



TRAINING CEN & CENELEC NEWLY APPOINTED TECHNICAL BODY OFFICERS

# Integrating research in standardization

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# Agenda

- ▶ **What are research projects?**
- ▶ **How can R+I projects contribute to standardization?**
  - A. Identification of needs and objectives
  - B. Contribution to modifications or new standards
    - B1. Technical Committees
      - Individually or as project:  
Modifications or new work items
    - B2. CEN-CENELEC Workshops
- ▶ **What can NSBs and NCs do?**
  - ▶ Reference documents
- ▶ **Examples by **UNE**** Normalización Española



# What are research projects?

- ▶ **Horizon Europe** is the EU Framework Programme (FP) for public R&I project funding.
- ▶ €95 billion allocated between 2020-2027 (FP9)
- ▶ **Research, Innovation and Coordination** projects
- ▶ From large-scale implementation to individual (PhD) projects
- ▶ Usually between 2 and 4 years of lifetime



Grant Management		Project Continuous Report															
101058589 (AI-PRISM)	HORIZON-IA	Project Summary	Researchers involved in the project	Deliverables	Milestones	Critical Risks	Publications	Results	Disseminat... activities	Standards	Patents (IPR)	Communic... Activities	Datasets	Beneficiaries Feedback	Impact	Impact Continuation	Other Results
Call: HORIZON-CL4-2021-TWIN-TRANSITION-01		✓	⚠	i	i	✓	i	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Topic: HORIZON-CL4-2021-TWIN-TRANSITION-0																	

# How can R+I projects contribute?

**i** CEN-CENELEC Guide 23 'Research Consortium Bridge- Addressing Research and Innovation in European Standardization activities and deliverables'

**A. Identification** of the relevant standardization landscape, applicable standards and standardization roadmaps

**B. Contribution to new or modified standards** from the results of the project

## Via CEN Technical Committee (CEN/TC)

### B.1 Contribution to ongoing work

B.1.1 Individually

B.1.2 Project liaison

B.2 Request for **modifying** a standard or to develop **new** standard(s)

## Via CEN Workshop (CEN/WS)

B.3 Development of **new** CWA (fast standard)

# How can R+I projects contribute?

**A. Identification** of the relevant standardization landscape, applicable standards and standardization roadmaps

The **follow up on standardisation activity** and elaboration of updates for the R+I project. This is often performed by the NSB or NC, in a "*Report on the standardization landscape*". Standardization roadmaps can be standard-specific or across fields.

## What is needed from partners?

- Joint alignment on project objectives
- Information on standards being used by partners and related to the R&I project
- Information on TCs or standardisation activities related to the R&I project tasks

## When is this needed?

- All along R+I project development



# Example: Specific standardization roadmap



- ▶ 2 years to develop a roadmap on...
  - ▶ How to establish **swappable battery systems** for lightweight category electric vehicles?
- ▶ Indicate needs for **Pre-Normative Research**
- ▶ Engage stakeholders, educate and raise awareness

