

IOTWeek

Dublin — June 20-23, 2022

DPP4.0 is the industrial answer to the regulatory request on DPP

Dieter Wegener, Siemens & ZVEI-Speaker "Industrie 4.0"

GLOBAL VISION:

IoT TODAY AND BEYOND

IOTForum

1

SPI: EU Commission's view on DPP

2

Enabling Technologies: DNP4.0 and AAS

3

DPP4.0 is the industrial answer on DPP

4

Live Demo on DPP4.0



Ecodesign for Sustainable Products Regulation (ESPR) and Digital Product Passport (DPP)

*Michele GALATOLA
DG GROW – I3 Circular and Green
Economy Unit*



Key product aspects under ESPR

- Durability
- Reliability
- Reusability
- Upgradability
- Repairability
- Possibility of maintenance and refurbishment
- Presence of substances of concern
- Energy use or energy efficiency
- Resource use or resource efficiency
- Recycled content
- Possibility of remanufacturing and recycling
- Possibility of recovery of materials
- Environmental impacts, including carbon and environmental footprint
- Expected generation of waste materials

ESPR

Digital Product Passport (DPP)



Tracking of **raw materials extraction/production**, supporting due diligence efforts



Enable **manufacturers** to create products **digital twins**, embedding all the information required



Tracking the life story of a product, enabling services related to its **remanufacturing, reparability, re-use/re-sale/second-life, recyclability**, new business models



Benefit **market surveillance authorities and customs authorities**, by making available information they would need to carry out their tasks



Make available to **public authorities and policy makers** reliable information. Enable to link **incentives to sustainability performance**



Allow **citizens** to have access to **relevant and verified information** related to the characteristics of the products they own or are considering to buy/rent (e.g. using apps able to read the identifier)

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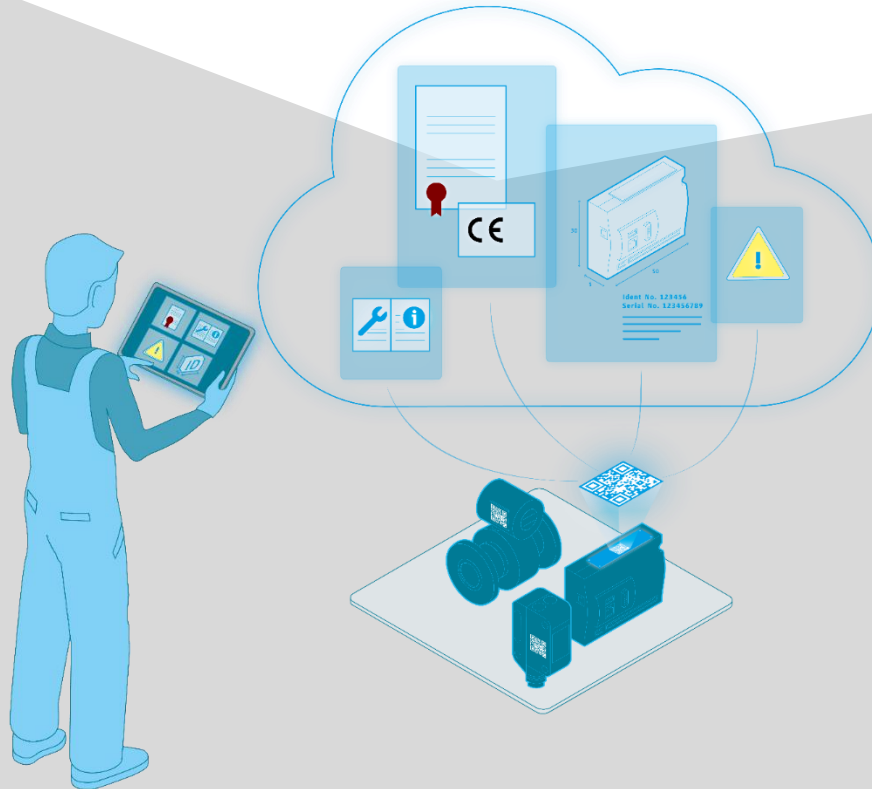
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The Digital Nameplate 4.0 (DNP4.0)

Basis for a Feasible DPP-Concept



Saving time and costs

- Access to product documentation online
- No costs for paper and logistics



One valid standard

- Across companies
- via DIN SPEC 91406
 - > IEC 61406 (“Identification Link”)



Global Access

- Documents in all languages
- Locale Certificates (CE, CCC, ...)

