

# Exploitation Report and IPR Protection Plan v2



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## DELIVERABLE D7.13

### Exploitation Report and IPR Protection Plan v2

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## Executive Summary

This forward-thinking project aims to produce a user-friendly, cost-effective, and efficient multifunctional tool that serves not only the business sector, but also public bodies and policymakers. A well-defined distribution plan becomes a critical component of the project's overall strategy to maximize the impact of D<sup>2</sup>EPC and assure widespread acceptance of its results.

This document presents the deliverable *D7.13 Exploitation Report and IPR Protection Plan v2*, issued on month M36 of the project, and prepared under the works of the task "*T7.4 Exploitation activities, IPR management and post-project sustainability*". The scope of this deliverable is to identify sound business models, replicable to various markets and develop new resource activation techniques for the D<sup>2</sup>EPC results. This will support a gradual transition to a leading market position for the D<sup>2</sup>EPC outputs in general and individual components of the overall solution. The first version of Deliverable D7.5 Exploitation Report and IPR Protection Plan v1, was a comprehensive description of the relevant activities and actions that were accomplished and were scheduled up to that date, to ensure the Exploitation and Business Plan-Development of the D<sup>2</sup>EPC results beyond the end of the project focusing on the preliminary strategies to be followed and the identification of key assets for exploitation. This final version acts as a complete and definitive plan for exploiting the project's results. It contains a thorough market study, a business analysis with a distribution plan, cost structures, a sales strategy, and a sales projection. Key performance indicators (KPIs) for marketing and sales are defined to track progress. This document serves as a road map for long-term sustainability and growth, directing tactics and decision-making.

The strategic target of all exploitation activities is to guarantee the widespread adoption and sustainability of the D<sup>2</sup>EPC results and the maximization of their impact. Given the high potential that the D<sup>2</sup>EPC results hold for bringing the EU into the forefront of the EPC solutions and D<sup>2</sup>EPC paradigm, this constitutes a major priority and challenge for our consortium.



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## List of Acronyms and Abbreviations

Term	Description
BIM	Building Information Modelling
CAC	Customer Acquisition Cost
CRM	Customer Relationship Management
dEPC	Dynamic Energy Performance Certificate(s)
D <sup>2</sup> EPC	Next-generation Dynamic Digital EPCs for Enhanced Quality and User Awareness
EPC	Energy Performance Certificate
EU	European Union
GIS	Geographic Information Systems
HRB	Horizon Results Booster
HRP	Horizon Results Platform
IoT	Internet of Things
IPR	Intellectual Property Right(s)
KER	Key Exploitable Result
KPI	Key Performance Indicator
MSs	Member States
PEST	Political, Economic, Social and Technological
PPC	Pay Per Click
SaaS	Software-as-a-Service
SEO	Search Engine Optimisation
SME	Small Medium Enterprise
SWOT	Strengths, Weaknesses, Opportunities, Threats
WP	Work Package



## List of Terms and Definitions

Term	Definition
<b>Exploitation Strategy</b>	The utilization of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardization activities. (European Commission 2013, 2016b)
<b>Stakeholder</b>	A stakeholder is an individual, group of persons or organisation that can affect or is affected by the decisions of another organisation. This definition also includes interest groups related to the organisation. A stakeholder's relationship with the focal organisation is generally determined by three main attributes: the power to influence the organisation; a legitimate relationship with the organisation; and an urgent claim on the organisation. (EuroFound, 6 August 2019)
<b>Business Plan</b>	A business plan is a formal written document containing the goals of a business, the methods for attaining those goals, and the timeframe for the achievement of the goals. It also describes the nature of the business, background information on the organization, the organization's financial projections, and the strategies it intends to implement to achieve the stated targets. In its entirety, this document serves as a roadmap (a plan) that provides direction to the business. (Horizon Europe Glossary)



# 1 Introduction

The Energy Union and the Energy and Climate Policy Framework for 2030 have set ambitious goals of reducing greenhouse gas emissions by at least 40% by 2030 and achieving a 32.5% energy savings target by the same year<sup>1</sup>. The construction industry is a major energy consumer in the EU, contributing significantly to the final energy demand and CO<sub>2</sub> emissions. To address this, the EU has legislated directives, regulations and policies aimed at phasing out inefficient buildings, including the use of **Energy Performance Certificates (EPCs)**. EPCs are mandatory in the Member States for the construction, sale, or rental of buildings, serving as transparent information tools for building owners and stakeholders and providing crucial information about energy performance in the EU's building stock.

While EPCs provide valuable information for efficient energy management, there are limitations and gaps in the current system. The existing EPC schemes focus on the initial construction phase and neglect the dynamic changes in a building's energy performance as well as user's behavioral changes over time.

To overcome these limitations, the D<sup>2</sup>EPC project adopts a multi-sensor framework to gather diverse data related to energy consumption, occupancy information, indoor environment etc. The collected data is processed to extract meaningful insights about the building's energy performance, enabling the calculation of human-centric indicators for a dynamic EPC assessment. The project not only aims to develop the next generation of EPCs, but also to expand their applications and usability.

The **objectives of D<sup>2</sup>EPC** are as follows:

1. Identify the drawbacks and discrepancies of the current EPC scheme and update European standards for building classification requirements.
2. Introduce and establish the concept of dynamic EPCs (dEPCs) that will regularly be updated.
3. Enhance EPCs by introducing a novel set of indicators covering environmental, financial, human comfort, and technical aspects of buildings, simplifying the understanding of energy performance and providing a comprehensive overview.
4. Integrate actual operational data from buildings into EPCs using advanced data collection regarding to infrastructure and Building Information Modeling (BIM) or digital twin technologies.
5. Incorporate smart indicators into building energy performance assessment and certification.
6. Develop a sophisticated gully functional digital platform for issuing dynamic EPCs, monitoring and improving building performance under real conditions.

Overall, **D<sup>2</sup>EPC aims** to revolutionize the assessment of buildings' energy performance by providing dynamic EPCs through advanced digital monitoring tools. The project incorporates an approach to the smart-readiness of buildings by utilizing data collection infrastructure and management systems. By

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<sup>1</sup> [https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework\\_en](https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en)



leveraging actual data and digital twin concepts, D<sup>2</sup>EPC calculates energy, environmental, financial, and human comfort indicators to determine the EPC classification of a building.

## 1.1 Scope and objectives of the deliverable

As the D<sup>2</sup>EPC project is completed, it is significant to emphasize the value of well-defined exploitation strategy and activities. CERTH, KTU, CLEO, SEC, DMO, SGS, HYP, FRC, and AEA were the contributors of Task T7.4 leaded by GSH, though all consortium partners have been involved and provided feedback. The task focused on exploitation activities, IPR management, and post-project sustainability. All SME partners in the consortium actively participated in developing the D<sup>2</sup>EPC project's exploitation strategy throughout the project, creating pertinent documentation and planning relevant workshops and events. The **major goal** of this assignment was to create a coordinated and effective plan for maximizing the project findings' impact and ensuring their adoption by relevant stakeholders both during and beyond the project's life cycle. Thus, this report summarises the variety of exploitation actions that have been undertaken, as well as those scheduled, in order to efficiently exploit the relevant knowledge of the partners and the technological improvements developed within the project by providing added value to the market and society.

**Deliverable D7.13**, provides an overview of the completed exploitation actions that have been conducted and developed knowledge and utilized technological advancements, which bring value to the market and society. These activities have served as a valuable opportunity to align the priorities of SMEs with those of business groups, create new business opportunities, explore innovations, and engage with the market. Specifically, this document presents the final version of the exploitation strategy, which builds upon the project's activities and products, following the boosting recommendations outlined in the Horizon 2020 for the Exploitation and Dissemination of Results.

The **Exploitation strategy** is based on an original plan that underwent two updates throughout the project's duration taking into consideration the most recent knowledge about the project's accomplishments for potential future exploitation. Due to COVID constraints, most conversations with end users and potential clients have been conducted remotely or by telephone.

Throughout this period, the background **Intellectual Property Rights (IPR)** have been confirmed and well-defined in the Grant Agreement (GA) and Task T7.4. The final Intellectual Property Rights (IPR) strategy has been derived and presented in D7.13 (M36) during the last 12 months of the D<sup>2</sup>EPC's implementation.

To summarize, this report provides an overview of the performed exploitation activities, including the relevant mechanisms that were applied. The initial version of the Exploitation Strategy has been updated by the consortium and the final version is now available in M36 - D7.13 (Month 36). It can be concluded that all tasks have been successfully completed.



## 1.2 Structure of the deliverable

This document is organized into four (4) main chapters:

**Chapter 1** provides an introduction about the scope of this document and the relation of this deliverable with the other project's tasks;

**Chapter 2** focuses on the exploitation activities that took place in the framework of the Task 7.4 as the organization of several exploitation workshops as well as the Horizon Results Platform and Horizon results Booster services.

**Chapter 3.1** provides a thorough market study, including crucial elements such as targeted customers, a SWOT analysis, a competition analysis, and a PEST analysis. The market study elaborates on the understanding the of consumers' needs, tastes, and habits, allowing the project to adjust appropriately its strategy. Furthermore, the SWOT analysis identifies the project's strengths, weaknesses, opportunities, and threats, providing useful information for strategic decision-making. The competitor analysis focus on the evaluation of the project in comparison to its opponents, allowing the project to differentiate itself and capitalize on market prospects. Finally, the PEST study investigates external elements that may influence the project, such as political, economic, social, and technical concerns. The market study lays the groundwork for interpretation the market landscape and developing efficient marketing strategies.

**Chapter 3.2** focuses on the project's distribution and sales strategy. It defines the distribution channels for the project's products or services, ensuring that they reach the target market as effectively as possible. The distribution strategy takes into account variables such as market reach, accessibility, and client preferences. This chapter also deals with several marketing techniques that will be used to promote the project, such as advertising campaigns, internet marketing activities, and social media involvement. Furthermore, the sales plan specifies the revenue generation strategy, which includes pricing strategies, sales methods, and client relationship management. A sales forecast is also included in the chapter, which predicts sales volumes and income creation. Last but not least, a cost structure, that analyses the possible expenses of the D^2EPC assets exploitation, was included as well as a KPIs demonstration regarding the digital and sales performance.

**Chapter 4** outlines the initial ideas for the IPR protection plan regarding the project's outcomes.

## 1.3 Relation with other Work Packages

**Task T7.4** Exploitation Activities, IPR Management, and Post-Project Sustainability receives input from and is connected to all other WPs of the project to create a comparative advantage over other EPC development methods in terms of scientific and technological excellence. This task manages the exploitation aspects of the entire project.



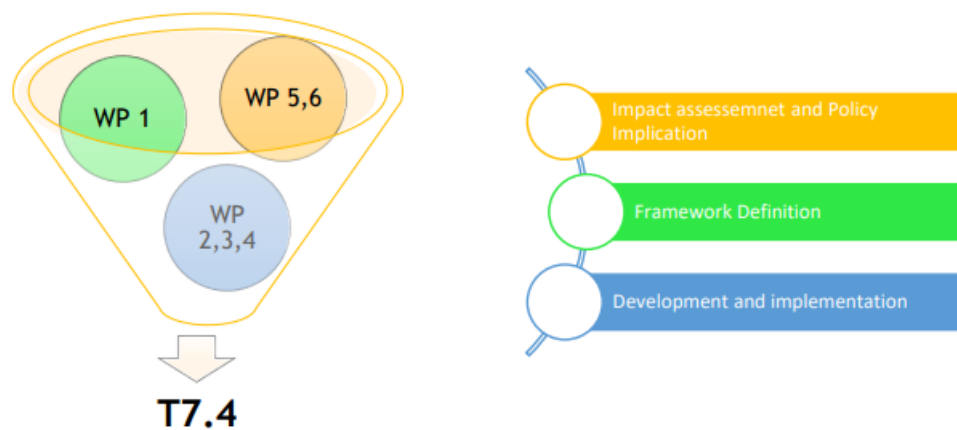


Figure 1. Connection with other D<sup>2</sup>EPC work packages

- **WP 1:** for the identification of the current state of the art, the foundations of next-generation dynamic EPCs (dEPCs) and new possible opportunities and novelties upon this framework. Consequently, Task 1.4: System Technical Requirements, Specs & Architecture also contribute significantly to the outline of the important methodological and technical components of the project;
- **WP 2-4:** These WPs mostly provide the technical information, digital tools and services of the overall solution. Technical tasks and novel methodologies and services such as the calculation engine, the applied Digital twin methodology, the complete Information Management Layer, the WebGIS platform as well as the overall D<sup>2</sup>EPC solution platform are and will be individually assessed for future exploitation through T7.4.
- **WPs 5 and 6:** These WPs are responsible for performing the effective integration of the completed technical implementations. First, the demonstration activities on the pilots/case studies give the project methodologies, the necessary proof-of-concept for future real-world promotion (WP5). Secondly, for the validation of the project's approach impact on policy-related implications and relevant measures to be taken into consideration for implementing the proposed EPC scheme (WP6).



