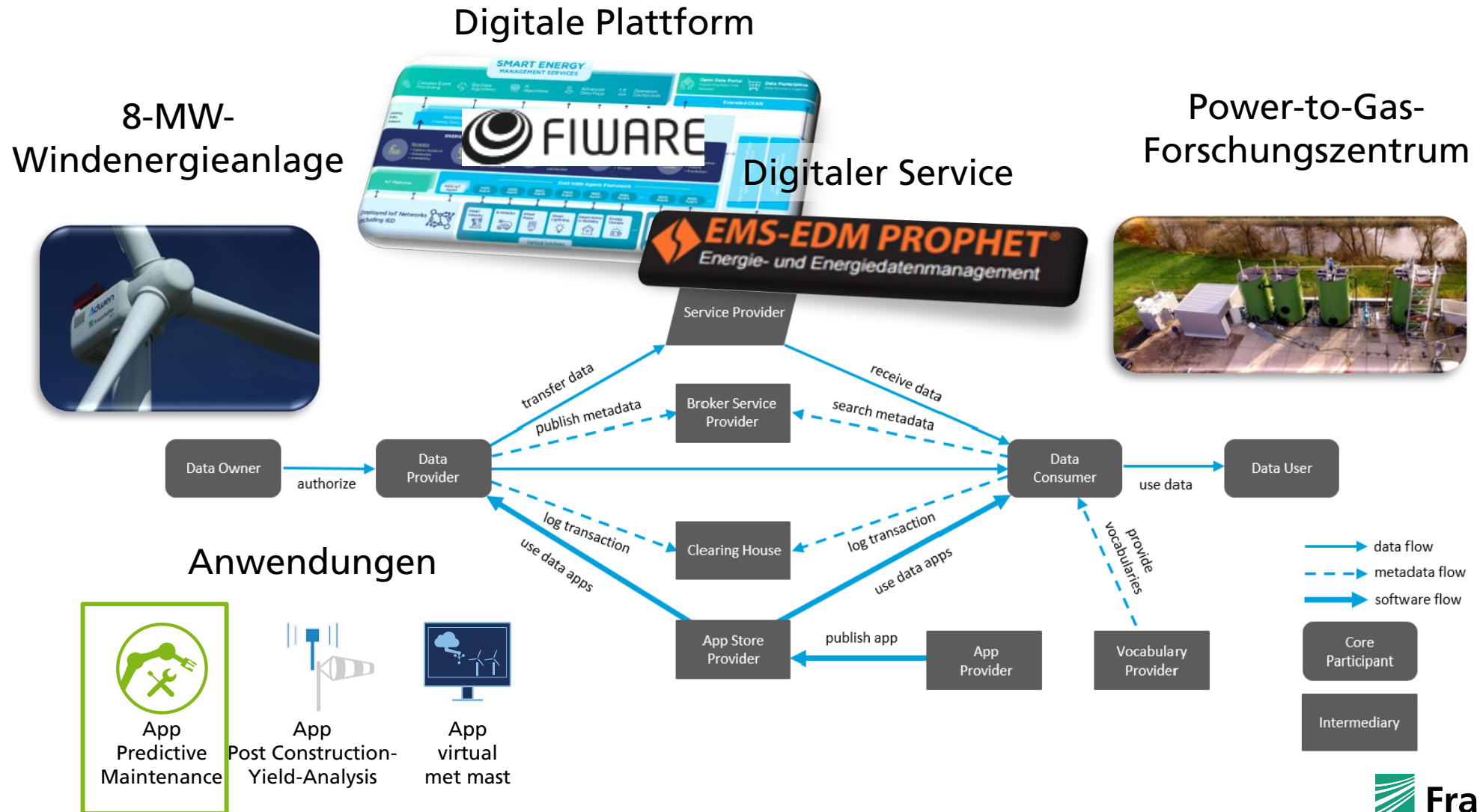

GAIA-X DATA SPACES AND ENERGY DATA USAGE

E&U Virtual Summit von Atos und Google Cloud

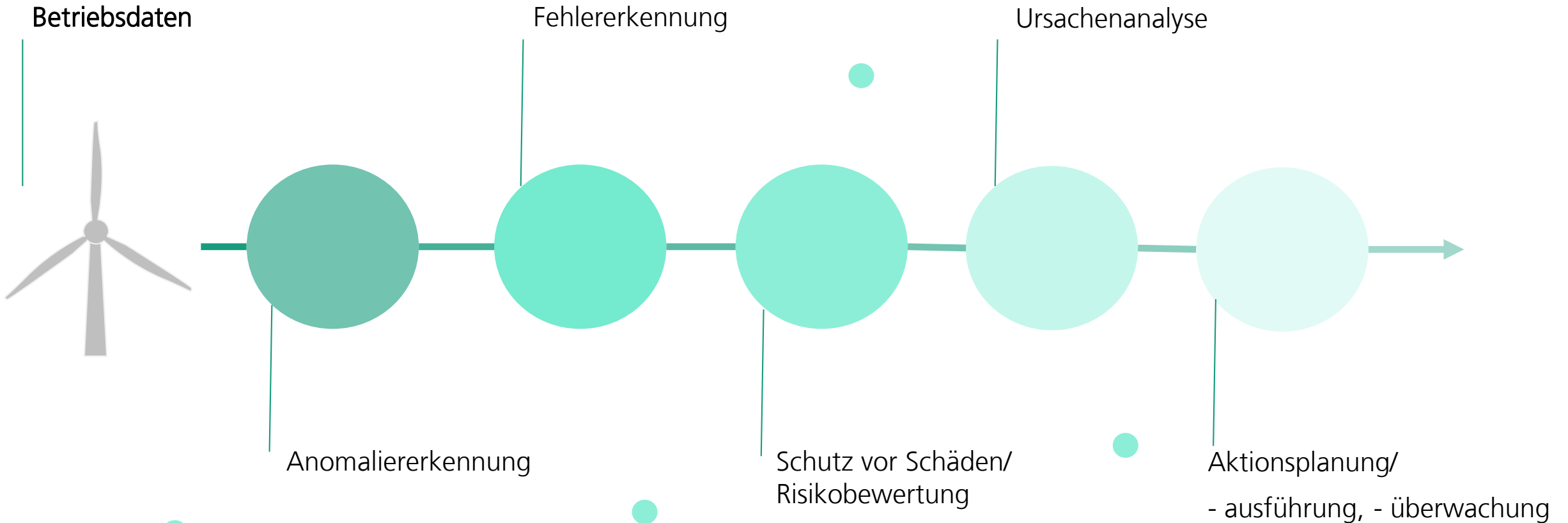
16. Juni 2021 | Volker Berkhout, Fraunhofer IEE



Demonstration Grüner Wasserstoff






Wertschöpfungsstufen in der prädiktiven Instandhaltung



Hemmnisse bei der Datennutzung in der Windenergie