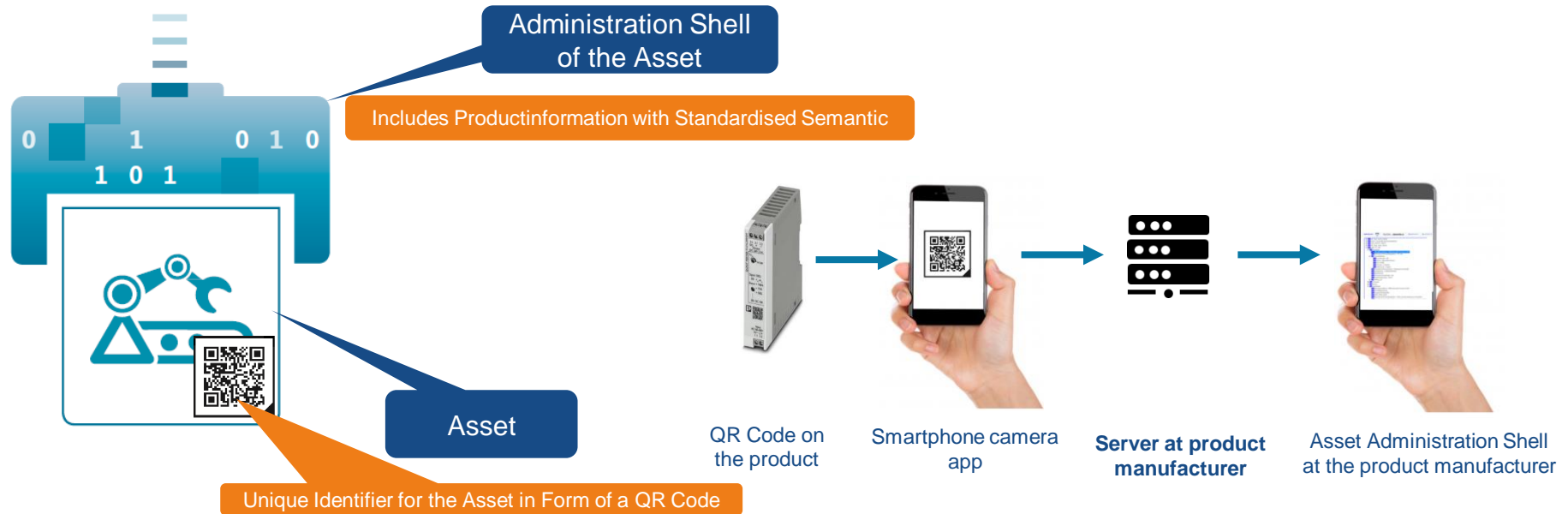


Sustainability

- Saving resources
- No paper documentation anymore

“Digital Twin“ based on the Asset Administration Shell (AAS)

