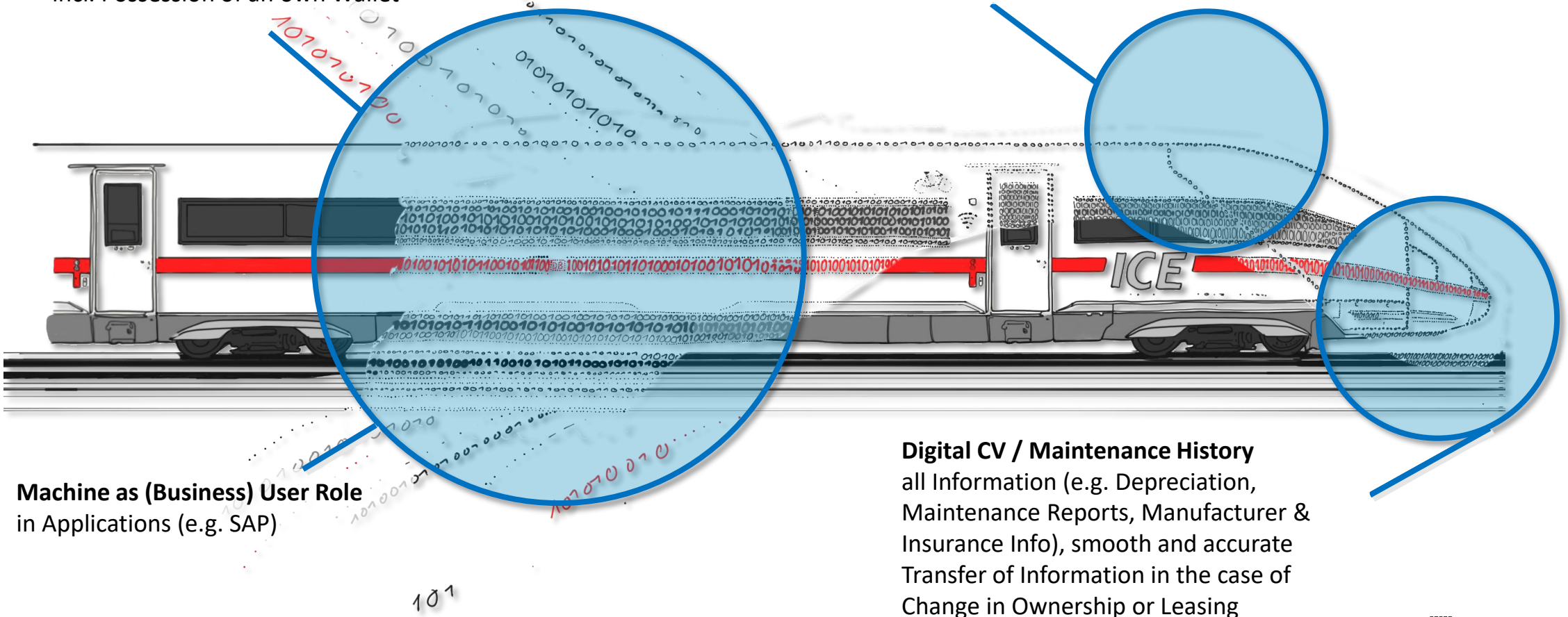
Blockchain & DLT Solutions
Revenue Splitting und Ticketing Platform



Asset- & Device-IDs enable M2M-Contracts & Value Transfer

Secure Proof Of Identity
„Who and What am I?“
incl. Possession of an own Wallet

Electronical Signature
for recording contracts & control instruction, as well as Data Logs



Machine as (Business) User Role
in Applications (e.g. SAP)

Digital CV / Maintenance History
all Information (e.g. Depreciation, Maintenance Reports, Manufacturer & Insurance Info), smooth and accurate Transfer of Information in the case of Change in Ownership or Leasing