Rechtliche Hemmnisse

-  **Datennutzungsrechte**
-  **Datenschutz**
-  **IT-Sicherheit**

EERA DeepWind'2020 IOP Publishing
Journal of Physics: Conference Series 1669 (2020) 012006 doi:10.1088/1742-6596/1669/1/012006

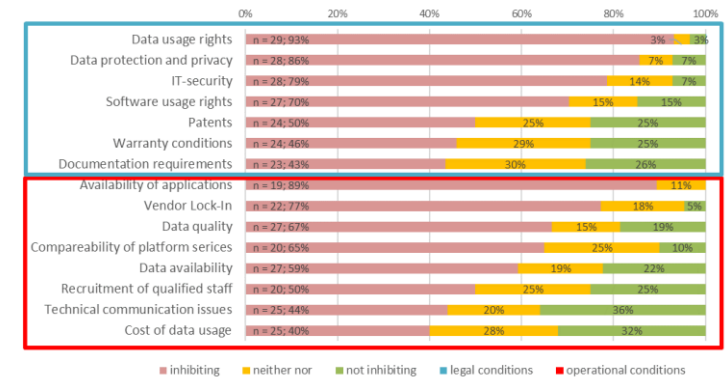
Applications and platforms in digitalisation of wind farm O&M – community feedback and survey results

