You define the level of performance we can describe and quantify it

Sustainability of construction works – Assessment of the environmental, social and economic performance of buildings

IMSAD
5th International Quality in Construction Summit

Chris Hamans

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outline

- Positioning of the CEN TC350 standards for the sustainability assessment of buildings
- Principles of the sustainability assessment for buildings
- Overview and status of CEN TC350 standards
- Quantification and description of sustainability

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Sustainability: what do you expect from it?

- Sustainable new buildings?
- Sustainable renovation / renovated buildings ?
- Sustainable area / city / region / country .....?

- What is YOUR DEMAND for sustainability?
  What is the sustainability performance you want to know?
  What is the time horizon?
  What are your scenarios for the future?

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positioning

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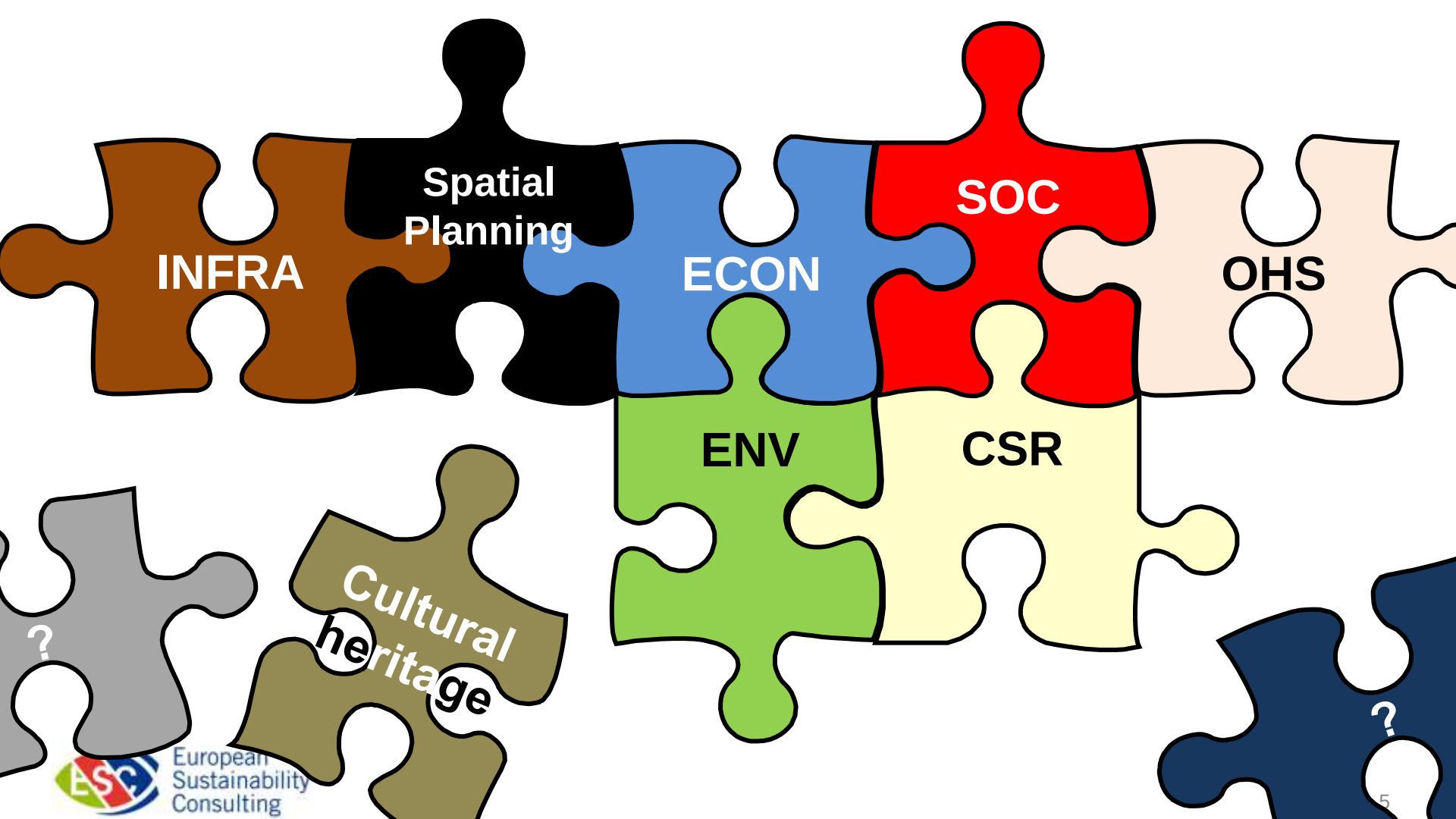

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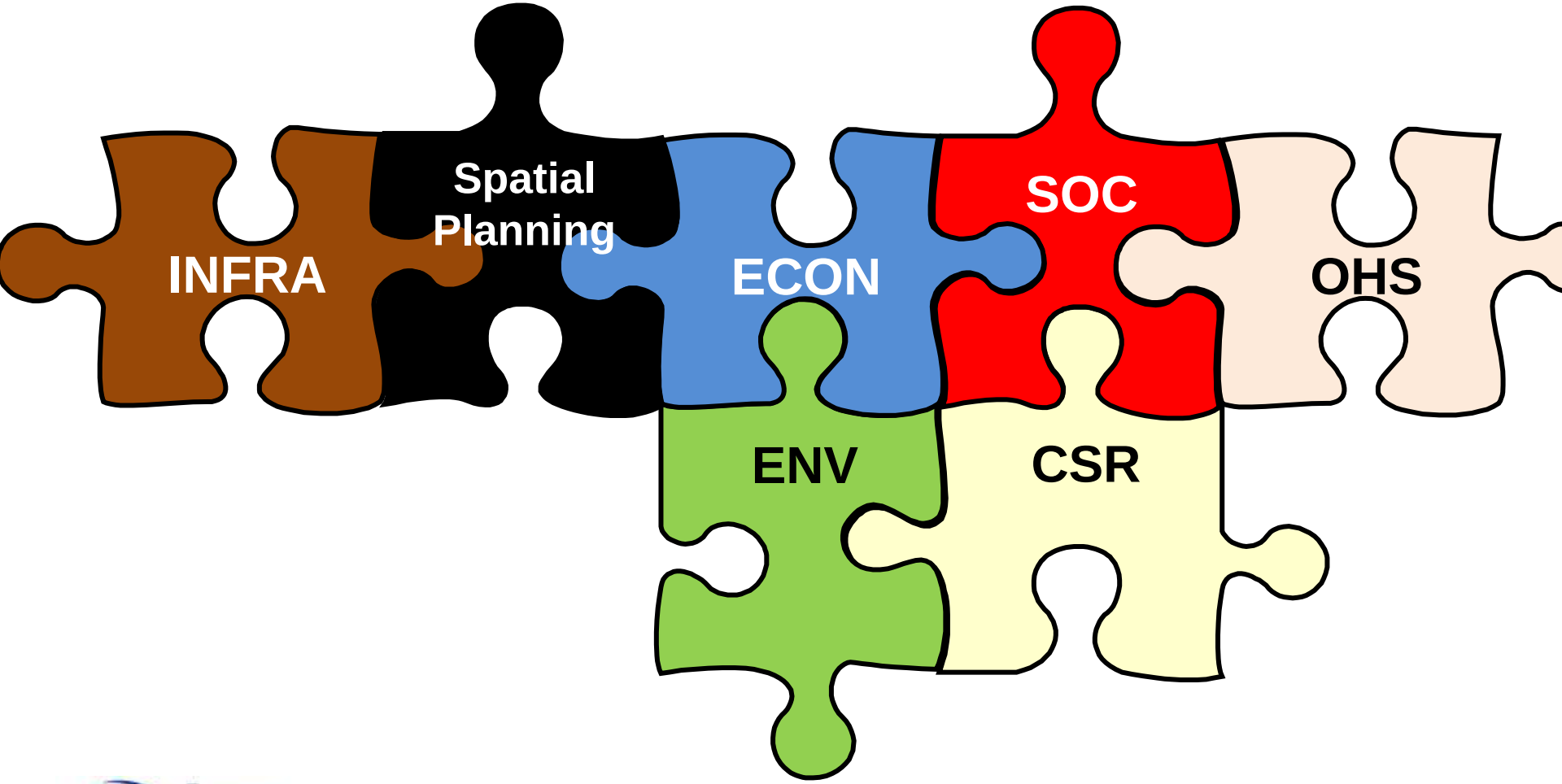