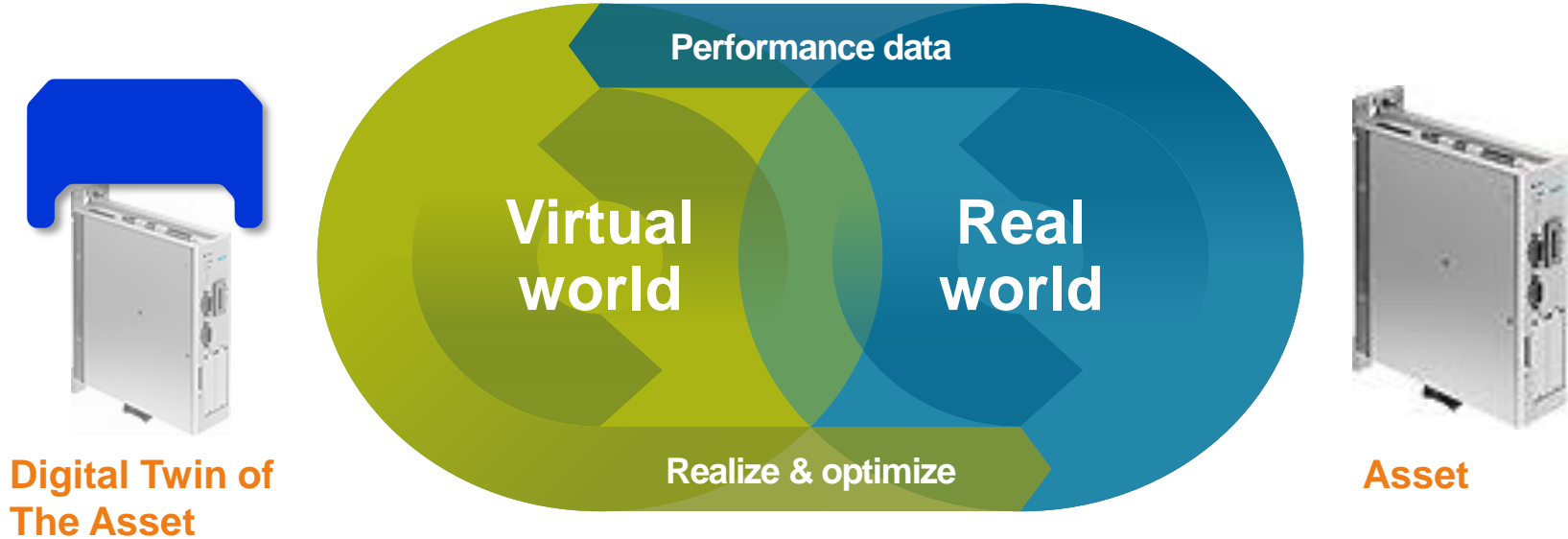
Each Real Product will get a Digital Twin in the Virtual World



Source:
Plattform I4.0

“Digital Twin” based on AAS

Each Real Product will get a Digital Twin in the Virtual World



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Industrial DPP4.0-approach based on DNP4.0 and AAS

Enabling sharing of Product Information along Product Lifecycle

Product



+

Product Information
provided by manufacturer
e.g.:

- IEC 62474 (Material declaration for products of and for the E&E industry)
- **Product Carbon Footprint**
- ...

Digital Name
Plate

+

Product
Information

- ...
- ...

=

EU Digital
Product
Passport
(DPP4.0)

Product Lifecycle

Design

Engineering

Production

Operation

Recycling

AAS

Submodels

“EU Digital Product Passport (DPP4.0)”

Enabling „Digital Transformation“ and new Business Models

Product



+

Product Information
provided by manufacturer
e.g.:

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- **Product Carbon Footprint**
- ...

Digital Name
Plate

+

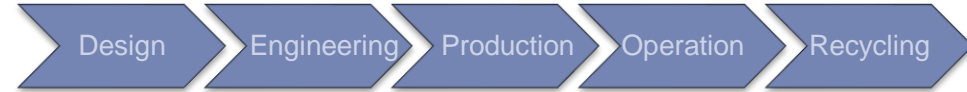
Product
Information

- ...
- ...

=

EU Digital
Product
Passport
(DPP4.0)

