

# Asset Administration Shell (AAS)- Concept

Automated Data Provision



# Asset Administration Shell for automated data provision



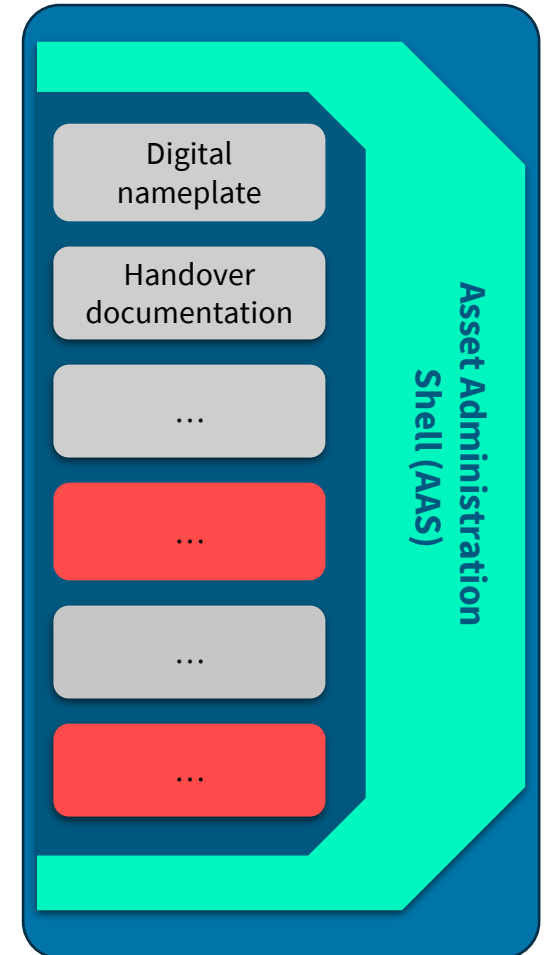
Challenge: high commissioning complexity due to manual onboarding

- Required controllable unit data depends on (national) market (process)
- Data provision from various data sources (excel sheets to printed documents) can only be realized through manual collection
- High engineering and time resources effort, no cross-vendor knowledge application possible



Technical solution: Automated onboarding with the AAS

- Asset Administration as a **technical concept** (not a legislative framework)
- Provides all needed data: **One source** for all information
- **Open-source** framework for standardized asset and information modelling that is dynamically **expendable, technology neutral**, applicable across member states
- Standardized in **IEC 63278-1**
- Enables **seamless interoperability** through asset onboarding and **communication across various protocols**
- As foundation for digital twin applications, it enables the representation of the whole lifecycle of an asset



