PRODUCT DATA EFFICIENTLY SHARED

FROM CUSTOM STRUCTURES TO STANDARDS WITH ECLASS

GUIDANCE

THROUGH THE WORLD OF INDUSTRIAL DATA PROVISION

- How can ECLASS, as the classification and description standard, help companies
  - Increase efficiency
  - better meet customer requirements
  - “kill many birds with one stone” aka achieve multiple goals at once

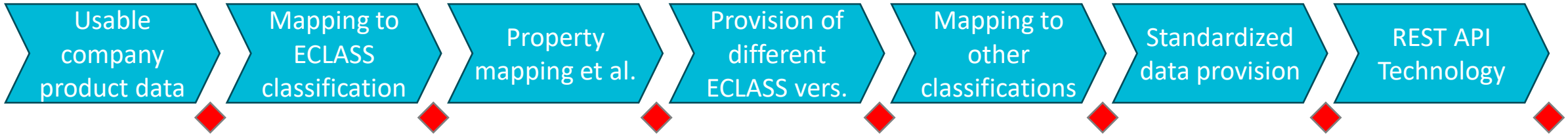
  - Good example for a multilanguage semantic
    - in German: “kill many flies with a swatter”

created by Microsoft Copilot

AGENDA

1 – SPLITTING THE PROCESS

STEP-BY-STEP TOWARDS THE GOAL



- A multi-stage process leads to success
  - Successful ongoing steps
  - Each step represents a success

- Structure your project into multiple steps!

1A – ONE STEP BACK

NO STANDARDS, MORE WORK

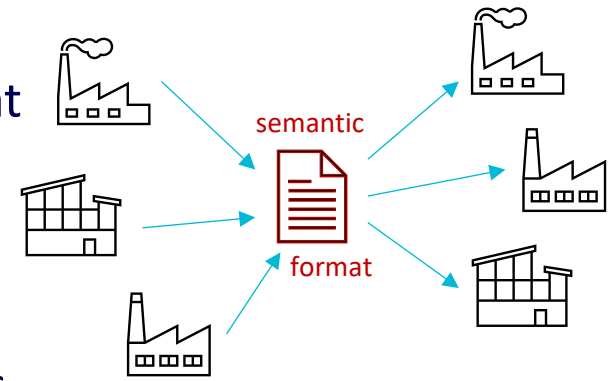
- Without standards, processes become diverse and inefficient, leaving you to handle most of the work yourself.
- Define your own semantic elements
  - Structure and level of granularity of the classification
  - Definition of properties for the different classes (including various property types)
  - Prepare precise definitions for all elements
  - Translation of the classification system into multiple languages

- Avoiding different approaches for different product areas
- Usage of a uniform and homogeneous classification system for different requirements in the company

1A – ONE STEP BACK

MAIN QUESTION: DOES A CUSTOMER REALLY NEED COMPANY-INDIVIDUAL DATA?

- Or: Do you want to deliver your own data structures and data to your customers?
- Short answer: It depends on the medium
  - It works well for datasheets, paper catalogs, online catalogs
  - In all media where cooperate branding of your company is most important
- In the context of digital data delivery, the data itself matters
  - Especially when combined with a standardized data transmission format

