

Efficient Data Management

for QI with Asset Administration Shell



Today's industry is processes oriented

- structured in workflows with dedicated quality gates
- distributed over a variety of functions and stakeholders
- conforming to international quality standard ISO 9001 ff.
 - + cover the (stakeholder) interfaces in the workflow
 - + document conformity of part / module / product to specification



... and has to be transformed into a digital aera.

The concept of a digital industry 4.0 – the forth revolution is about DATA

DATA has to be:

- Linked to product
- Organized for a product
- Reported to product owner
- Transferred seamlessly
- Securely Interpretable
- Aggregated for Products and Corporate Level

Solution:

- Digital Nameplate
- Asset Administration Shell
- Digital Product Passport
- Digital Battery Passport
- Data Spaces
- Semantics & Ontology
- Digital Product passport
- Asset Administration Shell



Basis:

- IEC 61406-1
- IEC 63278-1
- CEN/CLC JTC 24
- DIN/DKE 99100
- ISO/IEC AWI 20151
- EU ESPR
- EU CSRD

The concept of a digital industry 4.0 – the forth revolution is about DATA

Solution:

Digital Nameplate

Asset Administration Shell

AAS submodel

Digital Product Passport

Digital Battery Passport

Dataspaces

Semantics & Ontology

Benefit:

Unique ID with link to all customer information to product

Framework for standardized information representation

Envelop for specific type of data in AAS

Transfers selected AAS information to system owner

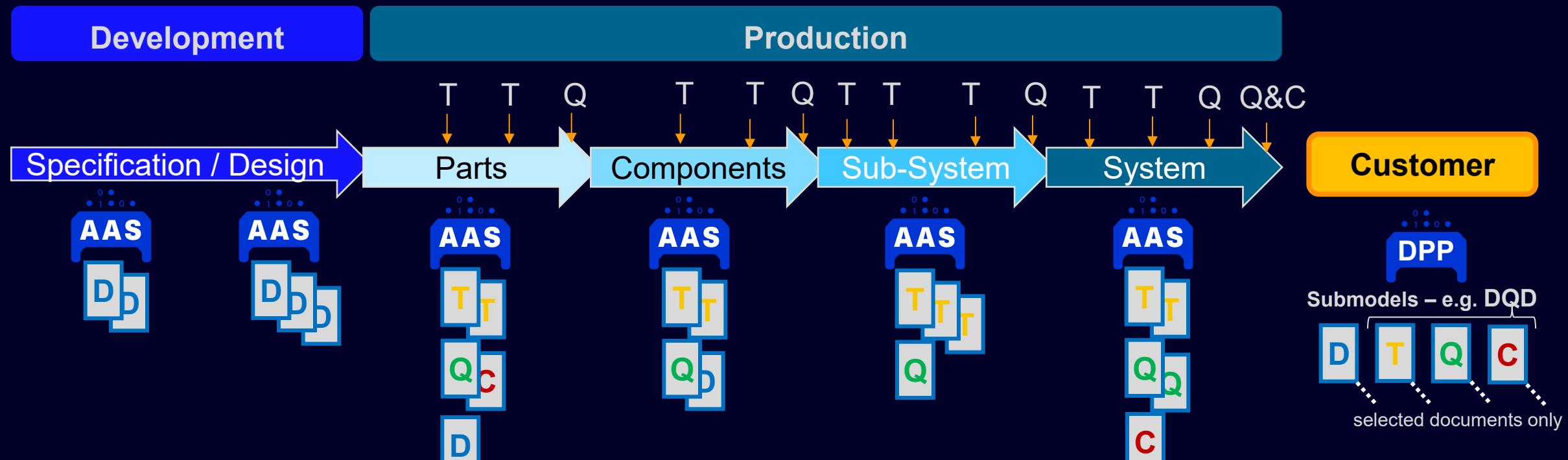
First enforcement of DPP for traction batteries

