

International LCA Data Network

Demonstration Project for an Open International Online Database Structure

Hildegund Figl

IBO – Austrian Institute for Building & Environment

ACR – Austrian Cooperative Research



Co-Authors:

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Organisers:



International Co-owners:



Environmental product declaration (EPD)

EN 15804 Sustainability of construction works – Environmental product declarations
– Core rules for the product category of construction products

Product standards, e.g.
EN 16485 PCR for wood products

National requirements
e.g. France

Specific EPD programmes, e.g.
International EPD system

EPD declare the environmental performance of a product throughout its life cycle in order to

- provide quantified information for building assessment;
- support product development in the construction sector

Standardised indicators: life cycle assessment

not standardised: qualitative performance aspects (health, ...)



Organisers:



International Co-owners:



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Motivation for an LCA data network

Environmental product declaration (EPD)



various data input options

LCA databases

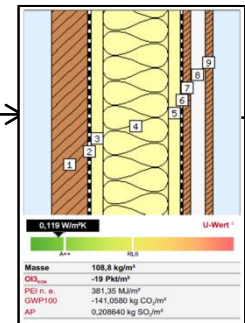
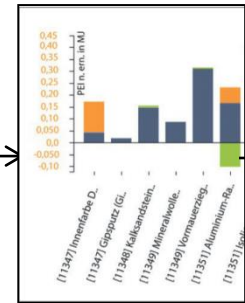


...

LCA calculation tools

Online access

(xml-) transformation



Actors and their main driving forces

EPD programme operators and producers

want to spread their data (marketing)

data base providers

want to collect data and deliver them (offer to buy or gift)

building assessment operators and others

want to get high quality data of high consistency



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Working Group 'International open Data Network for Sustainable Building'

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Working Group 'International open Data Network for Sustainable Building'

EPD programme operators



1000 data sets



300 datasets

data base providers



500 data sets



800 data sets



1000 data sets

building assessment operators and others



Only excerpt of members.
For more information contact website (see last slide)



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Fundamentals (‘decatalogue’, excerpt)

Main objective

International LCA data network structure for construction products based on EPD information



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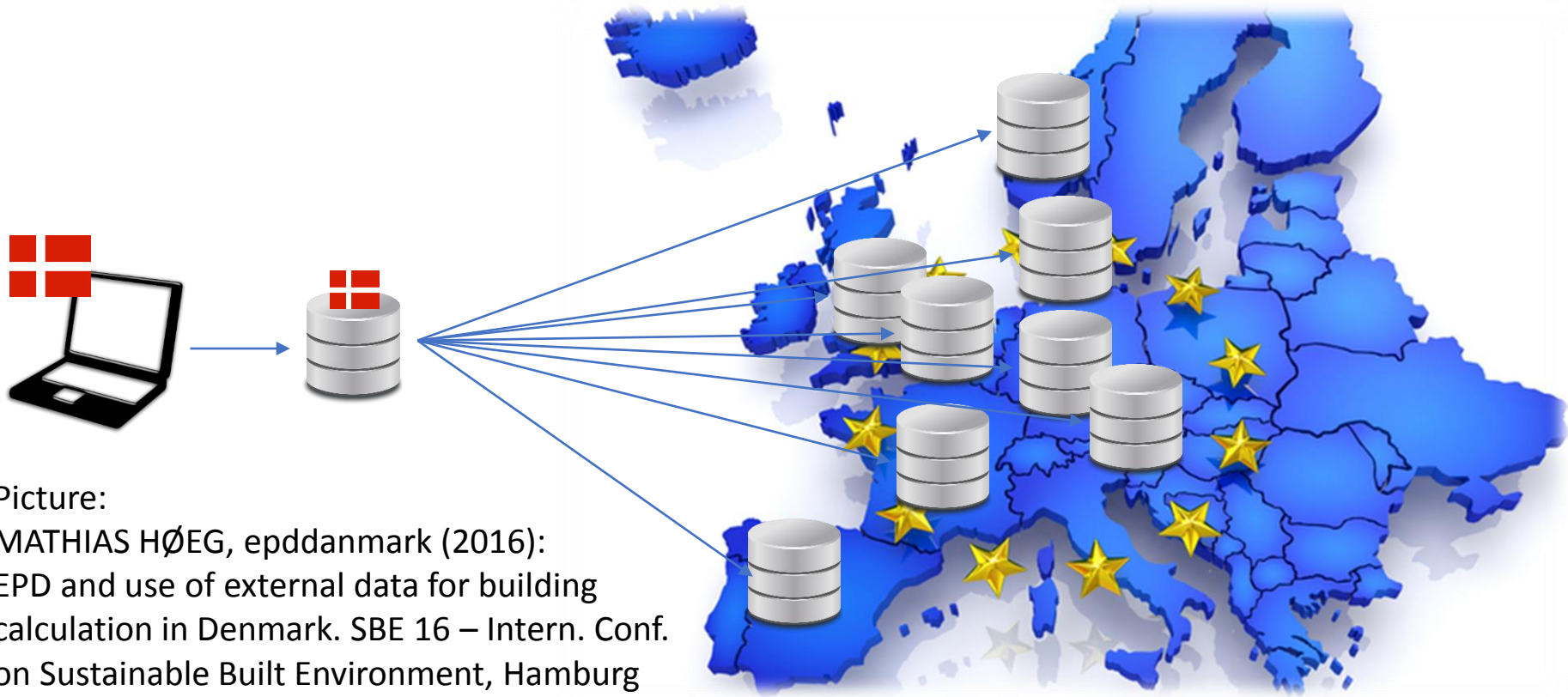
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The vision: One request – multiple answers