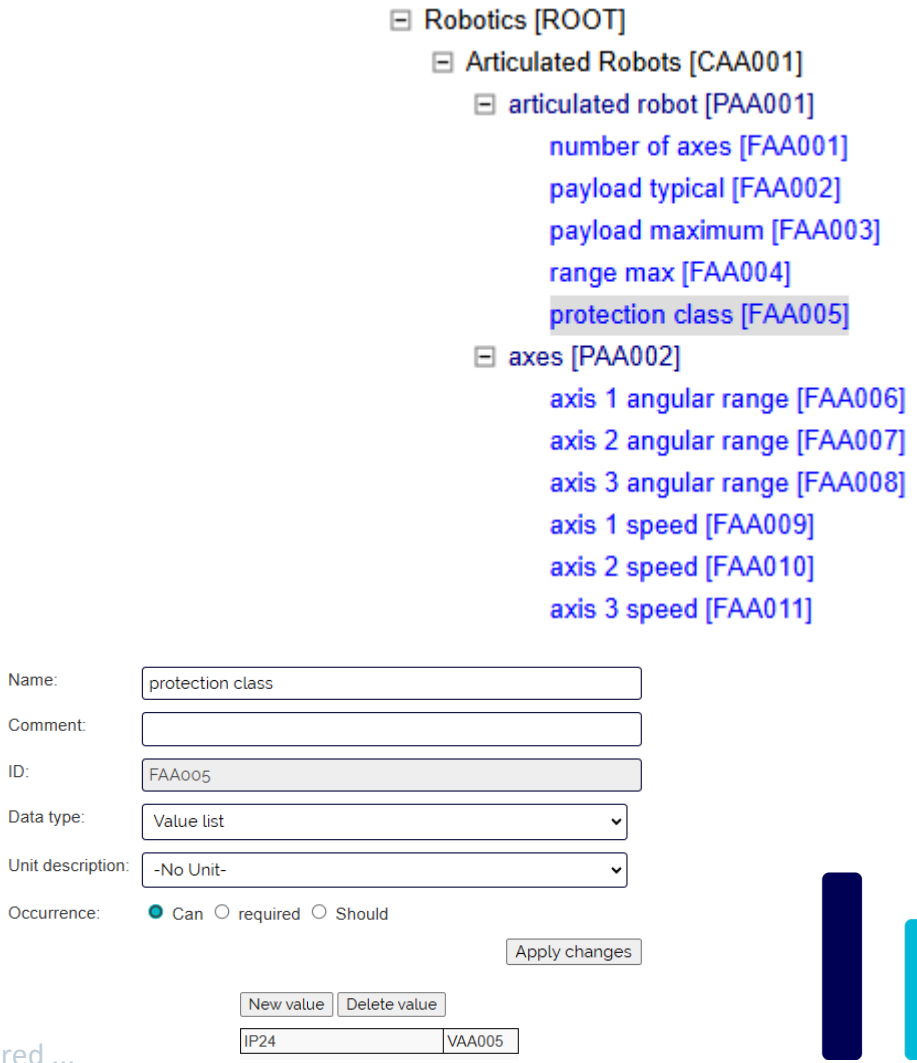


- (ECLASS) standardized data is good data
  - For data providers / suppliers >> standardized data for many customers
  - For data recipients / buyers >> standardized data from many suppliers

1B – COMPANY OWN DATA

REQUIREMENTS FOR OWN PRODUCT DATA (FOCUS: TECHNICAL DATA)

- Proprietary data must be easy to process
- Structure
  - Good hierarchy and granularity
  - Separation of normally combined products
    - e.g. accessories
- Properties
  - Different data types
  - Separation of value and unit
  - Only one piece of information in one field
- etc.

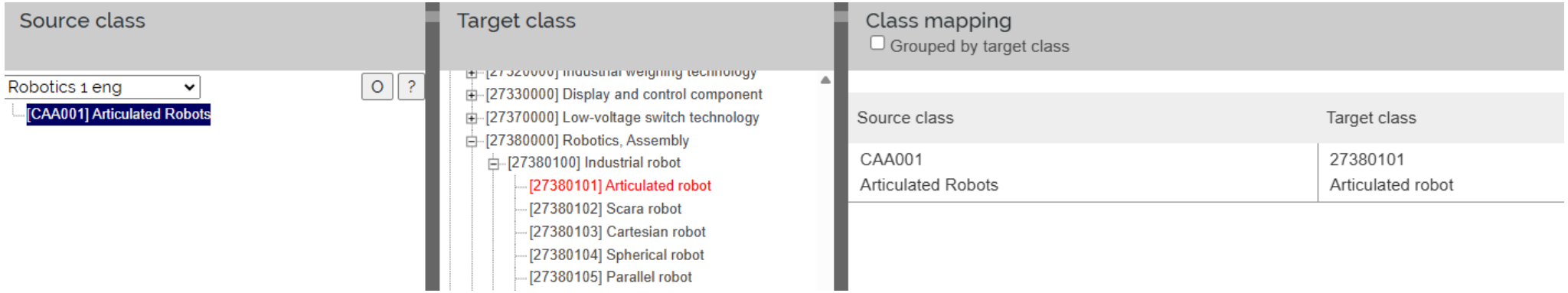


◆ **Milestone:** Good data for the next step

1C – MAPPING

CLASSIFICATION MAPPING

- Map your own product structure to ECLASS
  - Group-based mapping, no individual assignment
  - Consideration of various types: DIRECT, JOIN, SPLIT
    - SPLIT usually requires an extension for automated processes, e.g. a control attribute