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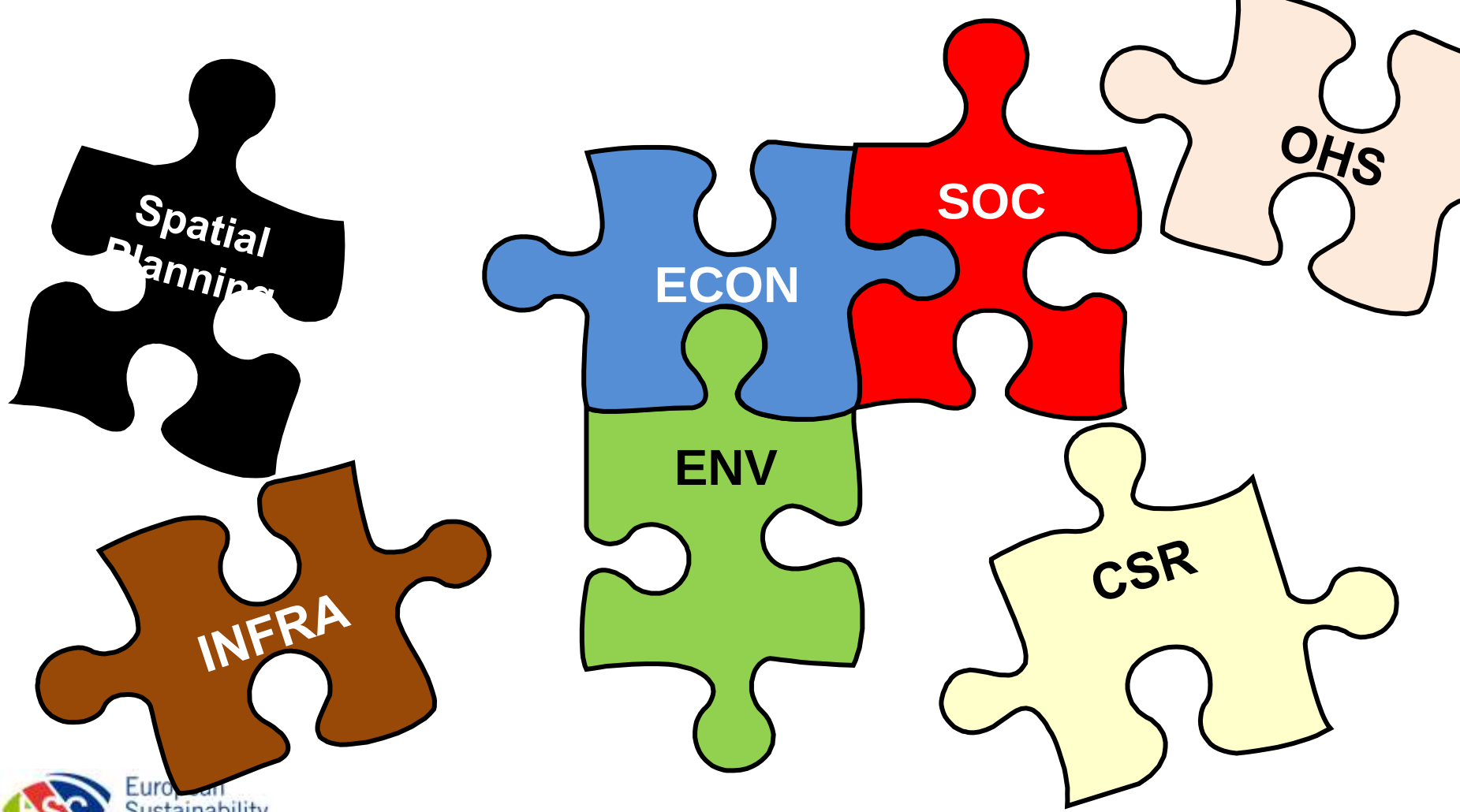

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principles

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Sustainability

The expert knows that the prerequisite #1 to SUSTAINABILITY is:

Funktional Design

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Sustainability

The expert knows that the prerequisite #2 to SUSTAINABILITY is:

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BUILDING-WORKS

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7th. Basic Requirement: SUSTAINABILITY
Sustainable Use of Natural Resources

A prerequisite for sustainability are the 6 Basic Requirements for Construction Works

- Without meeting the **functional** needs there is no sustainability
- Without meeting the **technical** needs there is no sustainability

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Here the sustainability assessment starts

A prerequisite for sustainability are the Basic Requirements for Construction Works

- Without meeting the **functional** needs there is no sustainability
- Without meeting the **technical** needs there is no sustainability

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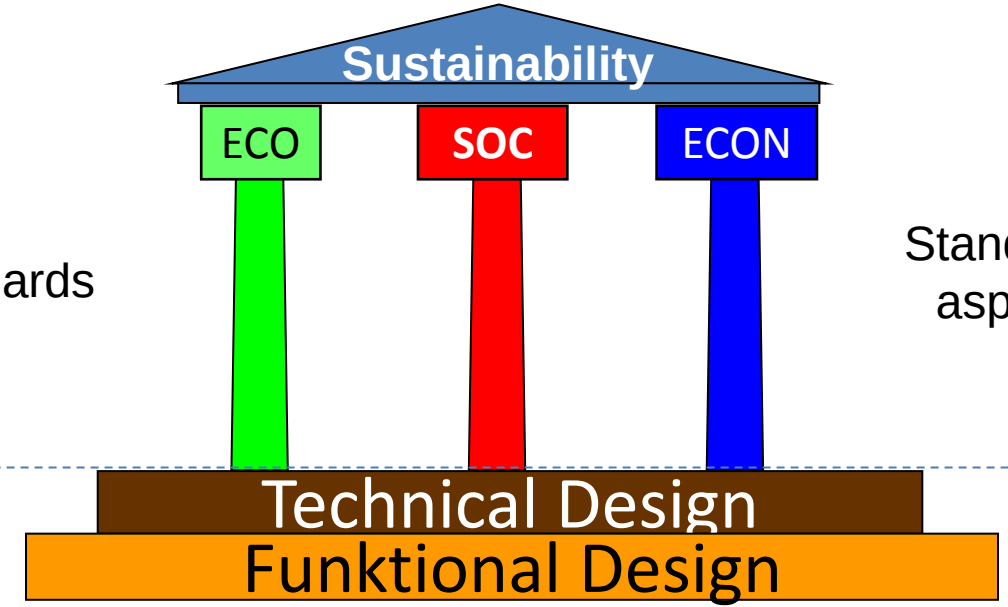
CEN TC350 Standards for works



CEN TC350
Standards only quantify aspects and impacts

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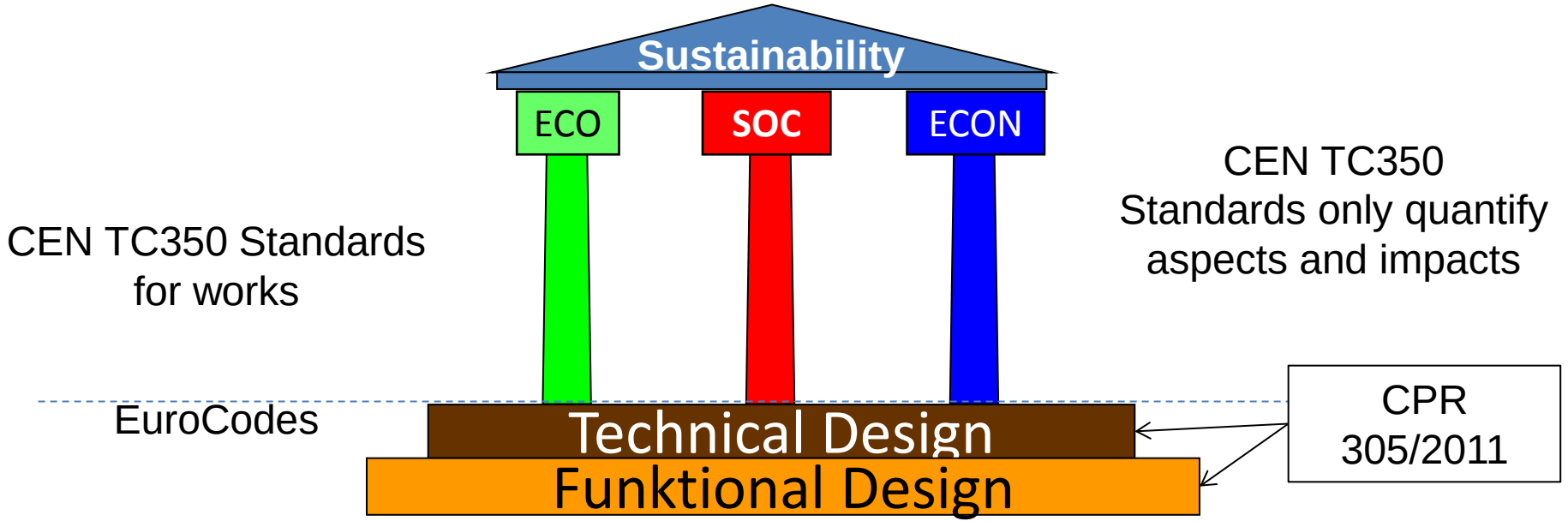
CEN TC350 standardisation



