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# Blockchain for applications in transport

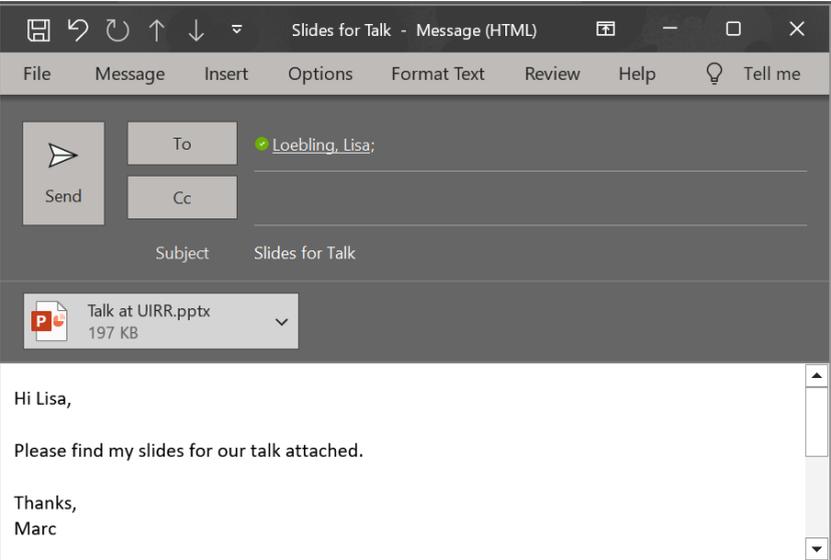
ESEP4FREIGHT webinar

20.02.2024

d-fine

analytical. quantitative. tech.

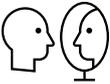
# A blockchain is essentially a database with additional features that help bring additional value to data



The **internet** allows us to **share information**, but there is no inherent **measure against duplication**

**Blockchain** technology allows for a **“proof of ownership”** of a digital item

# Blockchain technology still suffers from a bad reputation, even though many assumptions about it are actually false



*“Blockchain and Bitcoin are the same thing”*



*“Blockchain is bad for the environment”*



*“Crypto assets are only used by terrorists”*



*“Blockchain is only relevant for the financial sector”*



*“Blockchain makes all my data public”*



*“Blockchain doesn’t address any real problems”*

▶ Blockchains can be a very energy-efficient technology and facilitate many use-cases across industries. The immutable audit trail minimizes criminal activity and data privacy is an option.

# Blockchain technology enables smart contracts, a means of sharing logic and data, secured by cryptographic methods

## What a smart contract is:

A **program** shared by all computers in the blockchain network that

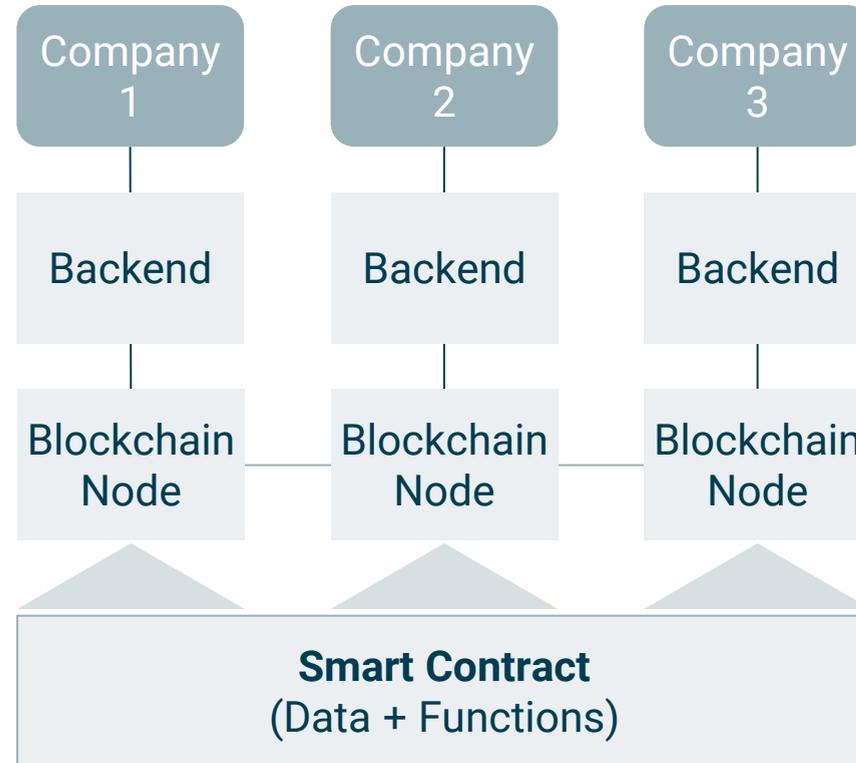
- runs **deterministically**,
- and **independently** from its creator,
- provides **verifiable execution** and
- contains **rules to change the ledger state**