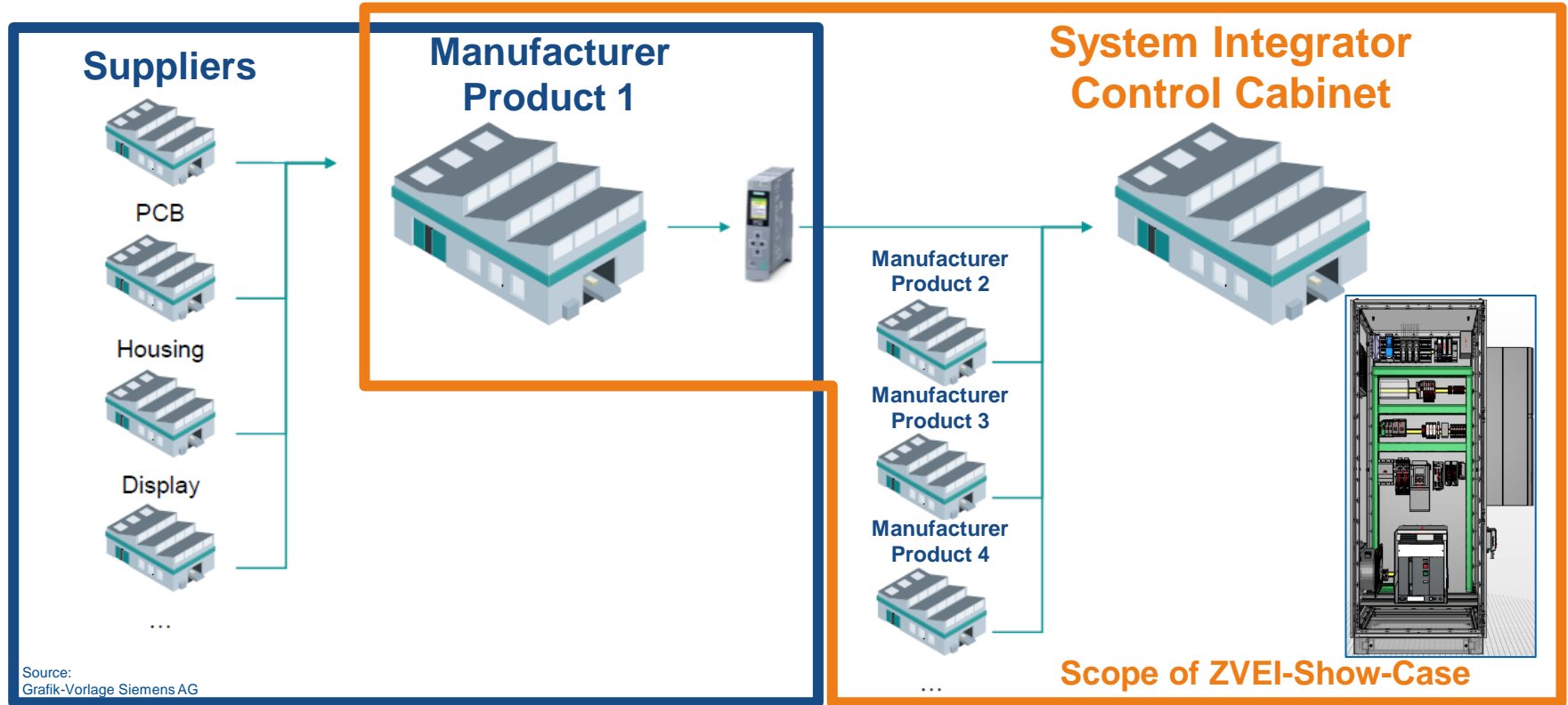
Product Lifecycle



- List of legislation and standards that the product complies with, or the technical specifications that it fulfils
 - Information on safe use and instructions, where applicable
- Information relevant for testing, disassembly, maintenance, repair or reassembly
 - **Information on Product Environmental and/or Carbon Footprint, or other relevant sustainability characteristics**
 - Any possession of sustainability labels, such as the EU Ecolable
 - Information on how the product should be recycled and/or handled at the end of life
- Other information provided by the manufacturer:**
- Digital Services
 - New Business Models