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- Sustainability as a performance can **not be standardised**
  - **The methodologies for description and quantification can be standardised**

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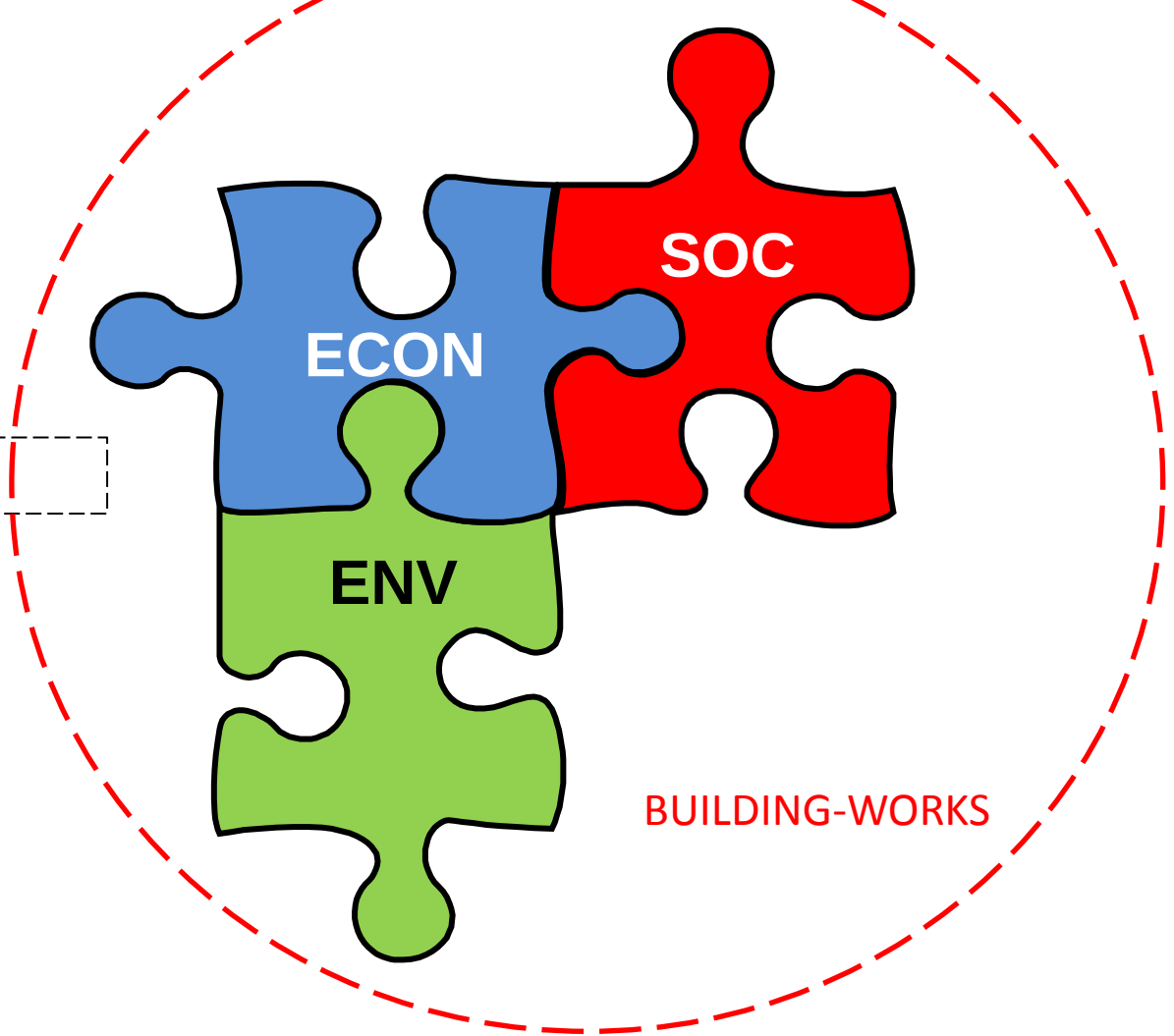
CEN TC 350 standards



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Overview and status CEN TC350 standards

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Concept level	**Integrated Building Performance**				
	Environmental Performance	Social Performance	Economic Performance	Technical Performance	Functional Performance
Framework level	**EN 15643 - 1 Sustainability Assessment of Buildings - General Framework**				
	EN 15643-2 Framework for Environmental Performance	**EN 15643 - 3 Framework for Social Performance**	**EN 15643 - 4 Framework for Economic Performance**	*Technical Characteristics*	*Functionality*
Building level	**Environmental Performance - Calculation Method -**	**Social Performance - Calculation Method -**	**Economic Performance - Calculation Method -**		
Product level	**EN15804 Environmental Product Declarations - core rules for the product category of construction products -**	*(see Note below)*	*(see Note below)*		
	EN 15942 Environmental Product Declarations - Communication format - Business to Business				
	CEN/TR 15941 Environmental product declarations – Methodology for selection and use of generic data -				

Note: At present, technical information related to some aspects of social and economic performance are included under the provisions of pr EN 15804 to form part of the EPD

STATUS
CEN TC350 Standards

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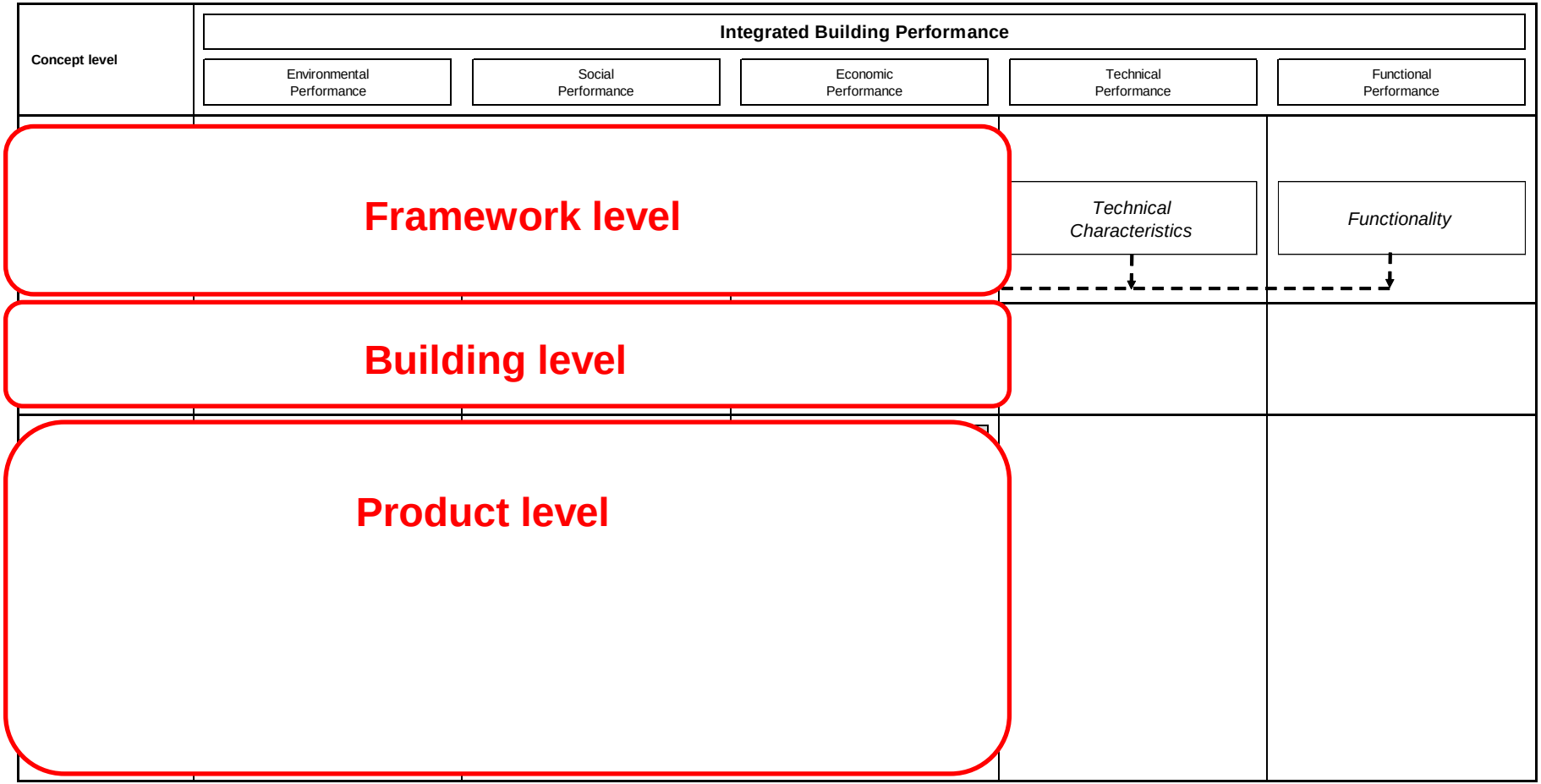

