



Den nye digitale verdikjede basert på ISO 22057/PDT/PTS

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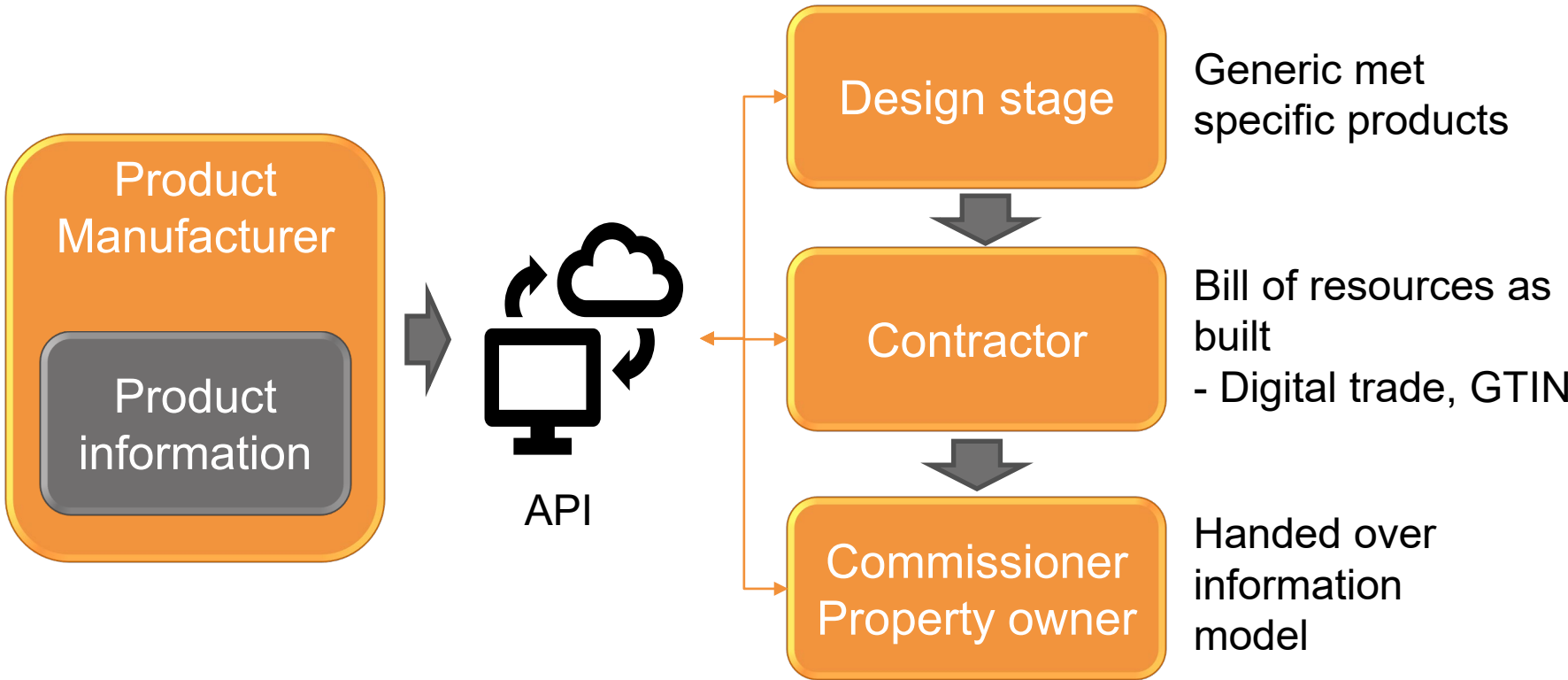


Product information goes digital and live

Proof of Concept (PoC) - To create, publish and use digital product datasheets

Two types of product data templates will be implemented and tested by using different webservices (API to API):

- 1) CE Marking and its declaration of performance DoP,
- 2) Environmental product declaration, i.e. an EPD according to the standard ISO 22057