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Abstract. Achieving performance optimisation and cost savings by advanced data analysis techniques and improved digital communication is a significant focus of wind farm operators and research organisations often framed under the terms IoT or Industry 4.0. Within the research project 'ModernWindABS', Fraunhofer IEE has conducted a twofold approach to identify new applications using modern methods that will innovate operation and maintenance processes. Based on a systematic structure of O&M processes and mathematic methods, innovative applications were identified and evaluated in expert workshops. Separately a survey among wind industry professionals with the focus on innovative applications through digital platforms has been conducted in partnership with German industry associations. From both approaches, applications, that enable failure risk monitoring, turn out as the highest priorities from the professionals consulted. Additionally, the survey results yield insights on participants' expectations on benefits and financial contribution per organisational role and preferences regarding the platform setup and points out gaps between these expectations and current platform service designs. It further identifies the main barriers to the broader use of platforms, of which organisational and legal obstacles seem to outweigh technical problems.

1. Motivation
In the age of digitalization, operation and maintenance (O&M) services will benefit from innovative applications that are being developed and are evolving throughout the industry at a rapid pace. These applications make use of the data, that is provided by the wind farm's supervisory control and data acquisition (SCADA), condition monitoring (CMS) and structural health monitoring (SEM) systems itself and applies software algorithms from an ever-increasing toolbox powered by the dynamic development of machine learning and computing capacities to provide insights that were not available to this point. Turbine and farm data may also be enriched with additional data sources, such as environmental or market data.
At the same time, software applications are increasingly being distributed through digital platforms. While this is obvious for the consumer sector with platforms such as Play Store or App Store in place, this development is also beginning to reshape the business-to-business software market and, thus, correspondingly the wind energy industry. Totaro [1] provided an initial overview of a digital services app store for the wind industry, combining the type of application and digital platform providers. Additionally research on future needs for data management has been built up. The FAIR-principle has been proposed to ensure that data especially in the scientific sector is findable, accessible, interoperable and reusable [2]. As further building blocks for digital platforms the European Energy Research Alliance Joint Programme Wind Energy has proposed taxonomies for metadata [3] to support machine-