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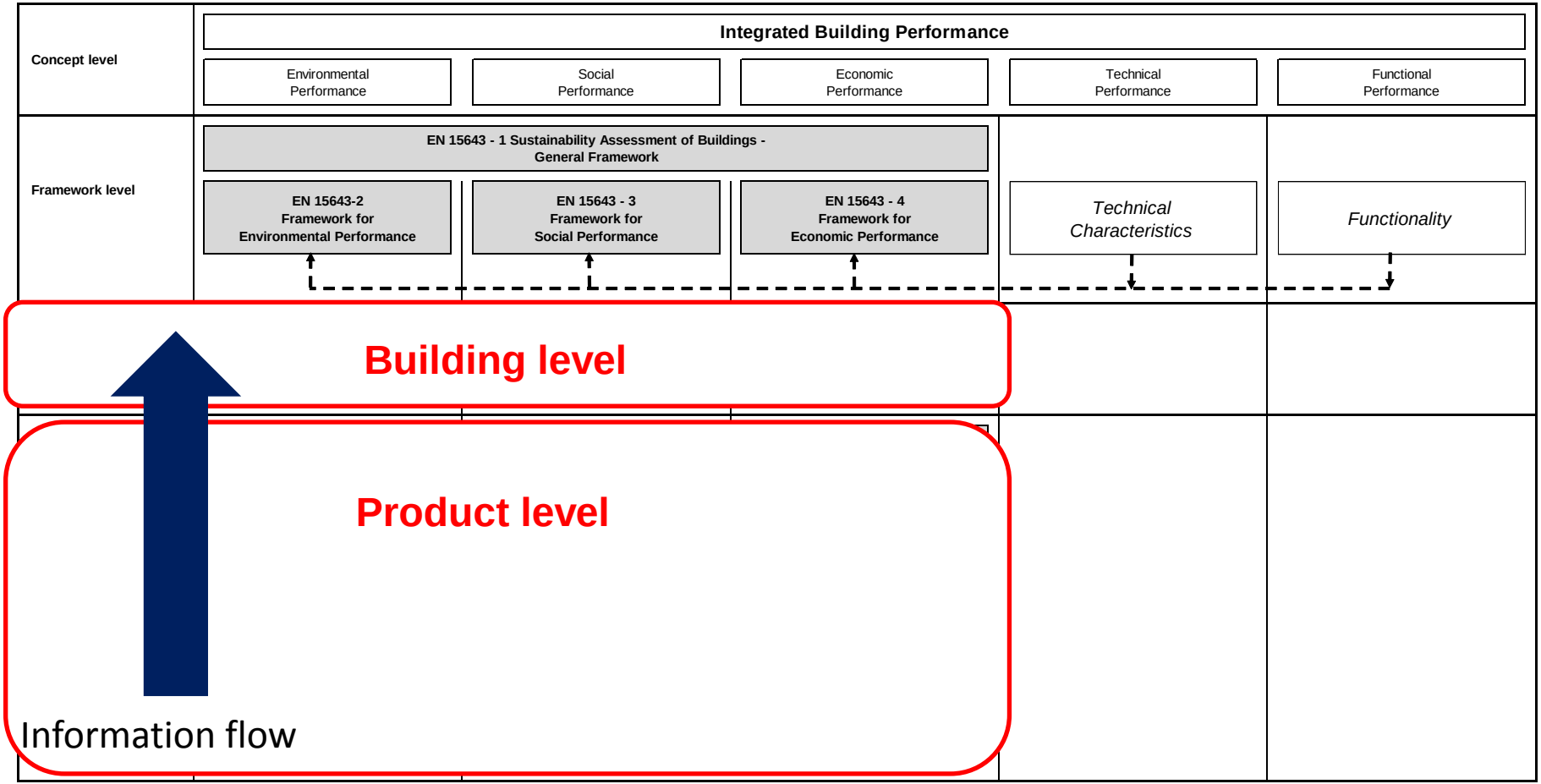
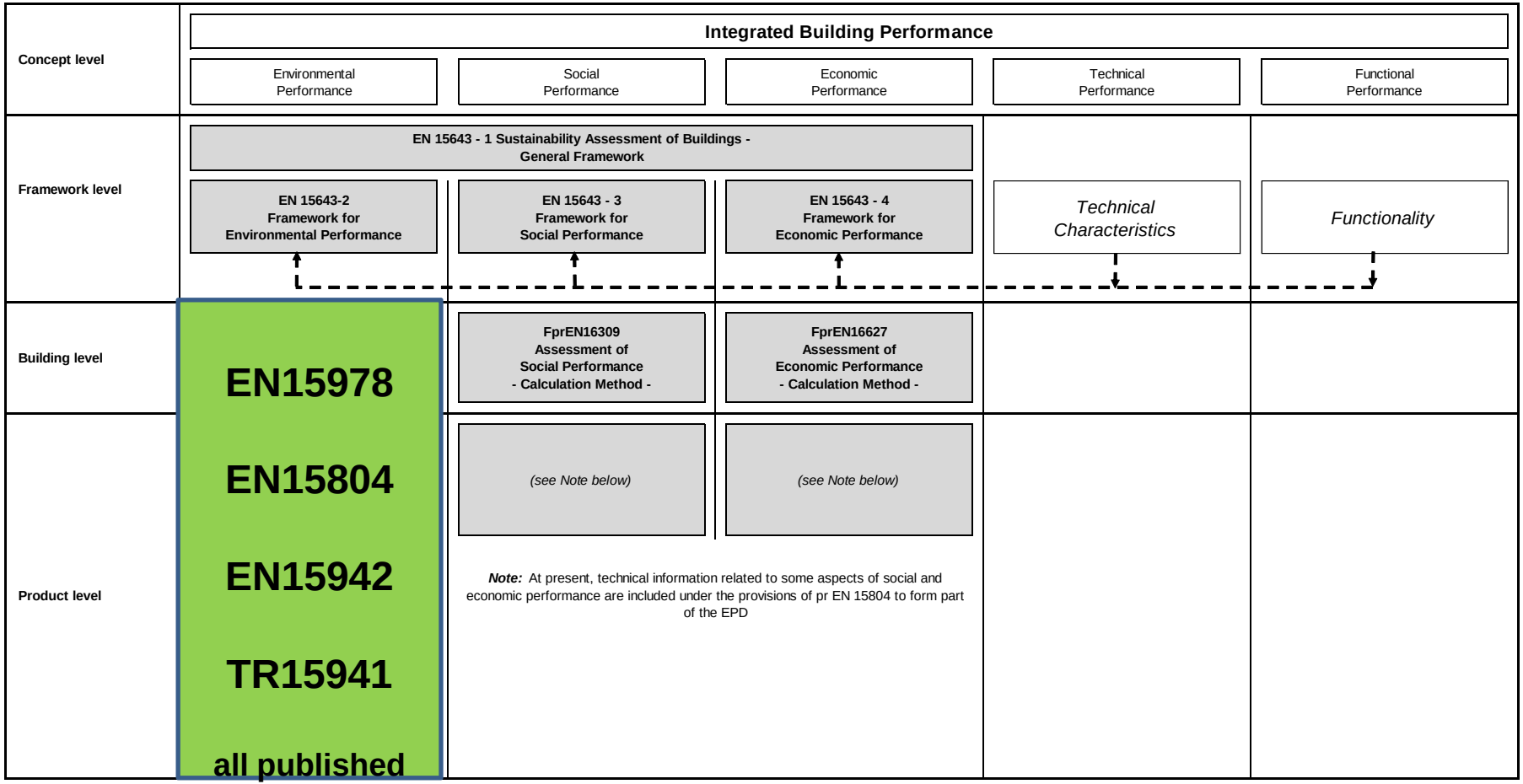