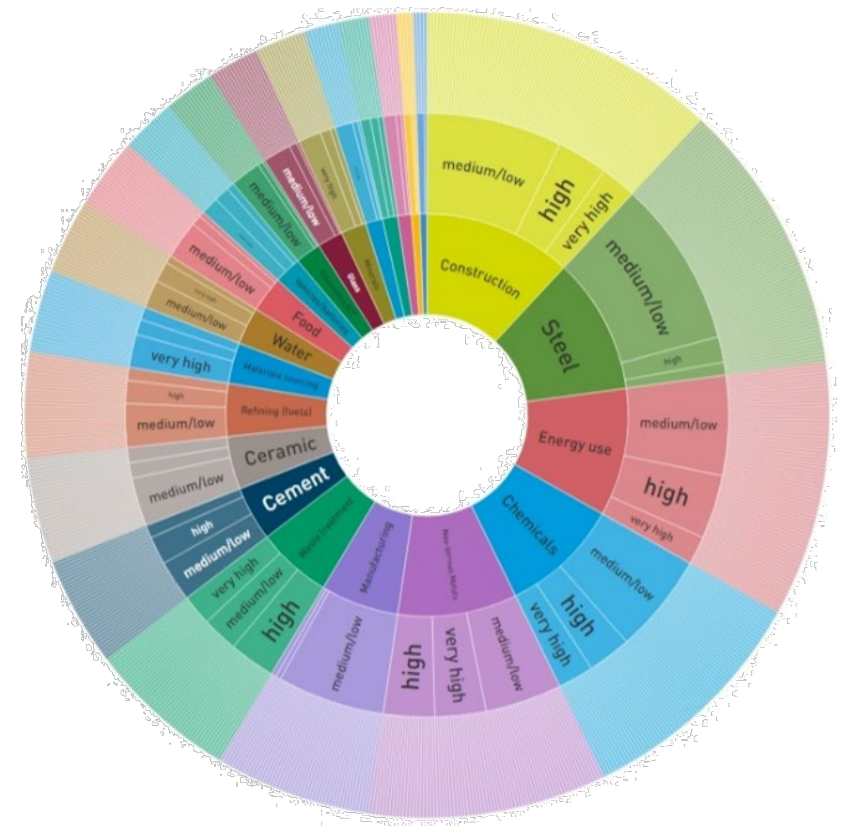


<https://stan4swap.standards.eu/>

# Example: Horizontal standardization roadmap

## RISERS

- ▶ 3 years to develop a roadmap on...
  - ▶ Where are adjustments needed to advance **industrial symbiosis**?
- ▶ Engage stakeholders in standardization
- ▶ Provide **guidelines for TCs**
- ▶ Develop a policy framework



<https://risers-project.eu/>

## B.1.1 Contribution to ongoing work on standardization **individually**

The follow up through the **joining and participation** of one or more **R+I project partners** in standardisation committees (TC) or working groups (WG).

- Standardisation is an open activity. All interested parties may participate in an international TC through National Mirror Committees.
- Advisable if a standard under development is identified as crucial for the R+I project and there is interest in a **close follow up** or in **contributing** to the content of the standard.

### What is needed from partners?

- Availability to study and comment draft standards by correspondence
- Availability to participate in TCs/WGs meetings

### When is this needed?

- When new documents are released by a TC/WG
- When a meeting is scheduled





## B.1.2 Contribution to ongoing work on standardization via Project Liaison

The establishment of a Project Liaison with a Technical Committee. Under this figure, the consortium of a **R+I project can participate as an entity** in the TC works, without voting rights. This implies an economic cost and is advisable when the TC is developing a related standard during the life of the project.

### What is needed from partners?

- Availability to study and comment draft standards by correspondence
- Availability to participate in TCs meetings

### When is this needed?

- When new documents are released by a TC
- When a meeting is scheduled



 CEN-CENELEC Guide 25 'The concept of Cooperation with European Organizations and other stakeholders'

## B.2 Request for **modifying** a standard or to develop **new** standard(s)

Elaboration of specific standardisation **proposals** based on identified **standardisation gaps** in standards used by partners or based in **standardisation needs** of partners. The outcomes can be used by TCs, e.g. the improvement of existing standards or development of new standards.

### What is needed from partners?

- Identification of gaps in existing standards, e.g., EN, TS, TR, being used in a R+I project
- Identification of needed standards for the future exploitation of an R+I project

### When is this needed?

- All along R+I project development



## B.3 Development of new CWA (fast *standard*)

**Development** of CEN-CENELEC Workshop Agreements (CWA) by consortium partners in a CEN Workshop, when for example some R+I project result is identified as standardisable. CWAs are the most appropriate and feasible deliverable to be developed during the project life.

### What is needed from partners?

- Availability to attend on site and virtual workshop meetings and follow formal drafting rules
- Availability to study and comment eventual draft standardisation deliverables

### When is this needed?

- When a CEN-CENELEC Workshop meeting is scheduled
- When requested by the Workshop Secretariat (NSB or NC)
- When a draft CWA is circulated for commenting or approval



**i** CEN-CENELEC Guide 29 'CEN and/or CENELEC Workshop Agreements – A rapid way to standardization'

# What can NSBs and NCs do?

- ▶ **Awareness** is core!
  - ▶ Always look for new topics or sectors of standardization activity - at national, European or international level.
  - ▶ Join research projects.
  - ▶ Provide training/education.
- ▶ **Recognition** of researchers:
  - ▶ Mention projects and research in deliverables.
  - ▶ R&I awards, certificates for working in TCs.
- ▶ **Dissemination** activities:
  - ▶ Create and maintain websites as well as on Social Media.
  - ▶ Organize events, attend events with presentations, booths, flyers, etc.
  - ▶ Join existing networks, establish collaborations.
  - ▶ Spread information to TCs.



# Reference documents



## ▶ **Code of Practice on standardization** ([here](#))

- ▶ Recommendations on the use of standardisation in R+I activities and projects

## ▶ **CEN-CENELEC Guides:**

- ▶ Guide 23 'Research Consortium Bridge- Addressing Research and Innovation in European Standardization activities and deliverables' ([here](#))
- ▶ Guide 25 'The concept of Partnership with European Organizations and other stakeholders' ([here](#))
- ▶ Guide 29 'CEN and/or CENELEC Workshop Agreements – A rapid way to standardization' ([here](#))

## ▶ **For R+I projects:**

- ▶ Why standardization: [Standards + Innovation](#)
- ▶ How to standardize: [HSBooster.eu](#)

# UNE

Normalización  
Española

CEN/CENELEC TBO training 2024

2024/12/12

# Integrating research in standardization

Aitor ARAGÓN BASABE

Responsible for sustainability in construction and BIM

Spanish Association for Standardization (UNE)