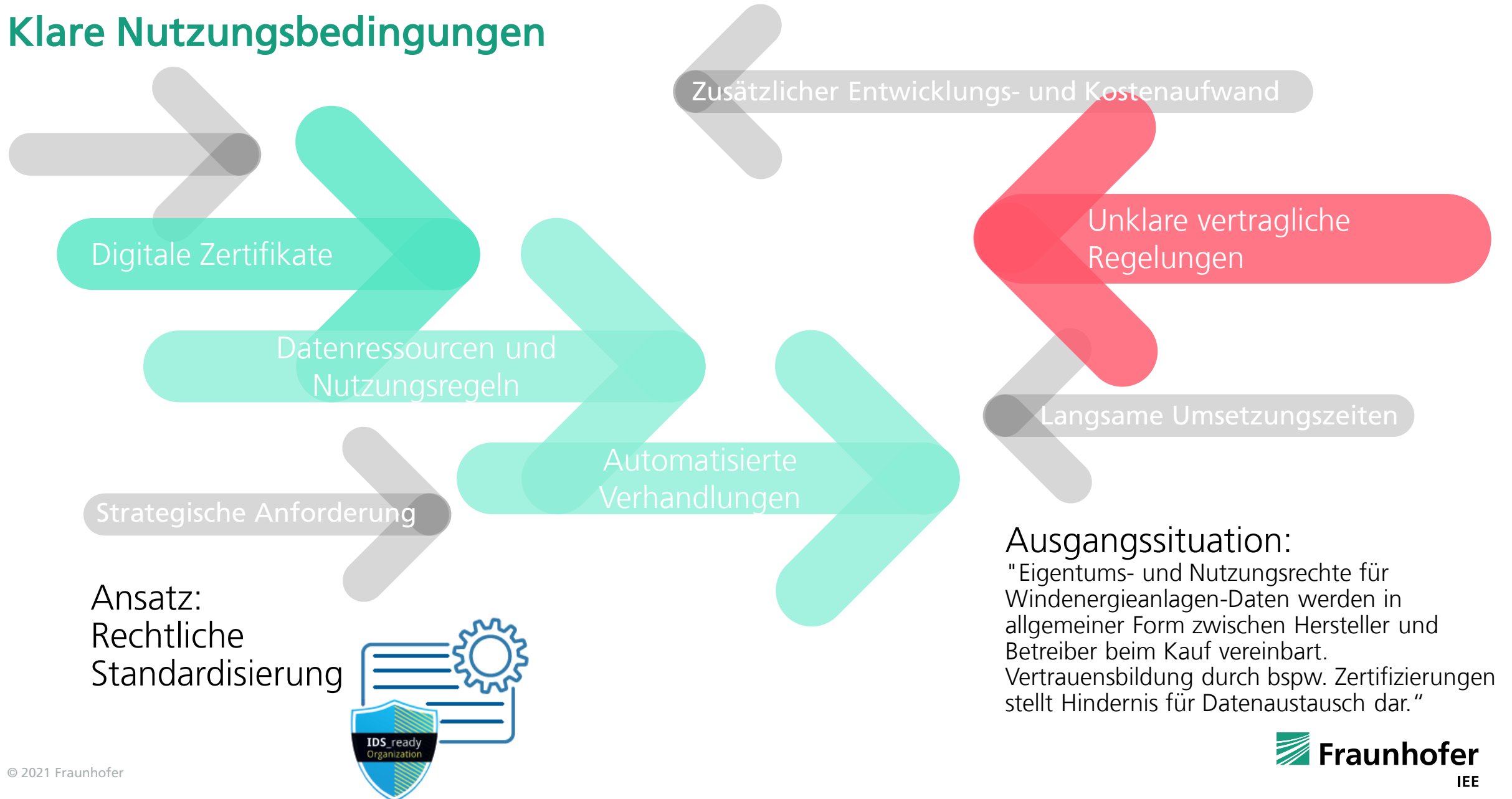
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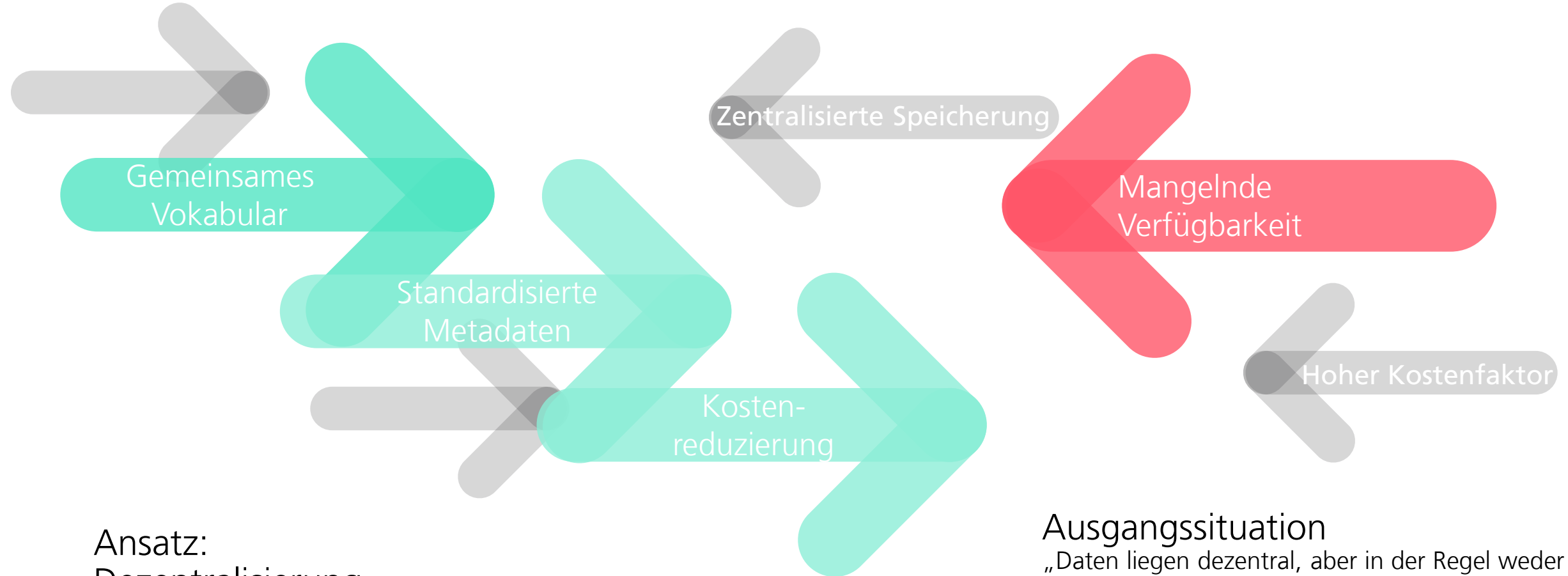
Betriebliche Hemmnisse