## 2 Exploitation Activities under D<sup>2</sup>EPC

Exploitation workshops were held during the D<sup>2</sup>EPC project, utilizing the Horizon Results Booster (HRB) service and the Horizon Results Platform (HRP). These workshops sought to optimize the project's exploitation efforts by leveraging HRB's experience and resources and exploiting HRP's collaborative environment. The project team used these workshops to maximize the effect and utilization of the project's outputs, resulting in successful exploitation and dissemination of the D<sup>2</sup>EPC outcomes.

### 2.1 Exploitation Workshop

Several digital “e-workshops” were realised over the project's lifespan to aid this process. The e-workshops were crucial in engaging stakeholders and gathering vital feedback for improving the project's strategy. The e-workshops are intended to help participants gain a better grasp of the D<sup>2</sup>EPC concept and aims. They have offered chances to demonstrate project techniques, as well as emphasize the roles of various stakeholders in the implementation process. More specifically, the development of the plan is supported by a series of 3 Exploitation Workshops for the consortium, organized by GSH to prepare the exploitation strategies of the project results. Additionally, questionnaires have been circulated in an effort to update and improve the market analysis for D<sup>2</sup>EPC's exploitation plan by gathering feedback and insights from stakeholders. In more details:

#### Questionnaires:

The 1st questionnaire that was carried out before 1<sup>st</sup> workshop as part of Task 7.4 was an essential tool for gathering information for improving the project's exploitation strategy. The questionnaire sought to assess deployable solutions, estimate potential profitability, and identify positive impacts by involving stakeholders and partners outside the consortium. It also requested feedback on when the first Exploitation Clustering Workshop should take place. Before the second Exploitation Workshop in May 2022, this questionnaire was instrumental in helping to shape the project's strategy by gathering outside perspectives, which improved the strategy's efficacy in directing the project's exploitation efforts. The Questionnaire can be found in Annex 1.

The objective of the 2nd questionnaire was to gather thorough information and updates regarding the ongoing "D<sup>2</sup>EPC" project, which was focused on the creation of advanced Dynamic Digital Energy Performance Certificates (EPCs) for buildings. The questionnaire covered a variety of project-related topics, such as technical details, exploitable assets in comparison to rivals, customer value propositions, individual partner exploitation plans, testing and validation of project results, and long-term goals. The Questionnaire can be found in Annex 2.

Aiming to ensure that each partner's contributions were in line with the project's objectives and to identify opportunities for further disseminating, commercializing, and optimizing the developed components and solutions, the questionnaire's purpose is to assess the project's current status, progress, and plans. The data gathered used and discusses in the 2<sup>nd</sup> exploitation workshop in order to assess the project's effectiveness, impact, and likelihood of being successfully implemented in the market.



### Exploitation Workshops:

In more detail, the exploitation e-workshops were an excellent opportunity for GSH to gain firsthand input and suggestions from end users. Multidisciplinary team gathered to investigate and interact with the project's technologies, platforms, and modules. Two e-workshops stand out: On March 4th, 2021, a workshop focused on Commercial-Industrial Exploitation Strategy, covering actions taken, questionnaire insights, and upcoming steps. On June 9th, 2022, a workshop explored task objectives, questionnaire results, partner ideas, and Intellectual Property Rights management.

The latest workshop was physical, in the Auditorium of the Technical Chamber of North Greece - Thessaloniki, with the participation of the President of the Chamber and many engineers and fostered engaging conversations, demonstrations, and hands-on activities that allowed attendees to fully appreciate the project's offerings. GSH received critical knowledge about the end users' individual needs, preferences, and issues as a result of this collaborative environment. The workshop suggestions were critical in designing the exploitation approach, ensuring that the project's deliverables were tailored to fit the needs of the target audience. Also in the audience and as speaker, we had with us the Horizon Booster instructor, who gave to the D<sup>2</sup>EPC team and audience critical Q & A and advice.



**Figure 2. Exploitation Workshop in Thessaloniki**

## 2.2 Horizon Results Platform

To improve the dissemination of project results to potential stakeholders, the consortium used the Horizon Results Platform, a powerful tool provided by the European Commission. This platform serves as a centralized hub for showcasing the project's major exploitable outcomes, allowing greater visibility and accessibility to interested parties. The consortium in order to utilize the Horizon Results



Platform and maximize the impact and reach of the project's results decided to structure the applications of the project with the three tools : the WebGIS, the D<sup>2</sup>EPC Web platform and the Information Management Layer (IML).

Information such as the value proposition, scalability, replicability, and sustainability, as well as the target audience and the influence of the results, are essential for disseminating the Horizon results platform to the interested parties. GSH has taken the initiative, in collaboration with technical partners, to create Google forms that collect the necessary information regarding the three basic exploitable results of the project for the Horizon Results Platform. These forms were distributed to the technical partners that are responsible for each Key exploitable result, who diligently filled them out. When they were completed, the necessary information was uploaded to the platform. This meticulous process ensures that the project's outcomes are accurately represented and accessible to potential stakeholders.

The platform acts as a central repository, consolidating project results and providing a comprehensive overview of progress. This approach simplifies the access and the interaction with the project's outcomes, fostering collaboration and facilitating further exploitation of the results for the benefit of all stakeholders.

## 2.3 Horizon Results Booster

D<sup>2</sup>EPC consortium utilized the Horizon Results Booster Service to augment the exploitation plan of the project. Specifically, we leveraged Service 1: Portfolio Dissemination & Exploitation Strategy (PDES), with a focus on Module C, which assists projects in enhancing their existing exploitation strategies.

GSH, the partner that is responsible for the exploitation plan, initially applied for the module, which was quickly accepted. Following the application, an expert from the Horizon Results Booster Service contacted the applicant and scheduled an introductory meeting. The first meeting (January 31th, 2023) was held to provide an explanation of the service and its procedures. CERTH, the project's coordinator, and GSH, the responsible partner for exploitation activities, were among those present.

Following the meeting, the HRB expert requested from the consortium to select three key exploitable outcomes to be used in the procedure. The D<sup>2</sup>EPC Digital Platform as the holistic project's solution, the WebGIS platform, and the information management layer were chosen as key exploitable results for the consortium. These outcomes were chosen as illustrations for the Horizon Results Booster procedure.





Figure 3. HRB Introductory meeting

The expert distributed forms to the responsible technical partners to collect information about these three Key Exploitable Results (KERs): CERTH for the D<sup>2</sup>EPC Digital Web platform, GSH for WebGIS, and HYP for the Information management layer (IML). The forms were designed to collect information about each KER. After the submission of these forms, a two-day online workshop was conducted on May 18th and 19th, 2023.

During the first day of the workshop, the project partners were introduced to the Horizon Results Booster (HRB) services. The participants comprehend the concept of exploitation and its distinction from communication and dissemination. This fundamental knowledge provided a framework for the subsequent discussions.

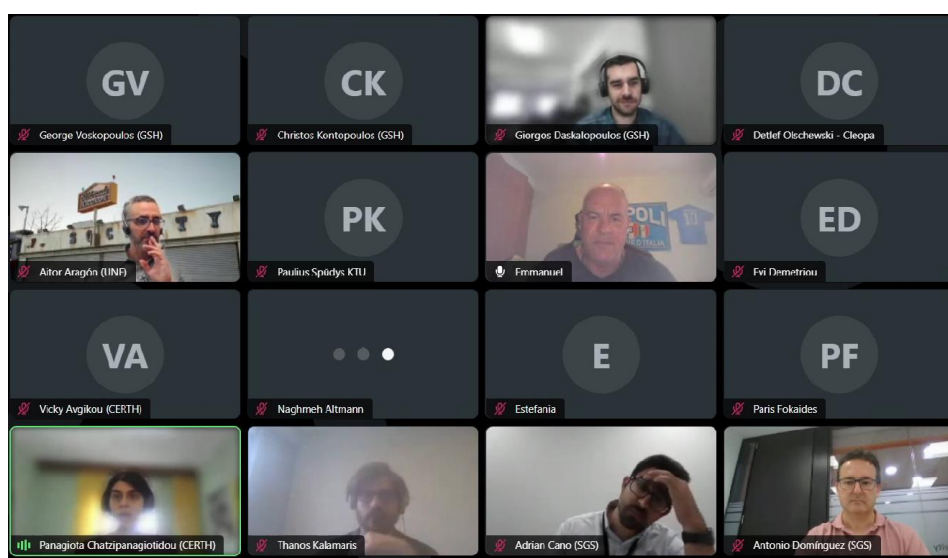


Figure 4. HRB Exploitation Workshop Day 1

On the second day of the workshop, technical partners of the proposed KERs actively participated in the procedure of the writing of the exploitation report. The expert collated the information provided by the partners and prepared a comprehensive report that was presented during the workshop. This report served as a basis for further discussions and as a guide for specific aspects of the exploitation plan. The expert provided valuable directions and insights to assist the project in refining their exploitation strategy.



**6.3 Risks Assessment and Priority Map**

**KER Risk Assessment Map (WEB PLATFORM)**

	Description of risks	Criticality	Probability	Risk Grade	Potential intervention	Success	Conclusion
<b>Partnership Risk Factors</b>							
1	Disagreement on ownership rules	9	5	45	Standard IPR and access rights clauses are included in the GA and it could be updated if needed to facilitate and ensure commercialisation	8	Control
2	Unlimited available resources to manage the product complexity	6	4	24	Re-allocation of resources. Core D <sup>2</sup> EPC partners have experience in large technology-driven innovation projects as well as in the implementation of large and complex systems	7	Control
<b>Technological Risk Factors</b>							
3	Significant dependency on other technologies	9	8	72	Deliver the solution in state-of-the-art packages	7	Adapt
4	Difficulty in collecting and fusing data from different end-devices, IoT	8	5	40	Establishment of the appropriate tools and procedure for data collection, interoperability and information sharing	7	Control
5	Complex solution/ Cooperation problems between the different components	9	6	54	Carry out tests prior to components integration into a unified platform as well as for the integrated platform. Pay particular attention to interoperability	7	Adapt
<b>Market Risk Factors</b>							
	Integration of B/M with BEPS and additional				awareness among stakeholders on the operation of the		

Figure 5. HRB Exploitation Workshop Day 2

The workshop's process proved instrumental in providing support and direction to the project regarding the exploitation plan. By incorporating the expert's guidance and leveraging the expertise of the technical partners, the project was able to refine their exploitation strategy effectively. Ultimately, at the conclusion of the project, a comprehensive workshop report was delivered to the partners, summarizing the outcomes, insights, and recommendations derived from the workshop sessions.

## 3 Exploitation Strategy

### 3.1 General Approach

According to the official glossary of the European Commission<sup>2</sup>, the results of an EU project are any tangible or intangible output, such as data, knowledge and information in any form or nature, whether or not they can be protected. The produced results can create an impact during and/or after the EU funding procedure. Exploitation is defined by the European Commission as the utilization of results in developing, creating and marketing a product or/and process, or/and in creating and providing a service, or/and in standardization activities. The exploitation of the results of a research project has a double value: on the one hand it offers to society ways to progress by utilizing the novel methodologies, tools, etc. and on the other hand, it can promote research and development of the involved bodies through the dissemination of their research work as well as the financial resources that can be gained. From any perspective, the society is the final recipient of the results of the research and its exploitation. Exploitation activities developed by D<sup>2</sup>EPC included the dissemination of the results in a future European standard, to be developed in CEN/TC 371/WG 5. These activities are explained in D7.12 and enhance the market uptake of the project results because standards are applied by the target audience, incl. potential users of the KERs. In principle, the D<sup>2</sup>EPC will not have IPR rights for the content included in the standard. More information can be found in CEN-CENELEC Guide 8 “Standardisation and intellectual property rights (IPR)”<sup>3</sup>.

The Exploitation Methodology is recognized by the D<sup>2</sup>EPC consortium as the key driver for any future commercial success. The commercial exploitation plan is always based on a study that shall deal with the Background and Foreground Rights, the Patents, trademarks and IPR issues. This will be the baseline for the future D<sup>2</sup>EPC products, by taking into account the EU policies and security framework, including those to foster the transfer of technology to SMEs, and promoting the use of generic, non-proprietary technologies. In order to design a successful strategy, the exploitation document will be developed on the basis of the Business Model Generation, that was proposed by Osterwalder and Pigneur (2010).