Main sources/tools:
GS1: GTIN, GMN
CoBuilder: goBIM, Define
IVL: Resource hub, IVL EPD generator



Product data template in a nut shell

- A Product Data Template define the '**properties**' for any type of product in a way that can be traced to a credible source.
- Such credible sources are product **standards** declaring the performance characteristics of products and the methods they should be tested against.
- Some fields within a PDT are common to all PDTs, e.g. manufacturer, and manufacturer Website. There are different PDTs for different **product categories** or **horizontal** PDTs like the ISO 22057 for EPD/LCA that is valid for all products.
- Product Data Templates allow the **manufacturers** to populate them with the most up-to-date and accurate information about their products.
- Once complete, this populated template is called a **Product Data Sheet (PDS)**. A PDS may be found several PDT

The draft Construction product regulation (CPR): EPD, Smart CE Marking, Declaration of Performance



The product data templates (PDT) approach match the draft CPR digitalisation



Construction Product Directive (annex ZA)
CE-märkning/DoP, hEN, EN15804:2012+A2:2019

Common agreements:

→ “EPD in BIM” ISO 22057

→ EC digital product passport

Other industry and sector
agreements such as eBVD

B2B agreed information

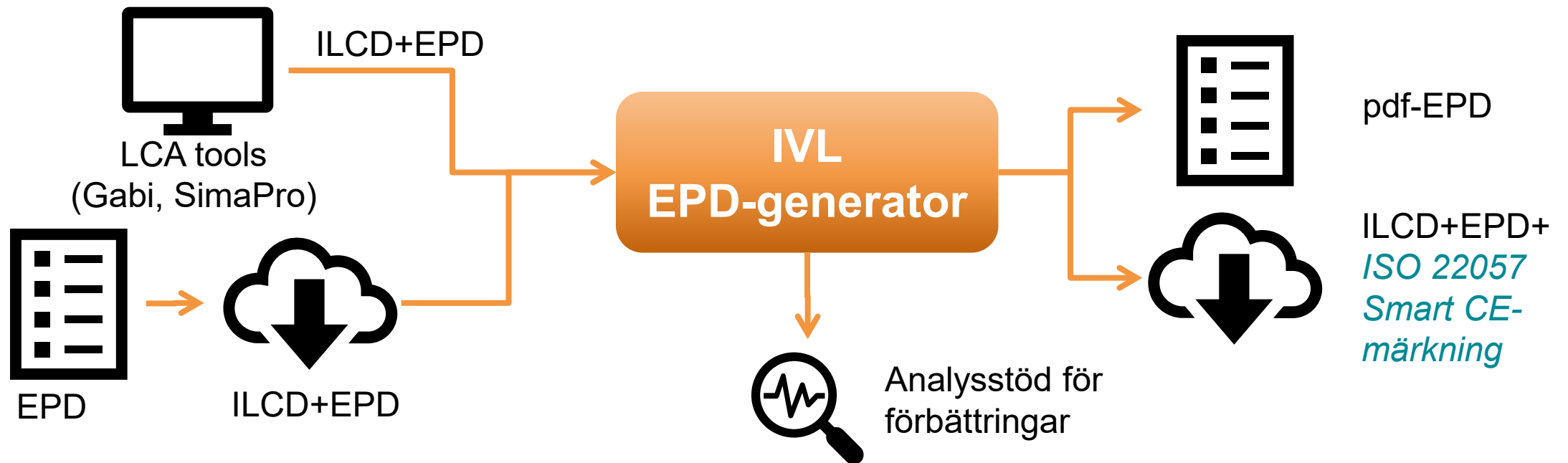
SMART BUILT
ENVIRONMENT

Basic work flow:

The Swedish layout in order to support the mandatory building climate declaration that include verification as built