Picture:
MATHIAS HØEG, epddanmark (2016):
EPD and use of external data for building
calculation in Denmark. SBE 16 – Intern. Conf.
on Sustainable Built Environment, Hamburg

Fundamentals (‘decatalogue’, excerpt)

Main objective

International LCA data network structure for construction products based on EPD information

EN 15804

is the common ground to start;
open for other standards in the future.
It is not the aim to develop additional rules complementing the standards.

Third party verification of EPD data according to EN 15804 is mandatory.

ILCD data format

will be used as a data exchange format

English

as mandatory common language; any other language optional

Free of charge

availability of all EPD data within the network structure.



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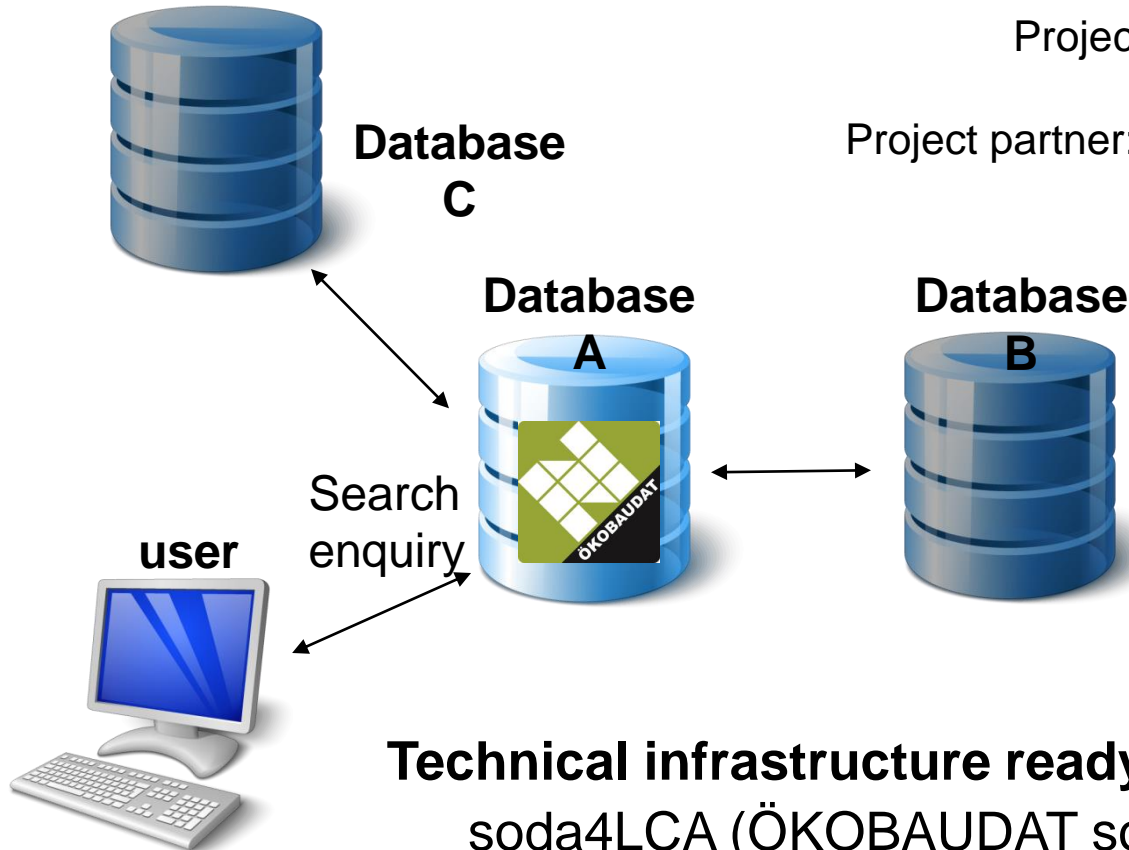


