



**MARCH 2021**

Dear reader,

D<sup>2</sup>EPC aims to set the grounds for the next generation of dynamic Energy Performance Certificates (EPCs) for buildings. The proposed framework sets its foundations on the smart-readiness level of the buildings and the corresponding data collection infrastructure and management systems. It is fed by operational data and adopts the 'digital twin' concept to advance Building Information Modelling, calculate a novel set of energy, environmental, financial and human comfort/ wellbeing indicators, and through them the EPC classification of the building in question.

**6**

**Innovative Industrial Partners**

**4**

**World-class Research Centres**

**2**

**Standardization Bodies**

**DELIVERABLES**

**D1.1 Comparative assessment of current EPC schemes and relevant emerging building performance paradigms v1**

Lead beneficiary - Frederick Research Center - FRC

Notwithstanding the positive contribution that current EPCs have had on improving the energy performance of buildings, experience has unveiled several constraints and limitations. For the purposes of this deliverable, the methodologies currently used for the issuance of EPCs on a European level, taking into account existing solutions and operational challenges, were identified, the technological and market requirements and needs, in respect to the targeted project vision which should be addressed or connected to the D<sup>2</sup>EPC framework were explored, as well as the challenges of current EPC schemes were investigated.

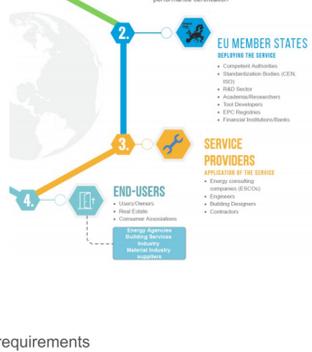
**Key factors**

- Among the 27 EU Member States, 14 have adopted the methodology exclusively based on calculated energy consumption.
- Penalties are rare and are mainly addressed to energy auditors.
- The majority of EU countries do not employ by any means BIM documentation and literacy or digital logbooks for the issuance of EPCs.
- In most EU Member States, information related to GIS is not included in the EPCs.
- There is no provision, national requirement, or legal obligation of a BMS existence in connection with the operational EPCs.
- Environmental/LCA related financial indicators are not taken into consideration for the EPC issuance in any EU Member State.
- There is no existence of a database describing the energy efficiency features of the building stock as a whole.
- 1/3 of the EU countries do not have provision for systematic and regular evaluation/assessment of the energy assessor's competence and skills.
- In the majority of the EU countries, periodic training and verification are not required.

**D1.2 Elicitation of user and stakeholder requirements & market needs**

Lead beneficiary - Cleopa GmbH

The objectives of T1.2 were to identify the needs and requirements of the major players and the market concerning the emerging next generation performance paradigms. A user and a technical questionnaire were disseminated for this purpose. In parallel, a desk research was conducted including collection of reports from various reliable sources to summarize existing knowledge on current EPC schemes, based on legislation and regulation in the EU countries as well as emerging future requirements of the market. The end results included the development of recommendations and guidelines for the development of next generation Energy Performance Certificates based on the findings



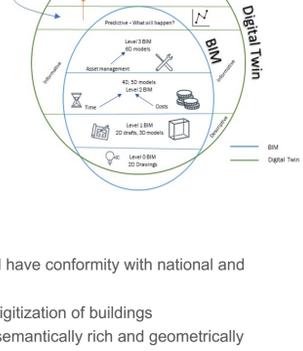
**Key factors**

- Definition of End-Users/ technical stakeholder needs and requirements
- Recommendations and guidelines targeting the:
  - Establishment of an operational dynamic EPC issued on a regular basis
  - Establishment of EU standards on the classification requirements of buildings
  - Establishment of novel set of indicators
  - Issuance of EPCs based on real-time data and advanced BEPS tools integrated into BIM
  - Integration of smart readiness indicators
  - Intelligent operational digital platform for dynamic EPCs issuance and real-time building performance monitoring and improvement

**D1.3 Aspects of Next generation EPC's definition**

Lead beneficiary - Kaunas University of Technology

The purpose of the deliverable was to define aspects of next generation EPC's. Novel indicators for the new certification process were introduced, which should be human-centered, include LCA, financial and smart indicators and should be connected to digital resources (GIS, BIM, DT). By implementing new performance indicators and real, regularly updated measured data, it could improve buildings' energy performance and ensure sustainable energy savings on a daily basis, thus resulting in lower energy costs for all citizens.



