The Concept DPP4.0 enables Digital Economy of Industry and supports implementation of ESPR-regulation on Sustainability

AIOTI Signature Event, Brussels, 27th September 2022

Prof. Dr. Dieter Wegener | Siemens AG & ZVEI-Speaker „Industrie 4.0“
Challenge I: Enable Digital Economy

Challenge II: Implement ESPR and DPP

DPP4.0 is the answer on Challenges I + II

Live Demo on DPP4.0
Digital Economy based on “Digital Twin“
Each Real Product will get a Digital Twin in the Virtual World

Source: Plattform I4.0

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“Digital Twin“ based on the Asset Administration Shell (AAS)
Each Real Product will get a Digital Twin in the Virtual World

Administration Shell of the Asset
Includes Product Information with Standardised Semantic

Unique Identifier for the Asset in Form of a QR Code

Source: Plattform I4.0

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Live Demo on DPP4.0
ESPR

Key Ecodesign product aspects

- durability, reliability; reusability; upgradability;
- reparability; 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.
The EU Digital Product Passport (DPP)

WHAT
A structured collection of product related data with predefined scope and agreed data ownership and access rights conveyed through an unique identifier

HOW
Decentralised system with a central registry

SCOPE
Information related to sustainability, circularity, value retention for re-use/remanufacturing/recycling
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Live Demo on DPP4.0
The Digital Product Passport 4.0 (DPP4.0)
Structure of the DPP4.0-Concept and its Technical Implementation

Structure of the DPP 4.0 Concept

Digital Nameplate (DNP4.0)

Digital Services for DPP-Information
- Public
- Restricted (Access based on Need-to-Know)

Any other Digital Services
- Public
- Restricted (Access based on Business Policy)

Concept for Technical Implementation

Asset Administration Shell

Submodels including DPP-Information according ESPR
- Technical Attributes
- Environmental Attributes
- Circulating Attributes

Submodels for any Other Digital Services

DNP 4.0 (Digital Nameplate)

Public Submodel
Restricted Submodel
ZVEI-Show-Case “PCF@Control Cabinet” based on DPP4.0
Scope of the Show-Case: From Manufacturer to System Integrator
ZVEI-Show-Case “PCF@Control Cabinet” based on DPP4.0
Demonstrator: Control Cabinet

Cabinet
Air-Conditioning
PLC and Periphery
Motor Starter, Bus Coupler
Converter
Pneumatic
Circuit Breaker
ZVEI-Show-Case “PCF@Control Cabinet” based on DPP4.0
Demonstrator: Control Cabinet
ZVEI-Show-Case “PCF@Control Cabinet” based on DPP4.0
Demonstration Hannover Fair 2022

QR-Code scan for virtual assembly
Challenge I: Enable Digital Economy

Challenge II: Implement ESPR and DPP

DPP4.0 is the answer on Challenges I + II

Live Demo on DPP4.0
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

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Live Demo

Product

Online Digital Nameplate

Download

ID-Link

i.siemens.com >

Package

Online Declaration of Conformity

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Q & A
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Other external activities:

(1) since 2014  Chair of ZVEI Management Circle "Industrie 4.0", Frankfurt  
(ZVEI = Electro and Digital Industry Association)

(2) since 2015  Vice-President DKE, Frankfurt  
(DKE = German Commission for Electrical, Electronic & Information Technologies of DIN and VDE)

(3) since 2016  Chair of Advisory Board SCI4.0 (Co-Founder), Frankfurt  
(SCI4.0 = “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