## What a smart contract is **not**:

- A **contract** (in legal terms)
- A **way to enforce a contract**

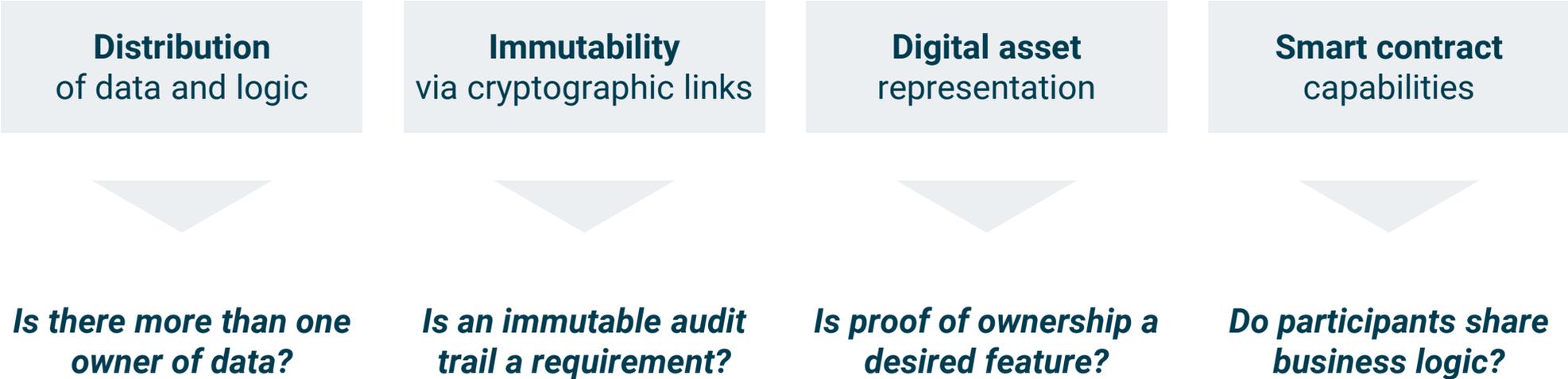


**Smart contracts allow for shared logic and data  
between parties that do not trust one another**



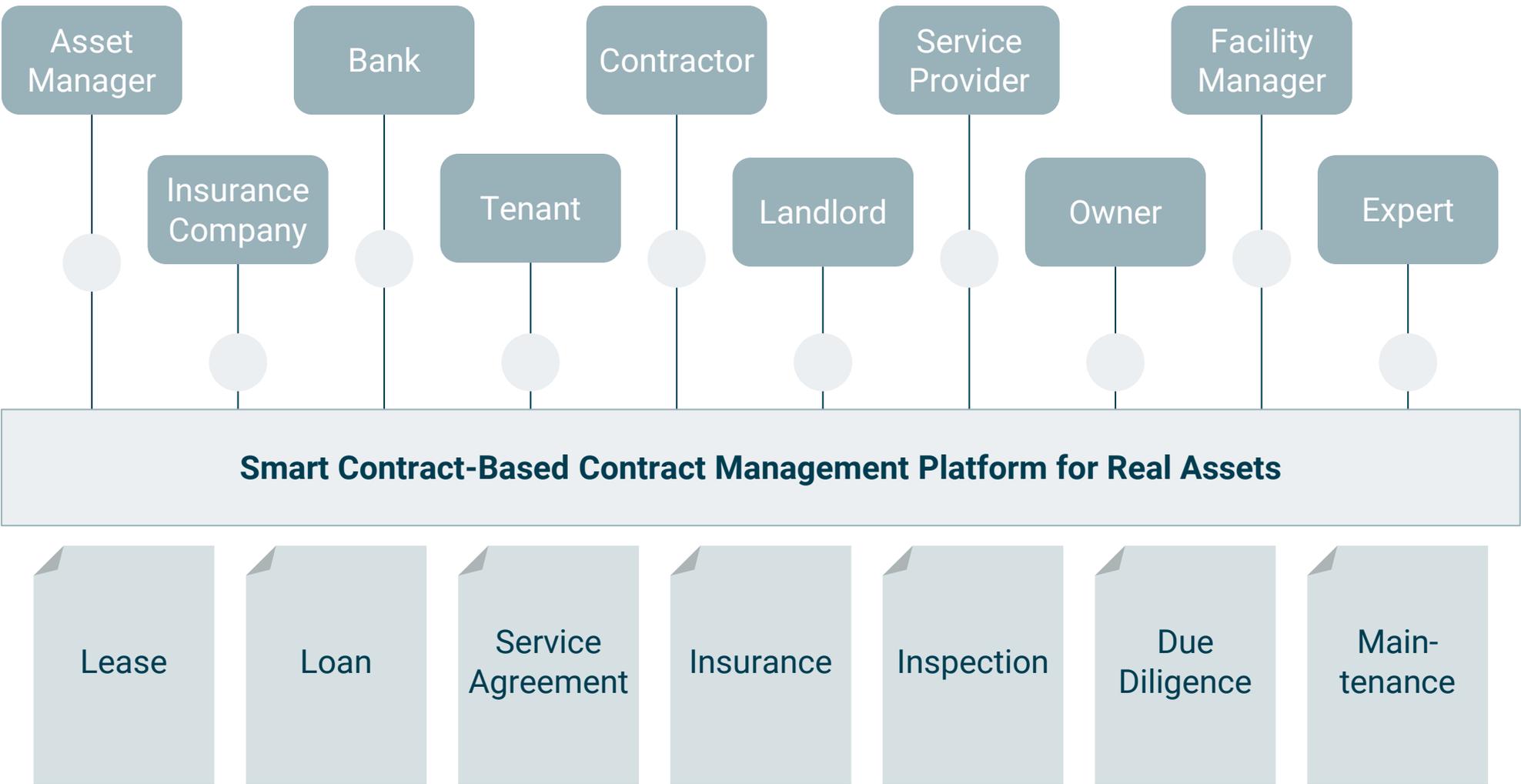
# To decide whether a problem is a “blockchain problem”, it helps to answer several questions

In order to derive meaningful questions, let’s remember that a blockchain is a database plus



The **more** of these **questions** you can answer with **yes**, the **more likely blockchain technology** is a good fit to the underlying use-case