Public

Restricted Submodel

# DPP 4.0 is already advanced

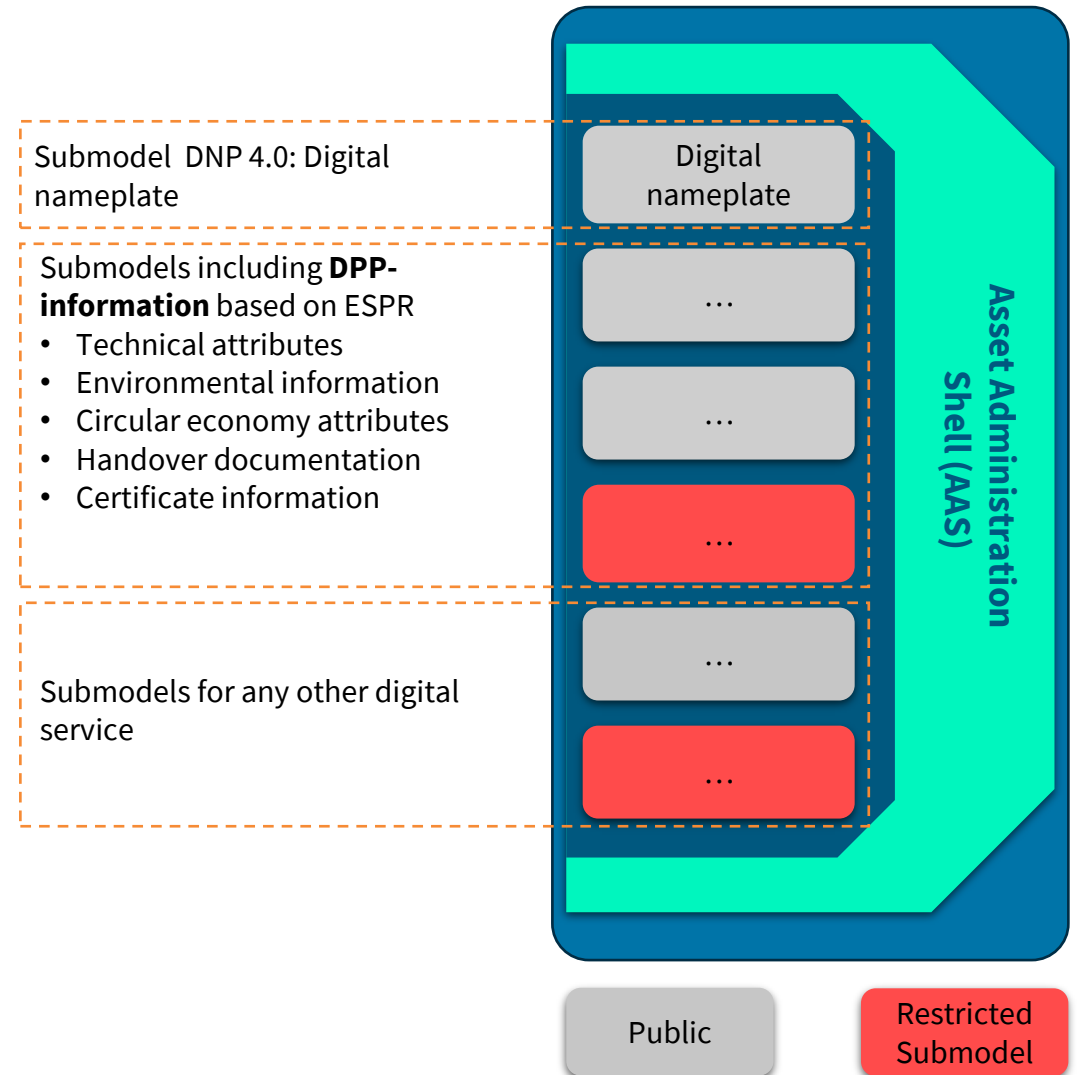


## Legislative Background DPP

- Originates from Ecodesign for Sustainable Products Regulation (ESPR)
- Authorized Ecodesign Forum to provide proposal for value set
- Expected: finalization of value set through delegated act
- while legislative agreement still ongoing, technical dimension of DPP 4.0 is already specified and proven to work

