

IVLs suggestion to Boverket for a generic LCA database

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Aleksanterinkatu 7, 13th December 2019

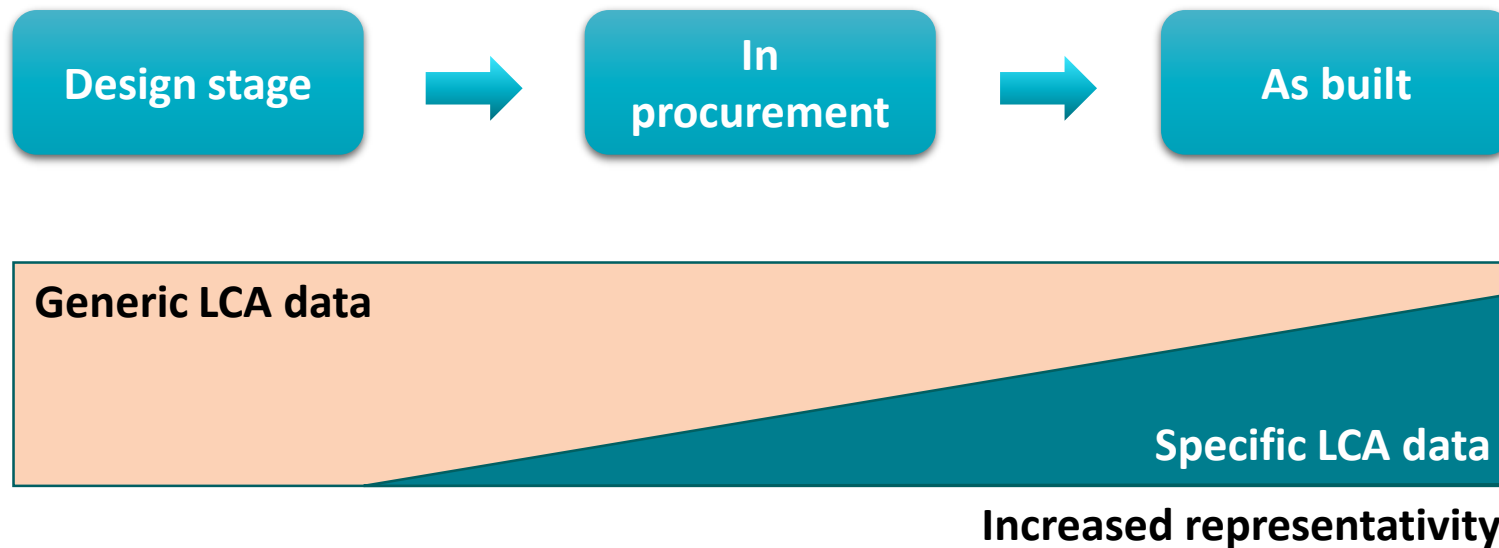


Erlandsson M: Öppna generiska LCA-data för byggresurser idag och i framtiden - förslag på stöd för framtagande av den obligatoriska klimatdeklarationer. IVL Svenska Miljöinstitutet, rapport U, december 2019.



Generic data and specific data

- This is global approach and independent of environmental or other properties
- Boverket: Generic product data shall be representative for the Swedish market



Selection of type generic LCA data

Proposal submitted by IVL

The proposal will be jointly be discussed in January with Boverket, Swedish EPA and the Transport administration

How is the target user of the LCA-data

- **LCA specialists** using tools like Gabi and SimaPro, Open LCA and SULCA/KCL-ECO
 - LCI data and unit processes
 - already use Gabi DB or ecoinvent
- **Non-LCA specialist** ask for reliable and representative data for materials etc bought
 - impact given as LCIA result, GWP/CO₂e
 - ask for free generic LCA database accesable (import/export) in their current tools

Different type of generic LCA data: LCI→LCA tools and specialist

Database	LCI or LCIA	Geography	Open
ecoinvent	LCI	Region(s)/ global	Licence fee
Gabi	LCI	Region/global	Licence fee
PEF* LCA data	LCI	EU	Free