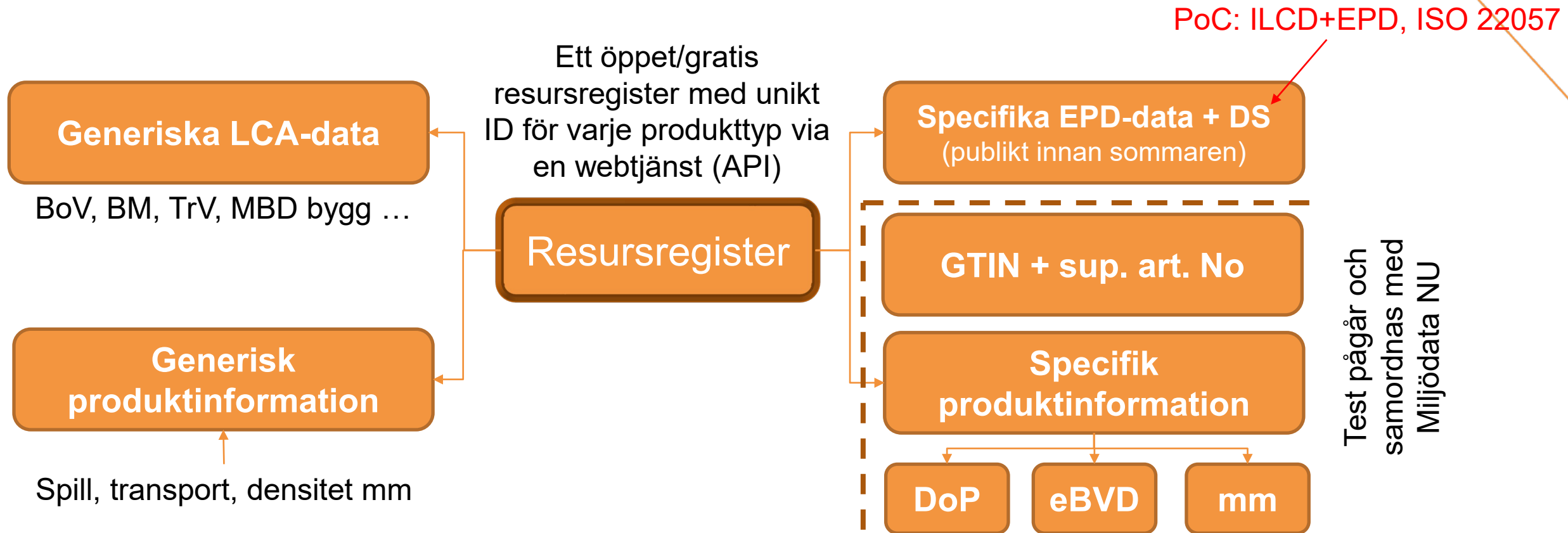
The new EPD standard EN15804:2012-A2:2019 require ILCD nomenclature and format

The general ILCD format is adopted to EPD and its modular structure with the format ILCD+EPD



Byggsektorns Resurshubb/ Construction sector resource hub

If we have a common resource register for everything purchased for a building during its life cycle, we can more easily share this product information with each other (released in the spring of 2022)



Generic LCA data and specific EPDs are mapped to the resource registry

The screenshot displays the 'BYGGSEKTORNS RESURSHUB' interface, Version 1.0. The navigation bar includes 'Dashboard', 'Resources', 'EPD Generators', 'Resource Register' (highlighted), 'Admin', and 'Help'. The main content area is divided into two sections: 'Resource nodes' on the left and 'Lightweight expanded clay' details on the right.

Resource nodes

EnvHub_SE

- Construction services (RR)
- Construction resources (RR)
 - Stainless steel (RR)
 - Stainless steel rebar, >50% scrap based (RR)
 - Stainless steel sheet, >50% scrap based (RR)
 - Stainless steel water tube, >50% scrap based (RR)
 - Lightweight expanded clay (RR)
 - Lightweight expanded clay beam (Leca), 5% rebars (RR)
 - Lightweight expanded clay beam (Leca), 15% rebars (RR)
 - Lightweight expanded clay beam (Leca), 10% rebars (RR)
 - Expanded clay concrete block, 15-17 % cement (700-770 kg/m3) (RR)
 - Expanded clay concrete block, 10-14 % cement (700-770 kg/m3) (RR)
 - Expanded clay concrete block, <10 % cement (650-700 kg/m3) (RR)
 - Expanded clay concrete block, 18-24 % cement (700-800 kg/m3) (RR)
 - Lightweight expanded clay clinker (RR)
 - Copper in construction (RR)
 - Copper wire, primary (RR)
 - Copper sheet (RR)