Exploitation strategy is needed in order to capitalize on knowledge and technologies developed through the implementation of the project and to bring value generated to market, as well as to society as previously mentioned. The **objective of this final version** of the deliverable is to initially develop the exploitation strategy and parallelly to define the IPR protection plan. In order to develop the strategy, the following aspects should be covered:

- Identification of the **Key Exploitable Results (KERs)** /assets of the project
- Conduct a **Market Analysis**
- Definition of **Business Models**
- Protection of the **Intellectual Property Rights (IPRs)** of the Consortium’s members

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<sup>2</sup> [https://new-european-bauhaus.europa.eu/about/about-initiative\\_en](https://new-european-bauhaus.europa.eu/about/about-initiative_en)

<sup>3</sup> <https://www.cenelec.eu/media/Guides/CEN-CLC/cenclguide8.pdf>



The Exploitation Strategy uses a participatory methodology: all members of the Consortium have worked closely together to identify and outline the project's main exploitable results and according to these, the target groups have been defined. This has been achieved during the meetings of the WP7 partners and through dedicated questionnaires. Additionally, this document provides a concrete business plan and a comprehensive market study, offering an in-depth analysis of the project's market positioning and growth strategies upon completion.

## 3.2 Market Analysis of the D<sup>2</sup>EPC

**Market analysis** is a vital component of every company or project strategy, including the D<sup>2</sup>EPC project's exploitation plan. Getting a meticulous analysis of the market environment entails a methodical study of market circumstances, industry trends, customer demands, and the competitive landscape. This analysis enables the participants to make properly formulated decisions, uncover opportunities, and devise successful methods for achieving their goals.

The following sections will provide a detailed explanation of all the components that are included in the concept of Market Analysis:

- **Sub-section 3.2.1:** The challenges of the current EPC schemes and the solution of D<sup>2</sup>EPC
- **Sub-section 3.2.2:** Value Proposition
- **Sub-section 3.2.3:** Key Exploitable Results
- **Sub-section 3.2.4:** SWOT Analysis
- **Sub-section 3.2.5:** PEST Analysis
- **Sub-section 3.2.6:** Target Audience
- **Sub-section 3.2.7:** Competitors Analysis
- **Sub-section 3.2.8:** Risk Management

Firstly, the analysis reinforces the detection of project's important **exploitable findings**, new services and solutions that address the market gaps and to create value to the market by further assessing the state and the problems of EPCs, as described in the supplied overview. The primary exploitable findings should be explicitly specified and discussed in this part to emphasize the D<sup>2</sup>EPC project's distinctive offerings.

**Value proposition** describes the advantages and the value of the project to its target audience. It explains the project's unique saleable features, competitive advantages. It should clearly describe the project's value to the potential customers, stakeholders, and other relevant parties. The target audience analysis is critical for determining the groups of costumers who might benefit from the project. This analysis entails investigating and determining the target audience's traits, requirements, preferences, and habits. Understanding their needs and expectations allows to the project to modify its products and marketing methods to effectively reach and interact with the target audience.

Another important aspect of market analysis is the **competitor analysis**. It requires the detection and analysis of existing and future market rivals. It elaborates the comprehension of their advantages, disadvantages, market share, plans, and offers. The D<sup>2</sup>EPC project can successfully position itself,



distinguish its services, and uncover possibilities to beat the competition by examining the competitive landscape.

In addition, **risk management analysis** is also a vital part of market analysis. It involves identifying and assessing potential risks and uncertainties that could impact the success of the project. By analyzing these risks, the project can develop mitigation strategies, and contingency plans, and ensure that appropriate risk management measures are in place.

By conducting a in depth market analysis encompassing these sections, the D^2EPC project gains valuable insights into the market dynamics, customer needs, competitive landscape, and potential risks. This information forms the foundation for effective exploitation strategies, targeted marketing efforts, and successful implementation of the project's objectives.

### 3.2.1 The challenges of the current EPC schemes and the solution of D^2EPC

The exploitation strategy for D^2EPC is based on the gaps of the current state of EPCs which the project fills through the innovative services it develops. These gaps can be summarized in the following challenges of current EPC schemes. First, the information that is being used to issue the current EPCs is limited and has low quality, since it concerns early stages of the construction phase and missing real performance data during its operation. Moreover, there is a need for harmonization of EPCs with the smart city concept, as it becomes increasingly established. There is also a need for a human-centric approach as required by EPBD 2018/844/EU.<sup>4</sup> Insufficient software credibility and quality can also be identified as a gap in the current scheme of EPCs. Last but not least, data discrepancies are provoked due to the subjectivity of energy auditors, while D^2EPC attempts to mitigate this by integrating Smart Readiness Indicators into the energy calculation process. Through innovative solutions, the project addresses these challenges, providing accurate, user-friendly, smart city-oriented EPCs with improved software credibility and data reliability.

### 3.2.2 Value Proposition

By delivering improved multi-parameter assessment and combining additional metrics like energy, smart readiness (SRI), sustainability, human comfort, and financial factors, the D^2EPC solution delivers a distinctive value proposition. Building energy efficiency can be better-understood thanks to this all-encompassing approach supporting decision making. Moreover, it offers near-real-time asset and operational energy assessment of buildings, delivering more precise and up-to-date information. It does this by introducing BIM-based Digital Twins coupled with an advanced Internet of Things (IoT) system.

One unique aspect of D^2EPC is the enhanced AI-driven assessment recommendations that encourage energy conservation and the highest level of comfort. This tool promotes energy-saving awareness by offering practical advice that is adapted to the specific needs of each facility. Additionally, by including

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<sup>4</sup> Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018L0844>



geolocation and "polluter pays" principles in the EPC's perspective, it provides a solution with a greater positive impact on the environment and gives guideline to the formulation of legislation. Last but not least, the Performance Alerts & Notifications feature and the Energy Performance and Credibility are two more component of D<sup>2</sup>EPC value proposition. D<sup>2</sup>EPC can sets itself apart by providing tailored recommendations both during the issuance of EPCs and throughout actual building operations. Moreover, D<sup>2</sup>EPC Web platform can automatically and continuously verifying the data that has been collected, ensuring the accuracy of the information. The increased confidence of the platform's accuracy strengthens the case for energy performance assessments, elevating D<sup>2</sup>EPC to the status of a highly dependable and innovative solution. These elements work in unison to transform the energy performance certification process and distinguish D<sup>2</sup>EPC as the industry's premier platform. This connection promotes the unification of EPC data collection and transforms EPCs into useful policy-feeding mechanisms.

The EPC process is being revolutionized by the use of cutting-edge design models and tools like Building Information Modelling (BIM) and the development of digital twins, which enable up to-date approaches in sustainable building design and operation. The digitalization of EPC issuance and updating simplifies the procedure, reduce the mistake rates, and properly depicts the structural and operational aspects of a building. EPC data of all EU member states are uniformly documented and visualized thanks to the centralized EPC register provided by the D<sup>2</sup>EPC WebGIS platform. This unified strategy enables accurate policy impact analyses, assists in the development of efficient energy efficiency award programs, and promotes targeted building materials and energy efficiency regulations. Policymakers can use the WebGIS tool to gain access to relevant statistics, to examine the location of EPCs, and conclude to energy-related funding, rules for responsible energy use, and comparisons of regional energy performance.

In summary, the D<sup>2</sup>EPC solution's value proposition lies in its ability to deliver comprehensive multi-parameter assessment, leverage advanced technologies like BIM and IoT, offer AI-driven recommendations, the Performance Alerts & Notifications and the Energy Performance and Credibility, integrate geolocation and environmental practices, and provide a centralized EPC register through the WebGIS. These features set the D<sup>2</sup>EPC solution as a powerful tool for improving building energy performance and supporting well-documented decision-making in the field of sustainable construction.

### 3.2.3 Key Exploitable Results

In D<sup>2</sup>EPC project multi-modal data is collected from buildings related to energy consumption profiling, occupancy information, indoor environmental conditions, and air quality. The input data streams will be aggregated and processed extracting meaningful intra-building information to be utilized for calculating the necessary human-centric indicators in the dynamic EPC, which is useful for the assessment of the building's actual energy performance. Furthermore, the project delivers a holistic digital solution that not only will issue the next-generation EPCs, but will also extend EPCs applications and usability. Added value services include the provision of customized recommendations for energy performance upgrades (road mapping tool), the provision of performance forecasting (AI-driven forecasting tool) in order to coordinate the operation of the building's assets in an efficient way, as well as the provision of notifications and alerts (notifications and alerts tool) in order to avoid the risk of performance downgrade. Moreover, the project envisions the provision of extended



applications that include comparing the energy performance of other buildings in more than one normalized metric as per the SRI framework (building energy performance benchmarking) as well as verifying the credibility of the data collection and processing (performance verification and credibility tool). Finally, the D<sup>2</sup>EPC GIS Tool visualizes the generated EPCs in a GIS environment, empowering users to perform various types of spatial and attribute queries.

In more detail, D<sup>2</sup>EPC introduces **a series of innovative services and modules** regarding the procedure of generating EPCs, but also to the energy management of buildings in general, with emphasis given to the following axes:

- a. Utilization of advanced information in the **calculation of EPCs** in order to increase accuracy of the calculation, e.g., novel set of environmental, financial, human comfort and smart aspects indicators, BIM-based Digital Twins
- b. Integration of **advanced algorithms** for providing recommendations for energy upgrade of buildings and forecasting
- c. Implementation of an intelligent **operational digital platform** for EPCs

According to the aforementioned, the exploitable assets of the D<sup>2</sup>EPC project can be categorized into two (2) groups as described below and shown in the following figure:

#### 1. Modules/Methodologies

#### 2. Products

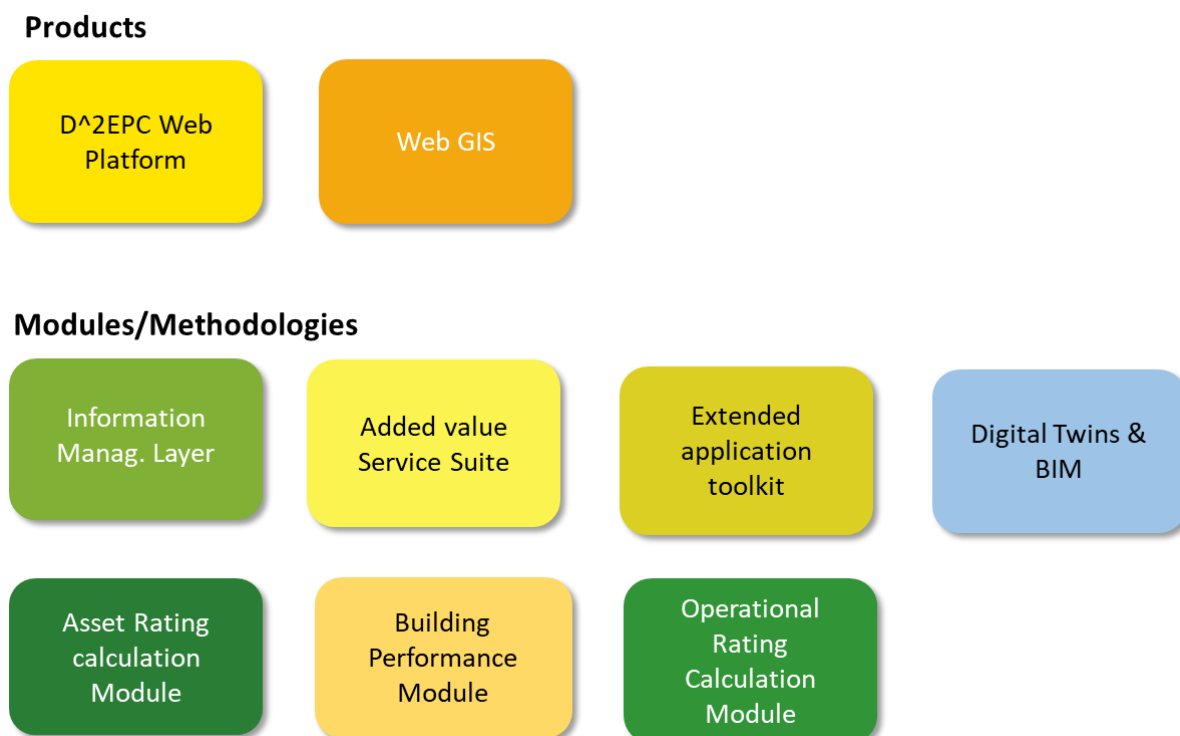


Figure 6. D<sup>2</sup>EPC's exploitable assets.

- **Web Platform:** The project's web platform should offer a user-friendly interactive environment in which the user can adjust preferences and request the execution of processes ad-hoc for updating EPC results. Within this environment all subcomponents and project services will be accessible such as a) the asset rating, b) the operational rating, c) the Roadmapping tool, d) WebGIS etc.