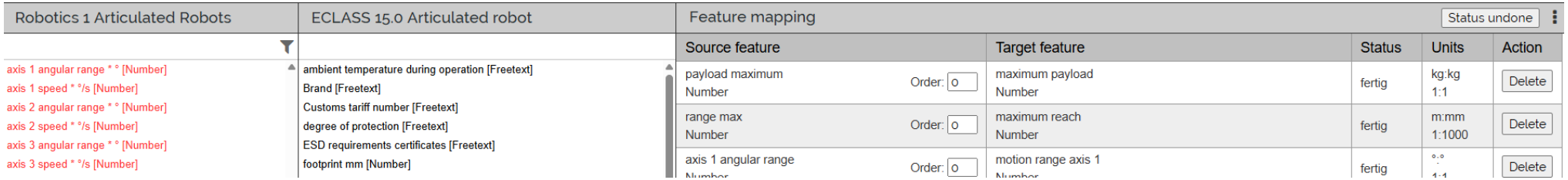


◆ **Milestone:** ECLASS classification is available in a master version

1C – MAPPING

PROPERTY MAPPING

- Mapping of your own properties to ECLASS properties
  - Mapping of properties with the same or compatible data types
  - Mapping and converting units
  - Also mapping of value lists
  - And special cases: combined min/max >> singe min and max
- Try to get a match for as many as possible properties
  - Otherwise, 2 rework processes will follow in the next slides



Robotics 1 Articulated Robots	ECLASS 15.0 Articulated robot	Feature mapping				Status undone
		Source feature	Target feature	Status	Units	Action
axis 1 angular range * ° [Number]	ambient temperature during operation [Freetext]	payload maximum Number Order: 0	maximum payload Number	fertig	kg:kg 1:1	Delete
axis 1 speed * °/s [Number]	Brand [Freetext]					
axis 2 angular range * ° [Number]	Customs tariff number [Freetext]					
axis 2 speed * °/s [Number]	degree of protection [Freetext]	range max Number Order: 0	maximum reach Number	fertig	m:mm 1:1000	Delete
axis 3 angular range * ° [Number]	ESD requirements certificates [Freetext]					
axis 3 speed * °/s [Number]	footprint mm [Number]	axis 1 angular range Number Order: 0	motion range axis 1 Number	fertig	°:° 1:1	Delete

◆ **Milestone:** ECLASS properties are available

1C – MAPPING

ADVANTAGES OF THE ECLASS STANDARD

- After mapping to classes and properties, the following advantages emerge

- Product data is available in more than 30 languages
- All elements are referenced through standard IDs (IRDIs)
  - And can be used for mapping to AAS, for example
- A solid data foundation is available for various export formats

1C – MAPPING

ECLASS BASIC AND ADVANCED

- ECLASS is available in 2 versions
- BASIC
  - List of flat class-dependent properties for a class
- ADVANCED
  - Structured data with blocks, cardinalities, polymorphism for a class
  - Mapping is also possible, if the base data structures allow this

- BASIC is part of ADVANCED
  - It is ok to start with BASIC and then update to ADVANCED
- ADVANCED data structures are not class-dependent