One connection to controlled data, DPP, AAS exchange

the BASIS for efficient Digitalization & Interoperability

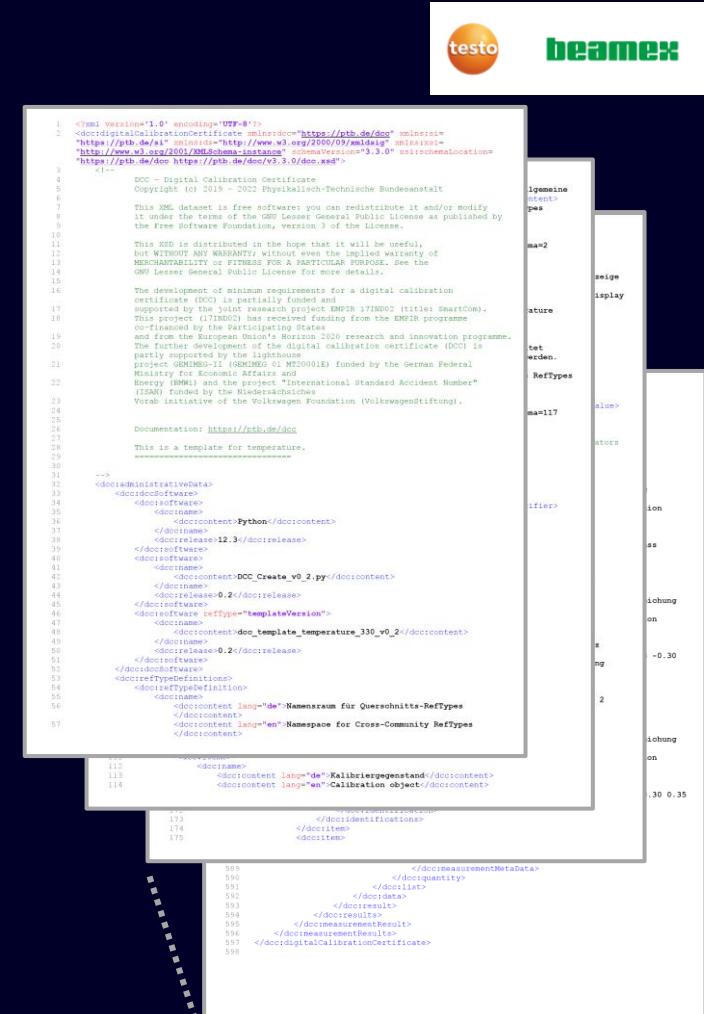
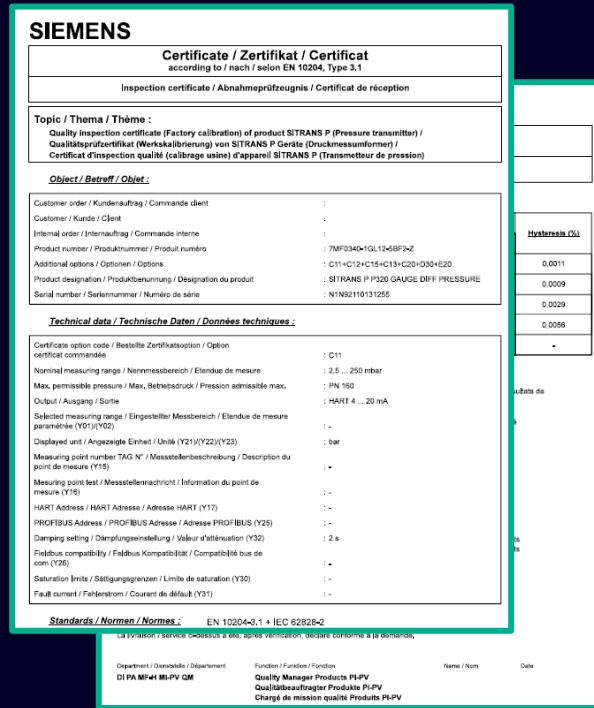
Product Lifecycle from Cradle to Gate for Digital Quality Documents

AAS - DPP - DQD



D: Documentation
T: Test
Q: Qualification
C: Calibration / Certificates

Digital Calibration Certificate and Quality Documents



Paper, pdf or pdf/A

DCC schema V x.y.XML



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Asset Administration Shell – Submodell Digital Quality Document with DCC