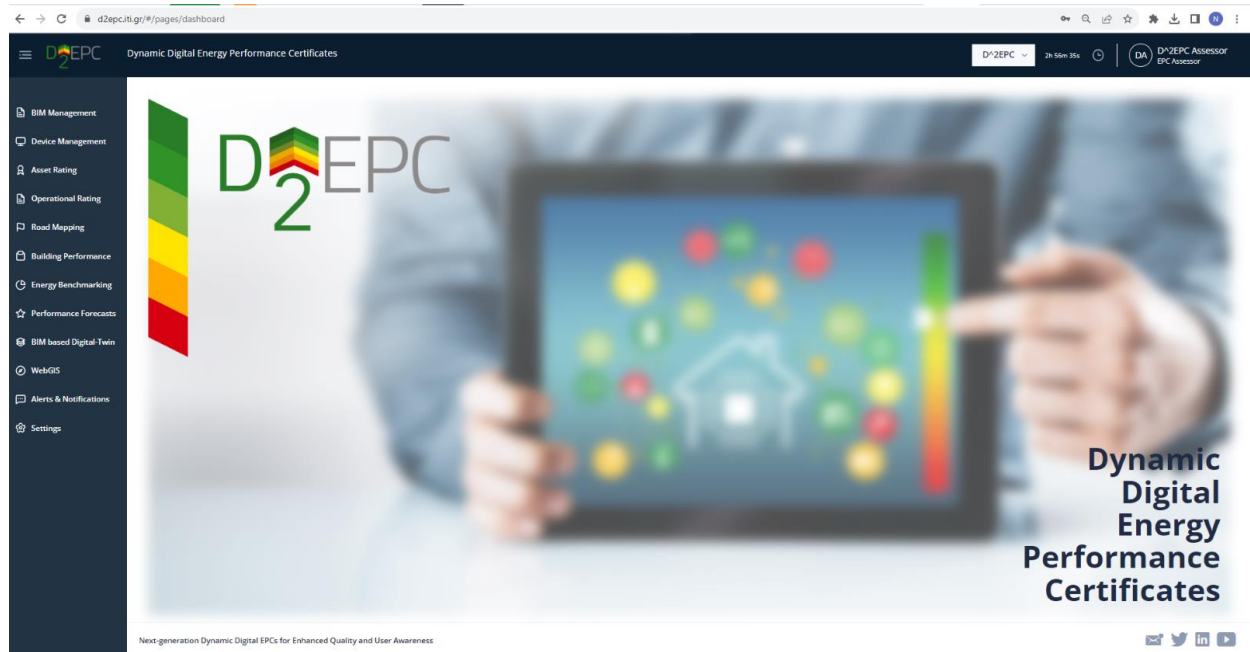


Figure 7. D<sup>2</sup>EPC Web Platform main dashboard

- **WebGIS:** a handy tool for visualizing statistics and perform queries over issued EPCs in different scales by providing aggregated EPC data per region thus offering valuable information for a multitude of stakeholders (e.g., real estate owners, policymakers etc.). This tool is also offering the capability of 3D BIM visualization of the pilots.

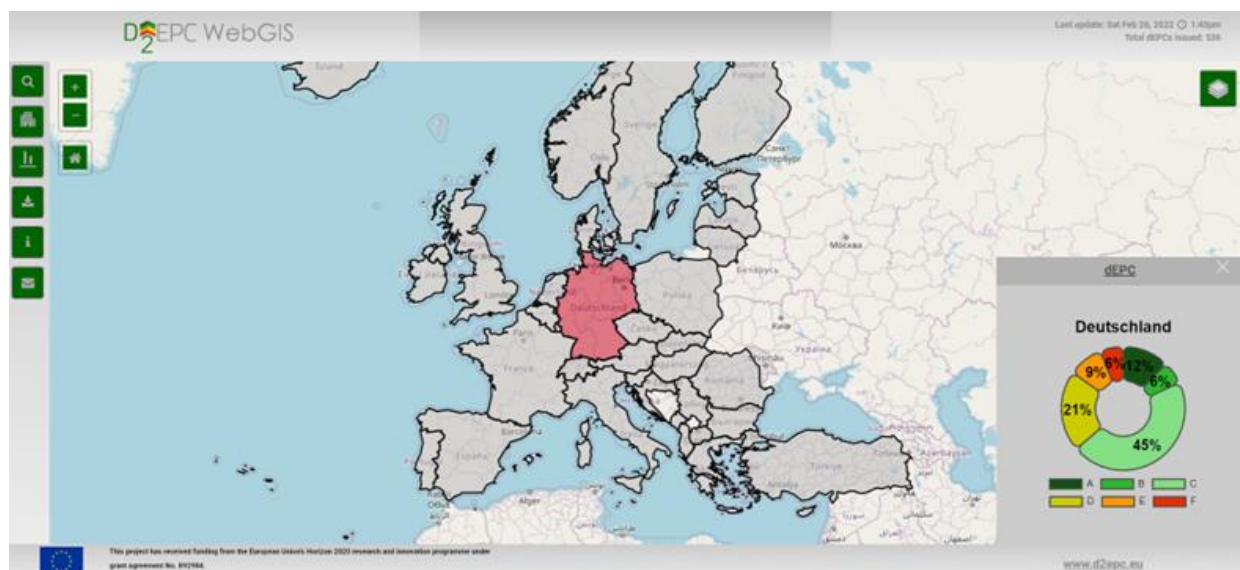


Figure 8. The WebGIS tool

- **Information Management Layer:** A number of important measurable parameters and indicators captured from installed sensors inside a building that provide an informative real-time representation of the indoor conditions of the dwelling. The Information Management Layer component is responsible for storing, processing and management of real-time information related to the pilot buildings and guarantees a secure environment for processing the vast amount of data collected from the locally installed IoT devices and streamed through the IoT gateways at the pilot buildings.
- **Asset rating calculation module** A novel state of the art semi- automated procedure of EPC issuance by exploiting the BIM model of a building. It offers easy and fast issuance and updating, while also minimizing, the overall EPC issuance cost. D<sup>2</sup>EPC has adopted the EN ISO 52000 series of standards as the foundation for the development of the Asset Rating calculation module. The development of this module is based on two main pillars; the automation of the EPC issuance procedure and the development of a rating tool for the energy performance assessment of any building type throughout the EU MS included in the D<sup>2</sup>EPC project. Additionally, it can provide a unified approach for all EU Member States and thus overcoming various limitations from national/regional bureaucracy.
- **Operational rating calculation module:** new calculation methodology developed in the project and tested on D<sup>2</sup>EPC pilots. D<sup>2</sup>EPC project develops and delivers a methodology for the operational energy performance ratings of buildings, which will be used in the framework of the next-generation D<sup>2</sup>EPC tool through a set of cutting-edge digital design and monitoring tools and services. The Operational Rating Module will allow calculating the operational EPC, based on the methodology defined. The introduction and establishment of the operational EPC (dEPC) concept, a calculating interface, empowers the regular energy classification of buildings based on their operational performance.
- **Digital Twins & BIM:** D<sup>2</sup>EPC introduces BIM-based Digital Twins coupled with a state-of-the-art IoT ecosystem for the near-real time asset and operational energy assessment of the building. The calculation of the EPC of the building with real data from the installed equipment makes issuing certificates more valid and easy. This is a major comparative advantage of the project's methodology over the existing ones as it enables the unification of various forms of user-provided data with dynamic information collected from the building's field devices, under a common, digital building model.
- **Added value services suite:** advanced AI tool that will provide recommendations towards energy performance enhancement, and optimal comfort and will contribute to fostering energy saving consciousness. These recommendations take into account the characteristics of the building as well as the needs of user/owner for exploring from a large pool of potential solutions and identifying the optimal scenarios for upgrades and forecast building operating conditions and their impact on the building's energy efficiency/performance. As an end result, a solid and efficient renovation roadmap can be generated to guide both the EPC assessor and inform the building owner about the impact that a potential renovation. In addition, this tool provides customized alerts to property's users/owners thereby promoting a sophisticated notification system towards energy management. Some of the identified gaps in current energy management methodologies can be covered by this module.
- **Extended dEPCs applications toolkit:** This tool can provide a ranking of the buildings in terms of EPC criteria concerning several indicators. It presents the comparative results in various forms and in a user-friendly way. In addition, this tool can also validate and verify the quality and reliability of the data collected.



- **Building performance module:** This tool is responsible for calculating the enriched set of D<sup>2</sup>EPC KPIs, including the ones that already exist in current EPC practices and present the comparative results in various forms and in an understandable way for the user. In addition, this tool can enhance the interoperability of the produced information and paves the way for further enrichment of the performance indicator's set through the combinations that can be generated.

### 3.2.4 SWOT Analysis

The D<sup>2</sup>EPC project has undergone a detailed **SWOT analysis** to assess its strengths, weaknesses, opportunities, and threats. This analysis provides valuable insights into the project's potential and challenges in transforming building energy performance. Table 1 offers an extensive list of D<sup>2</sup>EPC SWOT analyses.

**Table 1. SWOT Analyses.**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>▪ Building/dwelling-oriented digital and visualization tools</li> <li>▪ Provision of recommendations regarding energy upgrading of buildings</li> <li>▪ Solutions for lowering energy consumption and saving money</li> <li>▪ Real-time performance for operational rating</li> <li>▪ EPCs can be calculated using a smart, simple, and dynamic process</li> <li>▪ First digitized integration of building energy classification and analytics</li> <li>▪ The EPC is always up to date based on real-time data available</li> <li>▪ Possibility of better comparability of the actual data of different buildings</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>▪ Potential problematic integration of a full-scale platform deployment, due to different tools and technologies</li> <li>▪ Lack of real data for some tools/services to be tested upon (e.g., WebGIS)</li> <li>▪ Information management could be difficult, due to each member state's varied EPC classification</li> <li>▪ Possibility of costly IoT setups, necessary for operational rating</li> <li>▪ Data quality determines result - uncertainties, errors</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>▪ Monitoring building status on a shared platform, thus offering policymakers a strong mechanism to enable action at a European or national level</li> <li>▪ Utilizing the advantages of the digitalization era</li> <li>▪ Higher motivation to renovate the building via actual representation</li> <li>▪ Given the world's energy problem, the EU is always looking for methods and tools to handle energy consumption in the most effective way</li> <li>▪ Optimization of entire settlement areas, with sufficient density of mapped buildings</li> <li>▪ EPC is always "valid" - no expiration date</li> <li>▪ One unified solution for many agendas around the building</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>▪ Engineers, EPC inspectors, and other professionals might not accept or adopt the tool</li> <li>▪ The solution would become increasingly reliant on certain software and IoT hardware</li> <li>▪ To be accepted as a complex/expensive overall approach</li> <li>▪ Platform maintenance on potentially bigger loads of data</li> <li>▪ Data Privacy, vulnerabilities, hackers</li> <li>▪ Possibly too confusing for end customers</li> <li>▪ IPRs possible dispute</li> <li>▪ Introduction of the new legislature regarding EPCs</li> </ul>



The D<sup>2</sup>EPC project stands out with its innovative building-oriented digital and visualization tools, provision of energy upgrading recommendations, solutions for energy consumption reduction, real-time operational performance monitoring, and a smart and dynamic process for calculating Energy Performance Certificates (EPCs). It also offers the first digitized integration of building energy classification and analytics, ensuring up-to-date EPCs and better comparability of building data. However, the project faces certain **weaknesses**, including potential challenges in integrating a full-scale platform deployment due to different tools and technologies, limited availability of real data for testing certain tools and services, and difficulties in data management caused by varying EPC classifications across member states.

The D<sup>2</sup>EPC as a state of art project presents **exciting opportunities**. It enables policymakers to monitor building status on a shared platform, promoting effective action at the European or national level. By harnessing the advantages of digitalization, the project motivates building renovations and addresses the pressing energy consumption issue. The amelioration of conditions in settlement areas and the provision of a unified solution for multiple building agendas, further enhance the project's potential.

Last but not least, the project also faces **threats**. Resistance from professionals such as engineers and EPC inspectors may hinder the adoption and acceptance of the tool. Reliance on specific software and IoT hardware, potential complexity, platform maintenance for larger data loads, data privacy vulnerabilities, end-customer confusion, IPR disputes, and the introduction of a new legislature regarding EPCs are potential challenges.

The SWOT analysis of the D<sup>2</sup>EPC project provides **a comprehensive overview** of its current standing and future prospects. The project's strengths rely upon its innovative digital tools, energy upgrading recommendations, energy-saving solutions, real-time performance monitoring, streamlined EPC calculation process, and integration of building energy classification and analytics. These strengths position the project as a game-changer in the field of building energy performance. By leveraging its strengths, addressing weaknesses, capitalizing on opportunities, and mitigating threats, the D<sup>2</sup>EPC project can maximize its potential and contribute significantly to sustainable building practices, energy efficiency, and policy formulation. With careful planning, collaboration, and adaptability, the D<sup>2</sup>EPC project can achieve its goals and pave the way for a more energy-efficient future in the European building sector.