-  **Verfügbarkeit von Anwendungen**
-  **Vendor Lock-In**
-  **Datenqualität**

Klare Nutzungsbedingungen



Dezentrale Datenhaltung durch Nutzung von Standards

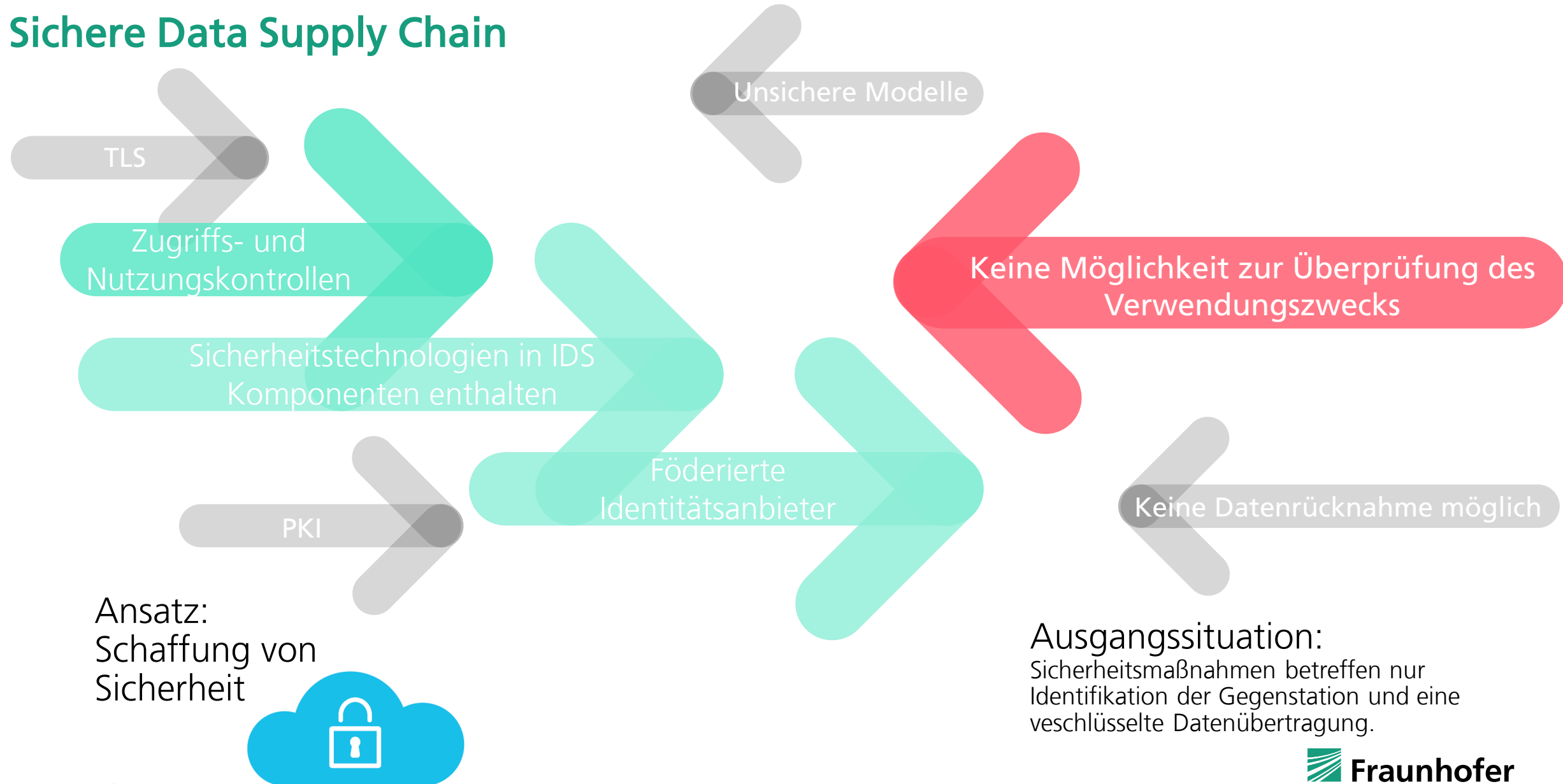