*Product Environmental Footprint (PEF) from EC JCR Ispra

ISO and EPD EN 15804 versus PEF



EN 15804

- Modular approach
- Attributional
- Based on standards



PEF

- Single indicator result
- Consequential
- Developed by JRC

Indicator result the declaration

LCIA = LCIA (version 3.0 now but will change)

LCI indicators ≠ LCI indicators (not reported)

Process allocation

1) physical, 2) economical ≠ 1) direct substitution, 2) physical

Recycling allocation

100/0 - Real word allocation ≠ System expansion, moving burden in time and space

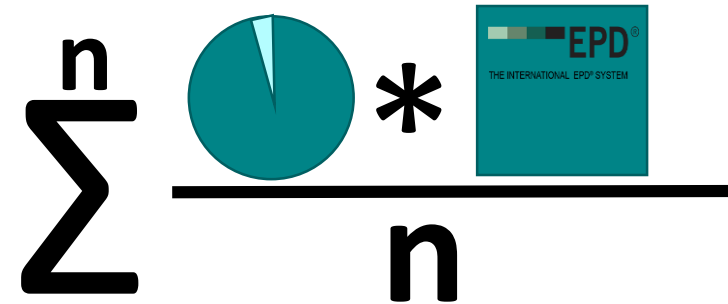
Different type of generic LCA data: LCI→LCA tools and specialist

Database	LCI or LCIA	Geography	Open
Transport adm*	LCIA	Sweden	Free
IVL Building Prod Env Database	LCIA	Sweden	Free (130), licence (800)
Ökobaumat	LCIA	Germany	Free
Bidcon	LCIA	EU (ecoinvent)	Licence fee
OneClick LCA	LCI?/LCIA	EU (ecoinvent)	Licence fee

*Published as part of the LCA tool for civil engineering works and is lacking of building related materials

A generic database based on specific EPDs

- Actual generic LCA data can be calculated by using specific EPD and the market share
- If EPD data are missing generic representative data has to be used
- The use of specific EPD are supported by the new Climate Declaration Law that will lead to an increased number of EPDs
- To replaced generic LCA-data with specific EPD according the Climate Declaration Law and the Transport administration require Q metadata



Only one of these systems is used and spread word wide



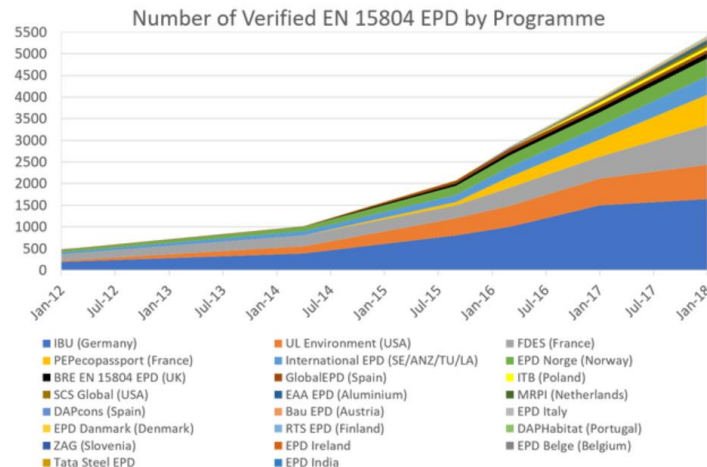
EN 15804

- > 5500 verified EPD available
- >2000 digital EPD (ILCD+EPD+)



PEF

- 0 PEF declaration
- 0 digital EPD



How do we define specific data — increased accuracy



- 1. Measured on site data
- 2. Data representative for the measured on-site data
- 3. Other generic data proved to be conservative
- 4. Proxy data is all other data that cannot be proved to be conservative (but better than zero)

3.5.3

specific data

data representative of a *construction product* (3.2.2) or *construction service* (3.2.6), provided by one *supplier* (ISO 6707-1:2004, 8.6), either from multiple plants or based on multiple similar construction products of the supplier

[SOURCE: EN 15804:2012 +A1:2013, 3.30, modified — Reference to multiple plants or multiple similar products has been added.]