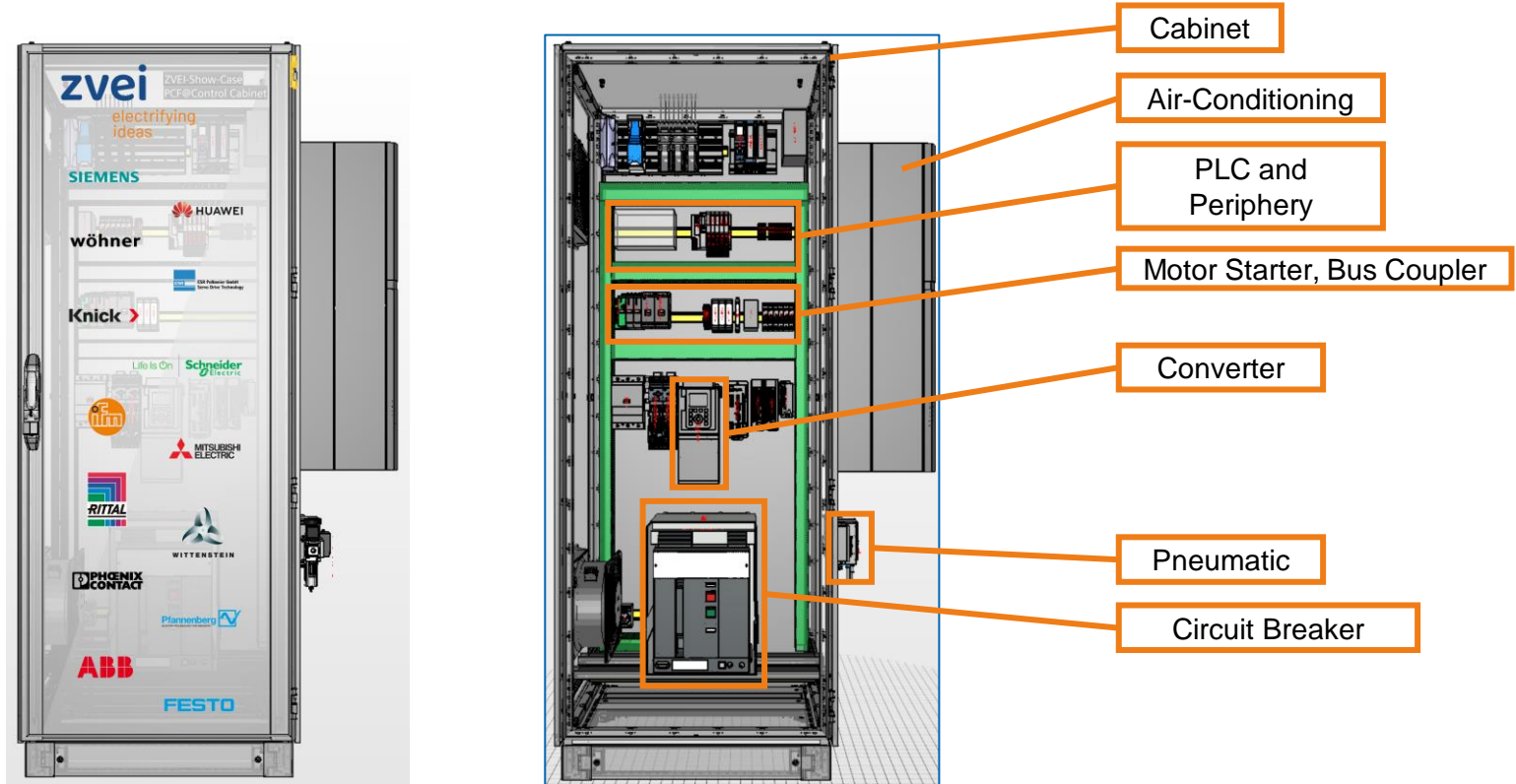
ZVEI-Show-Case “PCF@Control Cabinet”