- **Spanish National Standardization Body** since 1986 (formerly known as AENOR)
- Represents Spain in the international standardisation organizations

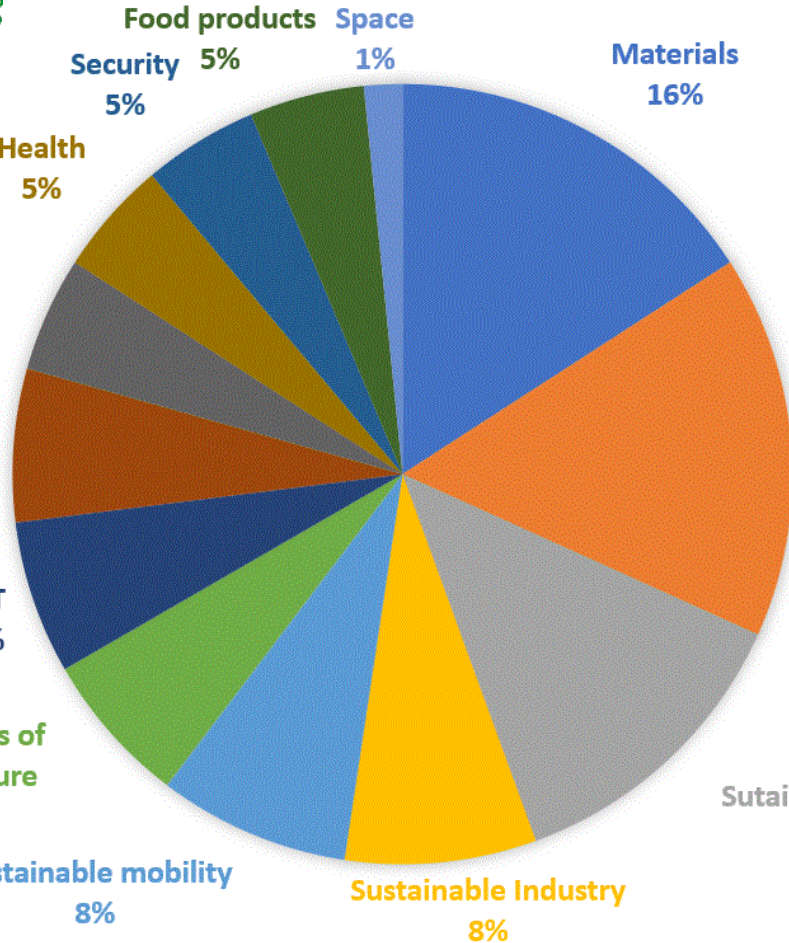


- Nonprofit private association, with around 500 national members: industrial associations, research bodies, public administrations, etc.



# UNE

## R+I projects with UNE involvement





- MSc Civil Engineer working at the **construction industry unit** of UNE
- Secretariat of the CEN-WGs dealing with digital twins, operational energy assessment for buildings, digitalization of construction products data or sustainability assessment of civil engineering works
- Participates in European Research projects dealing with standardization



UNE

An example:  
 $D^2EPC$

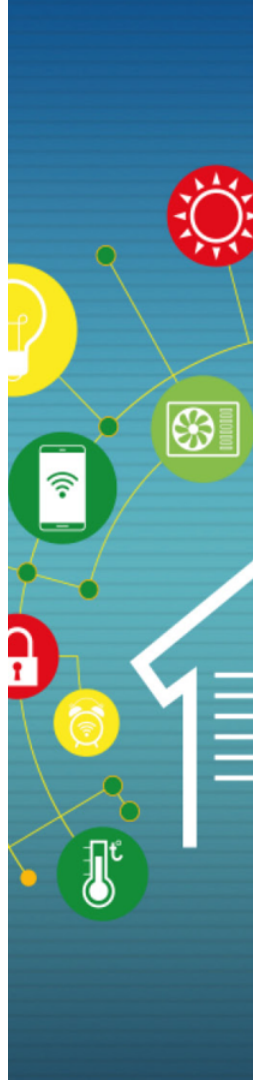


Reminder



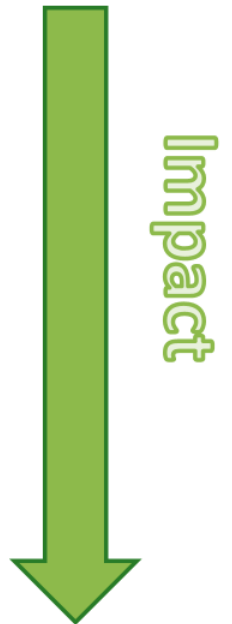
The main objective of T7.3 is to facilitate the acceptance and utilisation by the market of selected project results

Additionally, the standardization system will be used as a tool for dissemination of the project results and interaction with the market stakeholders