3.5.4

generic data

general data used if no system *specific data* (3.5.3) are available

Note 1 to entry: Data can be site specific or average.

3.5.5

proxy data

approximate data used if no system *specific data* (3.5.3) or *generic data* (3.5.4) are available

EXAMPLE Data for production of acetic acid used in lieu of data for production of formic acid or selection of a generic data set of electricity from one region to represent another region.

Note 1 to entry: Data can be site specific or average.

Transport administration LCA calculation requirements is specified in: TDOK 2015:0480, version No 3:

Generic data can be replaced by specific LCA data based on an EPD according to European standard EN 15804 or equivalent approved by the Swedish Transport Administration

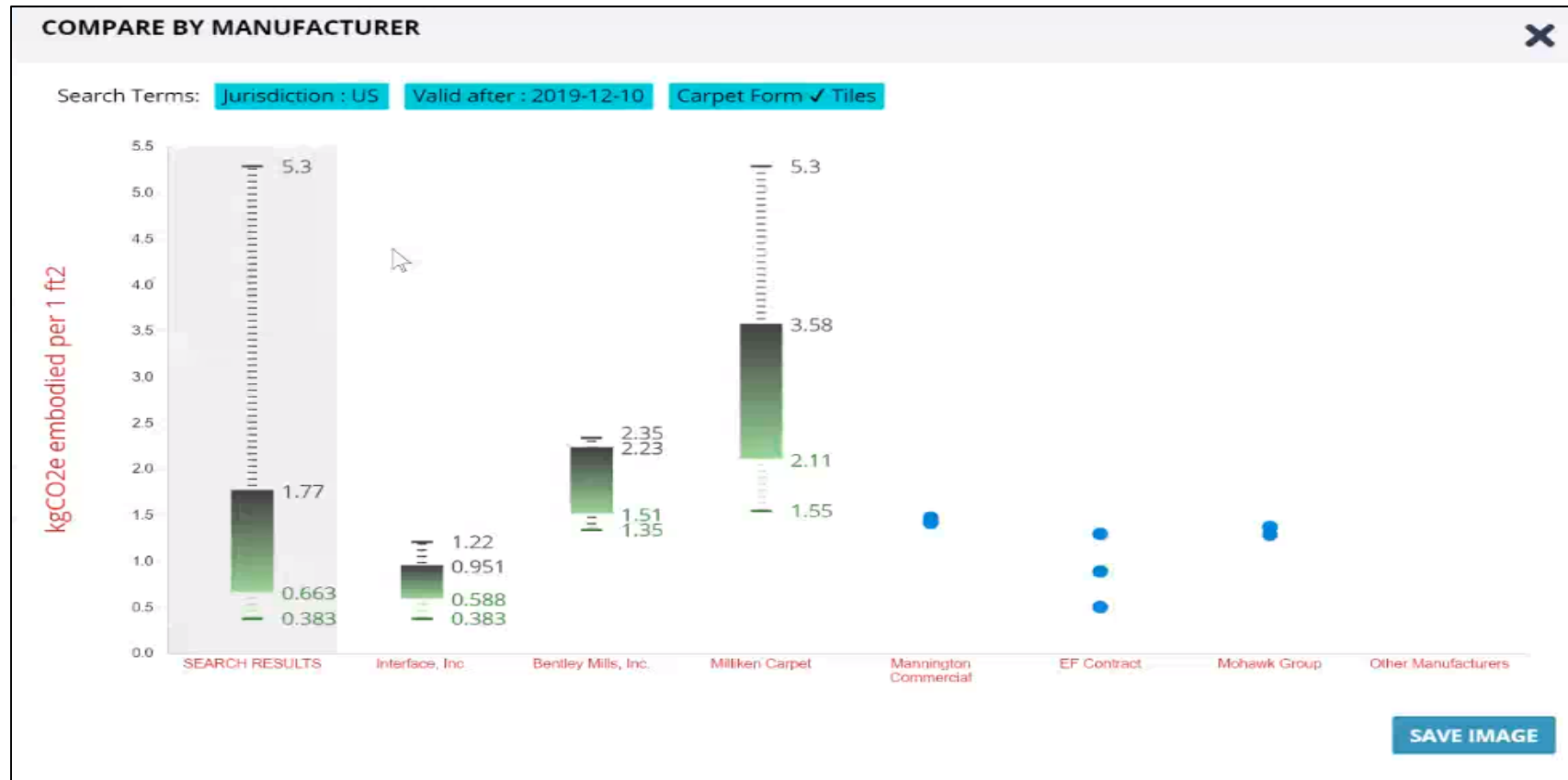
Q metadata

- Criteria 1: Product granularity
- Criteria 2: Manufacturing representativeness
- Criteria 3: LCI data accuracy
- Criteria 4: Declaration review type
- Criteria 5: Additional significant documentation specifications
- Criteria 6: Q metadata validation



Variation can be calculated

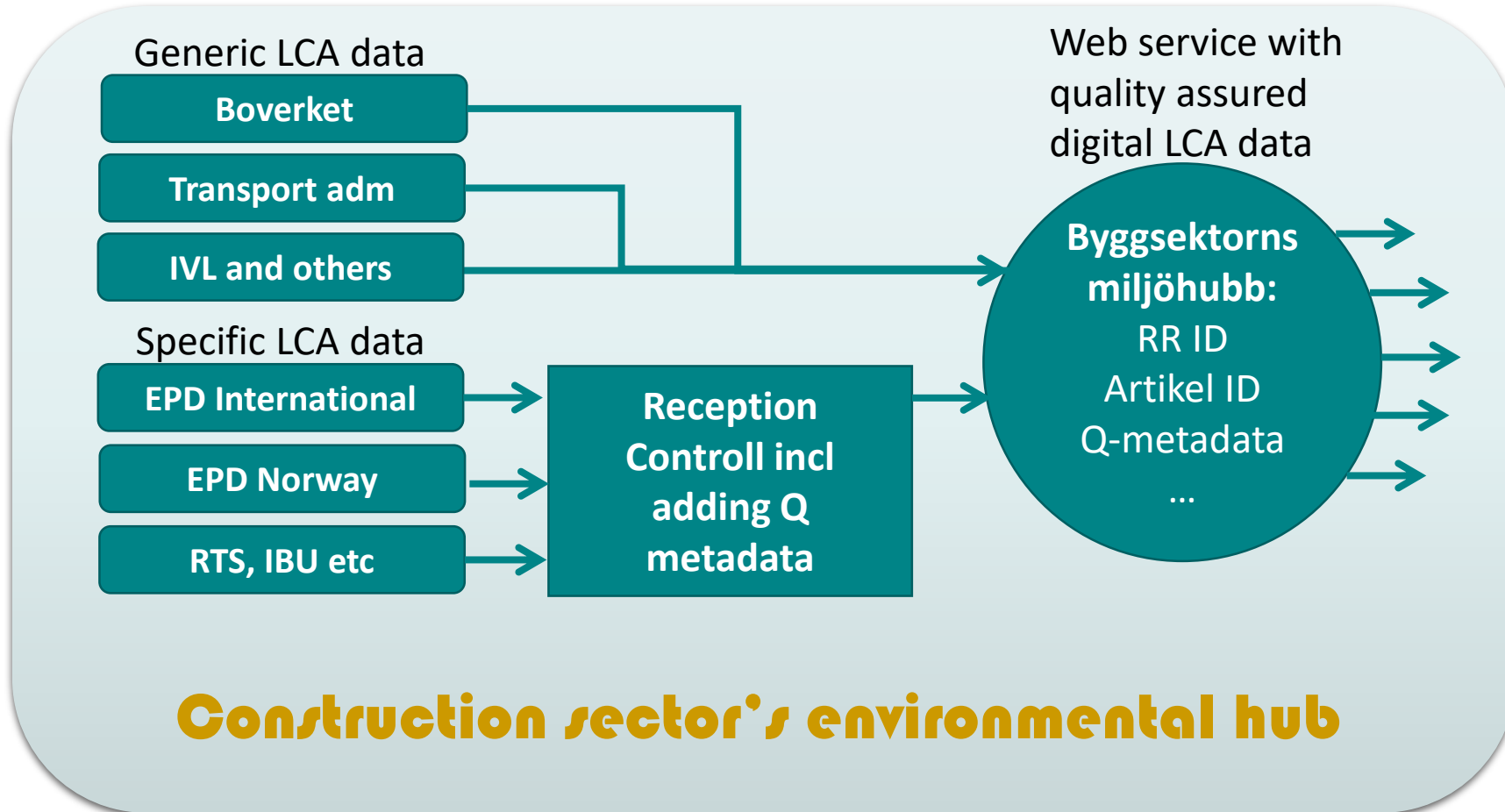
Q metadata support very accurate natioanally adoped generic data