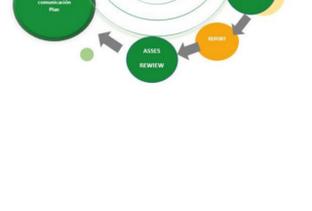
**Key factors**

- New certification system should be user-friendly and should have conformity with national and European legislation.
- Calculation of the SRI based on data extracted during the digitization of buildings
- BIM is considering as a significant part of Digital Twin with semantically rich and geometrically accurate data.
- The dynamic EPCs will allow for the monitoring of the actual performance of building users on a regular basis and the introduction of intelligent financial schemes associated with output-based assessment.

**D7.1 Dissemination and Communication Plan v1**

Lead beneficiary - SGS TECNOS S.A.

The Project Dissemination and Communication Plan provides guidance on the strategies and workflows to be followed by partners in developing communication-related activities to reach out to our stakeholders and show them the benefits of the D<sup>2</sup>EPC. The overall objective of this strategy is to maximize the impact of project activities and results among relevant stakeholders by leveraging the consortium's multiplier networks and sustained interaction with key stakeholders.



The dissemination and communication plan provide the D<sup>2</sup>EPC project with a solid framework, a roadmap and a set of practical tools that will help disseminate the project results and activities.

**Key factors**

D<sup>2</sup>EPC dissemination objectives have been set around six-pillars:

1. Demonstrate the improvement of the user-friendliness of EPCs
2. Achieve greater user awareness of the energy efficiency of buildings
3. Demonstrate the primary energy savings triggered by the project
4. Promote Sustainable Energy Investments driven by the project
5. Reduction of greenhouse gas emissions and/or atmospheric pollutants caused by the project
6. To disseminate the respective project outcomes to the widest possible community of potential beneficiaries.

**D7.2 Established internal and external communication channels and materials v1**

Lead beneficiary - DEMO consultants

The purpose of the deliverable was to report on activities in the first four months of the project. In this time internal and external communication channels and protocols were established, dissemination material for partners' use was developed and a corporate logo and design for project's identity was provided. 11 templates were developed to be used for project's reporting and presentations. This newsletter and social media accounts where you can learn more about the project were established in order to increase project's visibility and convey its findings and outputs to the relevant stakeholders.

**532** visitors of website

**Key factors**

- Project public website: <https://www.d2epc.eu/en>
- LinkedIn profile: <https://www.linkedin.com/company/d2epc/>
- Twitter account: <https://twitter.com/D2Epc>
- Youtube channel: <https://www.youtube.com/channel/UCCml-GOfxCKMl6nx4X5baVQ>

**PARTNERS**



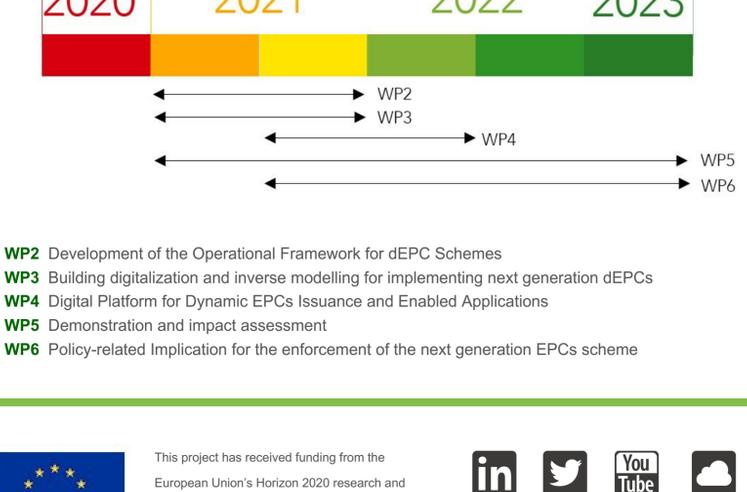
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**D<sup>2</sup>EPC IMPACT**

- Recalculation of the operational EPC
- Enrich BIM and building digital twins
- LCA, LCC indicators, real-time performance data
- Building smart readiness & human comfort
- GIS environment visualization
- Novel financial schemes - "pollutor pays" concept
- Added value services suite for improved energy performance
- Extended dynamic EPCs application

**6** buildings with diversity of classes to be studied

**FUTURE ACTIVITIES**



- WP2** Development of the Operational Framework for dEPC Schemes
- WP3** Building digitalization and inverse modelling for implementing next generation dEPCs
- WP4** Digital Platform for Dynamic EPCs Issuance and Enabled Applications
- WP5** Demonstration and impact assessment
- WP6** Policy-related Implication of the next generation EPCs scheme

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