International Co-owners:



Demonstration project

„ÖKOBAUDAT and Europa II“
Project funded by BBSR (Germany):
Zukunft Bau 10.08.17.7-16.42
Project partner: OK*WORX, IBO, GreenDelta



Technical infrastructure ready (currently working with soda4LCA (ÖKOBAUDAT software) + API interface)



Organisers:



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Conceptual framework



- *under progress*
on the agenda of 7th Meeting (Tromsö, 2016-06-15+16)
1. Unique identification of products
GUID, version management, product categories
 2. Transparency of content → data format and rules



Organisers:



International Co-owners:



2. ILCD Data Format

ILCD Data Format

Process Description

Inputs/Outputs

Modelling and Validation

LCIA Results

Administrative Information

Extension Points



Organisers:



International Co-owners:



Example: Data field definition

Field name (EN)	Data type	Definition and explanation (EN)
<p>Type of review</p>	<p>enum- erated list</p>	<p>Type of review that has been performed regarding independency and type of review process.</p> <p>Possibilities for type of review:</p> <ul style="list-style-type: none"> - no verification / critical review - internal verification / critical review (intra-company) - dependant external verification / critical review (external reviewer is not verifiably independent from LCA expert or owner of enterprise) - independent external verification / critical review (external reviewer who is verifiably independent from LCA expert or owner of enterprise)

red: specified in addition to ILCD

2. ILCD+EPD Data Format

ILCD Data Format

Process Description

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Extension Points

developed by BBSR / ÖKOBAUDAT (Germany)

Extension for EPDs

Additional Metadata

Modules

Material Properties

Scenarios

Example for EPD Extension: Moduls according to EN 15804

BUILDING LIFE CYCLE INFORMATION														BEYOND BUILD. LIFE CYCLE	
A 1-3			A 4-5		B 1-7					C 1 - 4				D	
PRODUCT stage			CONSTRUCTION stage		USE stage					END OF LIFE stage				Benefits and load	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4		
Raw material supply	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Deconstruction	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- Potential	
					B6 Operational energy use										
					B7 Operational water use										