Scope of the Show-Case: From Manufacturer to System Integrator



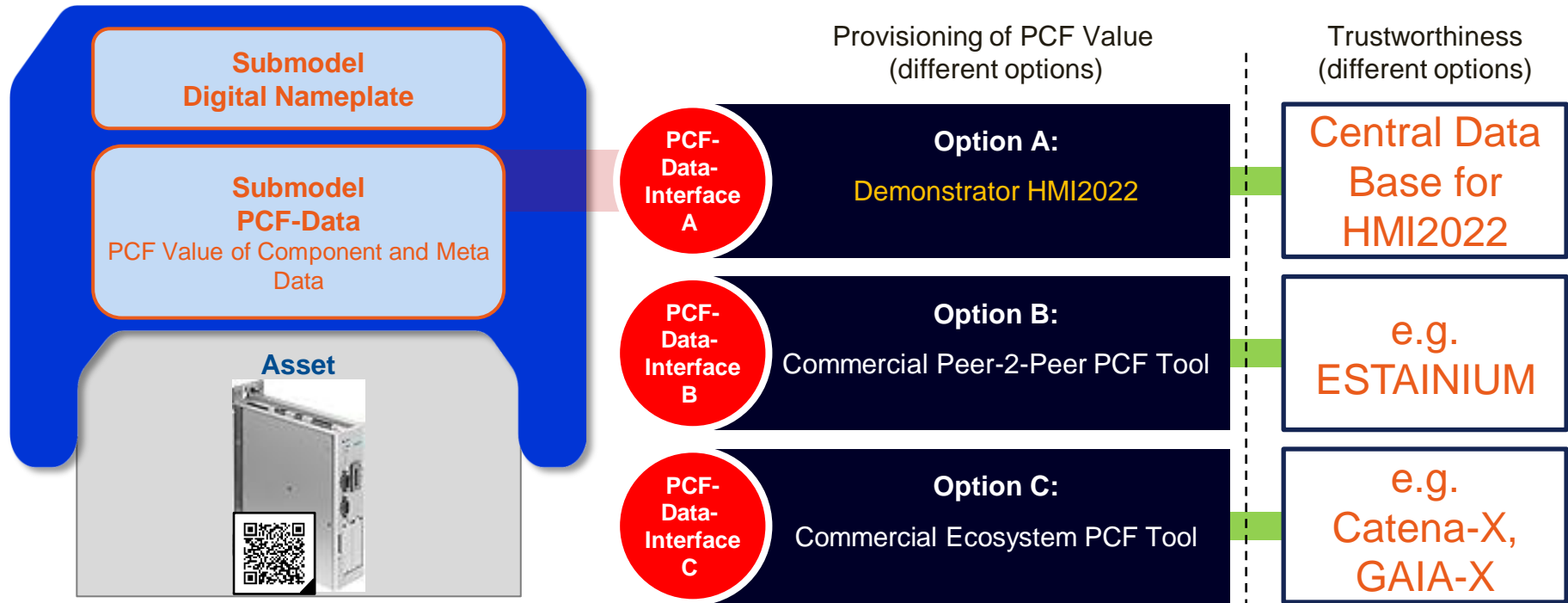
ZVEI-Show-Case “PCF@Control Cabinet”

Demonstrator: Control Cabinet



ZVEI-Show-Case “PCF@Control Cabinet”