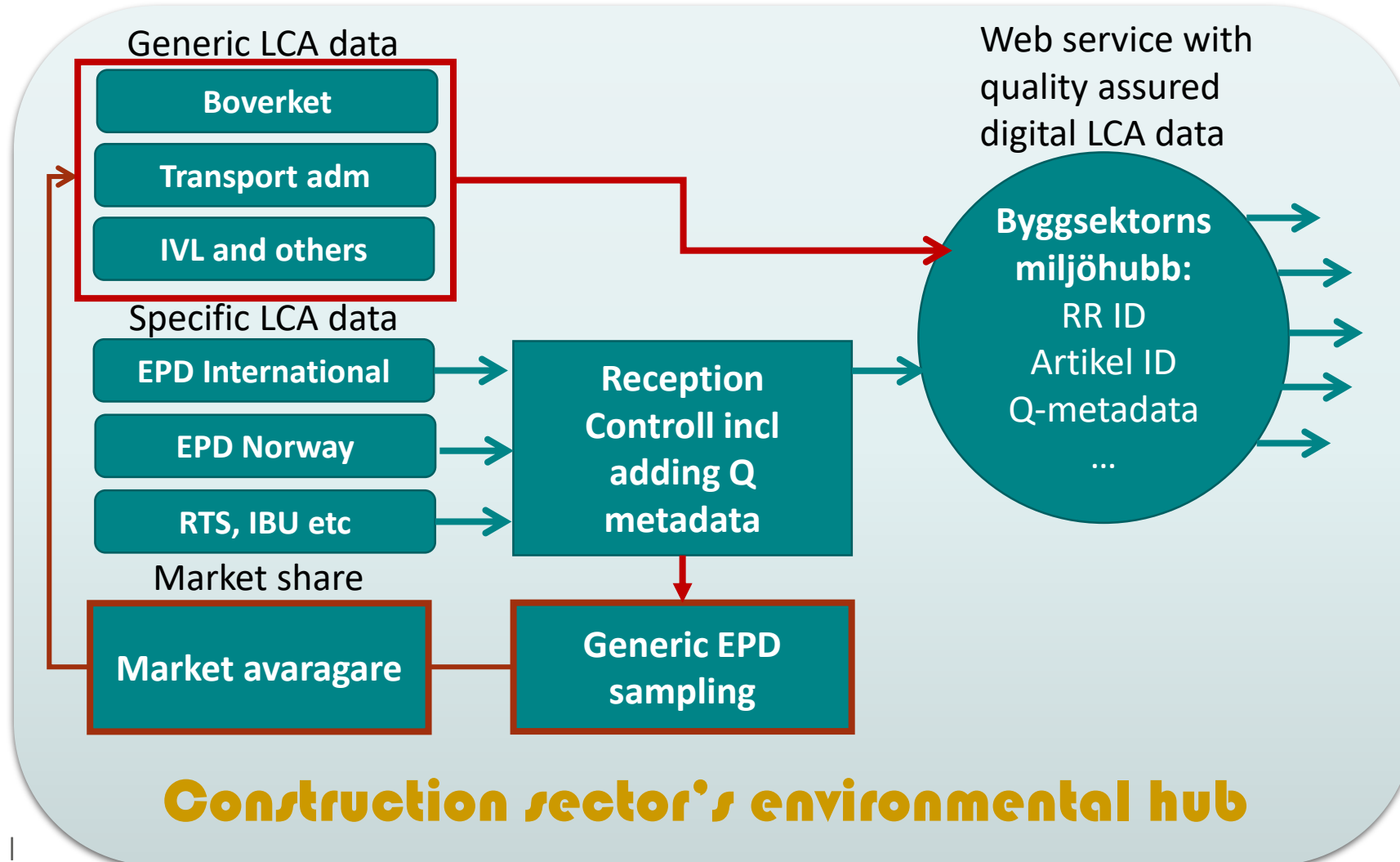
Digital solution

Work in progress

Web service for quality assured environmental information regardless of program operator and LCA tool