Concept level
Integrated Building Performance
Environmental Performance
Social Performance
Economic Performance
Technical Performance
Functional Performance
Framework level
EN 15643 - 1 Sustainability Assessment of Buildings - General Framework
EN 15643-2 Framework for Environmental Performance
EN 15643 - 3 Framework for Social Performance
EN 15643 - 4 Framework for Economic Performance
Technical Characteristics
Functionality
Building level
Product level
Information flow



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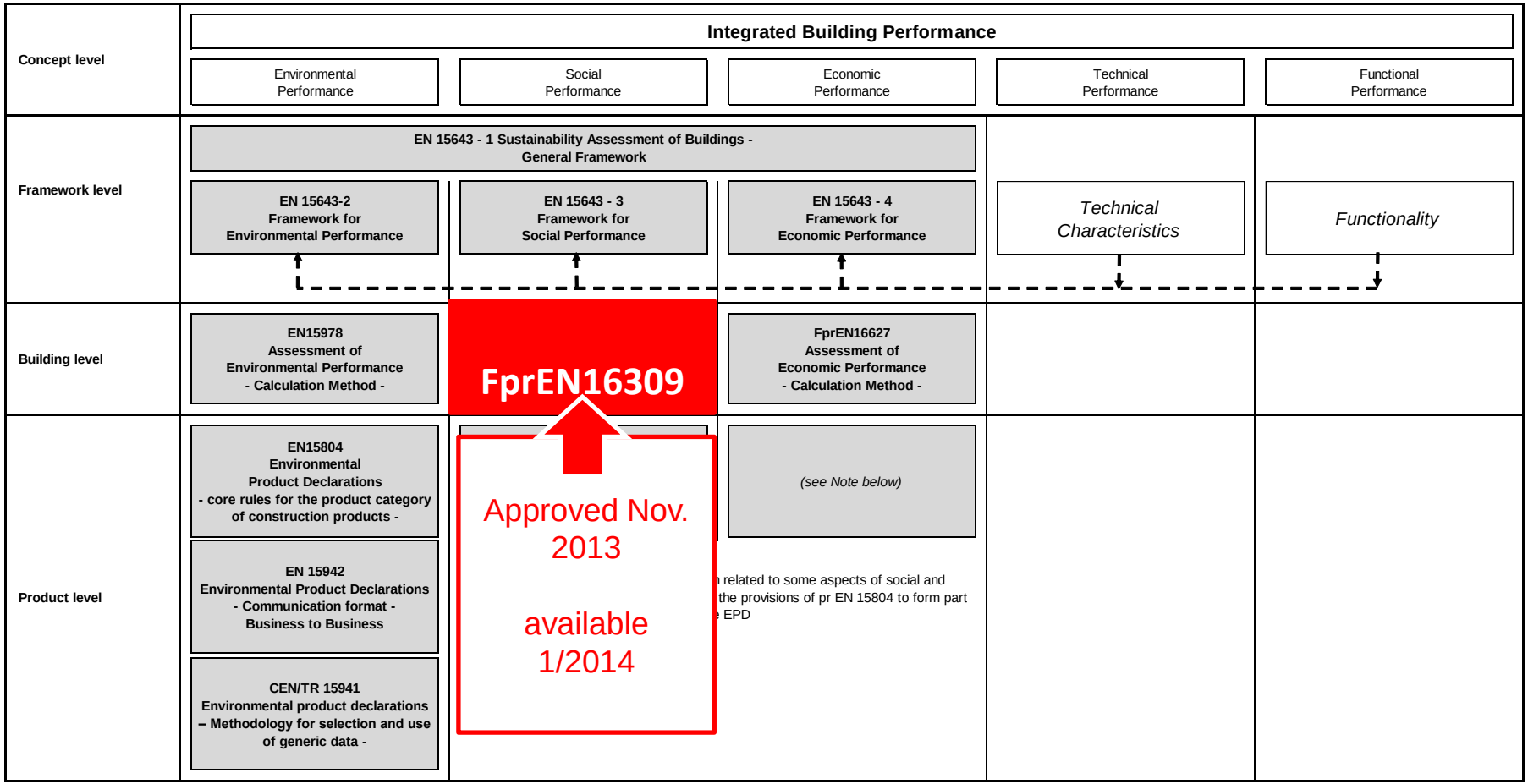

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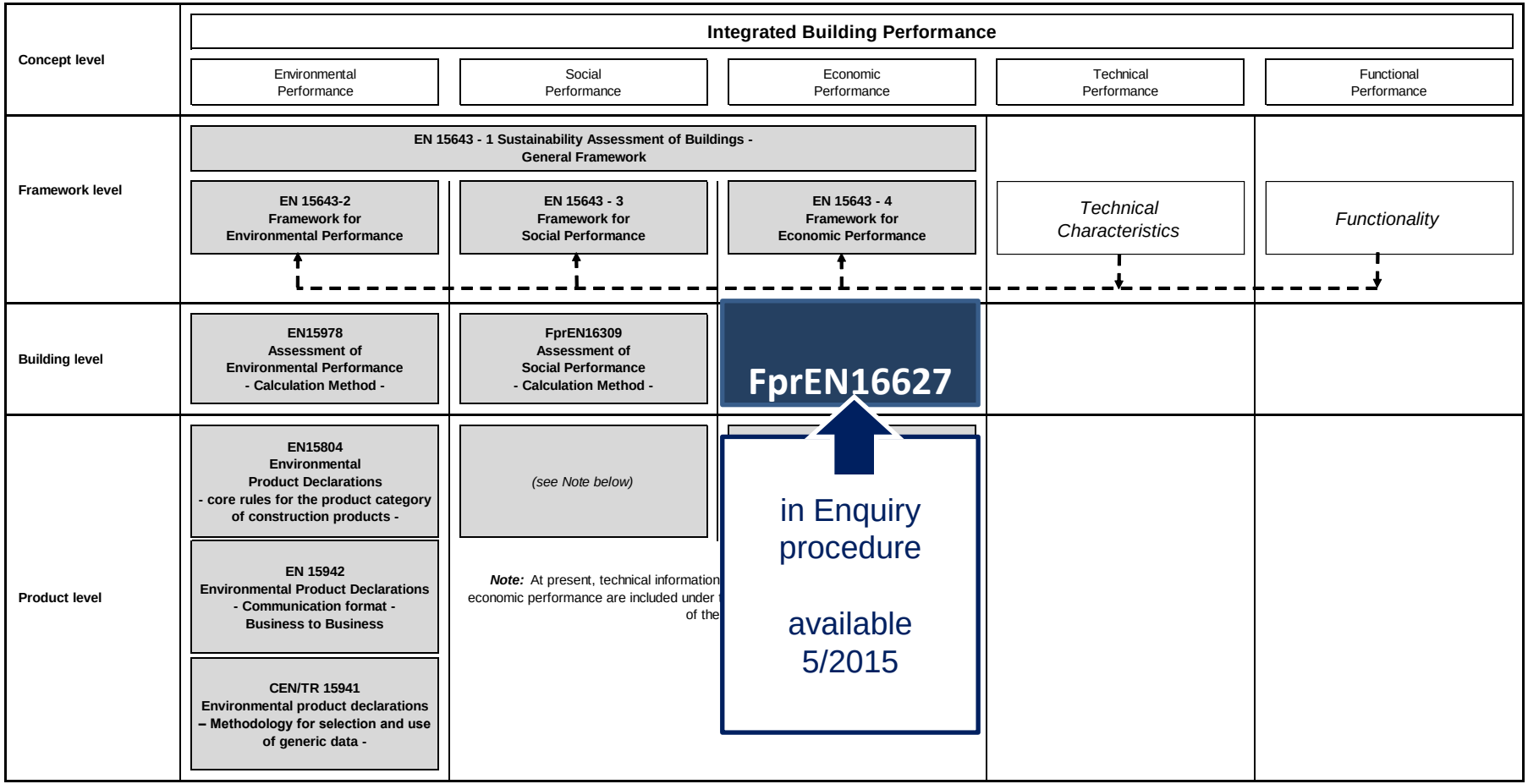