Lightweight expanded clay (Svenska) [Delete]

Basic information | Generic resources | EPD resources | Categories | System information

ID: 1636

Parent: Construction resources (RR)

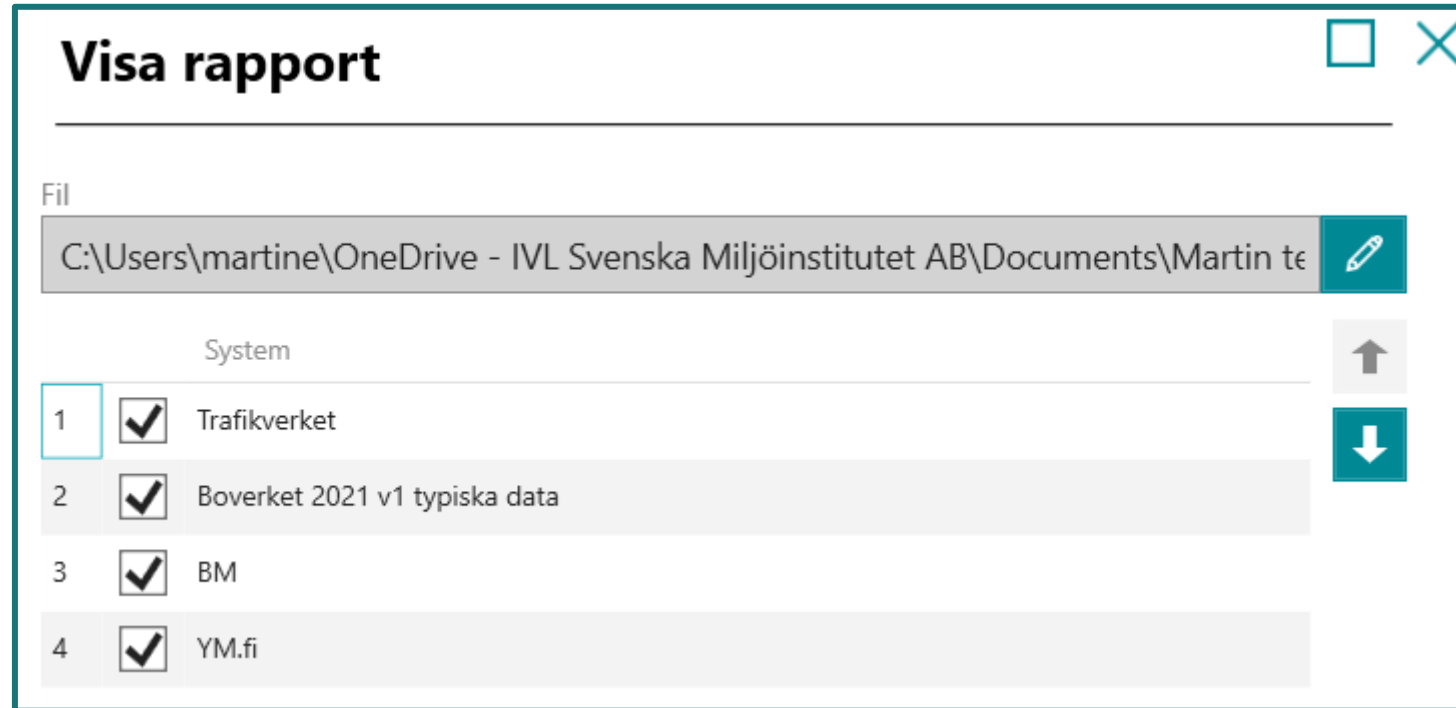
Position: 2

Name: Lättklinker av bränd expanderad lera (RR)