### Potential interactions

- Gather knowledge about the *state of the art*
- Send information about the findings and results to the standardisation community
- Proposals for clauses, annexes or other parts of standardisation documents (EN, TS or TR)
- Proposals for a standardisation documents: **EN**, **TS** or **TR** (in TCs) or **CWA**



# Describe the main committees and groups

## Sustainability aspects TCs

- CEN/TC 350 Sustainability of construction works
  - EN 15643:2021: *principles and requirements for the assessment of environmental, social and economic performance of buildings*
  - prEN 15978 series (revision of EN 15978:2011, EN 16627:2015 and EN 16309:2014+A1:2014): sustainability assessment methodologies for environmental, social and economic performance of buildings
- CEN/CLC/JTC 10 Energy-related products - Material Efficiency Aspects for Ecodesign
- ISO/TC 59/SC 17 Sustainability in buildings and civil engineering works
- ISO/TC 207/SC 5 Life cycle assessment



## CEN/TC 371... the “EPB Committee”

CEN/TC 371 ‘Energy performance of buildings’ is concerned with **standardization related to the energy performance of buildings (EPB)**.

The TC ensures the development, alignment and maintenance of a coherent set of standards for the determination of the EPB. It does so by:

- (I) developing standards at overarching EPB level and by
- (II) coordinating the activities of related and specialized TCs that are responsible for the development of EPB standards within their scope, thereby ensuring harmonisation.

CEN/TC 371 produced and maintains documents providing guidance and requirements to be met by EPB standards.

## Feedback from other committees

CEN/TC 371 coordinates activities with the the TC’s listed below, to prevent overlap:

- CEN/TC 089 ‘Thermal performance of buildings and building components’
- CEN/TC 156 ‘Ventilation for buildings’
- CEN/TC 169 ‘Light and lighting’
- CEN/TC 228 ‘Heating systems and water, based cooling systems in buildings’
- CEN/TC 247 ‘Building automation, control and building management’
- ISO/TC 205 ‘Building environment design’
- ISO/TC 163 ‘Thermal performance and energy use in the built environment’

## Describe the main committees and groups

### Digitalization TCs



- CEN/TC 442 Building Information Modelling (BIM)
  - prEN 17473: *methodology and process to create data templates products covered by the construction products regulation (CPR)*
- ISO/TC 59/SC 13 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM)
  - EN ISO 19650-3:2020: *information management within the context of the operational phase of assets and the exchanges (see ISO 19650-4) of information within it, using BIM*
  - EN ISO 23387:2020: *principles and structure for data templates for construction objects*
- ISO/IEC JTC 1/SC 41 Internet of Things and Digital Twin → WG 6 about digital twins
- ISO/TC 211 Geographic information/Geomatics

### Automation TCs

- CEN/TC 247 Building Automation, Controls and Building Management
  - EN 12098-1 series: *electronic control equipment for heating systems*
  - EN 12098-1 series: *open data communication protocols for control systems Building Automation, Controls and Building Management*
- ISO/TC 184/SC 4 Automation systems and integration. Industrial data
  - ISO 23247 series (2021): *digital twin framework for manufacturing*
- ISO/TC 184/SC 5 Automation systems and integration. Interoperability, integration, and architectures for enterprise systems and automation applications
  - ISO 23247 series: *Integration of advanced process control and optimization capabilities for manufacturing systems*

## We usually develop CEN Workshop Agreements... WHY?

### CEN Workshop Agreement

A CEN Workshop Agreement (CWA) is a document agreed by the **participants** of a Workshop, which is designed to meet an immediate **need** and form the basis for **future** standardisation activity

REASONS for developing a CWA:

- Develop a solution **not covered** by any Standardisation Technical Committee
- Peer review provided by experts from 34 standardization bodies / countries
- To give more **visibility** to D2EPC project within standardisation system and industry
- To have a reference which can be cited in public or private procurement

The *real* reason is that this is the only deliverable that can be published before the end of the project



## Project Plan for the CEN-CENELEC Workshop on

### Operational Rating Methodology

### CEN/CLC/WS code

### Workshop

#### 1. Status of the Project Plan

The first draft is based on the research developed within the D2EPC H2020 project, in particular the following:

- D2EPC: Next Generation Digital and Dynamic Energy Performance Certificates
- Operational rating for users' technical manual

▪ XXX

The goal is to identify the additional information required for actual building ratings, as well as the essential digital technologies that will not only enhance the energy performance certification process, but will also accelerate related processes while also providing more context to users, increasing comprehension and thus actual interaction.

In these reports, the following organizations have participated:

1. Frederick Research Center – FRC
2. Spanish Association for Standardization – UNE
3. The Centre for Research & Technology, Hellas – CERTH
4. Kaunas Technological University – KTU
5. Geosystems Hellas SA – GSH
6. Cleopa GmbH – CLEO
7. SEnerCon GmbH – SEC
8. Demo Consultants BV – DMO
9. SGS Tecnos SA – SGS
10. Hypertech SA – HYP
11. Austrian Standards International – ASI
12. Austrian Energy Agency - AEA

A draft will be submitted before the kick-off meeting.