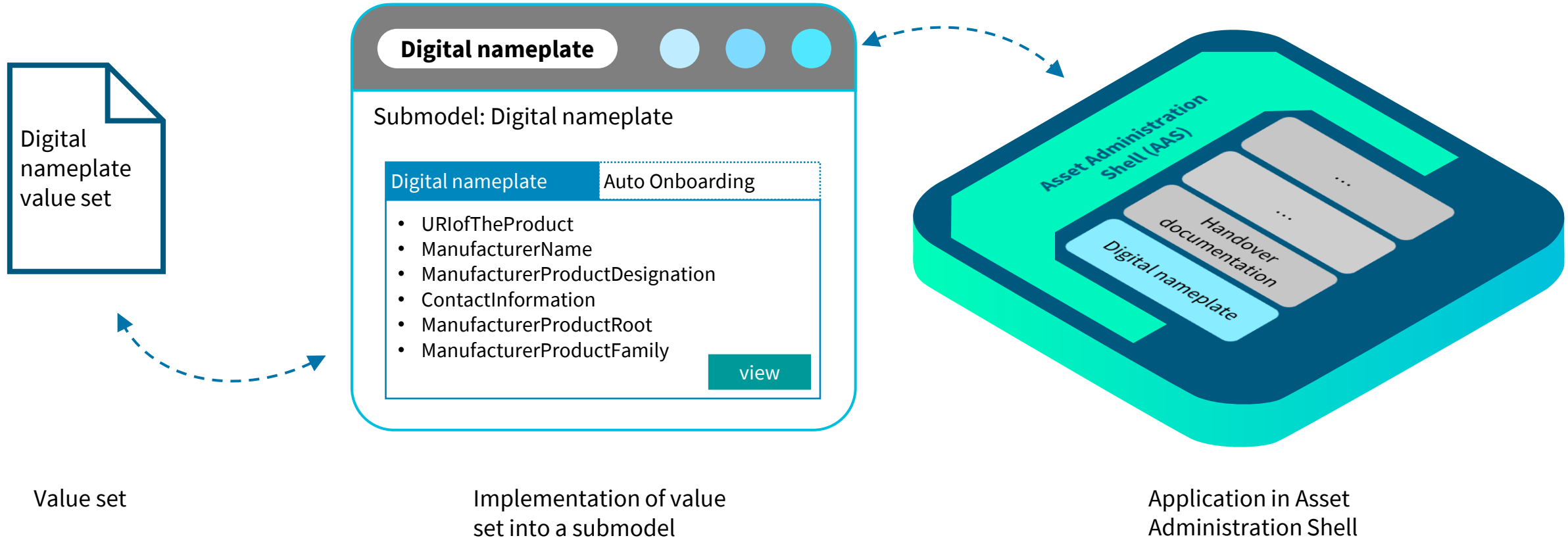
## Set up

- [DPP4.0@Grid](#) showcase demonstrates the opportunity for digitalisation in the energy industry
- A solid foundation for the DPP is important to avoid the operation of various interfaces
- The AAS serves as a central element for data exchange while maintaining **data sovereignty**
- Access control via **authorization for each submodel**
- Submodels handle **various ontologies** as **one single source**
- **One data source for numerous value sets:** Digital nameplate, Digital Product Passport, base for digital twins in various formats (CIM, BIM/IFC, ECLASS,...)



# Digital nameplate 4.0:

## Virtual technical data sheet available on site



Value set

Implementation of value set into a submodel

Application in Asset Administration Shell

# Insight into the AAS: Implementation of the Digital Nameplate 4.0

Submodel  
Digital  
nameplate  
(tab unfolded)

Additional  
submodels

Asset Information <https://i.siemens.com/1P6ES7515-2AN03-0AB0>

- SM "Nameplate" [<https://i.siemens.com/1P6ES7515-2AN03-0AB0/Nameplate>]
  - DN2 Digital Nameplate ready
  - Prop "URIOfTheProduct" = <https://i.siemens.com/1P6ES7515-2AN03-0AB0>
  - MLP "ManufacturerName" →
  - MLP "ManufacturerProductDesignation" → CPU 1515-2PN, 1 MB Prog., 4,5MB Data
  - SMC "ContactInformation" (4 elements)
    - MLP "Street" → Gleiwitzer Str. 555
    - MLP "Zipcode" → DE-90475
    - MLP "CityTown" → Nuremberg
    - MLP "NationalCode" → DE
  - MLP "ManufacturerProductRoot" → SIMATIC
  - MLP "ManufacturerProductFamily" → S7-1500
  - MLP "ManufacturerProductType" → CPU 1515-2PN
  - MLP "OrderCodeOfManufacturer" → 6ES7515-2AN03-0AB0
  - MLP "ProductArticleNumberOfManufacturer" → 6ES7515-2AN03-0AB0
  - File "CompanyLogo" ⇒ /aasx/files/sie-logo-petrol-rgb.jpg @ {Multiplicity=ZeroToOne}
  - SMC "Markings" (1 elements) @ {Multiplicity=ZeroToOne}
    - SM "HandoverDocumentation" [<https://i.siemens.com/1P6ES7515-2AN03-0AB0/HandoverDocumer>]
    - SM "TechnicalData" [<https://i.siemens.com/1P6ES7515-2AN03-0AB0/TechnicalData>]

Element Content

## Digital Nameplate

This Digital Nameplate stands for a standardized Submodel of the Asset Administration Shell (AAS). It is based on IEC 61406 series for identification of the asset and IEC 63278 series for interoperable access of information. Submodel, AAS and IEC standards are, among others, also important building blocks of the Digital Product Passport (DPP4.0) initiative.