◆ **Milestone:** First Basic and then Advanced is possible

1D - VERSIONING

NEW VERSIONS OF ECLASS

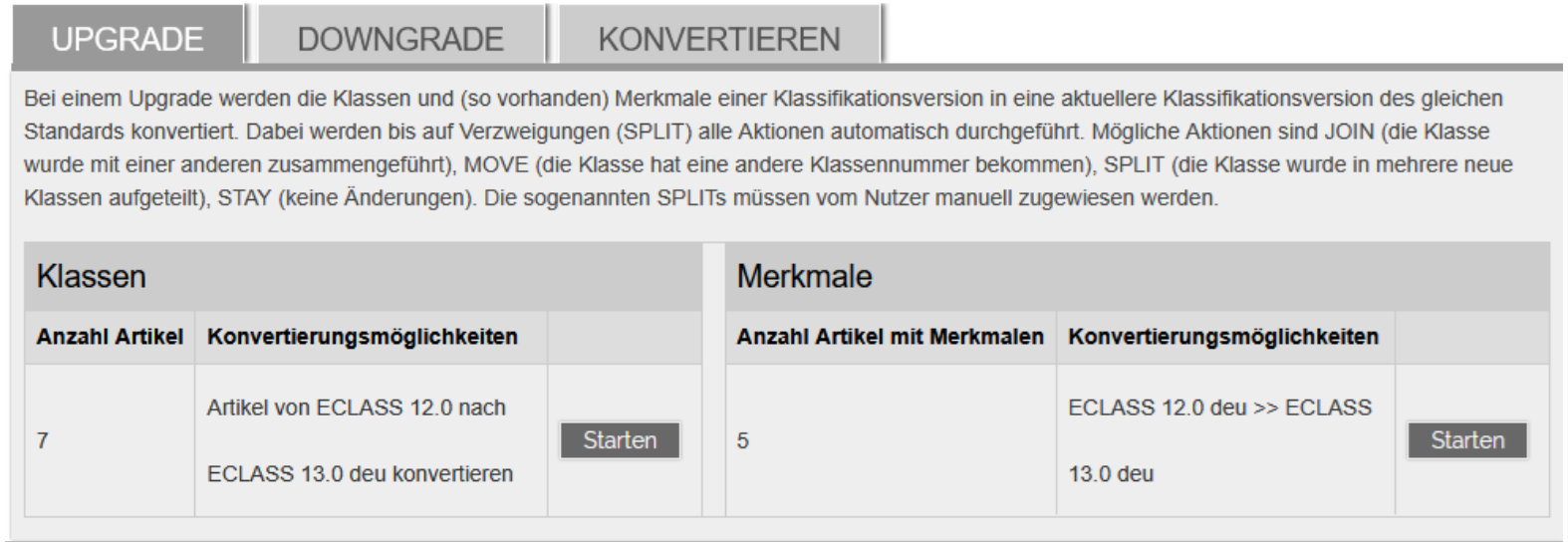
- In recent years, a new ECLASS release has been published every year
  - Revisions and extensions to the standard
  - Typically about 100,000 & more changes per release
- Change management for companies that provide ECLASS to their customers
  - Because important customers will surely want the new version of ECLASS at some point
  - Update process can be automated
- At the same time, it also offers the opportunity to contribute to the ECLASS standard
  - Are your products already classifiable according to ECLASS?
  - Or are you still missing an important feature that is relevant to the description of your products?

◆ **Milestone:** Extension of ECLASS can be done

1D - VERSIONING

GENERATION OF OTHER ECLASS VERSIONS

- ECLASS provides mechanisms for updating dictionary and data
  - Main element: TUF (Transaction update files)
  - Ruleset for migrating ECLASS-classified data to newer or older versions
  - Software required to apply this



◆ **Milestone:** ECLASS is available for products in different versions

1E - CLASSIFICATION MAPPING

MAPPING TO OTHER CLASSIFICATIONS

- ECLASS also provides a very good base for mapping to other classification standards
  - Because ECLASS is a standard, there are already several existing mappings that can be used
  - Combination of classification and version mapping is possible
- Typical target classifications
  - ETIM (in some areas)
  - UNSPSC
  - HS-Code
  - GS1 GPC classification
  - and also IEC (COMDO project)

◆ **Milestone:** Generation of other classification standards by mapping from ECLASS

1F – DATA PROVISION

SUPPORT OF DIFFERENT FORMATS (1/2)

- Digital data exports based on
  - Master data, **product data**, media data, logistic data, etc.
  - The generated ECLASS data (or data that bases on this) can be used for standardized exports
- Typical export formats
  - BMEcat 2005 /2005.2 (ECLASS BASIC and ADVANCED)
    - ECLASS Technical Specification is available for both formats
  - Excel
    - “Standard” formats like GHX 5.3 with ECLASS classification and properties
    - Individual formats (customer asks to get data in a self defined Excel format)
  - GS1 XML / GS1 XML CIN
    - XML based format, also supports ECLASS
    - ECLASS Technical Specification is available