De: Aitor Aragon Basabe

Enviado el: 22 de febrero de 2022 12:26

Para:

CC: Paris A. Fokaides

Asunto: CEN/TC 371 meeting - presentation about operational rating

Dear Mrs. van der Horn-de Vries and Mr. Hogeling,

Within [D2EPC project](#), we are discussing the need for operational rating standards concerning the building sector. It seems clear, in the proposal for a revised EPBD, that there is a need for schemes aiming to a more realistic assessment of the actual energy performance, examining the elements that affect both asset and operational rating in a holistic manner.

Considering this situation, we would like to launch a group to bring to the table the challenges and demands that arise by using the **operational** (dynamic) rating methodology and classification for future EPCs of the buildings. This kind of change will take years to be applied, but it is important to start assessing the possibilities.

A [CEN Workshop](#) is one of the possibilities, but we would like to check the approach with CEN/TC 371, as the main Committee for this topic. Thus, I wonder if we can make a **short presentation** (10 minutes aprox) about the approach during next CEN/TC 371 meeting, to gather the perspective of your members. It might be included, for example, as part of the "any other business item" in the agenda.

My colleague Paris, in the cc of this email, is in charge of this topic and can make the presentation, if that is ok for you.

Best regards,

**Aitor ARAGÓN BASABE**


## CEN/TC 371 proposed to develop a European standard instead of a CWA



KEEP  
CALM  
AND  
DON'T  
PANIC



**D^2EPC**  
Grant agreement ID: 892984



**DOI**  
10.3030/892984 [↗](#)


**Start date** 1 September 2020 **End date** 31 August 2023

**Funded under**  
SOCIETAL CHALLENGES - Secure, clean and efficient energy

**Total cost**  
€ 2 993 687,50

**EU contribution**  
€ 2 499 287,50

**Coordinated by**  
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS

 Greece



**CHRONICLE**  
Grant agreement ID: 101069722

**DOI**  
10.3030/101069722 [↗](#)


**Start date** 1 July 2022 **End date** 31 December 2025


**Funded under**  
Climate, Energy and Mobility

**Total cost**  
€ 5 995 525

**EU contribution**  
€ 4 950 775

**Coordinated by**  
FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS

 Spain






... we tried a standard

We created a new WG for operational energy performance assessment for buildings

Project for a **EN standard** approved in March 2023: Requirements for assessing the operational performance

The project will have to be activated again due to delays in the drafting



New Work Item Proposal	
* to be attached to the CIB	
CEN/TC 371 – Energy Performance of Buildings	
Secretariat: NEN	Proposal documented in N 785
Date of circulation:	Closing date for voting:
Decision reference:	Decision date:

**Proposal**

0. This proposal relates to

- the adoption of a New Work Item in the committee's work programme (stage 10.99)
- the adoption of a Preliminary Work Item in the committee's work programme (stage 00.60)
- the activation of a Preliminary Work Item in the committee's work programme (stage 10.99): PWI XXXXX

1. Deliverable

- European Standard (EN)
- Technical Specification (TS)
- Technical Report (TR)

2. This item corresponds to

- A new project
- An amendment to the EN XXX
- The revision of EN XXX
- The conversion of TS XXX into an EN XXX
- The revision of TS XXX
- The revision of TR XXX

2.1 - Only for WIs of CENTCs (not applicable to CEN-CLC/JTCs WIs): if this item corresponds to an amendment/revision of an EN indicate if:

- the scope will change (weighted vote required - select the right option in the CIB)
- the scope will not change (simple majority vote required - select the right option in the CIB)

3. Explain the purpose and give a justification for this proposal (max 4000 characters). This text should provide information on technical topics to be discussed.

Unlike Asset Rating, the Operational Rating is defined based in the 52000-standard series as the energy rating based on measured amounts of delivered and exported energy.

Definition 3.3.16 measured energy performance (EN ISO 52000-1):

Energy performance based on weighted measured amounts of delivered and exported energy

Note 1 to entry: The measured energy performance is the weighted sum of all energy carriers used by the building, as measured by meters or derived from measured energy by other means. It is a measure of the in-use performance of the building after correction or extrapolation. This is particularly relevant to certification of actual energy performance.

Note 2 to entry: Also known as "operational energy performance".