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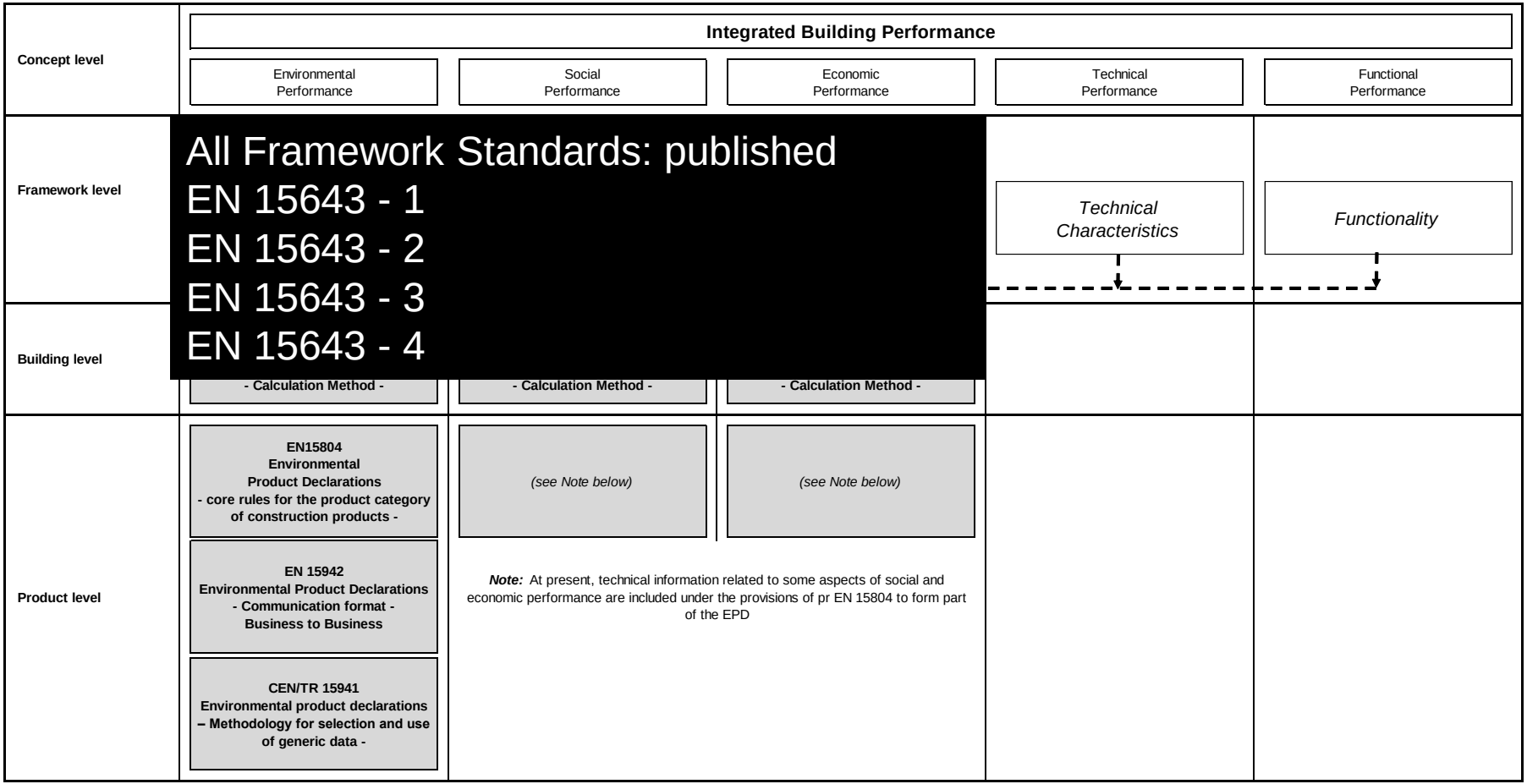

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principle steps
in the sustainability assessment of buildings

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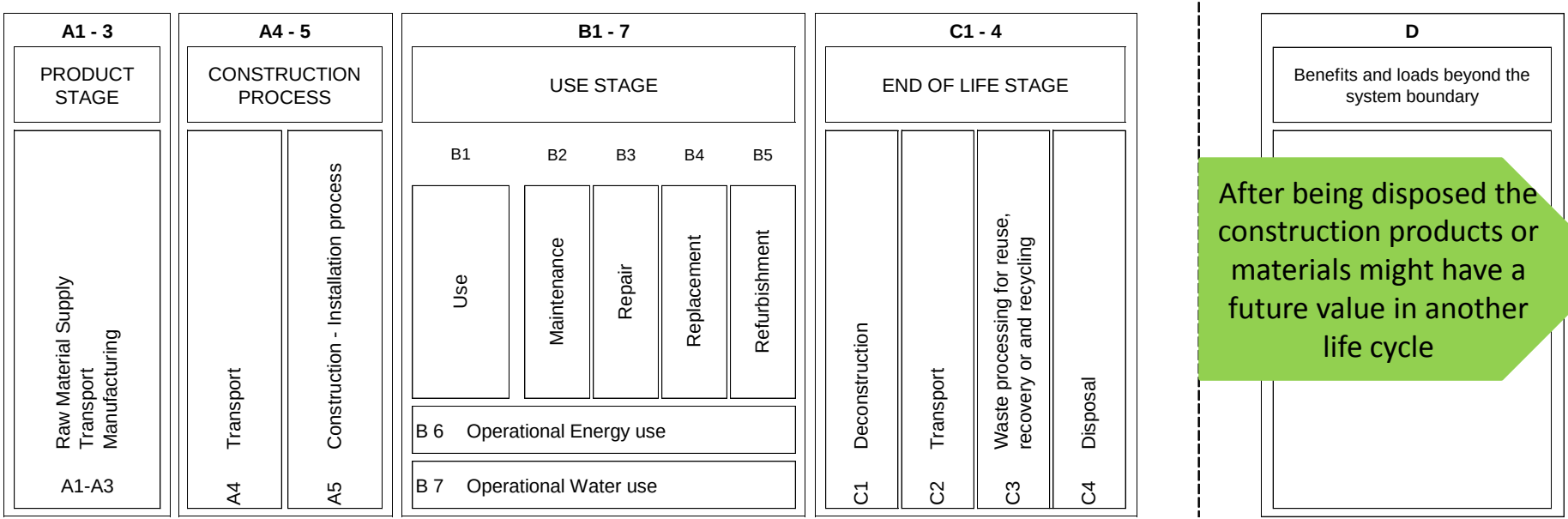
BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE



After being disposed the construction products or materials might have a future value in another life cycle

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BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE

A1 - 3

PRODUCT STAGE

Raw Material Supply
Transport
Manufacturing

A1-A3

A4 - 5

CONSTRUCTION PROCESS

A4 Transport

A5 Construction - Installation process

LIFE CYCLE STAGE: USE

B1 Use

B2 Maintenance

B3 Repair

B4 Replacement

B5 Refurbishment

B 6 Operational Energy use

B 7 Operational Water use

C1 - 4

END OF LIFE STAGE

C1 Deconstruction

C2 Transport

C3 Waste processing for reuse, recovery or and recycling

C4 Disposal

D

Benefits and loads beyond the system boundary

Reuse -
Recovery -
Recycling -
potential

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BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