Description: Lösa kulor eller cementbunda block av lättklinker (LECA)

Comment:

LCA tools that use the Resource hub can use several data bases

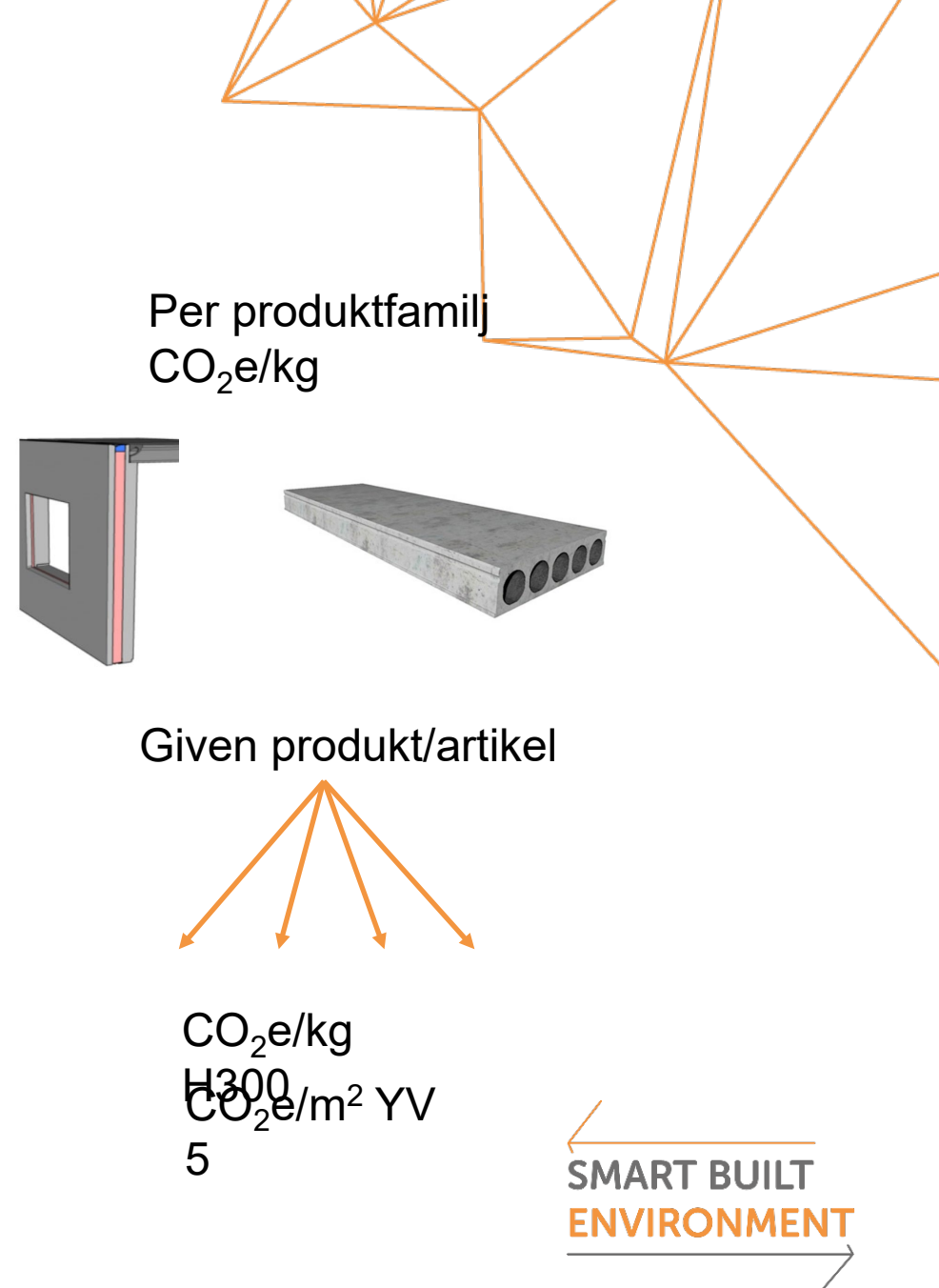


The screenshot shows a window titled "Visa rapport" with a file path and a list of data sources. The file path is "C:\Users\martine\OneDrive - IVL Svenska Miljöinstitutet AB\Documents\Martin te". The list of data sources is as follows:

| | System | |
|---|---|--------|
| 1 | <input checked="" type="checkbox"/> Trafikverket | ↑ ↓ |
| 2 | <input checked="" type="checkbox"/> Boverket 2021 v1 typiska data | |
| 3 | <input checked="" type="checkbox"/> BM | |
| 4 | <input checked="" type="checkbox"/> YM.fi | |

Rekommenderad struktur på EPDer

- Tag fram en EPD per produkttyp/-familj som certifieras hos en programoperatör
- Tag fram unika EPDer = dvs mor/dotter-EPD, konfigurerade EPD, objekts-EPD.
 - Dessa registreras behöver inte hos en programoperatör utan skickas direkt till kund
 - Dotter-EPD godkänns som en vanlig EPD av Boverket, Trafikverket mm



PDT/PDS in the value chain

- Construction product manufacturer

EPD is developed for standard/catalogue products



Customised/configurated products



An BIM tool or order system demands an 'daughter EPD' automatically from an EPD generator

The EPD is typically developed based on a EPD tool for a product family or type, including a specific article ID/GTIN and a PDS based on several PDT. The EPD is published as a pdf original by a program operator and digitally based on ILCD+EPD and then transformed to ISO 22057 (=PDT/PDS)

The PDT may need to handle variable properties that can be ordered and therefore has to be incorporated in the PDS (if not a standard product)

The EPD is calculated and typically based on an Mother EPD for the product family or type. An supplier specific article/GTIN is generated in parallel. This kind of 'project EPD' are not registered by a program operators but refers to its 'mother EPD' and EPD tool + database it is found on

PDT/PDS in the value chain

- Construction product manufacturer – challenges
 - It is in practice mandatory to develop the EPD based on the ILCD+EPD format, why there always will be an **transformation to ISO 22057**. Some features in the ISO 22057 is missing or only exists in this standard. Both formats need to be complemented by additional properties to meet market needs, but no system to establish such addition exists
 - It is likely that national bodies like PDT Norway **introduce national GUID** that creates a new mapping need via a global data dictionary.
- ➔ The same **regional system** and body can potentially handle 1) nationally added properties before the standard is revised and become a global property and 2) mapping from global to national properties GUID.

Ready to Use EPD (R2U EPD) and article number

Navigation: Dashboard, Resources, EPD Generators, Resource Register, Admin, Help

BYGGSEKTORNS RESURSHUB
Version 1.0

Search: Regelisolering, lambda 0,037 (R2U EPD) X

Regelisolering, lambda 0,037 (R2U EPD) [Engelska] [Delete] [Save]

Content | Q-metadata | MDB Bygg | Boverket | Analyses | Source content | Output content | System information

Process information | Modelling and validation | Administrative information | Environmental indicators | Product systems | Article systems | Inventory method types