scenarios needed



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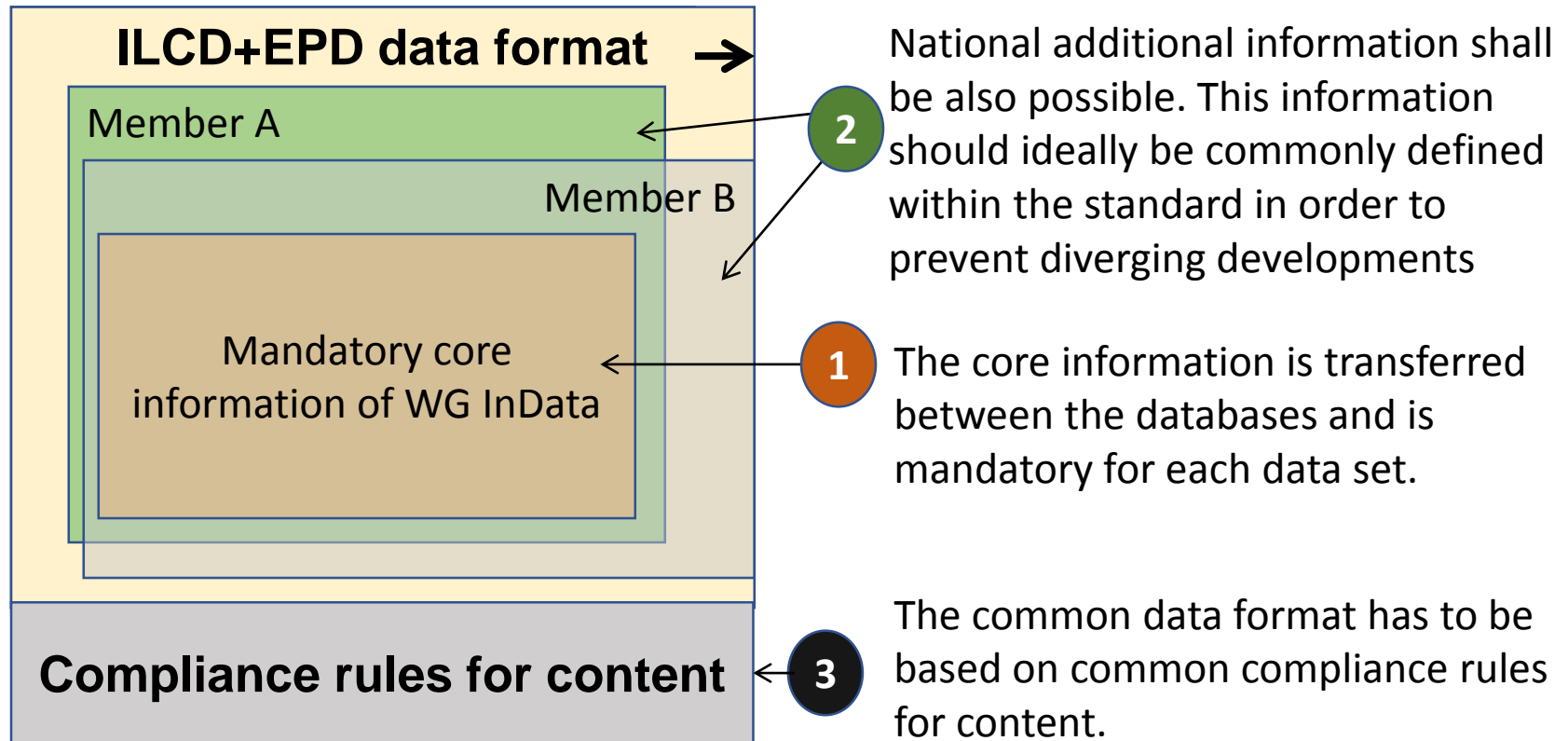
Screenshot ÖKOBAUDAT Moduls

Umweltindikatoren

Parameter zur Beschreibung des Ressourceneinsatzes und sonstige Umweltinformationen

Indikator ↕	Richtung ↕	Einheit ↕	Rohstoffbereits A1	Transport A2	Herstellung A3	Herstellung A1-A3	Transport C2	Abfallbehandlu C3	Recyclingpoten D therm. Verwertung (Standardszena
Erneuerbare Primärenergie als Energieträger (PERE)	Input	MJ	31.3	0.0758	533	565	0.0109	4.7	7892
Erneuerbare Primärenergie zur stofflichen Nutzung (PERM)	Input	MJ	8.25E+3	0	43.4	8.29E+3	0	-8293	0
Total erneuerbare Primärenergie (PERT)	Input	MJ	8.28E+3	0.0758	577	8.86E+3	0.0109	-8289	7892
Nicht- erneuerbare Primärenergie als Energieträger (PENRE)	Input	MJ	2.29E+3	57.5	1.58E+3	3.93E+3	8.29	87.8	-9.72E+3
Nicht- erneuerbare Primärenergie zur stofflichen Nutzung (PENRM)	Input	MJ	5.8E+2	0	0	5.8E+2	0	-5.8E+2	0

2. ILCD+EPD Data Format Hierarchy



Example: Rules for data field

Field name (EN)	Data type	Definition and explanation (EN)	Requirement
Type of review	enumerated list	<p>Type of review that has been performed regarding independency and type of review process.</p> <p>Possibilities for type of review:</p> <ul style="list-style-type: none"> - no verification / critical review - internal verification / critical review (intra-company) - dependant external verification / critical review (external reviewer is not verifiably independent from LCA expert or owner of enterprise) - independent external verification / critical review (external reviewer who is verifiably independent from LCA expert or owner of enterprise) 	mandatory
		<p>Rule: For WG InData an independent external verification of the EPD is mandatory.</p>	

red: specified in addition to ILCD

Conceptual framework



1. Unique identification of products
GUID, version management, product categories
2. Transparency of content → data format and rules
in international context more stress on:
classification of data (type, purpose, background data, ...)?
3. Data quality