Ansatz:
Dezentralisierung
nutzen

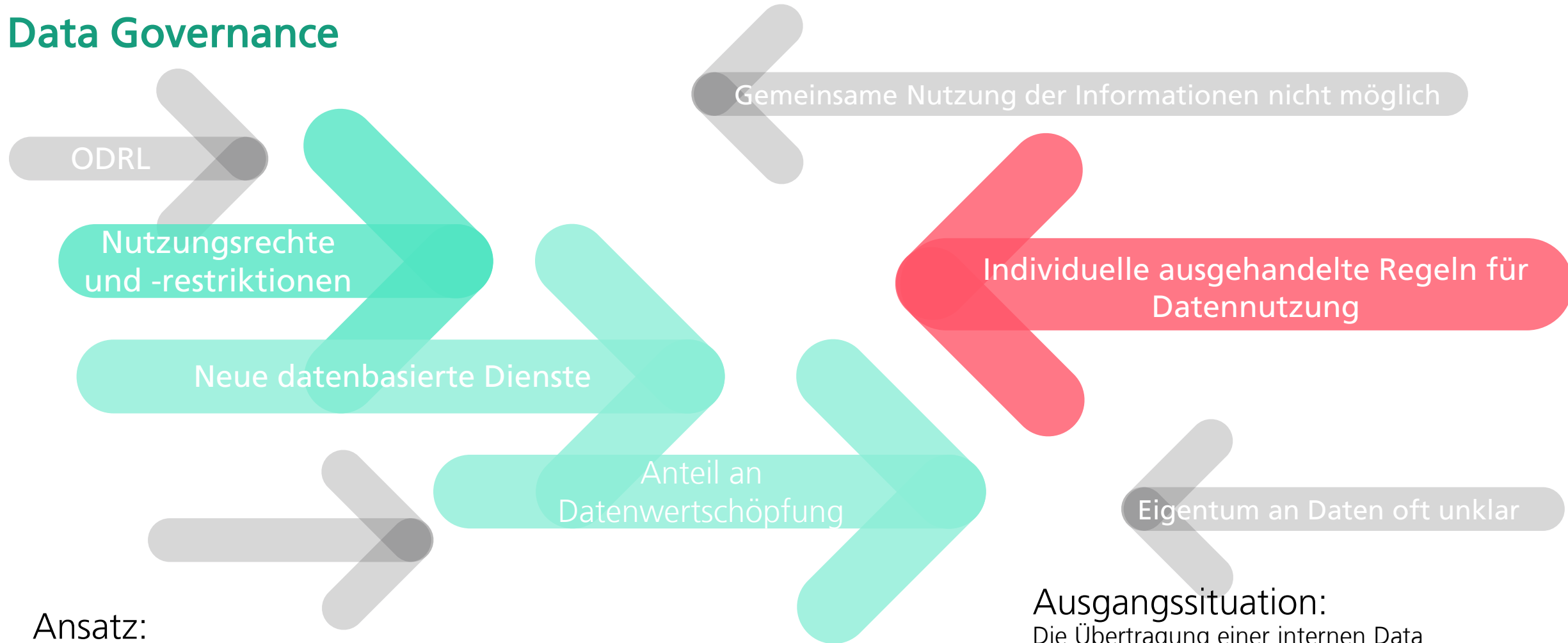
Ausgangssituation
„Daten liegen dezentral, aber in der Regel weder
standardisiert noch zugänglich vor.“