### 3.2.5 PEST Analysis

A project can be impacted by external macro-environmental variables that are analyzed and evaluated using the **PEST framework**. Political, Economic, Social, and Technological aspects are referred to as PEST. The success or failure of a project can be influenced by major external factors and trends, which can be identified and understood. Political factors encompass government regulations, policies, and political stability. Analyzing the legislation helps to identify support or obstacles from authorities and understand the alignment of the project with existing policies. Economic factors examine economic conditions, market dynamics, and financial considerations. Assessing these factors helps determine the economic feasibility, market demand, and potential barriers related to affordability and market acceptance. Social factors explore societal attitudes, preferences, and behaviours. By understanding social factors, the project team can gauge the level of awareness, market demand, and user needs and preferences regarding energy efficiency and sustainability. Technological factors focus on technological advancements, compatibility, and data security. Evaluating these factors ensures that



the project leverages the right technologies, addresses compatibility issues, and safeguards data privacy and security.

**Table 2. PEST analysis**

Political Aspects	Economic Aspects
<ul style="list-style-type: none"> <li>❑ The adoption and use of D<sup>2</sup>EPC may be impacted by governmental legislation and policies surrounding energy efficiency and sustainability in buildings.</li> <li>❑ A supportive environment for the acceptance of D<sup>2</sup>EPC may be created via political backing, incentives for energy-efficient construction, and green certifications.</li> <li>❑ The demand for and market for D<sup>2</sup>EPC may be impacted by changes in governmental goals and policies linked to energy and the environment.</li> </ul>	<ul style="list-style-type: none"> <li>❑ The investment and uptake of D<sup>2</sup>EPC will be impacted by market economic conditions.</li> <li>❑ Some stakeholders may find the expense of deploying D<sup>2</sup>EPC and related technologies to be a deterrent, particularly in areas where resources are few.</li> <li>❑ Adoption may be encouraged by the potential cost savings and return on investment from energy efficiency improvements made possible by D<sup>2</sup>EPC.</li> <li>❑ The market's desire and readiness to pay for sophisticated energy performance evaluations and individualized guidance will have an impact on D<sup>2</sup>EPC's economic sustainability.</li> </ul>
Social Factors	Technological Factors
<ul style="list-style-type: none"> <li>❑ Demand for D<sup>2</sup>EPC may rise as people's understanding of and concern for environmental sustainability and energy efficiency rises.</li> <li>❑ The popularity of D<sup>2</sup>EPC may be influenced by consumer desires for energy-efficient buildings and the need for healthier interior spaces.</li> <li>❑ Important sociological criteria for D<sup>2</sup>EPC's success are its user-friendliness and its capacity to meet the particular demands and expectations of homeowners, investors, and construction professionals.</li> <li>❑ Adoption of D<sup>2</sup>EPC may be impacted by public perception and acceptance of digital solutions, such as the application of AI and data analytics in the evaluation and certification of building energy performance.</li> </ul>	<ul style="list-style-type: none"> <li>❑ A crucial enabler for D<sup>2</sup>EPC is the availability and development of technologies like sensors, data analytics, AI, GIS, and BIM models.</li> <li>❑ For easy deployment and interoperability, compatibility with current systems and platforms as well as support for various data formats and protocols will be essential.</li> <li>❑ The competitiveness and long-term profitability of D<sup>2</sup>EPC can be influenced by the rate of technological advancement and the appearance of new tools and techniques in energy performance evaluation and visualization.</li> <li>❑ To build trust and confidence in D<sup>2</sup>EPC, data security and privacy issues related to the gathering, processing, and storing of multi-modal data must be addressed.</li> </ul>

### Political Aspects

Government regulations and policies pertaining to energy efficiency and sustainability in buildings undoubtedly have an impact on the adoption and use of D<sup>2</sup>EPC. There will be a strong push for its widespread adoption if the government imposes strict energy efficiency standards and requires the use of certified tools like D<sup>2</sup>EPC for issuing EPCs. An example is the EPBD<sup>5</sup>, currently under review, which requires the use of EPCs in Europe.

Governments can also play a significant part in fostering a positive environment by providing incentives for green building and green certifications. D<sup>2</sup>EPC's demand and market penetration can be increased by financial incentives, tax breaks, or grants for buildings that use it to achieve higher energy performance ratings.

The political support for D<sup>2</sup>EPC can make it easier for it to be adopted and implemented across various industries. Governments can actively support and advertise the platform, increasing stakeholder awareness of its advantages and features. They can work with stakeholders and industry associations to highlight successful case studies and best practices, promoting a favorable view of D<sup>2</sup>EPC in the marketplace.

<sup>5</sup> <https://epb.center/epb-standards/energy-performance-buildings-directive-epbd/>

The market and demand for D<sup>2</sup>EPC may be significantly impacted by changes in governmental objectives and policies related to energy and the environment. The need for energy-efficient solutions like D<sup>2</sup>EPC is likely to increase if there is a renewed emphasis on sustainable development, carbon neutrality, or aggressive energy reduction targets. The adoption of D<sup>2</sup>EPC could, however, be slowed down by a lack of emphasis on energy efficiency or a change in priorities. Therefore, it is essential to maintain D<sup>2</sup>EPC's relevance and competitiveness in the market by staying aligned with changing political objectives and changing its features to satisfy new policy requirements.

### *Economical aspects*

Economic market conditions will undoubtedly have an impact on D<sup>2</sup>EPC investment and adoption. Stakeholders may be less willing to adopt new technologies, such as D<sup>2</sup>EPC, during times of economic hardship or instability. The willingness to invest in novel strategies that promise long-term advantages, such as increased energy efficiency and cost savings, might be higher during economic upswings.

Some stakeholders may be concerned about the cost of implementing D<sup>2</sup>EPC solutions and dynamic EPCs (dEPCs), especially in regions with scarce resources. Potential users may be put off by the initial investment in hardware, software, and training needed to implement D<sup>2</sup>EPC. To solve this, D<sup>2</sup>EPC could be made more approachable and appealing to a wider range of customers by introducing cost-effective pricing models, subscription plans, or financing options.

Adoption may be swayed by the potential cost savings and return on investment from increased energy efficiency provided by D<sup>2</sup>EPC. Stakeholders may be more likely to invest in D<sup>2</sup>EPC if they are aware of the long-term economic advantages of energy-efficient structures. D<sup>2</sup>EPC can draw in companies and building owners looking to minimize operating costs and boost their bottom line by showcasing the quantifiable financial benefits that come from lower energy consumption and operating costs.

### *Social factors*

As awareness of and concern for environmental sustainability and energy efficiency rise, there will likely be a rise in the demand for dEPC. People and organizations will look for solutions that help to reduce carbon footprints as awareness of climate change and its effects grows. As the demand for eco-friendly practices rises, D<sup>2</sup>EPC's focus on precise energy performance evaluations and recommendations for energy upgrades perfectly aligns with this demand, making it a platform that building owners and operators seek out.

Consumer preferences for energy-efficient buildings and the need for healthier interior spaces may have an impact on D<sup>2</sup>EPC's popularity. Modern buyers are actively looking for properties that are sustainable and energy-efficient as they become more aware of how buildings affect the environment. Health-conscious people and businesses may be drawn to D<sup>2</sup>EPC's ability to offer customized recommendations for enhancing energy efficiency and indoor comfort, making it a popular option on the market.

Sociological success factors for D<sup>2</sup>EPC include user-friendliness and the ability to satisfy the unique needs and expectations of various stakeholders. When it comes to energy performance evaluations and improvements, homeowners, investors, and construction industry professionals all have different



requirements and preferences. The user experience can be improved by D<sup>2</sup>EPC's intuitive interface, clear reports, and customizable features, increasing the likelihood that stakeholders will accept the platform as a crucial tool in their decision-making processes.

### **Technological Factors**

The availability and advancement of cutting-edge technologies like sensors, data analytics, AI, GIS, and BIM models is a key enabler for D<sup>2</sup>EPC. These innovations serve as the cornerstone of D<sup>2</sup>EPC's capabilities and enable precise and thorough assessments of energy performance. Data analytics and AI process real-time data from sensors on various building parameters to produce insightful conclusions and suggestions. Spatial data analysis is provided by GIS, and the creation of digital twins for simulation and optimization is made possible by BIM models. The accuracy and efficacy of D<sup>2</sup>EPC will be improved by the ongoing development and improvement of these technologies, making it a cutting-edge option for evaluating the energy efficiency and performance of buildings.

D<sup>2</sup>EPC will need to be compatible with existing systems and platforms as well as support a variety of data formats and protocols in order to be easily deployed and interoperable. D<sup>2</sup>EPC should seamlessly integrate with the wide variety of systems and technologies that are frequently used in buildings. Interoperability guarantees seamless data exchange between various platforms, facilitating stakeholder adoption of D<sup>2</sup>EPC solutions without interfering with existing workflows. The platform's adaptability will increase with the support of various data formats and protocols, enabling it to accept a variety of data sources and adapt to various building types and setups.

The rate of technological development and the emergence of new tools and techniques in energy performance evaluation and visualization can have an impact on D<sup>2</sup>EPC's competitiveness and long-term profitability. There may be new methodologies, algorithms, and visualization techniques as the field of energy efficiency develops further. To remain competitive in the market, D<sup>2</sup>EPC must continue to be at the forefront of these developments. D<sup>2</sup>EPC will continue to offer cutting-edge solutions, giving customers the most precise and insightful energy performance assessments, with regular updates and integration of cutting-edge methodologies.

## **3.2.6 Target Audience**

A wide spectrum of building industry stakeholders makes up the D<sup>2</sup>EPC solution's **target audience**. The primary target group includes building professionals, tenants, real estate agents, and various industries. Important audience segments also include early adopters such as service providers, academic institutions, and governmental organizations/public officials.

The target audience for the D<sup>2</sup>EPC solution can be categorized into several groups:

- **Building Professionals/Construction companies:**

A key target audience for the D<sup>2</sup>EPC solution is the building industry, specifically architects, engineers, retrofitting/construction businesses, and real estate brokers. The different available data by D<sup>2</sup>EPC, regarding energy usage profiling, occupancy data, and interior environmental conditions, can be useful to these experts. The solution provides individualized guidance and suggestions for energy performance improvements, assisting experts in enhancing performance evaluation,



certifications, and integrating energy efficiency measures into building design and construction.

- **Owners/ Tenants:**

For D<sup>2</sup>EPC, tenants are a crucial target market. It can give to the customers useful knowledge and suggestions on how to reduce energy use, better indoor air quality, and improve their general comfort in rental homes. D<sup>2</sup>EPC encourages energy efficiency knowledge and behavior change at the individual level by arming renters with tailored instructions and insights.

- **Real estate agents:**

Real estate agents have a big impact on the housing market and their opinion is important regarding adopting energy-efficient techniques. D<sup>2</sup>EPC can increase awareness of the value of energy performance evaluations, energy certifications, and the advantages of energy-efficient homes by specifically targeting real estate brokers as an audience. This supports the market value of energy-efficient structures and motivates real estate brokers to place an emphasis on energy efficiency in their listings and deals.

- **Various Industries:**

D<sup>2</sup>EPC's wider approach and set of applications can be easily expanded/applied also to different case studies other than the pilot buildings (residential, industrial, research buildings). Such case studies could include includes hotels, factories, and other commercial structures. It promotes energy efficiency projects and aids in the optimization of energy performance in a variety of building types by offering specialized advice and insights catered to the unique energy issues and requirements of these businesses.

Additionally, the D<sup>2</sup>EPC solution targets early adopters who can drive the initial adoption and implementation of the technology. These **early adopters** include:

- **Service Providers:** The most important service providers in the energy efficiency industry are engineers, EPC Assessors, and Energy Service Companies (ESCOs). These specialists may improve their abilities and deliver more precise and thorough energy performance analyses, certifications, and retrofit suggestions by integrating D<sup>2</sup>EPC into their businesses.
- **Academic Institutions:** Academic institutions are essential for research, development, and instruction on sustainable construction practices and energy efficiency. D<sup>2</sup>EPC may work with academic institutions as early adopters to validate and improve the system, carry out research, and educate next energy efficiency specialists.
- **Governmental Agencies/Public Policy Makers:** Governmental organizations and public policy makers play a key role in establishing energy efficiency laws, guidelines, and rewards. D<sup>2</sup>EPC can offer to these stakeholders, solid data, insights, and tools for evidence-based policy choices, energy planning, and promoting sustainable building practices by focusing on these stakeholders.
- **Global Partnerships and Collaborations:** To expand the scope of the D<sup>2</sup>EPC platform beyond Europe and facilitate access for customers in various regions, establishing global partnerships and collaborations is essential. Partnering with international organizations, energy efficiency initiatives, and sustainability programs can help disseminate the platform's capabilities, share best practices, and drive the adoption of energy-efficient practices worldwide. By leveraging global networks, the D<sup>2</sup>EPC platform can aim for a wider audience and contribute to the global transition towards sustainable buildings.



### 3.2.7 Competitors Analysis

The market study and exploitation strategy for the D<sup>2</sup>EPC project absolutely must include **competitor analysis**. It offers useful insights into the competitive landscape, assisting the project in better understanding market dynamics, seeing opportunities, and overcoming obstacles. The project may improve its value offer, target certain market groups, and create smart marketing and sales plans by examining its existing competition.