# This contract management example from the asset management space shows how distributed, immutable smart contract platforms can simplify processes

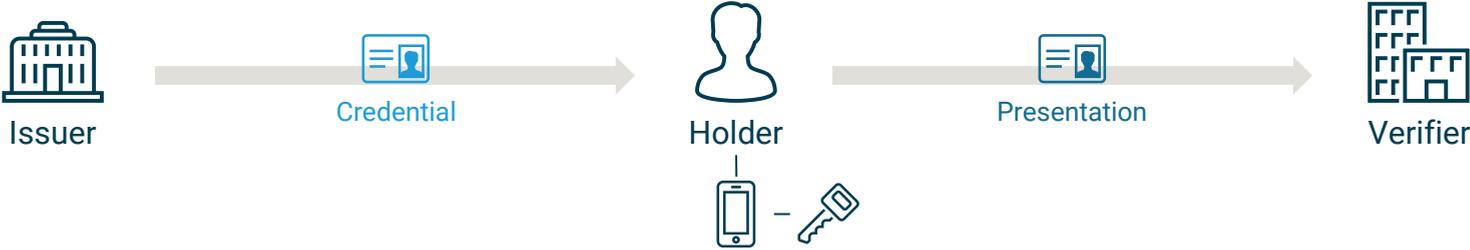


# Meanwhile, blockchain technology has inspired the space of digital identities, where decentralization of data and processes can create additional efficiencies

Issuers send **verifiable credentials** to users,

users **hold, manage, and control** their credentials...

and can send contained **claims<sup>01</sup>** to verifiers.