Sichere Data Supply Chain



Data Governance

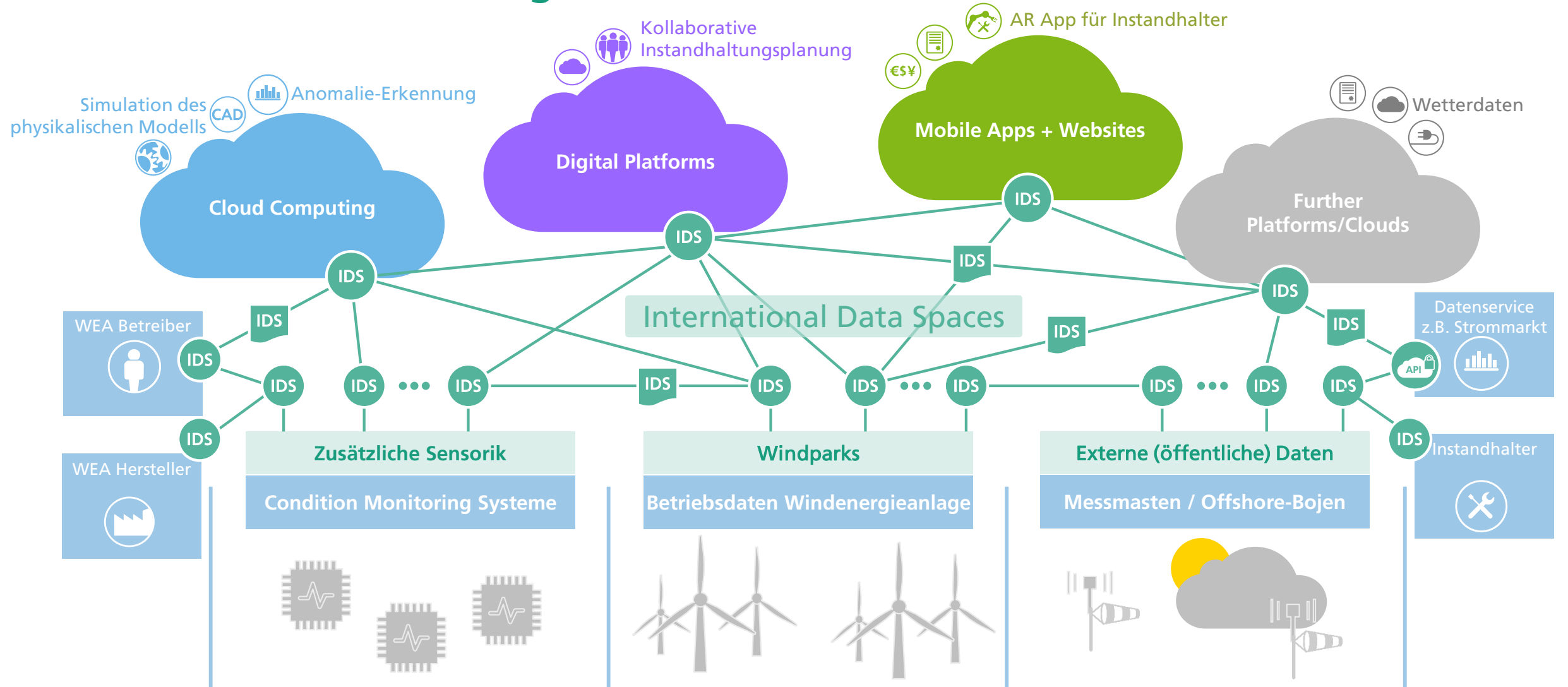


Ansatz:
Vereinfachte
Umsetzung von Data-
Governance-Prinzipien

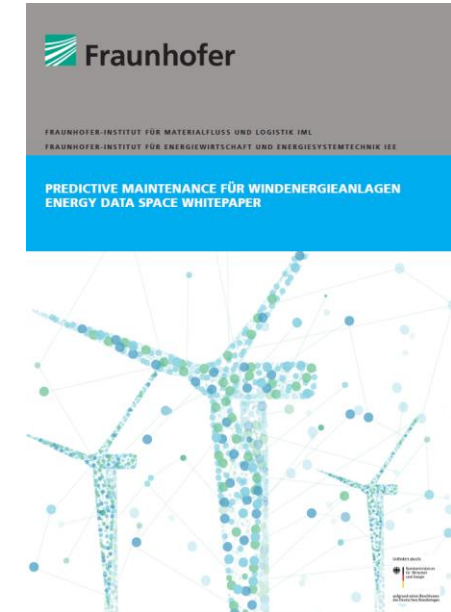
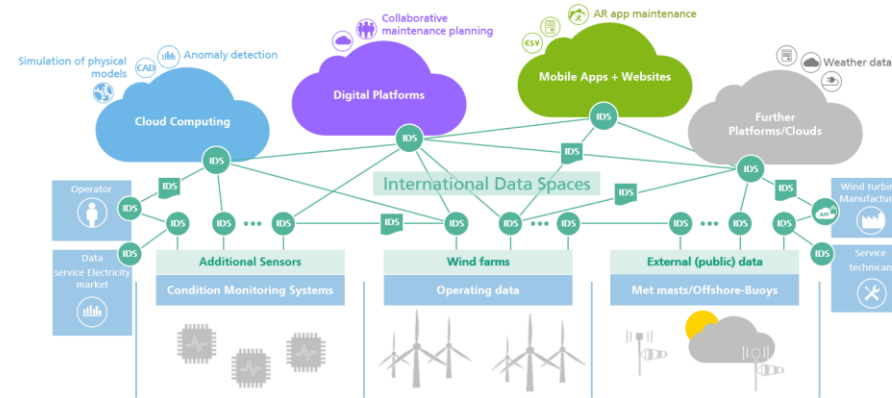
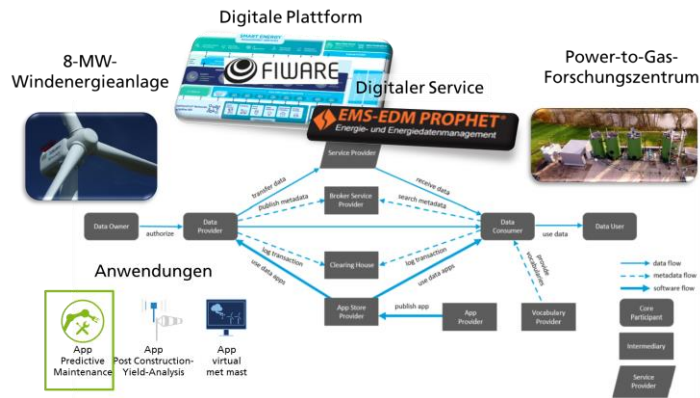
Ausgangssituation:

Die Übertragung einer internen Data Governance-Strategie und ihrer Grundsätze kann die gemeinsame Nutzung von Daten behindern.

Prädiktive Instandhaltung

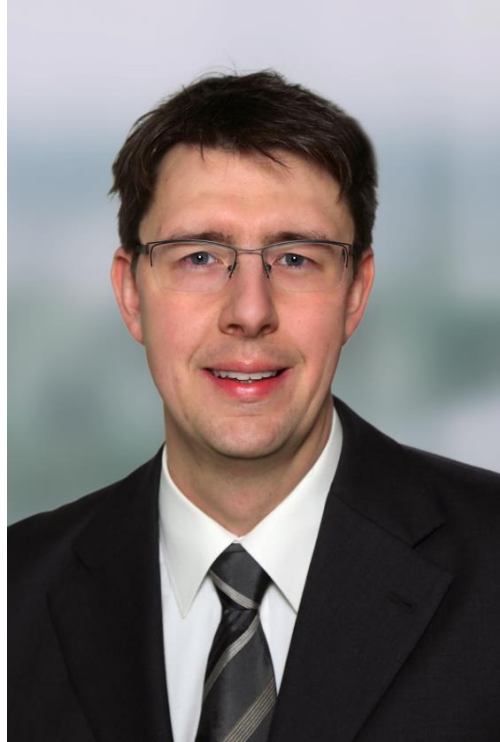


Zusammenfassung und Ausblick



- IDS-Konzept kann Lösungen für Hemmnisse zur Datennutzung in der Energiebranche bieten
- Aufbau von Datenräumen wird über bereits laufende und kommende Projekte geschehen
- Nutzung von Branchenstandards und Vokabularen sind Erfolgsfaktoren
- Datenmanagement innerhalb der Unternehmen ist wichtige Vorbereitung für Datenräume

Vielen Dank für Ihre Aufmerksamkeit!



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