In the case of Operational Rating, the energy class of a building is not obtained through calculations, but with the measurement of the

D<sup>2</sup>EPC participated in CEN/TC 442/WG 9 digital twins in the built environment

We sent two use cases for a CEN/TC (published):

- nZEB Smarthome DIH (CERTH/ITI)
- Mixed-use University building (Frederick University's)

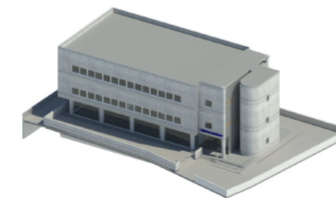


Figure 1: New Wing BIM model

CEN/TC 442/WG 9

### 1. Use case: Mixed-use University building, Nicosia, Cyprus

#### 1.1 General information

Typology: Mixed-use University building  
 Location: (Longitude and Latitude 33°22'46.70 "E, 35°10'46.20 "N, [Link](#)), in the area of Palouriotissa, Nicosia (Y. Frederickou Str.).  
 Asset owner: SCHOLAI FREDERICKOU  
 Building Digital Twin (BDT) manager: Dr. Paris A. Fokaides

#### 1.2 Main use of the DT

The digital twin allows us to conduct more effective research with the aim of achieving maintaining peak efficiency. It also helps us to mirror and monitor the installed equipment in real time, and analyze performance data to understand how individual components (i.e. lighting, HVAC systems) or the entire building are functioning.

#### 1.3 Description of the DT

Frederick University's digital twin is a two-story 2100m<sup>2</sup> building, its volume is approximately 7.100m<sup>3</sup> (including the basement floor/parking area), and it was built in 2007. The underground building does not border with any other building. The building consists of a basement (area 450m<sup>2</sup>), ground floor (area of 545m<sup>2</sup>), and two floors (area of 545m<sup>2</sup> each floor).

Smart meters installed throughout the building allow for real-time measurement of electricity, as well as of internal conditions, such as temperature, humidity, and carbon dioxide. A platform is available for monitoring, downloading, and analyzing data.

CEN/TC 442/WG 9

### 1 Use case: D<sup>2</sup>EPC- BIM based DT- nZEB Smarthome DIH

#### 1.1 General information

Typology: Mixed-use Building (Residential and Office)  
 Location: Thessaloniki, Greece  
 Asset owner: CERTH/ITI  
 Building Digital Twin (BDT) manager: CERTH/ITI

#### 1.2 Main use of the DT

The BIM-based Digital Building Twin Model has been developed as part of the D<sup>2</sup>EPC project with the aim of providing a platform for the dynamic assessment of a building's energy performance. The model is designed to incorporate information on the building's design, materials, and systems, and to provide a near-real time representation of the building's energy performance.

#### 1.3 Description of the DT

The model integrates information from the building's BIM file and other documentation sources with dynamic data received from IoT devices, sensors, and meters deployed throughout the building. This results in a highly detailed building model that serves as a common documentation approach for assessing the building's energy performance, operational conditions and indoor environmental quality.



Figure 1: D<sup>2</sup>EPC BIM-based Digital Twin platform



And present the results in workshops or events

D^2EPC presented the results to the InData network (digitalization of EPDs)





# D^2EPC got a lot of recognition in 2023

## D^2EPC WON THE STANDARDS + INNOVATION AWARDS IN THE CATEGORY "PROJECT AWARD"

Oct 30, 2023

We are proud and excited to share with you an amazing achievement of the D^2EPC project!

D^2EPC won the 2023 edition of the *CEN and CENELEC Standards + Innovation Awards* in the category "Project award" during the event "EU knowledge valorisation stakeholder event: Making research results work for society", hosted by the European Commission on the 26th October 2023. This year, 15 nominations were presented in the Project category, 9 in the Individual Researcher category, and 9 in the new Young Researcher category.

D^2EPC created a permanent standardisation working group dealing with operational energy performance assessment, CEN/TC 371/WG 5, and was nominated by the standardisation body of Cyprus, CYS.

The award was collected by Dr.-Ing. Paris A. Fokaides, convener of the WG, which has as Secretariat the Spanish standardisation body UNE, in the person of Aitor Aragón. The WG is currently developing a standard for operational rating of the energy performance of buildings and this activity will continue via two other research projects: Chronicle and SmartLivingEPC.



**CEN and CENELEC**  
 22,119 followers  
 11mo • Edited •

Last week, during the Technical Body Officers Awards ceremony, CEN & CENELEC paid tribute to a selection of CEN & CENELEC Technical Body Chairs & Secretaries, thanking them for their outstanding contributions to standardization. Congratulations [giovanni cassinelli](#), [Cliff Cork](#), [Christine Roques](#), [Alain Rousseau](#), [Jenny Acaralp](#), [Bernadette Clamagirand-Ruetsch](#), [Annette Frederiksen](#) and [Manuel Reimer!](#)

In memory of their exceptional contributions to European standardization, we also honoured Mr Norbert SCHAAF, Chair of CLC/TC 79 'Alarm systems' and Mr Alberto SIANI, Chair of CLC/TC121A 'Low-voltage switchgear and controlgear'.