The D<sup>2</sup>EPC project can find market gaps and untapped possibilities by using competitor analysis. In order to give improved performance and user experience, it aids in understanding consumer preferences and expectations. The project might take a strategic stand and draw attention to its distinctive qualities and benefits by analyzing the strengths and weaknesses of its rivals.

Additionally, competition research enables the project to foresee possible risks and obstacles, enabling proactive risk mitigation actions. It supports innovation and ongoing development by being up to date regarding market trends and cutting-edge technology.

As the exploitable results share the same market environment, the web platform and its various modules were the primary research areas for the D<sup>2</sup>EPC project. The competitor analysis provides targeted insights into related energy performance software tools for building evaluation and computation by focusing on the web platform and particular modules. By taking a narrowly focused approach, the project is guaranteed to gather useful and pertinent information about its main rivals and how D<sup>2</sup>EPC can best position itself to stand out in the market. Many current solutions might be seen as rivals to the D<sup>2</sup>EPC platform in the context of energy performance software tools for building evaluation and computation. Here is a competitive study that highlights some of the **major market players**:

- In the UK, Ireland, Malta, Cyprus, and Gibraltar, non-domestic building energy performance calculations are performed using the **SBEM (Standard Assessment Procedure for Energy Rating of Buildings) method**, which was developed by the BRE (Building Research Establishment). It is used as the standard computation tool, demonstrating its wide market acceptance. However, SBEM might not fully include additional elements like LCA indicators, GIS building information, indoor air quality, thermal comfort, and occupancy, nor may it integrate real-time energy-related data.
- The **IES Virtual Environment (IESVE)** generates Energy Performance Certificates (EPCs) and provides comprehensive dynamic thermal calculations. Additionally, it has BIM platform compatibility, which is useful for smooth interaction with architectural and engineering design processes. While IESVE covers certain sophisticated capabilities, a complete solution that takes into account current energy-related statistics, LCA indications, and other important elements might not be offered.
- **Software from 4M-KENAK Energy** - This program combines BIM using IFC files and addresses criteria for building certification. It applies an in-depth methodology for evaluating and certifying energy performance. However, it is crucial to assess its capacity with regard to the integration of real-time energy data, sophisticated indicators, and the all-encompassing coverage offered by the D<sup>2</sup>EPC platform.



- The [RdSAP Online in Elmhurst](#) - The program from Elmhurst is concentrated on household energy evaluations and EPC ratings. It makes it simple to submit EPCs to central registries and fulfills UK market regulations. The D^2EPC platform seeks to handle the greater spectrum of building complexes and public buildings;
- [DesignBuilder](#) promises to be the quickest and simplest technique in the UK for producing EPCs from BIM models. While the platform excels at producing EPCs, it's critical to evaluate its capabilities in terms of the integration of real-time energy data, coverage of additional elements, and potential to serve a larger worldwide market.
- [Greek on the web simplekenak](#). By incorporating pertinent reference sources, this program automates the majority of EPC data entry. The wide range of current energy-related data and the extensive list of parameters are taken into account by the D^2EPC platform should be assessed.

The D^2EPC platform offers a competitive advantage due to its comprehensive approach, the incorporation of real-time energy-related data, integration of advanced indicators and systems, and aim to address the global market outside of Europe, despite the fact that existing software tools have a well-established market presence and specific strengths. In order to present the D^2EPC platform as a better and all-inclusive solution in the energy performance software industry, the exploitation report should underline these unique selling qualities.

### 3.2.8 Risk Management

The D^2EPC project is a large-scale initiative with the goal of transforming building energy performance through the creation of an advance software solution. A **comprehensive risk analysis** and priority map have been done in order to guarantee the project's success. This examination tackles a number of risk categories, including marketing, partnership, financial, risks relating to intellectual property rights (IPR), and risks relating to technology.

**In terms of marketing risks**, the project must contend with issues such as the integration of additional complex indicators being viewed as too complex in Building Information Modeling (BIM), limited user technology familiarity, competition with international players, and potential professional hesitation regarding the usage of the tool. The project has developed particular strategies to mitigate these hazards. Campaigns will be launched to raise stakeholder knowledge of the advantages and features of the D^2EPC platform. In order to alleviate user technological illiteracy, extensive training and dissemination initiatives will also be carried out. To stand out in the cutthroat competition, the project will add new functions to the platform, especially those connected to IoT network monitoring and visualization. The project's strengths and advantages will be promoted by efficient communication and exploitation operations, which will also be used to counter any potential professional resistance.

#### Partnership risks

Partnership risks are an important factor to be considered. These concerns include difficulties with resource management, ownership regulations, and partner participation. The potential dispute over ownership regulations is the unique risk for the D^2EPC project. Standard IPR and access rights



sections will be included to the contract agreement to solve this issue, easing commercialization and guaranteeing clarity. The intervention entails revising the clauses as needed to account for changing demands. Resource reallocation will also be used to reduce the risk of having insufficient or insufficient resources to manage product complexity, calling on the expertise of core D<sup>2</sup>EPC partners in significant technology-driven innovation initiatives.

#### **Technological Risk Factors:**

The D<sup>2</sup>EPC project has a number of technological concerns, including dependencies, difficulties with data collecting, solution complexity, device obsolescence, dependency on certain software and IoT hardware, and platform maintenance. Significant dependence on other technologies and challenges in gathering and combining data from various end-devices are two examples of the unique concerns. The D<sup>2</sup>EPC solution will be provided in standalone packages to handle dependencies. In order to achieve data fusion, interoperability, and information sharing, the proper tools and processes will be built to address data gathering difficulties. Prior to integration, tests should be run to resolve coordination issues and guarantee compatibility. By increasing the D<sup>2</sup>EPC's compatibility with new gadgets, the chance of supported devices being out of date will be reduced. By using just open-source tools and code, the solution will no longer be dependent on particular software or IoT devices. The platform will be built to manage potentially higher data loads, providing additional data processing features and concurrent connections to numerous databases.

#### **Marketing Risk Factors:**

The D<sup>2</sup>EPC project's marketing risks include issues with BIM integration, user uptake, competitiveness, and professional approval. Through stakeholder awareness campaigns and the provision of an extensive manual for EPC assessors, the peril of the integrated BIM with extra indications being seen as overly complicated is addressed. Users' lack of technological knowledge has been addressed through training and informational activities. The D<sup>2</sup>EPC platform improved with new features, particularly those pertaining to IoT network monitoring and visualization, in order to outperform the competition. The project's accomplishments and strengths will be promoted through effective communication and exploitation efforts. Via focused communication and exploitation efforts, the risk of not be embraced and perceived as an expensive/complicated overall strategy by professionals will be reduced.

#### **IPR/Legal Risk Factors:**

The success of the initiative depends on the preservation of intellectual property rights (IPR). Concerns concerning data privacy vulnerabilities and risks such disagreements over IPR or investment need to be addressed. Early negotiations and agreements about IPR and investment issues have been made as part of the D<sup>2</sup>EPC project, that legally framed. This strategy guarantees comprehension and reduces the likelihood of disagreements. A robust data protection strategy established to address data privacy issues, guaranteeing the security and privacy of user data.



### Financial/Management Risk Factors:

To make sure the project is sustainable and successful in the long run, financial risks must also be carefully tackled. Risks including lack of funding from R&D initiatives, an insufficient exploitation plan, deficient extra resources, and information management issues could be obstacles. The project made a concerted effort to seize prospects for luring investors via websites like Horizon Results in order to mitigate these dangers. To create a solid exploitation strategy, expert consulting has been used. Funding for the development of the D<sup>2</sup>EPC component will be sought for by active participation in R&D initiatives. In order to get around the challenges brought on by different EPC classifications among member states, an effective information management system had also been put in place.

### Environmental/Regulation/Safety Risks:

Environmental/Regulation/Safety risks are potential issues and worries about how the D<sup>2</sup>EPC project would affect the environment, how it will comply with regulations, and how it will address safety issues. The non-establishment of the Sustainable Renovation Indicator (SRI) may act as a barrier for its adoption. The project worked towards establishing the SRI assessment framework, showcasing the environmental and safety benefits of the D<sup>2</sup>EPC platform to encourage adoption.

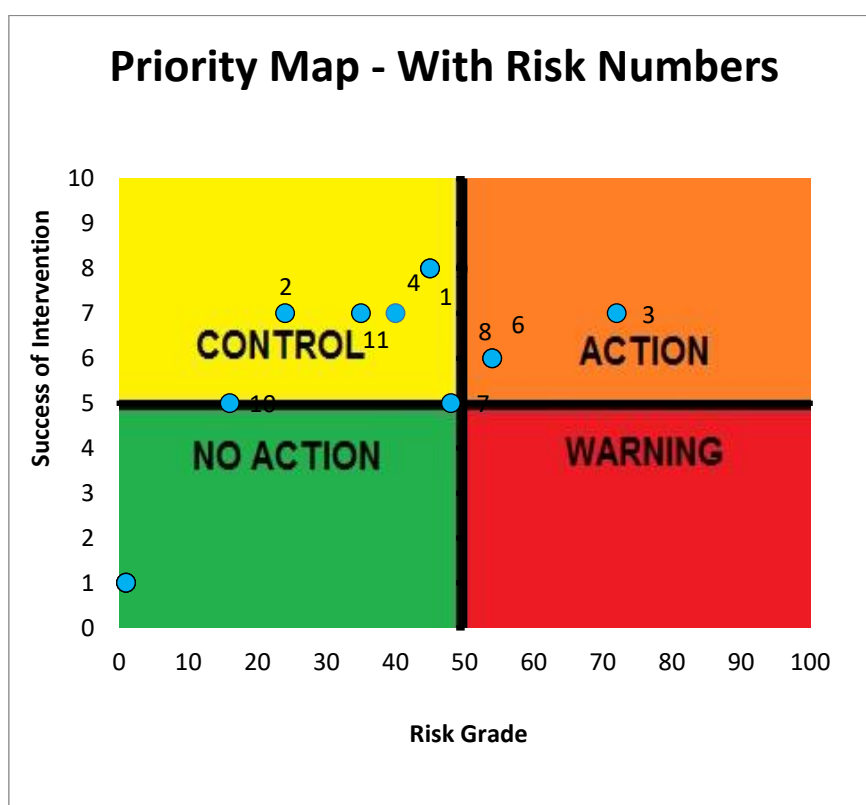


Figure 9. Risk Management priority map

The Risk Management priority map in the Figure 9 is an effective tool for graphically illustrating the various risks that the D<sup>2</sup>EPC project is facing and their corresponding priorities for action. The horizontal axis of the map represents the level of risk control. The left side of the axis represents risks that are either under control or have been successfully mitigated. The project team has addressed

these risks and put policies in place to lessen their impact. Risks are areas over which the project has little control, so they are shown on the right side of the axis and call for immediate attention and proactive risk management techniques.

The urgency for action is indicated by the vertical axis. Low priority risks are those that pose little risk or can be dealt with later. These risks are those that are listed at the bottom of the axis. On the other hand, risks positioned at the top of the axis indicate a high need for action. These are risks that need to be addressed right away and quickly mitigated to avoid any negative effects.

Each risk is evaluated and given a risk grade, which expresses how serious of a threat it may be. A risk grade of one denotes a low risk, and a risk grade of 100 denotes a very serious risk that could have catastrophic consequences.

Based on the combination of these dimensions, the locations on the Risk Management Priority Map are assigned. The bottom-left corner of the map will be home to risks that are both managed and require little immediate action. These risks can be monitored without taking immediate action and are typically well-managed.

The top-right corner of the map in Figure 9 will be where risks that need immediate attention and have little control will be located. In order to prevent negative outcomes, these risks necessitate swift and effective risk mitigation strategies. Such risks haven't been identified for the D<sup>2</sup>EPC case.

The list of risks, including their assessment and mitigation actions has been included in Annex 3.

### 3.3 Distribution Plan

The T7.4 Exploitation activities, focusing on the management of intellectual property rights (IPR), and on maintaining the sustainability after the project, along with the key performance indicators (KPIs) defined in the project proposal, working in conjunction with **T7.1 Publicity and dissemination policy, planning, and review**, **T7.2 Communication & Dissemination Activities & Material**, **T7.3 Contribution to standardization activities**, provides the overall exploitation strategic plan of D<sup>2</sup>EPC exploitable results. These efforts aim to facilitate widespread adoption of the project's findings, thereby maximizing the impact of D<sup>2</sup>EPC modules, products and methodologies.

D<sup>2</sup>EPC assets can support Scalability and Adaptability: The full production system is designed with scalability, allowing it to adapt to the specific needs and requirements of different stakeholders. This flexibility enables the system to cater to a wide range of stakeholders, including organizations of varying sizes, geographical coverage, and operational scenarios. Stakeholders require a scalable and adaptable solution that can accommodate future technological advancements and evolving needs, ensuring that the solution remains effective and relevant over time, adapting to changing patterns.