LIFE CYCLE STAGE: BEFORE USE

A1-A3	A4	A5
Raw Material Supply Transport Manufacturing	Transport	Construction - Installation process

LIFE CYCLE STAGE: USE

B1	B2	B3	B4	B5
Use	Maintenance	Repair	Replacement	Refurbishment

B 6	Operational Energy use
B 7	Operational Water use

LIFE CYCLE STAGE: AFTER USE

C1	C2	C3	C4
Deconstruction	Transport	Waste processing for reuse, recovery or and recycling	Disposal

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE

D

Benefits and loads beyond the system boundary

Reuse -
Recovery -
Recycling -
potential

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BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

LIFE CYCLE STAGE: BEFORE USE

Assessment & Information module

Assessment & Information module

Assessment & Information module

LIFE CYCLE STAGE: USE

B1 B2 B3 B4 B5

Assessment & Information module

LIFE CYCLE STAGE: AFTER USE

Assessment & Information module

Assessment & Information module

Assessment & Information module

Assessment & Information module

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE

D

Benefits and loads beyond the system boundary

After being disposed the construction products or materials might have a future value in another life cycle

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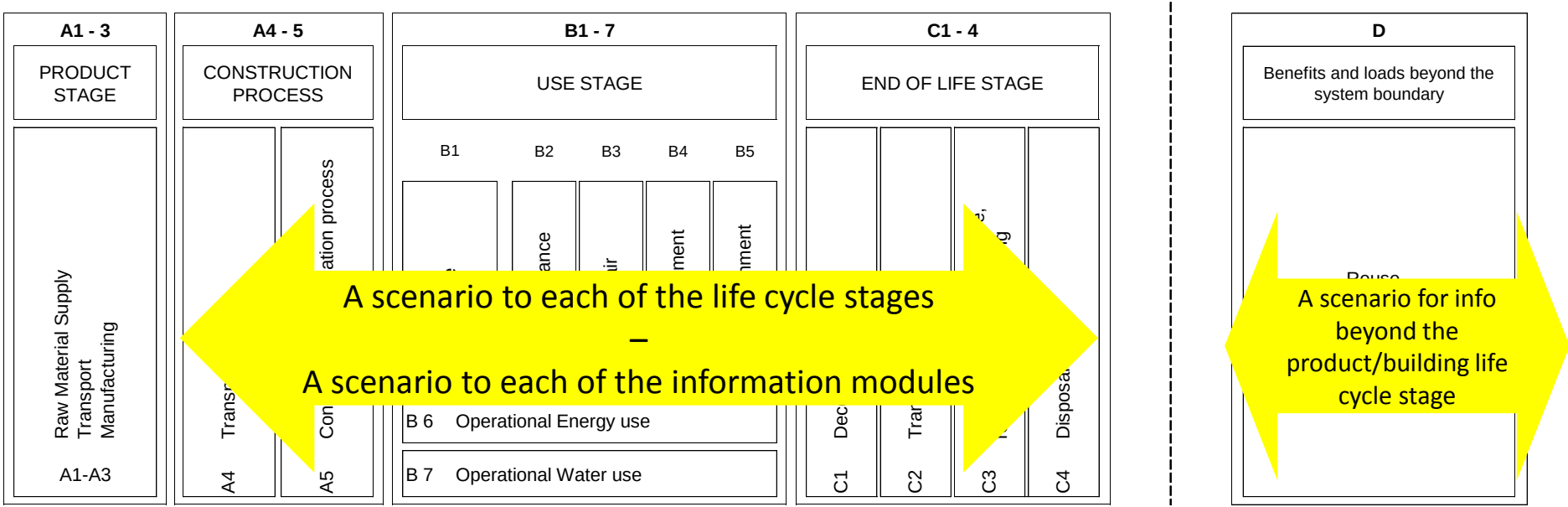
BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE



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A set of aspects and indicators

- Environmental aspects - quantified in env. indicators
- Social aspects – described and quantified in soc. Indicators
- Economic aspects – quantified in econ. Indicators

➢ **applied to all the information modules**

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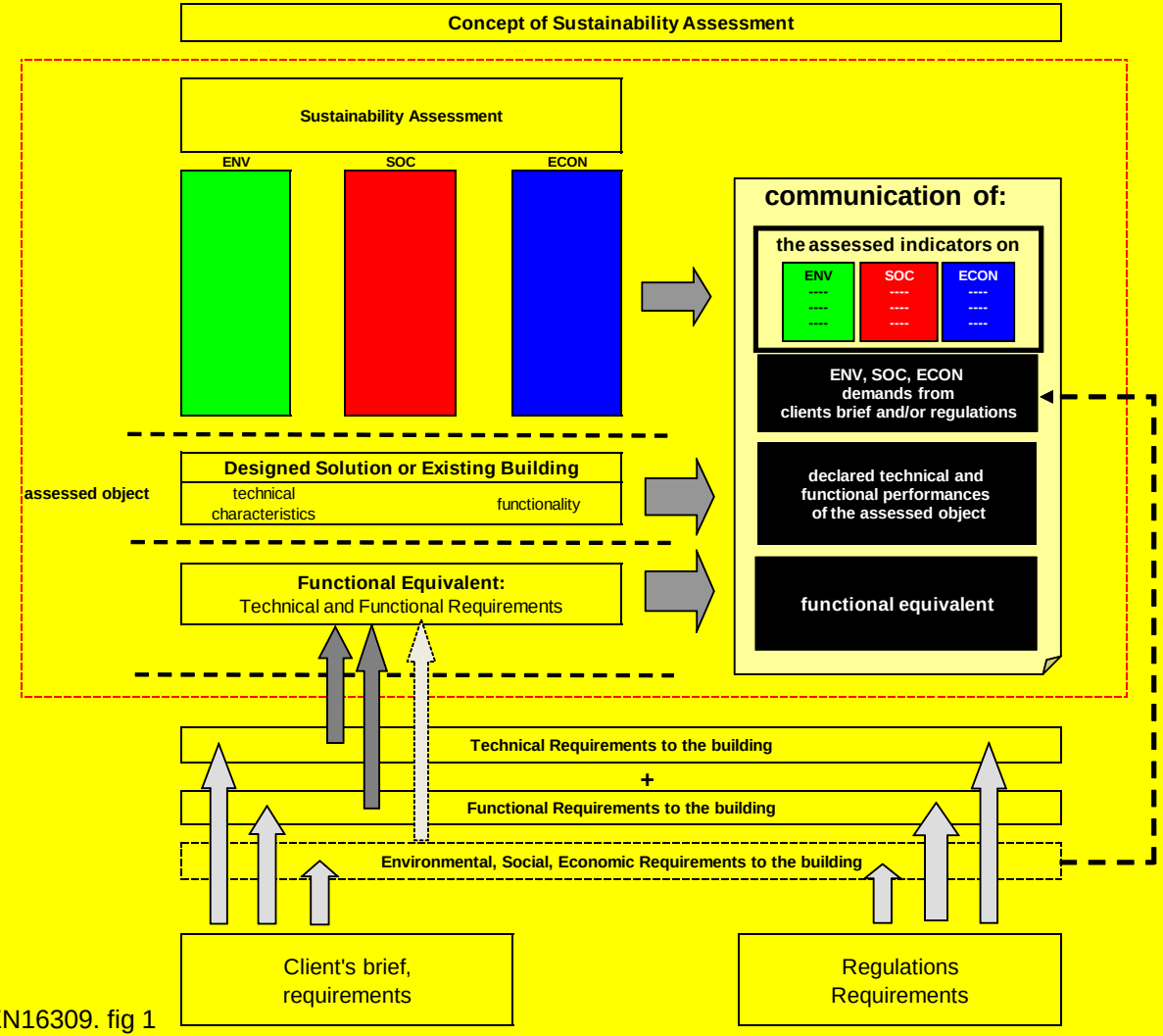
Concept of the sustainability assessment