**No connection to the Issuer** required in the moment of verification.

**Personal data** is stored solely on the holder's device(s).

Claims can be **reused** in various locations.

<sup>01</sup> A claim refers to an attribute and its content, e.g., "name = John"

# eFTI is designed to combine different (digital) freight documents on a single platform and serves additional regulatory objectives such as the CT Directive

Digital technologies are to be used in a standardised manner to fulfil the legal requirements.

**eCMR** 

- **Electronic** version of the intern. CMR consignment note
- **UN/CEFACT** data standard, template of the **IRU**
- Accession Germany **2022**

**eCIM** 

- **Electronic** version of the CIM consignment note
- Defined by **CIT** (International Rail Transport Committee)
- Entered into force **at the beginning of 2017**

**eSWB** 

- **Electronic** version of the Sea Waybill
- Internat. Maritime law included in the national Commercial Codes

**eAWB** 

- **Electronic** version of the **air waybill** AWB
- Defined by **IATA**
- Introduced in 2010, **standard** for freight **since 2019**

**Revision of the CT directive**  
Digital eFTI platforms are planned to provide a calculator to prove whether transport operations are eligible as CT according to external cost savings

**eFTI**     

- **Obligation** for authorities to **accept** electronic freight information from August 2025
- **Harmonised** transport data model
- Data exchange via certified **eFTI platforms**
- 2018 - 2040: Net benefits of **20 - 27 billion euros, 75 - 102 million working hours** in administration<sup>01</sup>