1F – DATA PROVISION

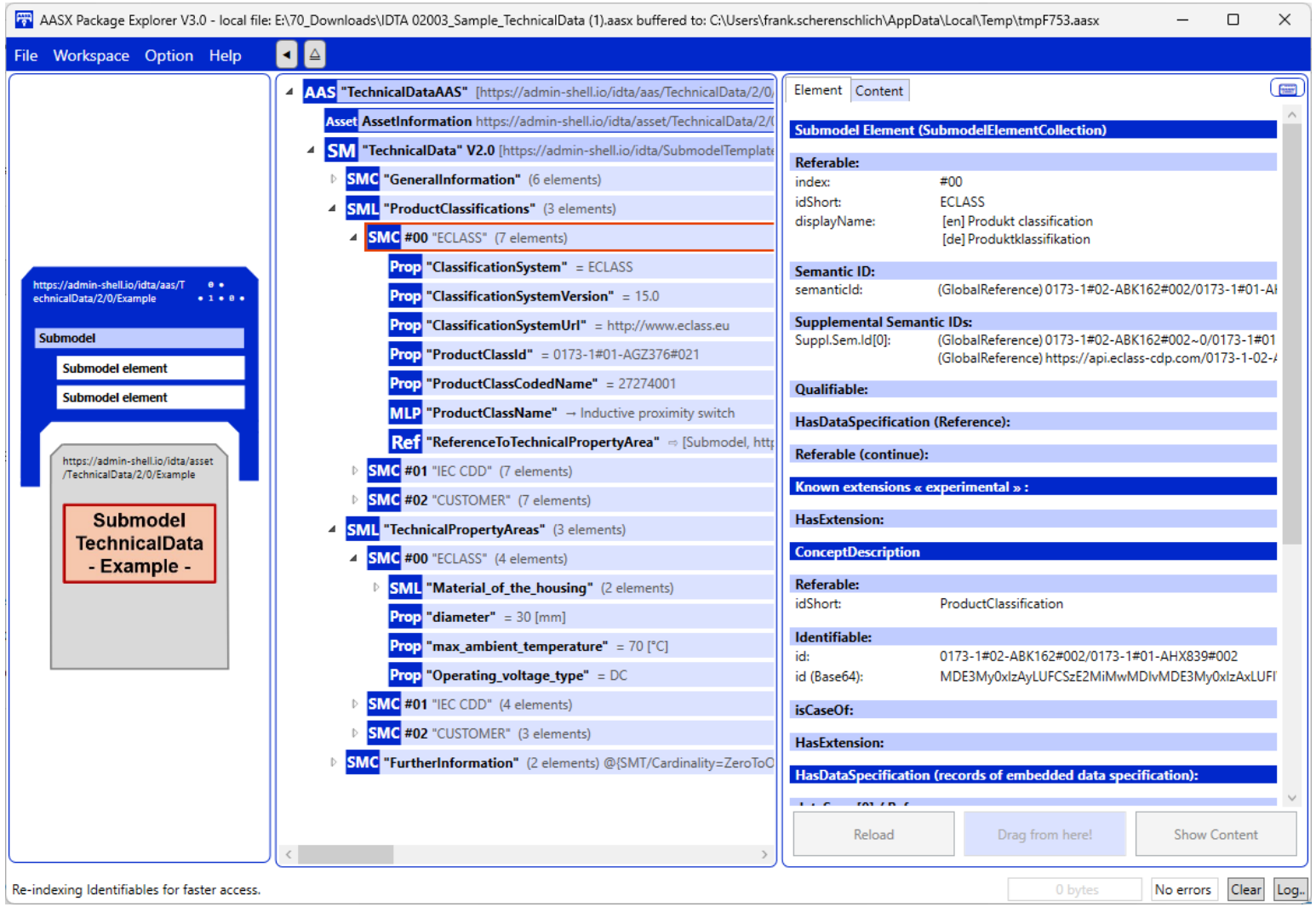
SUPPORT OF DIFFERENT FORMATS (2/2)

- **Asset Administration Shell AAS** (base for the DPP 4.0)
  - Support of different submodels (2 of them explained more in detail)
- Submodel 1: Digital Nameplate
  - Each element has an ECLASS IRDI (and also IEC IRDI)
  - Content mapping can be easily done
- Submodel 2: Technical Data
  - Transport of product classification (ECLASS and others)
  - Transport of properties (ECLASS ABASIC and ADVANCED)
  - Submodel architect: Frank Scherenschlich

◆ **Milestone:** ECLASS is part of the most relevant data transmission standards and can be integrated there

1F – DATA PROVISION

AAS EXAMPLE OF SUBMODEL TECHNICAL DATA



1F – DATA PROVISION

SPECIAL FORMATS FOR PORTALS

- Many portal databases use ECLASS (and other standards)
  - Some examples are listed here

- EPLAN
  - ECLASS BASIC and ADVANCED
- Cadenas
  - Often ECLASS BASIC properties in combination with a customer-specific structure
- FAB-DIS (France)
  - ETIM data (that can be mapped from ECLASS)