The commercial viability of the full production D<sup>2</sup>EPC solution system lies in the potential revenue streams it can generate. This includes licensing the system to stakeholders as a software-as-a-service (SaaS) model, offering subscription-based access (monthly or yearly), or providing tailored solutions and consulting services. D<sup>2</sup>EPC solution system can also use a model to charge for customer service. Customers who want or need additional support can be charged a monthly



or yearly fee, to get the support- customer service when they need it, and for some customers can be a 24/7 (operational) that can have a different value.

To empower widespread acceptance and successful commercialization of the project's findings, the distribution plan is included in the exploitation report for D<sup>2</sup>EPC. This plan is a strategic document that explains a project's or venture's aims, objectives, and tactics. In the case of D<sup>2</sup>EPC, a well-developed business plan is required for optimal utilization of its results. It serves as a road map for the project partners, outlining the market positioning, distribution routes, sales tactics, marketing efforts, and cost structures. The following sections further elaborate on the distribution plan for D<sup>2</sup>EPC: objectives and target audience, channels for dissemination, sales strategy, marketing and promotion initiatives, cost structure analysis, and sales forecast.

### 3.3.1 Objectives and Target Audience

**D<sup>2</sup>EPC's objective** is to provide an innovative, cost-effective, user-friendly, and efficiently multipurpose tool, catering not only to the private sector, but also to public bodies and policymakers. The commercialization and market positioning of the final product of D<sup>2</sup>EPC will be driven by its originality, aiming to address the market gap for innovative services related to EPCs. The **target audience** for D<sup>2</sup>EPC, as mentioned above, includes private sector organizations, public bodies, policymakers, real estate owners, energy consultants, and European academic institutions. The distribution strategies are tailored to address the needs and interests of each target group.

### 3.3.2 Distribution Channels

The D<sup>2</sup>EPC distribution strategy utilizes a variety of distribution channels to enable successful dissemination and adoption of the project's new technologies. The web platform allows continuous monitoring of energy performance, and the standalone instrument provides energy categorization and EPC issuing. Partnerships with business projects, academic institutions, and government agencies increase exposure and credibility. D<sup>2</sup>EPC aims to entice a wide audience, give relevant solutions, and contribute to the improvement of energy performance assessment methods through various channels. The D<sup>2</sup>EPC distribution channels can describe as following:

**The Online Web Platform:** D<sup>2</sup>EPC basic asset is an online web platform that enables continuous monitoring of a building's energy performance. This platform is accessible via subscription-based services or offline, by acquiring the product's permanent license, provides frequent information on energy performance. Several modules and project services will be accessible into the platform, including EPC calculation engine that is incorporated into the Platform, and includes the asset rating module, the operational rating calculation module and the building performance module . The user except for this service through which one can monitor and assess the operational energy performance of their buildings, can also use the WebGIS module for data provision, receive energy efficiency suggestions depending on the energy class of the building and receive alerts and notifications, among others regarding their preferences. The Web Platform is user-centered, which means that different features can be active depending on the user's role (e.g., owner/tenant, engineer, assessor).



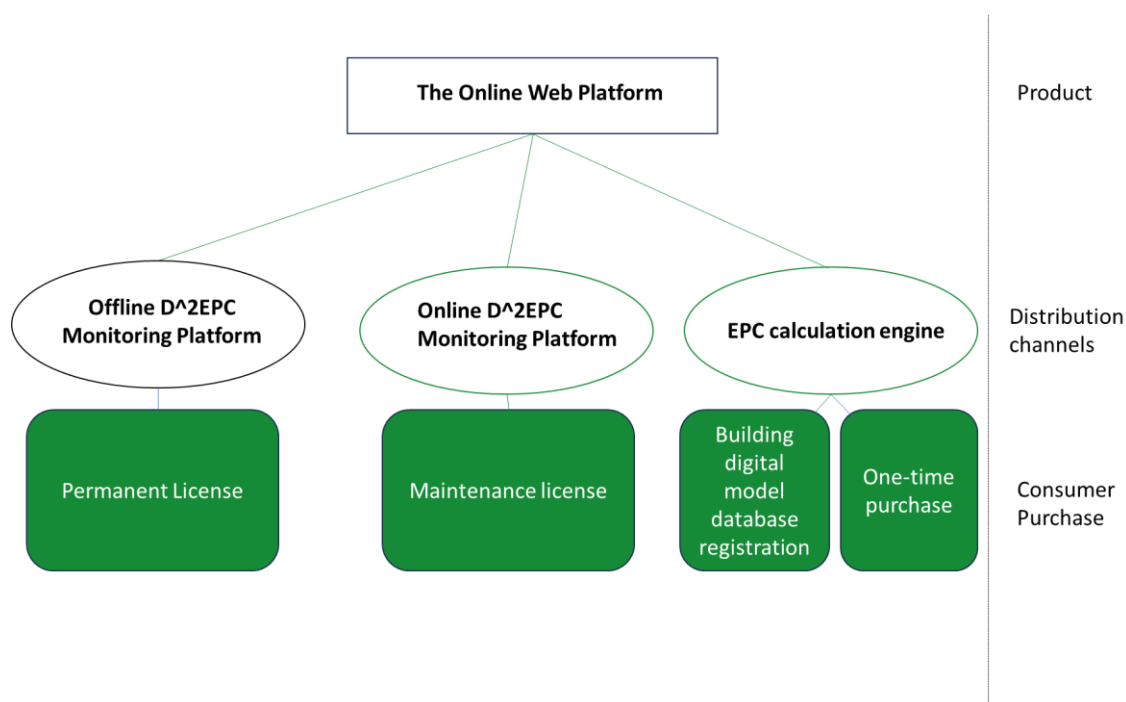
The distribution channels for the D<sup>2</sup>EPC Web Platform include:

**1)Offline D<sup>2</sup>EPC Monitoring Platform - Permanent License:** The D<sup>2</sup>EPC Monitoring Platform is offered as an independent solution for private use, with a permanent license available for purchase. The user can buy the platform with some or all of the subcomponents.

**2)Online D<sup>2</sup>EPC Monitoring Platform - Maintenance license:** The D<sup>2</sup>EPC provided also a subscription-based online version of the D<sup>2</sup>EPC Monitoring Platform that allows customers to obtain frequent updates and maintenance. The Maintenance license can be offered in a monthly or yearly packages that can be differentiate regarding the added values of the platform which the customers want to buy. The customer can use a free trial for a testing period.

**3)EPC calculation engine:** As part of the platform, an online EPC calculation engine allows customers to compute and analyze energy performance. The asset rating calculation module, the operational rating calculation module and the building performance module is included into the online platform's EPC calculation engine. Users may examine the energy performance of their buildings and obtain reliable evaluations based on a set of metrics. The customer has the option of:

- *One-time purchase:* This option provides consumers with the option of purchasing the EPC calculation engine once and having permanent access to the platform. The
- *Building digital model database registration:* This option allows customers to register their building's digital model in the platform's database for accurate energy performance monitoring.



**Figure 10. The online web platform product**

**Standalone Tools:** This option provides to the customers an independent instrument for energy categorization and EPC issuing. At this point, it should be mentioned that the platform can be exploited as a full product or depending the user's needs, separated and independent tools of it

can be obtained. These tools can be added into geospatial software as the WebGIS platform can be sold as a powerful tool for monitoring energy efficiency and they can be sold along with their methodologies of the modules that they consist of. This utility is available as a one-time license for personal use. More specifically, these tools include the following:

- The Information Management Layer is a robust standalone utility that enables consumers to access, analyze, and manage real-time data from sensors connected to their facilities. Users may quickly monitor and track important factors and indications linked to energy performance and interior conditions using a simple user interface. This module includes the 'Energy Performance Verification & Credibility', a tool that monitors the operation of an IoT network deployed in a building and guarantees the quality of streaming data. It is specialised in energy consumption and indoor ambient condition data streams from building IoT infrastructures. This application delivers constant insight into building operations, allowing for data-driven decisions about energy management and occupant comfort. The Information Management Layer methodology is sold along with the real-time data obtained from the respective sensors established by D<sup>2</sup>EPC.

- The WebGIS tool can be a single product as a standalone tool. In order to better understand and analyze the performance of buildings, the WebGIS application has the capacity of 3D BIM visualization. Customers, can obtain aggregated EPC data for a district, for example obtain statistics, and run queries using it. Numerous stakeholders, such as real estate owners, decision-makers, and specialists in the field, can benefit from the offered information.

- EPC calculation engine: The Calculation engine is one of the fundamental components of D<sup>2</sup>EPC. This component is responsible for performing all the necessary calculations for accurately assessing both asset-related and operation-related performance. Three main modules are implemented to deliver the whole spectrum of KPIs included in the D<sup>2</sup>EPC scheme. The Asset Rating module is related with the calculation of the building's as-designed energy performance, while the operational energy performance of the building is examined by the dedicated Operational Rating module. The extended set of KPIs regarding the building's financial and environmental status, human-comfort conditions as well as smart-readiness are calculated by the Building Performance Module. The customers can buy the engine along with the methodologies of the three modules of the engine was consisted.

- The Added Value Services suite provides clients with a package of advanced AI-driven capabilities to improve energy performance and occupant comfort. This standalone solution incorporates strong AI algorithms to give customised suggestions tailored to each customer's specific needs. The package includes a road mapping tool to aid with long-term energy planning, AI-driven performance projections to predict energy usage patterns, and performance alerts and notifications for real-time monitoring. Users may utilize these capabilities to investigate prospective energy-saving solutions, find appropriate upgrading situations, and receive tailored warnings and notifications to improve energy management.

- The Extended dEPCs Applications Toolkit is available as an individual tool, allowing clients to maximize the value of their energy performance data. This toolbox includes a variety of functions for ranking buildings based on EPC criteria and numerous indicators, providing important insights into building energy efficiency. The toolkit contains crucial features such as Building Energy efficiency Benchmarking, which allows clients to compare the energy efficiency of their facilities to industry norms and benchmarks. Furthermore, the Energy Performance Verification tool provides accurate and dependable energy performance statistics, boosting trust and confidence in the outcomes.



### c) Partnerships:

The distribution of D<sup>2</sup>EPC's assets creating awareness and credibility, will be conducted through collaborations with other initiatives, sister projects (such as the NextGen EPC cluster), and European academic institutions. Additional revenue opportunities may arise from data monetization, partnerships, and collaborations with relevant companies'/ industry players e.g., software companies that serve the maritime sector. Participate in national efforts and collaborate with state organizations can be a major distribution channel. This includes the bellow:

**Establishing partnerships with energy consultants and building professionals to promote the D<sup>2</sup>EPC Monitoring Platform and standalone tools:** Through collaborating with these industry experts, the platform will be able to reach a larger audience and gain credibility in the energy efficiency sector. To raise awareness and adoption of the D<sup>2</sup>EPC platform and the different subcomponents, these collaborations will involve joint marketing efforts, knowledge sharing, and mutual promotion.

**Collaboration with other organizations and educational institutions:** The platform can broaden its reach by collaborating with projects and academic institutions focused on energy performance evaluation. Collaborative initiatives such as research collaborations, joint events, and knowledge exchange will be investigated to strengthen the platform's market position.

**Participation in national activities:** To demonstrate the capabilities and advantages of the D<sup>2</sup>EPC platform, active participation in national activities related to energy performance evaluation, such as conferences, workshops, and events, will be undertaken. By actively participating in these activities, the platform can demonstrate its value proposition to a broader audience, including policymakers, industry professionals, and potential customers. Presentations, demonstrations, and networking opportunities will be used to highlight the platform's distinct features and benefits.

**Cooperation with state bodies:** Cooperation with state bodies in charge of energy performance assessment rules will be pursued in order to ensure compliance and contribute to the advancement of energy performance assessment methods in European cities. The D<sup>2</sup>EPC platform can align with industry standards and regulations by collaborating with these regulatory bodies, increasing its credibility and market acceptance. The platform will actively contribute insights and expertise to help shape policy decisions and the future of energy performance assessment practices.

### 3.3.3 Sales Strategy

A **sales strategy** is a plan of action designed to sell a product or service to a specific group of clients. Identifying new clients, understanding their requirements and preferences, and executing particular methods to create leads, develop relationships, and complete sales are all part of the process. The sales strategy for the D<sup>2</sup>EPC assets initiative may be separated into two categories: **Direct Sales** and **Partnerships**.



### a) Direct Sales

The following methods can be used in the direct sales strategy for D^2EPC:

**Dedicated Sales team members:** A dedicated sales team will successfully market and sell the software platform by using a consultative sale strategy. In-depth talks with prospective clients will be held in order to fully comprehend their unique needs and problems with regard to energy efficiency and building performance. The sales team will highlight how D^2EPC web platform will solve those demands, expedite procedures, and produce measurable outcomes by customizing their presentations and demos.