DB Systel GmbH | Blockchain Crew | blockchain@deutschebahn.com

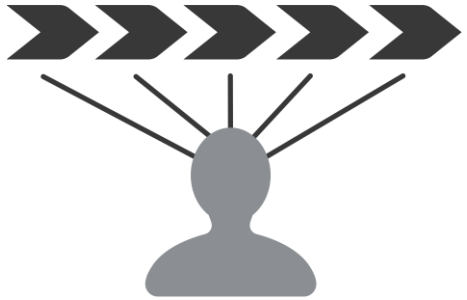
D_BLOCKCHAIN

Trusted Identity

Comprehensive Identity Framework for numerous application scenarios at DB

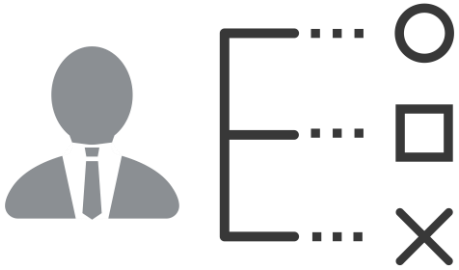
INTERNET OF EVERYTHING

Mobility-ID



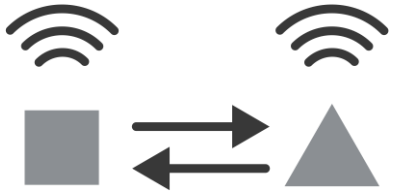
- **Customers need to have a single identity for the whole travel ecosystem**
- **Personal data such as credit card info** to be managed at a **single place**
- **Customers decide**, which information to provide
- **Retention of customers as DB customers**

Persons/Employee-ID



- **Employee ID used as access rights to IT-Systems** and internal booking systems
- **Internal, validated resumes** with confirmed skills und competences
- Use in **Recruiting and Personnel Planning Systems** conceivable

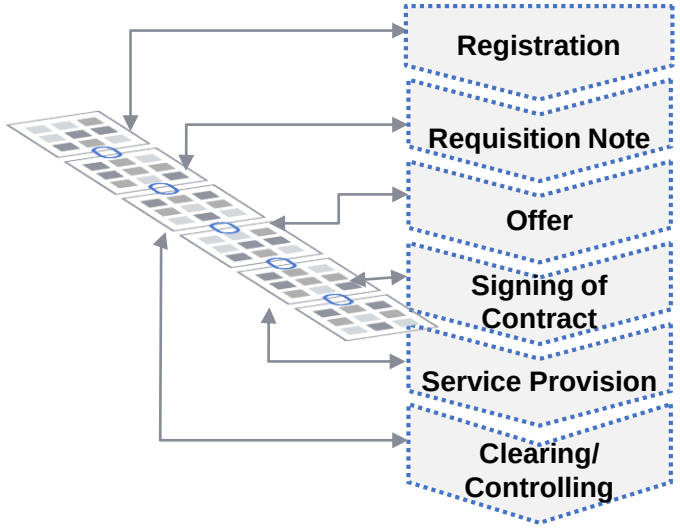
Asset- & Device-ID



- Asset ID for **Signing Contracts between Things** (e.g. A train settles charges with a railway station)
- **Identification und Authorization of Sensors and Devices**

Intelligent Business Relations
Radical Process Modification and its Results

Process	Roles	Application



- Requisitioner
- Offer submitter & -authorizer
- Administrative authorizer
- Signer
- Project Manager
- Controller

Application connects all parties involved and provides oversight to actual Status

Transparency

- All participants have the same level of information
- Clear rules for Contract Negotiations and Preparations

Faster Processing

- Faster Processing through reduced number of Process Steps & increased Automation
- Real-time Information at all times for Decisions + Oversight

Cost Reduction

- Fewer process steps
- Reduced time required for Controlling
- Increased running time

Intelligent Business Relations
Architecture of the Pilot consists of 3 Layers

User Interface

Backend

for Visualization, for Apps und Authentication

DB Energie

- Workflow Logic of Participants on the Process DB Energie
- Digital Files/Data (e. g. PDF‘s)

DB Systel

- Workflow Logic of Participants on the Process DB Systel
- Digital Files/Data (e. g. PDF‘s)

Blockchain

Smart Contracts and „Business Rules“ on „Hyperledger“ Blockchain

- Business processes, business objects and definitions of roles on process
- Hash-Signatures of digital data about all participating business units and actors
- Amazon AWS Cloud (scalable)