In addition, we announced the winner of the fourth edition of the Standards + Innovation award for Technical Body Officers. This is a special biennial award presented to a CEN and CENELEC technical body officer (Secretary, Chair, or Convener) who actively and successfully collaborated with researchers/innovators within their technical body. This year the award went to [Aitor Aragón](#) (UNE - Asociación Española de Normalización) [#standardsplusinnovation](#)

Read more: <https://lnkd.in/eb7tmgGh>



90

11 comments • 8 reposts

UNE

More examples

### Project Information

#### LCA4ROADS

Grant agreement ID: 605748

[Project website](#)

Project closed

#### Start date

1 October 2013

#### End date

31 December 2016

#### Funded under

Specific Programme "Cooperation": Transport  
(including Aeronautics)

#### Total cost

€ 3 670 168,87

#### EU contribution

€ 2 615 174,00



#### Coordinated by

ACCIONA CONSTRUCCION SA

 Spain

## CWA 17089:2016 Indicators for the sustainability performance of road





## Project Information

### FORESEE

Grant agreement ID: 769373

[Project website](#)

### DOI

[10.3030/769373](https://doi.org/10.3030/769373)

Project closed

### EC signature date

24 April 2018

### Start date

1 September 2018

### End date

28 February 2022

### Funded under

SOCIETAL CHALLENGES - Smart, Green And Integrated Transport

### Total cost

€ 4 995 147,50

### EU contribution

€ 4 995 147,50



### Coordinated by

FUNDACION TECNALIA RESEARCH & INNOVATION

Spain





# Use social media


**ERF EU**  
@ERFbrussels

Transport infrastructures fully blocked after the biggest snowfall in decades #Madrid

How is our sector reacting? ERF & @NormasUNE taking the initiative to improve service+resilience under critical weather scenarios #standardization

Join us this Thursday [bit.ly/2K7msUJ](https://bit.ly/2K7msUJ)

[Traducir Tweet](#)



**Introduction**

Infrastructure of society depends on the transportation of goods and persons. The infrastructure is required to enable transportation to be able to ensure that this can happen in specified ways, i.e. built under specified levels of service.

Reductions in service due to extreme events, e.g. floods, earthquakes, landslides, etc. are likely to increase the frequency of occurrence and severity may change due to climate change. One can predict societal consequences, managers of transportation infrastructure manage the infrastructure to minimize this risk, i.e. the probability of having consequences if a natural event occurs.

Transportation infrastructure managers need to have a clear idea of the service the infrastructure provides and an understanding of its resilience, if affected by extreme events.

Managers need to be able to measure the service provided by, and the resilience of, their transport infrastructure to natural hazards, to optimally reduce risk. This measurement is to be made at the relevant scales, e.g. a bridge, a 100 km road section, an entire transport network, taking into consideration many different hazards, e.g. floods, landslides, earthquakes, and snowstorms, and nations with a wide range of available data, a wide range of available time frames for the estimates, and a wide range of response available.

to be used to determine the service provided by, and the resilience of, transport infrastructure and resilience targets of transport infrastructure.

Studies

Methods of how service and resilience can be measured; how service and resilience targets can be set; how to determine how to measure service and resilience; and how to set service and resilience targets.

@aecarretera y 9 más

10:56 a. m. · 12 ene. 2021 · Twitter Web App

7 Retweets 2 Tweets citados 13 Me gusta

**UNE** UNE Asociación Española de Normalización  
@NormasUNE

Hemos iniciado la actividad del grupo europeo de normalización de @Standards4EU para desarrollar indicadores y objetivos que permitan evaluar la resiliencia a eventos naturales extremos @ERFbrussels

#EstándaresUNE

Más información 🙋🙋🙋🙋  
[cen.eu/News/Workshops...](https://cen.eu/News/Workshops...)



**CWA resilience of transport infrastructures**

2:42 p. m. · 14 ene. 2021 · Twitter Web App

4 Retweets 1 Citar Tweet 8 Me gusta

**Aitor Aragón**  
@ayt0r

En una hora, iniciamos la segunda reunión del grupo de @Standards4EU sobre resiliencia de las infraestructuras de transporte frente a eventos extremos.

Por algún motivo, he recordado este video que grabé hace mes y medio en @MadridCalle30 🌨️❄️



0:00 / 0:13

8:32 a. m. · 25 feb. 2021



## Use social media


**CEN and CENELEC**  
11,843 followers  
2mo • Edited • 🌐

Floods, earthquakes, snowstorms, cyberattacks or other disruptive events can have significant impact on **#transport** infrastructure and, more generally, on our society.

To minimise risks and the potential consequences of disruptive events, the new CWA 17819:2021 provides guidelines on how to assess the **#resilience** of transport infrastructure.

Read more 📖  
<https://lnkd.in/deYAv4VG>


**#ENinthspotlight**




🔗 with **Thierry LEGRAND** and 4 others

👤 You and 41 others  
1 comment

Reactions



 **Aitor Aragón** • You  
Standards applied to the digital and green transitions of the construction in...  
3yr • 🌐

**CEN and CENELEC** has published a CWA to improve the assessment of the resilience of transport infrastructures, with **UNE - Asociación Española de Normalización** as Secretariat. ...more

**CWA 17819**

**WORKSHOP**

November 2021

**AGREEMENT**

---

ICS 03.220.01; 13.200

English version

**Guidelines for the assessment of resilience of transport infrastructure to potentially disruptive events**

**CEN published a guideline to assess the resilience of transport infrastructures**  
Aitor Aragón on LinkedIn • 1 min read

This november, the European Committee for Standardization has published the document CWA ...