prEN16309. fig 1

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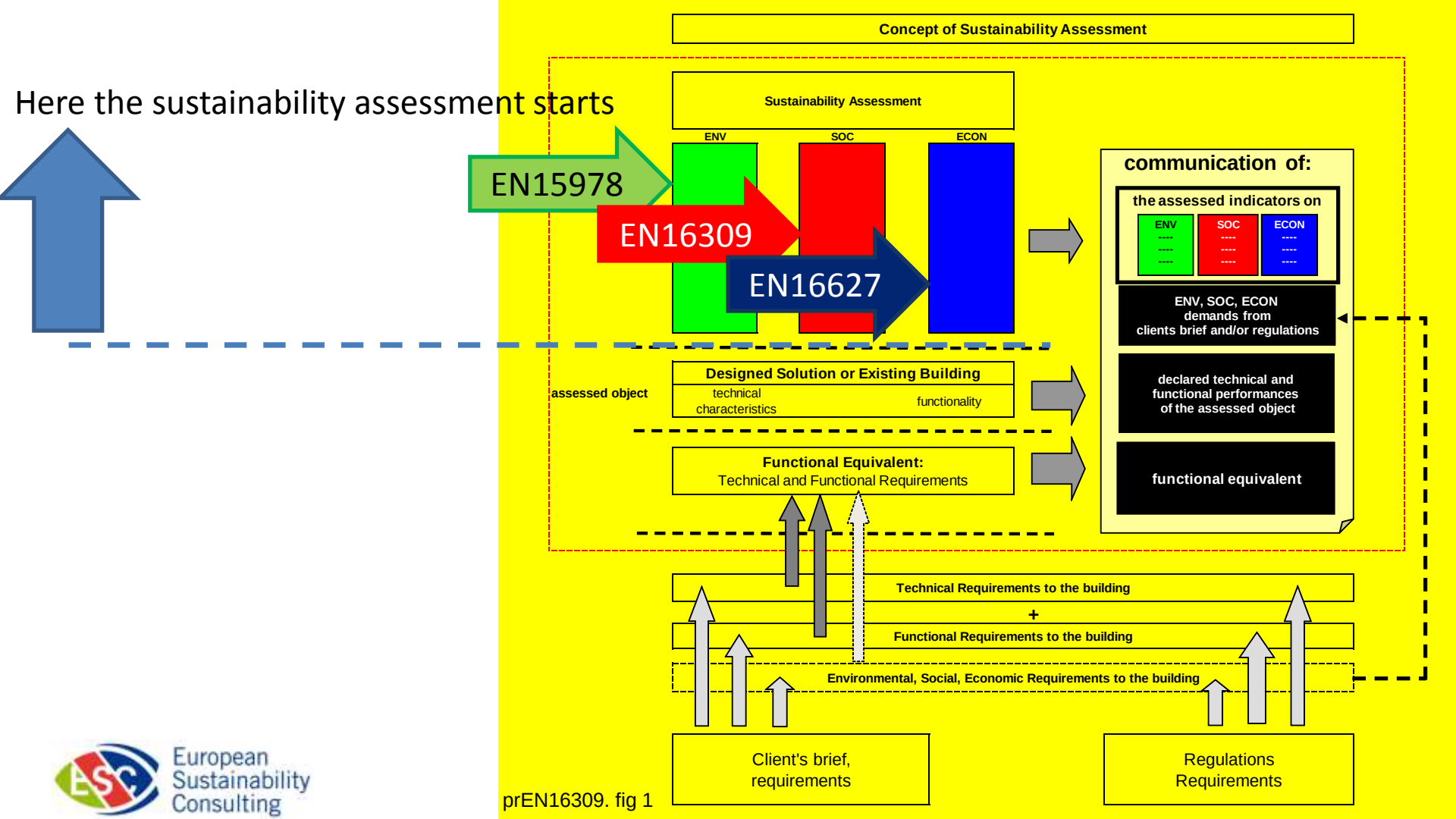
Here the sustainability assessment starts



prEN16309. fig 1

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BUILDING ASSESSMENT INFORMATION

BUILDING LIFE CYCLE INFORMATION

SUPPLEMENTARY INFORMATION BEYOND THE BUILDING LIFE CYCLE

A1 - 3

PRODUCT STAGE

Raw Material Supply
Transport
Manufacturing

A1-A3

A4 - 5

CONSTRUCTION PROCESS

A4 Transport

A5 Construction - Installation process

B1 - 7

USE STAGE

B1 Use

B2 Maintenance

B3 Repair

B4 Replacement

B5 Refurbishment

B 6 Operational Energy use

B 7 Operational Water use

C1 - 4

END OF LIFE STAGE

C1 Deconstruction

C2 Transport

C3 Waste processing for reuse, recovery or and recycling

C4 Disposal

D

Benefits and loads beyond the system boundary

Reuse -
Recovery -
Recycling -
potential

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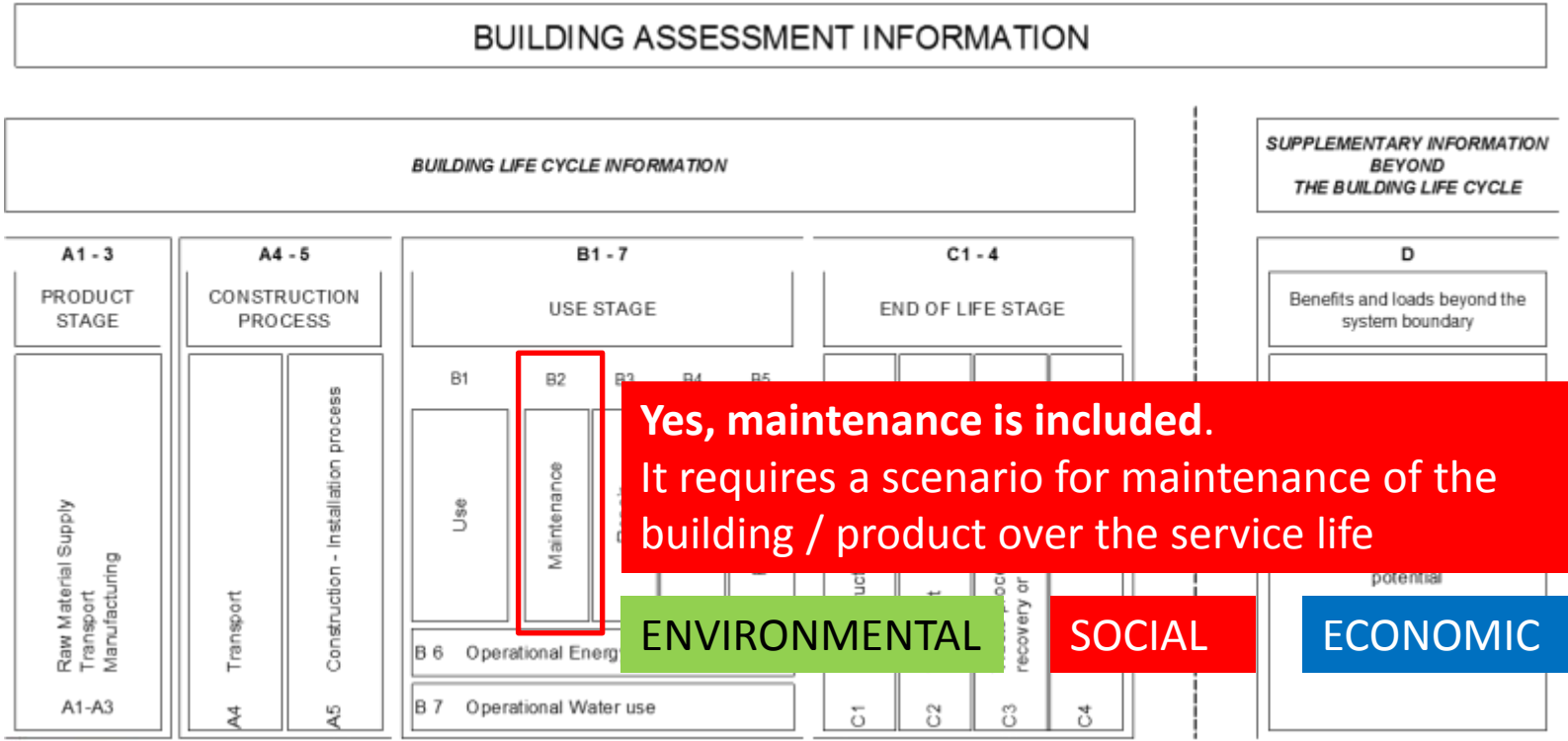
Question:
Do you consider the maintenance /general expenses of your house? What do you think you will achieve by this?



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Thank you !

Chris Hamans esc@hamans.com

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