...and open access generic and EPD data at one place

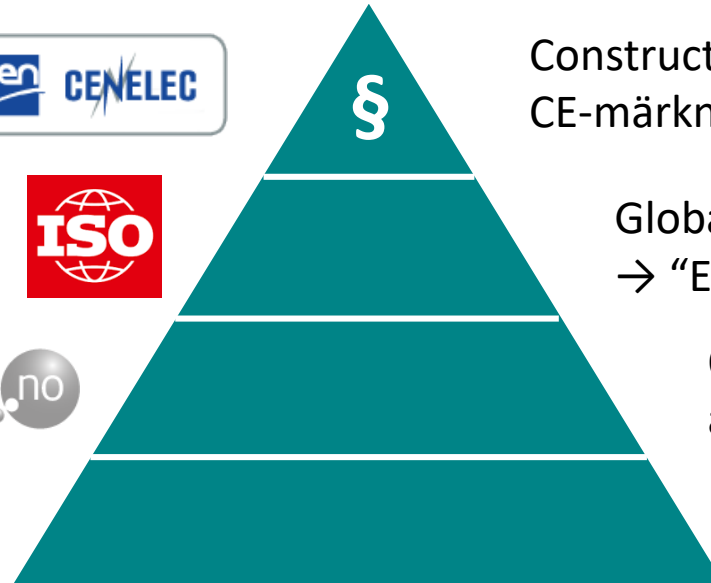


One Click 



CPR, CE Marking, Declaration of Performance

The product data template will become a digital product data sheet when filled in



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

Global agreements
→ “EPD in BIM” ISO 22057

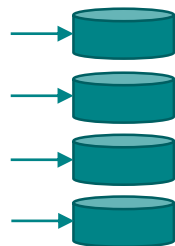
Other industry and sector
agreements such as eBVD

B2B agreed information

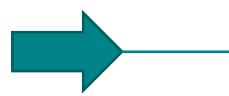
Technical solution: Construction sector's environmental hub



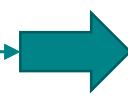
IBU, RTS
ÖkobauDat
EPD Norway
EPD International



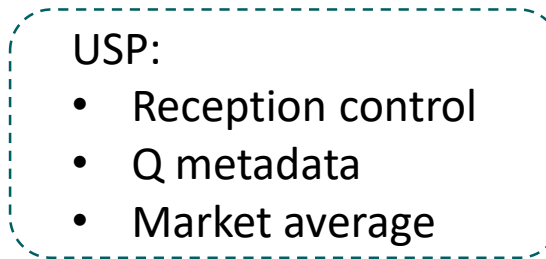
ILCD+EPD+



ILCD+EPD+



- BIM Web service (API)
 - IFC/PDT
 - Smart CE Marking
- ILCD+EPD+
- (pdf)



Imp/exp via "ILCD+EPD+"

...or via LCA tools like Gabi,
SimPro, Open LCA ...
or EPD-tools

pdf-original
ILCD+EPD(+) kopia

1. To save time, reuse an existing generic national representative LCA database

2. In parallel, start to develop an improved generic LCA database based on Q metadata documented specific EPDs

3. Support the digitalised EPDs and make the digital ILCD+EPD+ compatible also with BIM and start to publish the generic LCA data according Smart CE Marking as outlined in ISO ISO 22057

4. To support this development a climate declaration should support EPD when assesses as built and...

... generic LCA-data can only be replaced with an EPD that is supported by Q metadata

Recommendations to  Boverket

Thankyou