**Dangerous goods information** 

- **Electronic form is equivalent** in Germany and the contracting states

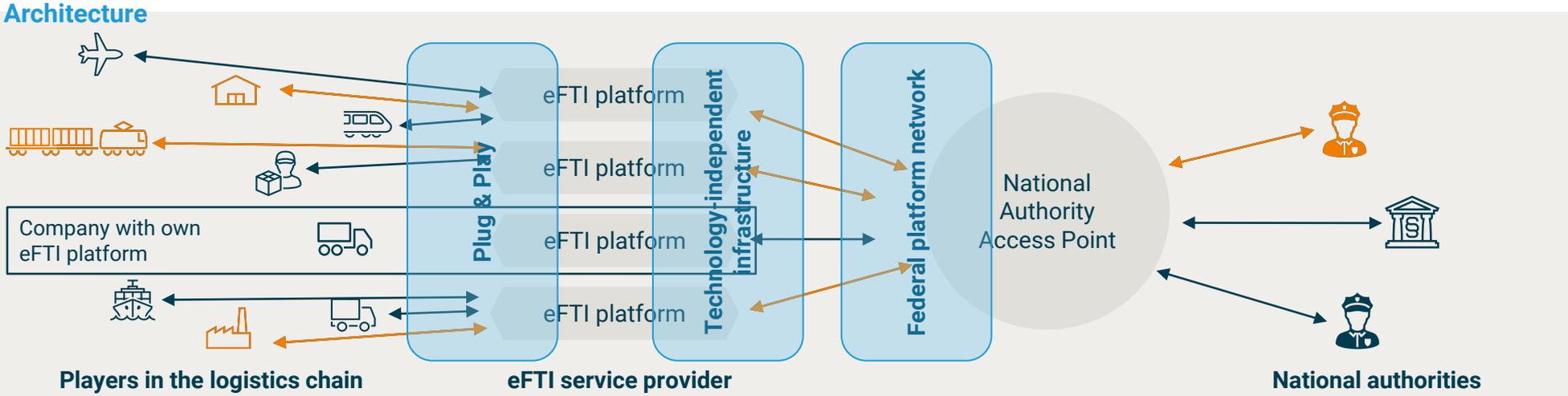
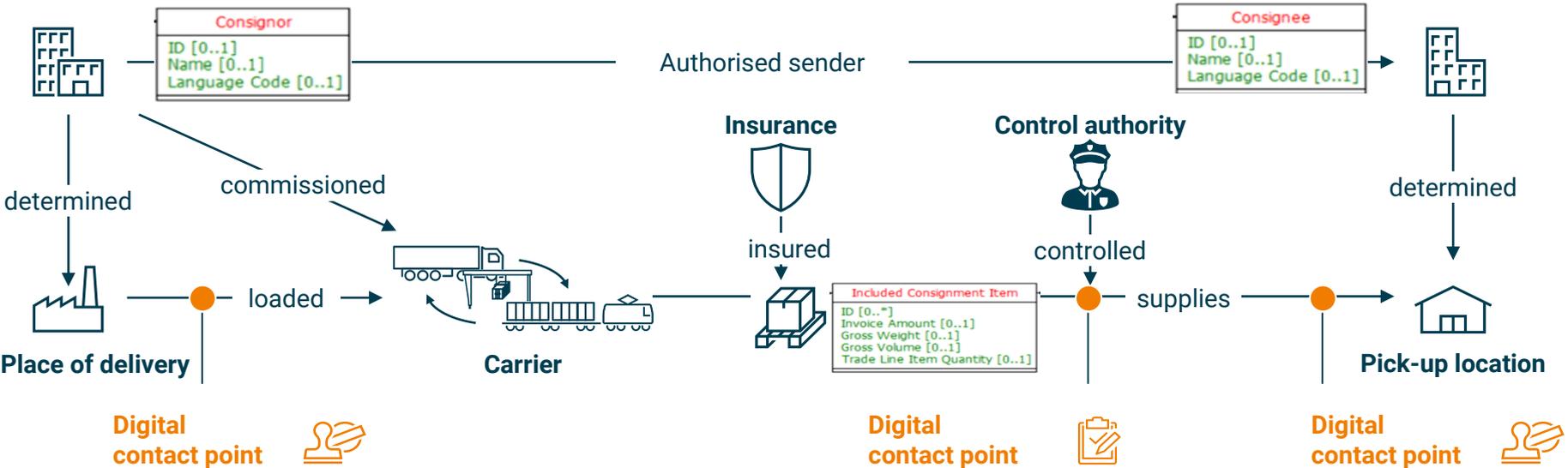
ADR:  RID:   
 IMO:  DGR: 