◆ **Milestone:** Also special formats for different portals base on ECLASS

1F – DATA PROVISION

DATA RETRIEVAL BY REST API

- So far, we have described the ways in which product data is exported and delivered to the customer
  - It is also possible to query ECLASS product data via REST API (or GraphQL)
  - ECLASS offers a REST API for the dictionary
  - Other systems offer an interface for dictionary and product data
  - Used in internal and external processes

- Also usable for configurable products
  - Definition of the mapping rule set for template articles
  - Usage of data from the configuration process in the converting process

◆ **Milestone:** ECLASS based date can be retrieved also by REST API

NEW APPROACH:

2 - VIRTUAL ECLASS PRODUCTS

CURRENT PROCESS IN THE APPLICATION OF ECLASS

- What must be done if you have a new product that must be described by ECLASS?
- Typically, the following steps are carried out:
  - Classification of the product
  - Filling the most important properties for the product
    - Manually or groupwise by mapping
  - Mapping data to other standards if possible
- Follow-up processes
  - Update with each new relevant version (new IRDIs)

- Is there a better way to handle this process more easily?

NEW APPROACH:

2 - VIRTUAL ECLASS PRODUCTS

NEW PROCESS FOR DESCRIBING A PRODUCT WITH ECLASS

- Database that will provide virtual products with classification and property descriptions
  - Manufacturer-neutral
  - Unique Identifyer (more than a GTIN)
  - Automated updates (or downgrades) for different ECLASS versions
  - Different export formats
    - E.g. pre-generated AAS containing integrated data, which can be enriched with company-specific data through a REST API
    - Basis for the Digital Product Passport 4.0
- PoC in semi-finished products (more than 8,000,000 articles) with WGM
- Toolset available
- Launch coming soon

NEW APPROACH:

2 - VIRTUAL ECLASS PRODUCTS

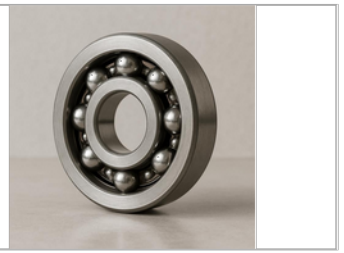
EXAMPLE

metaparts.eu

Artikelnummer oder -Name eingeben

ECLASS 15.0 deu

- Maschinenelement, Verbindungsele...
  - Wälzlager, Gleitlager, Gelenklager
    - Radial-Kugellager
      - **Rillenkugellager**
- Medizinprodukt
- Möbel, Wohneinrichtung



Rillenkugellager 623

Katalogname: Normteile

Metaparts-ID: **MEPA000002001F**

Diesen Artikel merken

Top | Stammdaten | Medien | Klassifikationen | Merkmale | BMEcat-Daten

Merkmale

Klassifikation: ECLASS 15.0 deu Klasse: Rillenkugellager [23050801]

Merkmal	Gruppierung	Datentyp	Wert
Innendurchmesser		Zahl	3 mm
Abmessungen		Freitext	623
Außendurchmesser		Zahl	10 mm
Breite		Zahl	4 mm
dynamische Tragzahl		Zahl	540 N
Grenzdrehzahl		Zahl	80000 1/min
statische Tragzahl		Zahl	180 N
Referenzdrehzahl		Zahl	130000 1/min

SUMMARY

ECLASS PROVIDES !!! (NOT ONLY PEPPERMINT TEA)

- We have just taken a guided tour through the world of industrial data provision
  - Based on the ECLASS standard
  - And what can be done if ECLASS is used as a base for other data processes

- Source data in the company must be usable for mapping
- Mapping is a good way to use own data, including versioning
  - Including mapping the data to other classification standards
- ECLASS data can be used in different data exchange formats and by REST API

- New approach to apply ECLASS

CLASS.ING

SHORT COMPANY PRESENTATION

Data management, standardization

- Standards (model and classification)
- Modeling and maintenance concepts
- Data transformation and validation
- One standard for all areas

Classification, data exchange

- ECLASS Platinum Partner
- UNSPSC member
- Master classification
- Mapping, Upgrade, Downgrade
- Standardized data exchange (BMEcat, GS1, AAS, DPP)

Software Class.Room

- Web-based software
- Focus on classification
- Middleware, SaaS
- Online catalog
- Export and import of electronic catalogs
- SAP classification system connector

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Class.Ing CLASS

THANK YOU !