Organisers:



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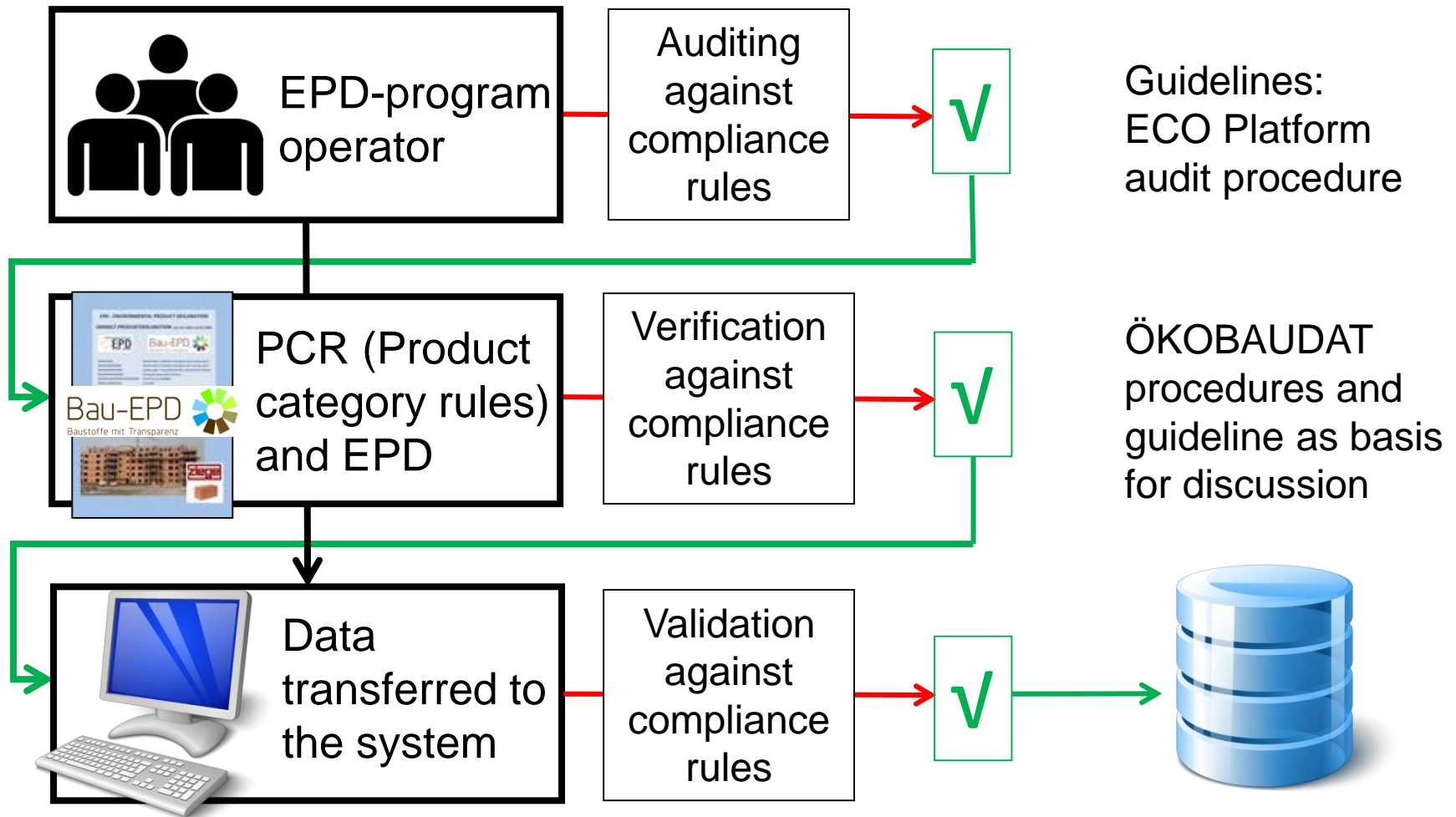


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3. Data quality – verification procedures



Conceptual framework



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2. Transparency of content → data format and rules
in international context more stress on:
classification of data (type, purpose, background data, ...)?
3. Data quality
in international context: eventually cross approval?
4. Business modell



Organisers:



International Co-owners:



Thank you

- Hildegund Figl: hildegund.figl@ibo.at
- WG InData:
<http://www.oekobaudat.de/en/info/working-group-indata.html>



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