| Article name | Production Site | EPD Factor | GPS Longitude | GPS Latitude | GMN | GLN | Supplier Article ID | GTIN |
|--------------------------------------|--------------------|--------------------|---------------|--------------|-----|-----|---------------------|---------------|
| Regelisolering, lambda 0,037, 45 mm | Billesholm, Sweden | 0.9866666666666666 | 12.974833 | 56.059766 | | | 3563504504 | 7392979216494 |
| Regelisolering, lambda 0,037, 70 mm | Billesholm, Sweden | 0.9672857142857143 | 12.974833 | 56.059766 | | | 3563507004 | 7392979216517 |
| Regelisolering, lambda 0,037, 95 mm | Billesholm, Sweden | 0.9581052631578947 | 12.974833 | 56.059766 | | | 3563509504 | 7392979216531 |
| Regelisolering, lambda 0,037, 120 mm | Billesholm, Sweden | 0.95275 | 12.974833 | 56.059766 | | | 3563512004 | 7392979216555 |
| Regelisolering, lambda 0,037, 145 mm | Billesholm, Sweden | 0.9492413793103448 | 12.974833 | 56.059766 | | | 3563514504 | 7392979216579 |
| Regelisolering, lambda 0,037, 170 mm | Billesholm, Sweden | 0.9467647058823529 | 12.974833 | 56.059766 | | | 3563517004 | 7392979216593 |
| Regelisolering, lambda 0,037, 195 mm | Billesholm, Sweden | 0.943025641025641 | 12.974833 | 56.059766 | GS1 | | 3563519504 | 7392979216616 |
| Regelisolering, lambda 0,037, 220 mm | Billesholm, Sweden | 0.9435 | 12.974833 | 56.059766 | | | 3563522004 | 7392979216630 |

The solution for the law requirements: The Resource hub node function + BEAst

Det är leverantören som anger och underhåller GTIN, GMN, GLN, SPN, tillv.-ort, EPD factor etc till hubben och till följesedeln ex. genom att PIM system. Hubben svar "historien" vid revideringar av EPDer

Dispatch advice

Resource hub node

Multiple API to API

Global system: GS1



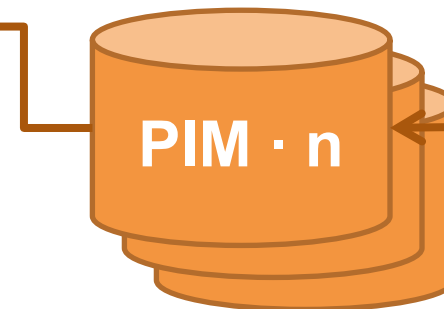
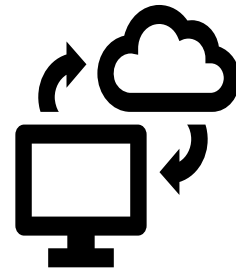
+



**kg, art, GTIN/art-ID,
BoV ID, EPD ID**

```

"ProductSystemId": 3,
"ProductSystemResourceId": "19dbb69e-3fc9-4197-a5eb-0a02db57c657",
"Location": "SE",
"ValidStartYear": 2020,
"ValidEndYear": 2025,
"Copyright": true,
"TimeStamp": "2021-09-15T11:03:22Z",
"DataEntryBy": null,
"RegistrationAuthority": null,
"Name": "Regelisolering, lambda 0,037",
"RegistrationNumber": "NEPD-2074-936-EN",
"UseAdviceForDataSet": "",
"TechnologicalApplicability": "This EPD describes the potential environmental
    
```



**xls import and
manual app interface
input is also
available**



- pdf-EPD saknar UUID
- Vissa digitaliserade EPD saknar miljöprestanda för alla ingående och därmed UUID
- I Hubben lägger till dessa i vår domän
- Hubben hanterar även dotter- EPD
- Hubben har inte någon officiell status
- Hubben ger koppling mellan GMN och GTIN/SPN
- Globala lösningar

PDT/PDS in the value chain

- As built and hand over – challenges
 - It is **not realistic to store an number of article number like GTIN in a EPD** valid in 5 years, since they likely will be outdated faster and is not published directly by the company. The introduction of a suppliers grouping of GTIN to a global model number (**GMN**) for a product family would solve this. Then via GS1 global service ‘data verified by GS1’ can all GTIN related to the GMN be found
- ➔ A suggested solution is that the program operator like EPD Norway publish typically “mother EPD” and **project EPD/daughter EPD are published from manufactures product information databases (API to API)** and can then include up to date article information. This is in line with the draft CPR where it is the manufacturer that has to publish essential characteristics. The digital PDS should in future become the original