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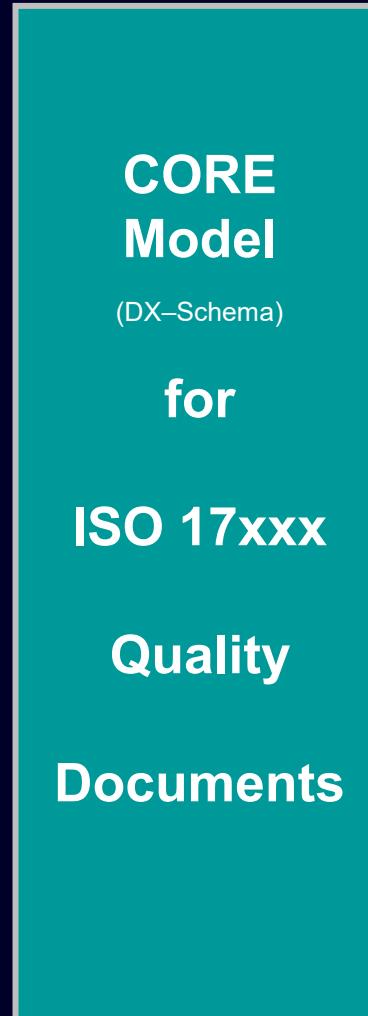
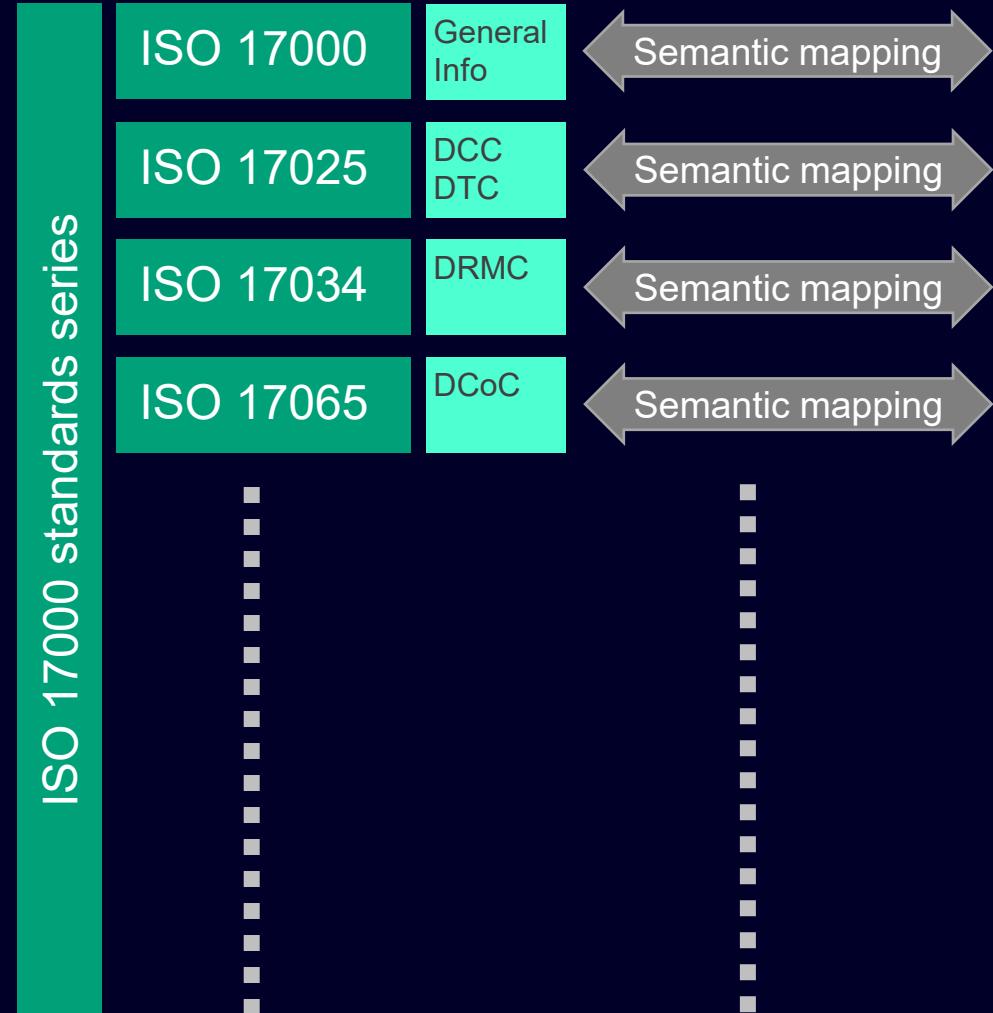
```

- Minimalistic
- + Basic
- + SW-Adjustment
- + Conformity Proc.
- + Audit/Full Check

Data utilisation/value

- Minimalistic
- Basic
- SW-Adjustment
- Conformity Proof
- Audit/Full Check

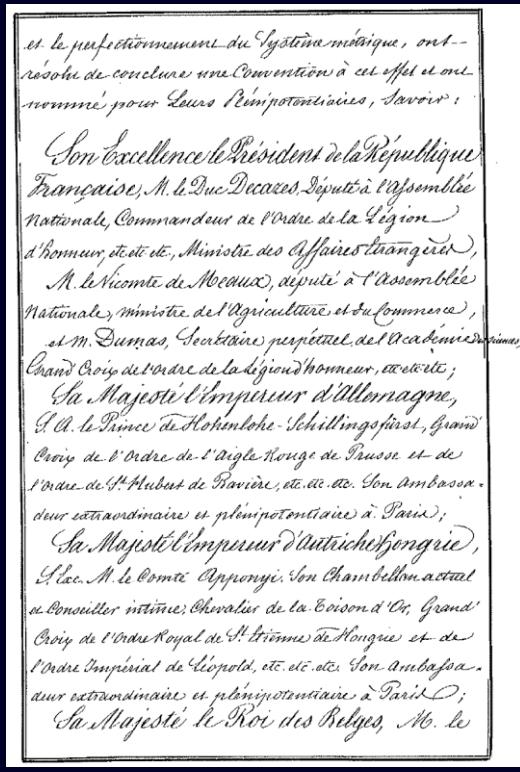
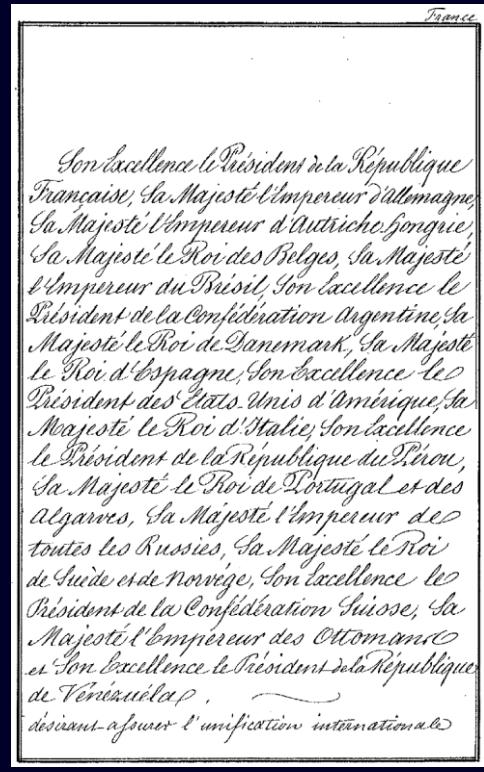
„One“ digital language – the basis for a common semantics



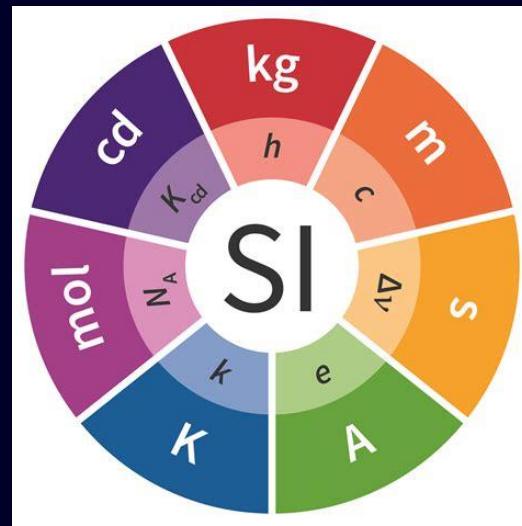
Release planned end 2025

IDTA - Core-Team:
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Yong Jin, Sudip Adhikari,
Thomas Engel

The international (digital) Units of Measurement



Source: MINISTÈRE DES AFFAIRES ÉTRANGÈRES; DIRECTION DES ARCHIVES; le 6 décembre 2012



Source: BIPM, SI brochure



Source: BIPM

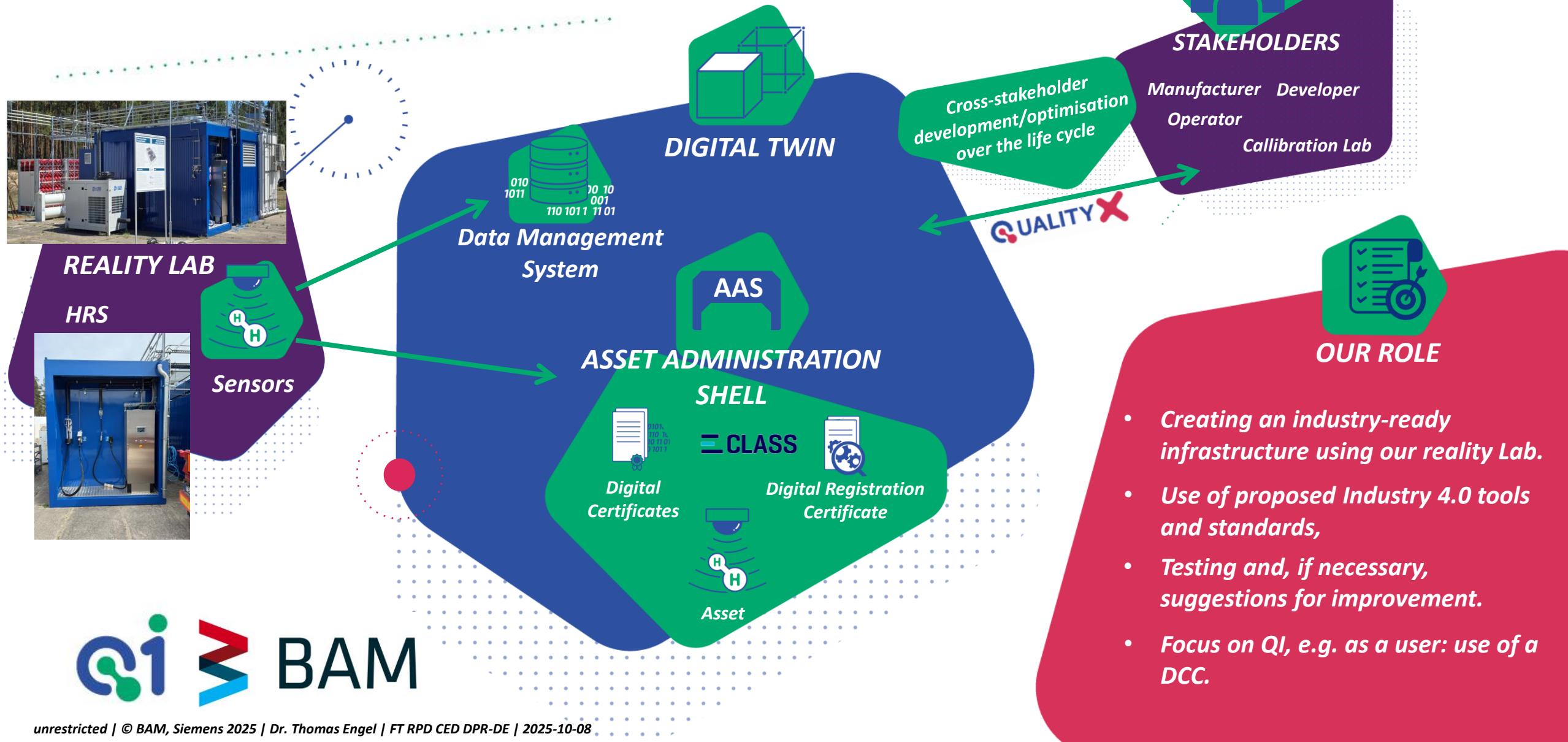
Coming early 2026:

IEC 62720-CDD – Units of Measurement: All 2180 units traced to **BIPM SI reference point**
International standard – royalty free – copyright protected

Core team: Gernot Rossi, Daniel Hutzschenreuter, Maximilian Gruber, Klaus Dickmann, Thomas Engel

Digital Twin proposed by INDUSTRIE4.0

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"In the digital era, the value of data is not just in its existence, but in its quality, consistency, reliability, and trustworthiness throughout the digital processing chain."

Contact

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<https://iopscience.iop.org/article/10.1088/1361-6501/ace468/meta>

From a digital calibration certificate to a digital quality infrastructure.

<https://doi.org/10.1051/epjconf/202532301003>