Different Possible Data Sources



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Implementation @ SIEMENS

Scan 2D Code with Camera App



One-to-one Product Identification



Online Representation of the Product in Browser



Technical Data

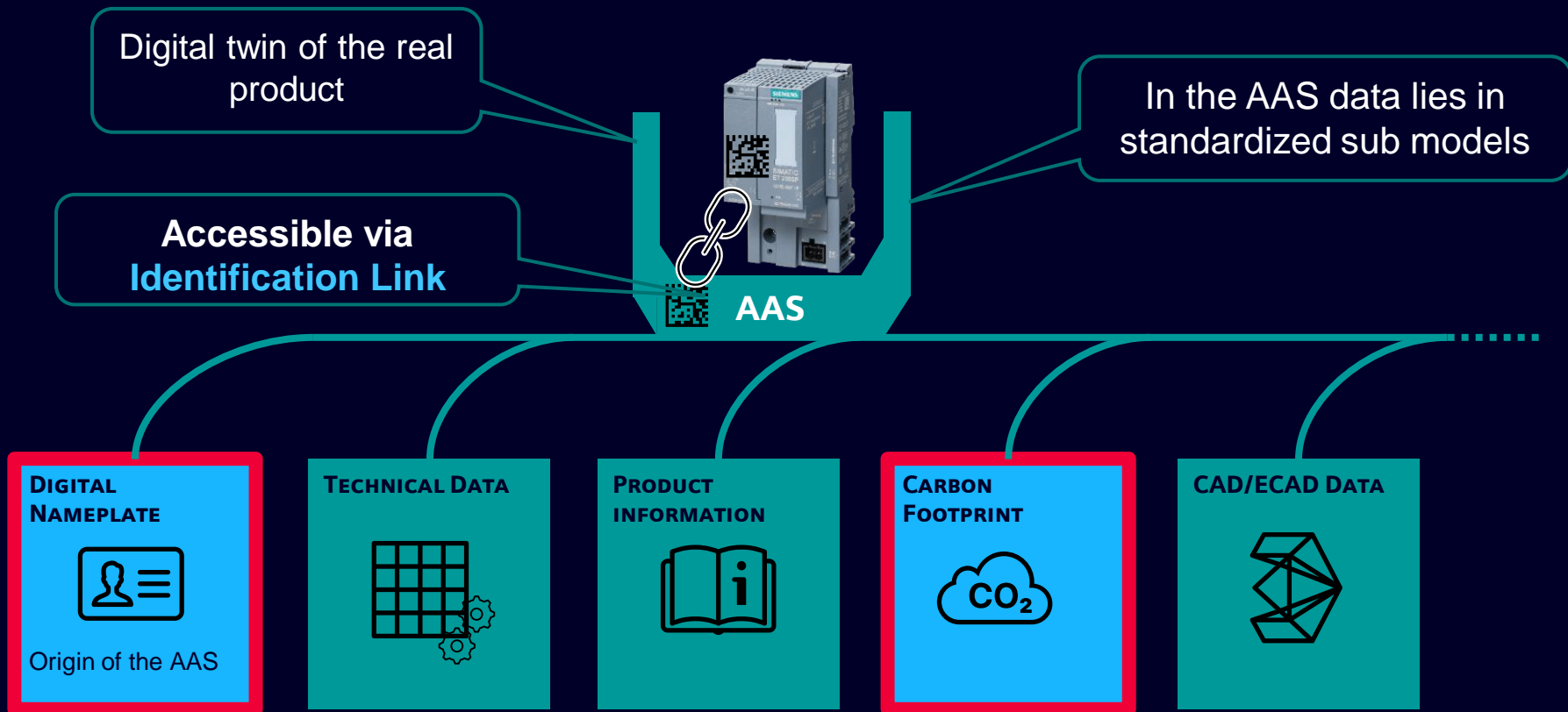
Certificates

Manuals

Mall

... freely expandable

Asset Administration Shell (AAS) and Sub Models



Implementation of Digital Nameplate (DNP4.0) avoids paper and improves footprint of industrial products significantly

Without Digital Nameplate –
Information on Paper



With Digital Nameplate –
Information in the Internet



Live Demo

Product



ID-Link

 i.siemens.com >

Package



Online
Digital Nameplate



Online Declaration
of Conformity



PDF of original
Dec. of Conf.



Q & A

zvei
electrifying
ideas

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(1) since 2014	Chair of ZVEI Management Circle "Industrie 4.0", Frankfurt (ZVEI = German Electrical and Electronic Manufacturers' Association)
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(3) since 2016	Chair of Advisory Board SC14.0 (Co-Founder), Frankfurt (SC14.0 = "Standardization Council Industrie 4.0")
(4) since 2019	Vice-Chair of DMEC (Co-Founder), Digital Europe, Brussels (DMEC = Digital Manufacturing Executive Council)
(5) since 2019	Chair of DIN Presidential Committee FOCUS.ICT for "German ICT- Standardization", DIN, Berlin
(6) since 2019	Member of DIN/DKE-Coordination Group "German AI-Standardization Roadmap", DIN, Berlin
(7) since 2021	Vice-Chair of ZVEI Management Circle "Environment-, Energy- & Climate Politics", Frankfurt