👍🌱 22  
1 comment • 2 reposts



# CCMC can help with the dissemination



EUROPEAN STANDARDIZATION GET INVOLVED AREAS OF WORK NEWS AND EVENTS

← ALL NEWS

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POSTED: 2021-11-22

## A new Workshop Agreement contributes to enhancing the resilience of transport infrastructure

Transport and Packaging

EN in the spotlight

CEN

The functioning of society depends on the transportation of goods and persons. The infrastructure required to enable transportation is built to ensure that this can happen safely and smoothly, providing specified high levels of service.

As Europe has already experienced on many occasions, reductions in service due to potentially disruptive events, such as floods, earthquakes, heavy snow falls, fog, high winds, or cyberattacks can have significant societal consequences.

In this context, transport infrastructure managers must minimise the impact and potential consequences of these disruptive events. To do so, objective information on the service provided by their transport infrastructure and its resilience to external adverse events is necessary.

In order to help them acquire this information, in November CEN and CENELEC published new **CWA 17819:2021 'Guidelines for the assessment of resilience of transport infrastructure to potentially disruptive events'**. This document provides managers with guidance to proceed a complete and systematic definition of service and measure resilience, in all situations with which the manager is confronted, and to help identify the suitable interventions to enhance such resilience.

This work was initiated through the FORESEE Project, 'Future proofing strategies FOR RESilient transport networks against Extreme Events', which is an EU collaborative research project funded by Horizon 2020. For further details on FORESEE, please visit the website <https://foreseeproject.eu/>.

CWA 17819:2021 is freely available for download [here](#). It was developed by **CEN/CLC/WS 018 'Assessment of the resilience of transport infrastructure to potentially disruptive events'**, whose Secretariat is held by UNE, Spain's National Standardization Institute.



### Contact:

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TAGS: Transport | CWA | Transport infrastructure

TECNALIA Research & Innovation  
37,287 followers  
2mo • Edited •

Thanks to the amazing work of **Bryan Adey's** and Claudio Martani's team from the **ETH Zürich** coordinating and leading the work, and **Aitor Aragón Basabe** ( **UNE Asociación Española de Normalización** and José Díez ( **ERF - European Union Road Federation** coordinating the standardization activities, we have great news coming from the H2020 FORESEE project (No 769373) led by TECNALIA:

The CWA developing "guidelines for resilience assessment of transport infrastructures" based on the FORESEE project has just been published:

You can download your copy by clicking the following link:  
<https://lnkd.in/euYgF82e>

More information and public results from H2020 FORESEE project in our website

<https://foreseeproject.eu/>

#FORESEE #Resilience #Infrastructures #ClimateChange #ExtremeEvents

ERF - European Union Road Federation  
ETH Zürich  
UNE Asociación Española de Normalización

European research  
for a stronger  
and more resilient  
multimodal transport  
infrastructure.



You and 15 others

1 comment



**Title:** Building Performance  
Digitalisation and Dynamic Logbooks for  
Future Value-Driven Services

**Programme:** Horizon Europe Framework  
Programme (HORIZON)

**Call:** Twin green and digital transition  
2021 (HORIZON-CL5-2021-D4-0)

**Topic:** HORIZON-CL5-2021-D4-0

**Type of action:** HORIZON Innovation  
Actions

**Granting authority:** European Climate,  
Infrastructure and Environment  
Executive Agency (CINEA)

## 1. PROJECT INFO

Grant Agreement No 101069722

Duration: 1<sup>st</sup> July 2022 – 31<sup>st</sup> January 2026 (42 M)

Total budget: ca. 6 mill. € (ca. 75% EC funded)

Project Coordinator: CIRCE

18 partners



This project is supported by the European Commission – project ID: 101069722



## Chronicle is about cooperation

Chronicle continues, in partnership with SmartLivingEPC, with the standardization activities of D<sup>2</sup>EPC (CEN/TC 371/WG 5)

- Chronicle: Secretariat
- SLE: Convenor



A **CWA** for the quantification of the carbon Bill of the refurbishment of a building should be sent to CCMC in the following weeks

Participation in CEN/TC 442/WG 9 for digital twins

Research articles in JCR journals:

- One article related with the definition of digital twins in the built environment sent for publication in november (first author: UNE)
- Other article dealing with the identified limitations of IFC () to manage LCE information is under development and should be sent for publication around March ((irst author: UNE)

**THANKS**  
**for your attention**

**UNE**

Normalización  
Española

**Aitor Aragón Basabe**



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[/aitor](#)