This is version V2.0 of the Submodel for digital nameplate. It is maintained by the Industrial Digital Twin Association (IDTA). It currently features a mix of URI and ECLASS properties and is already prepared to be updated with IEC CDD properties.

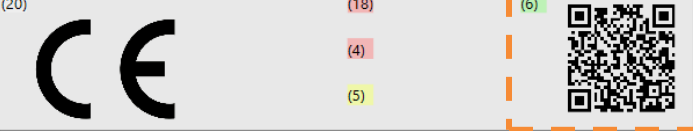
(10) CPU 1515-2PN (1) (2)

(11) SIMATIC (17) CPU 1515-2PN, 1 (3) Gleiwitzer Str. 555 • Nuremberg • DE  
(12) S7-1500 MB Prog., 4,5MB  
(13) CPU 1515-2PN Data

(14) 6ES7515-2AN03-0AB0 (30) (not analyzed)

(15) 6ES7515-2AN03-0AB0

(16) (20) (18) (4) (5) (6)

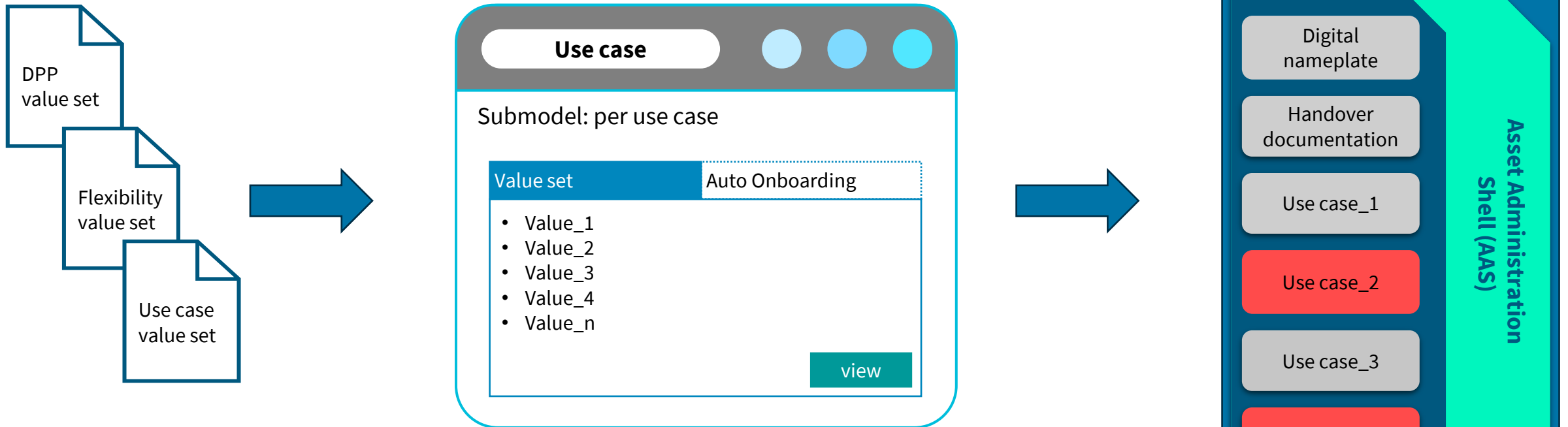


**Individual elements of the Digital Nameplate:**

- (10) ManufacturerProductFamily or ManufacturerProductType:  
Clear identification for the asset responsible, which asset is represented.  
ManufacturerProductType (V2.0) is recommended over ManufacturerProductType.
- (1) ManufacturerName:  
Legally valid designation of the natural or judicial person which places the asset on the market. Typically,

ID- Link initiated by  
QR-Code on the  
physical asset

# AAS as one scalable technical concept: Combining various value sets across use cases



## AAS as one source for all asset related information

- Combining sector specific and general value sets through various submodels
- Adaptive for various use cases due to holistic submodel approach
- No lock in effects due to technology and vendor neutrality
- Access control for data security fulfilled by restricted submodels

## Contact



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