B2B exchange  B2A exchange

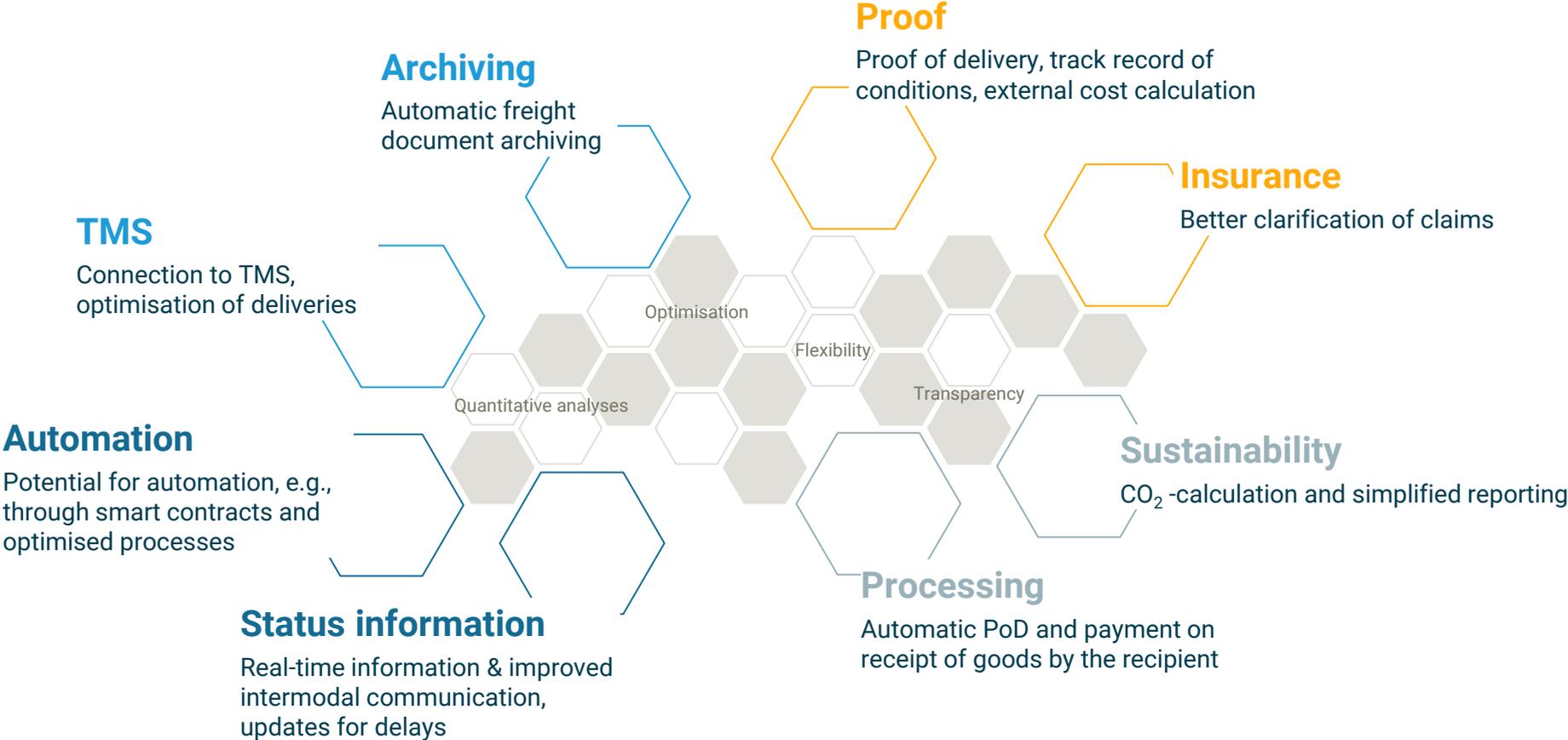
The digital consignment note helps to simplify time-consuming manual processes – economic and ecological added value

<sup>01</sup> according to the impact assessment

# Brave new world – The regulation on electronic freight transport information (eFTI)



# Digital freight information can be integrated into processes and systems beyond mere documentation



Switching to digital consignment notes not only fulfils future regulatory requirements, but also creates added value in other business processes.

# d-fine offers customised services for the various challenges of tomorrow's mobility

## Who we are



**Dr Marc Henniges**

- Senior Manager
- Expert for blockchain applications

**Dr Lisa Löbling**

- Senior Consultant
- Expert for logistics, combined transport and supply chain



1.500+

Employees

>85 %

MINT  
Background

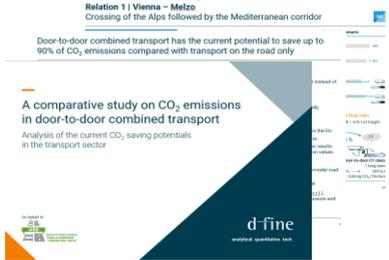
2.000+

Successful  
Projects

## Our work with UIRR



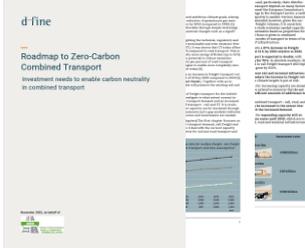
### Comparative Study on CO2 Emissions in door-to-door Combined Transport



### Zero-carbon Combined Transport



### Roadmap to Zero-Carbon Combined Transport



### Study on Weights and Dimensions



With our unique combination of domain knowledge and technical skills, we support our clients throughout the entire project life cycle, from conception to IT implementation.

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# Your contacts



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