The sales team will customize their demonstrations and presentations accordingly to the needs of each client, ensuring a tailored approach that addresses their specific requirements. Furthermore, the sales team will showcase the different subcomponents of the platform, including WebGIS and the methodologies of the project, pointing out how these unique solutions can effectively meet the targeted customer needs. In order to show how the platform would enable users to optimize their energy consumption, cost saving. They will emphasize capabilities including real-time data analysis, accurate performance evaluations, and tailored suggestions.

**Market Research:** Through extensive market research, the key point of the market has been identified. A SWOT analysis, a competitor list, and a PEST analysis have been described. However, continuous market research will keep the strategy updated regarding to industry trends, evolving client needs, and emerging opportunities. This ensures that the D^2EPC product will remain at the forefront of the market and as it will enable the web platform to meet the evolving demands of businesses. This market research will always provide valuable insights into the concerns and obstacles faced by businesses in relation to energy performance certification.

With D^2EPC, a user-friendly platform is offered with added-value modules that simplifies the certification process, increases productivity, and provides valuable insights for businesses. It is important to create and update the D^2EPC customer persona<sup>6</sup>, not only for the web platform but for the separated subcomponents like WebGIS and the information management layer.

**Presentations and Product Demos:** The capabilities and advantages of D^2EPC's assets will be highlighted through presentations and product demonstrations. These demonstrations and presentations will be adapted to the targeted requirements of potential customers, ensuring a personalised approach that meets their particular needs. As already mentioned, consideration of the customer's specific needs will be taken into account, and the different submodules of the project will be utilized. For example, academic institutions in the target audience might show interest in a presentation that focuses on the project's methodologies.

**Personalized Solutions:** To fully comprehend each prospective client's needs and concerns, extensive consultations will be held. Customized answers that support their goals and preferences will be offered; they may include adjustments, system integration, or extra services catered to their

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<sup>6</sup> Customer persona is the target audience fully described with specific characterisation regarding the age, the preferences, the sex, etc.



particular needs. By providing specialized solutions, D^2EPC's assets will set itself apart and increase its appeal to potential customers.

**Follow-Up and Relationship Building,** Systems errors or the use of inaccurate data can potentially jeopardize customer relationships. Thus, customer relationship management is recognized as an essential component of the B2B marketing and sales process. As a result of the effective CRM, customer's feedback can be obtained, service issues can be documented, sales opportunities can be identified, and campaigns can be effectively managed.

Precision targeting, lead nurturing, and superior customer experiences can be consistently achieved with easy access to information about every customer interaction.

## **b) Partnerships**

In addition to direct sales, partnerships may significantly boost D^2EPC's sales and distribution efforts. Several particular strategies for forming alliances are the following ones:

**Identify Potential Partners:** Energy consultants, construction specialists, and trade associations will be sought as industry partners to investigate the potential benefits of incorporating D2EPC into their offerings. As potential partners can be considered the organizations with similar goals and client bases.

Incorporating D^2EPC into their businesses can provide significant benefits to energy efficiency service providers such as engineers, EPC assessors, and Energy Service Companies (ESCOs). These businesses experts can expand their capabilities and provide more precise and thorough energy performance analyses, certifications, and retrofit recommendations. This collaboration enables them to use D^2EPC's advanced methodologies, modules, and tools to provide comprehensive and innovative energy efficiency services to their clients.

**Marketing and Promotion Collaboration:** To maximize the reach and impact of D^2EPC's assets, collaborative marketing and promotional campaigns will be developed with partners. Co-branded marketing materials, seminars, and promotional events will be used to advertise D^2EPC as an integrated service and highlight the individual components, emphasizing the benefits they offer consumers and how they complement their current offerings. D^2EPC's web platform, as well as its subcomponents, will be promoted both collectively and individually in order to effectively convey the value they bring to customers.

**Training and support:** Selling and marketing partners will receive extensive training and support to ensure they are well-equipped to market and sell D^2EPC. Training sessions will be held, as well as comprehensive product manuals and ongoing support to address any questions or technical concerns. Partners will receive specialized training on the D^2EPC software platform, with an emphasis on understanding its features and capabilities. They will also be taught how to use the various subcomponents separately, allowing them to confidently recommend and incorporate D^2EPC into



their services. With the necessary information and tools, partners will be well-prepared to promote and fully utilize D^2EPC.

**Bundled Services/Packages:** Collaborative partnerships will be formed in order to develop packaged services or bundles that integrate D^2EPC with the areas of expertise of the partners. We will provide clients with a comprehensive solution that covers all aspects of energy performance certification by combining D^2EPC's strengths with the specialized offerings of our partners. The platform's various components, such as WebGIS, will add value to partners' solutions, improving the overall capabilities of the bundled service. Pricing packages will be developed to ensure mutual benefit, with the goal of incentivizing marketing and promotion of the integrated solution. This strategic decision to collaborate and develop value-added packages will be implemented to provide clients with a comprehensive and powerful solution for their energy performance requirements, strengthening our market position and driving customer satisfaction.

### 3.3.4 Marketing and Promotion

The D^2EPC's asset's **marketing and promotion strategy** includes a variety of initiatives targeted at raising awareness, generating interest, and driving adoption of the energy performance certification solution. Key exploitable assets can successfully express its unique value offer, create credibility, and differentiate itself from competitive products through smart marketing activities. D^2EPC's key exploitable result should be marketed and promoted as a user-friendly software solution with unified submodules as well as separate components that cater to specific customer needs. These include incorporating advanced information into EPC calculations, incorporating advanced algorithms for energy upgrade recommendations and forecasting, and implementing an intelligent operational digital platform for EPCs. It is important to clarify that although the main category of target audience is business, individual clients could be the end users for whom marketing and promotional efforts can be tailored. This section describes the distribution plan, which includes internet marketing strategies, events and trade show participation, and public relations operations. These techniques will help increase brand awareness, attract new consumers, and drive sales. The following will present the precise marketing and promotion techniques that will be used to attain these goals, such as internet marketing, events and trade exhibitions, and public relations.

#### a) Digital Marketing

Implementing a thorough digital marketing plan is critical for effectively reaching and engaging the target audience. D^2EPC web platform and content are optimized to be shown prominently in search engine results by applying search engine optimization (SEO) techniques. This will enhance D^2EPC solutions' traffic and visibility. Furthermore, customized campaigns will be designed in order to attract potential consumers, who are actively looking for energy performance certification solutions by employing pay-per-click (PPC) advertising. Content marketing is critical in offering important information through blog posts, articles, and case studies, positioning D^2EPC's assets as an industry thought leader. Another route for involvement is social media marketing, a cheap way to interact with



the target audience, distribute relevant material, and establish a community around energy performance certification solutions in business.

**Search Engine Optimization (SEO):** SEO is one of the most important customer acquisition channels for B2B marketing. Having strong visibility across all stages of the buying cycle is a proven way to accelerate growth. An extensive keyword research has to be conducted to uncover relevant and high-ranking keywords in the sector of energy performance certification. The improvement of the search engine results and organic visibility is essential and can be achieved by optimizing the D<sup>2</sup>EPC website and content using these keywords. Last but not least, interesting meta titles and descriptions will be created that will improve click-through rates from search engine results pages.

**Pay-Per-Click (PPC) Advertising:** PPC is a system that offers in B2B marketing the ability to capture leads fast and efficiently. The target market is basically raising its hand and saying it's interested in the product or service, and it does so by typing in search keywords on Google or Bing. Marketing and promotional efforts of D<sup>2</sup>EPC solutions will focus on creating targeting PPC campaigns using platforms such as Google Ads. Create appealing ad text that includes important keywords in order to attract potential clients looking for energy performance certification solutions will be created. The use of precise audience targeting to orientated towards certain demographics, places, and interests is one of the key elements of PPC advertising in D<sup>2</sup>EPC promotion. It is important to analyze the campaign results on a regular basis in order to optimize depending on conversion rates and return on ad spend.

**Content Marketing:** A good B2B content marketing campaign will help build trust in D<sup>2</sup>EPC key exploitable assets, provide valuable information to target audience, and inspire companies to choose the web platform and its components. Useful and helpful material will be created that will focus not only to the utilities and strengths of the web platform or the modules such as WebGIS but also that to the target groups' pain points and difficulties. Relevant blog entries, articles, and case studies has to be issued and published in order showcase the advantages and features of D<sup>2</sup>EPC platform. This information will be distributed on D<sup>2</sup>EPC website, blog, and social media platforms to develop thought leadership and boost organic traffic. Last but not least, there will be social sharing and interaction in order to increase reach.

**Social Media Marketing:** For several reasons, B2B organizations rely heavily on social media. One of the basic features is that it provides a valuable platform for connecting with potential and existing clients, encouraging engagement and relationship building. Social Media are well-established channels that will be used as content distribution, that will allow to D<sup>2</sup>EPC asset's insights to be shared. In addition, updates, and thought leadership while also increasing brand visibility and establishing expertise. The use of the main social media platforms such as Facebook, Twitter, LinkedIn, and Instagram will help to engage with the target audience. More specifically, target audience of D<sup>2</sup>EPC key exploitable results is mainly businesses therefore Twitter and LinkedIn are the main platforms that have to be used. However, based on what is mentioned in the beginning regarding the indirect target audience, as it is mentioned in the beginning, other social media platforms will be deployed in order to reach the end users of the Dynamic EPCs. These platforms will help project assets to build their brand identity and voice, shaping their image and authentically connecting with their target audience. A publishing schedule and an offer of compelling material like instructive articles, infographics, videos, and client testimonials will enhance the image of the brand. Engage with followers, swiftly answer to comments and concerns, and cultivate a community around



energy performance certification, can also serve as a client support channel, providing a convenient and accessible way to address inquiries, concerns, and provide assistance. Finally, an active social media presence will help D^2EPC assets with search engine optimization (SEO), as social signals and interactions have a positive impact on website visibility and rankings in search results. In order for more efficient efforts to be made, the use of social media and paid advertising to broaden assets reach and target certain user categories is essential.

**Email Marketing:** Email marketing is one of the most important marketing channels for any company—and that's especially in the B2B space, where is the most of the D^2EPC assets' target audience. One of the most important things that will be created through the email marketing is the creation of an email list of prospective and current consumers in the energy efficient field (Tenant, public agencies, academic institutions etc.). It is important personalized email campaigns to nurture prospects, give excellent information, and promote D^2EPC platform and features. For example, a demonstration of the features of the web platform has to be the main objective for an email campaign targeting EPC assessors while the methodologies such as the Asset rating calculation model has to be the main objective for academic institutions. To enhance engagement and conversions, emails based on consumer choices and behavior will be personalized. To optimize email marketing, track open rates, click-through rates, and conversions will be tracked.

## **b) Events & Trade Show**

D^2EPC assets can be demonstrated to new networks of clients, and raise brand recognition by participating in trade shows, conferences, and industry events. D^2EPC exploitable results will successfully reach its target audience by carefully selecting relevant occasions. Having a standing booth presence with fascinating graphics and interactive displays will attract guests and enable for meaningful conversations. Delivering compelling presentations during speaking opportunities or panel discussions helps the exploitable results to position themselves as efficient solutions and helps the audience comprehend the product's value and potential. Significant relationships can be developed and future collaborations can be explored by actively networking with participants and industry leaders. These actions can increase the assets awareness, generate leads, and create partnerships within the industry by using events and trade exhibits.

**Select Relevant Events:** A research and a careful selection of events, will attract the target audience, such as industry-specific conferences, green building expos, and energy efficiency summits. The event will be a good chance to disseminate the D^2EPC asset's value proposition and objectives. By presenting the features of the web platform as well as the capabilities of every asset separately as a standalone tool can attract the interest of potential clients that participated in these events.

**Create an Engaging Booth Presence:** A visually appealing booth will be intended to demonstrate D^2EPC's key features and benefits. High-quality images, interactive displays, and multimedia presentations will entice visitors. To provide valuable information, educational pamphlets, product papers, and advertising materials will be distributed that emphasizing in the distinct selling qualities of D^2EPC, including its web platform and subcomponents. Efforts will be made to ensure that the booth effectively highlights D^2EPC's assets, providing attendees with a captivating and informative experience.



**Deliver Engaging Presentations:** Participate in conferences and engage in panel discussions about energy conservation, sustainability, and building efficiency will be an opportunity to present D^2EPC module product and methodologies main features. A compelling presentation that highlights D^2EPC's value and potential will be the key to achieve engagement with the target audience.

### c) Public Relations

Public relations regarding the D^2EPC solutions are critical to increasing brand visibility and reputation. D^2EPC assets may highlight noteworthy advancements, partnerships, or product launches by delivering press releases to appropriate media channels, gaining the attention of industry journalists and influencers. Moreover, the acquisition of media attention and the development of leaderships by establishing relationships with journalists and industry influencers through guest articles, expert comments, and participation in interviews it is a vital part of the project results marketing efforts. These assets will be established as a trusted authority in the sector by sharing relevant ideas and success stories. Furthermore, pursuing accolades and recognitions highlights D^2EPC asset's quality and strengthens its reputation. It can successfully explain the value proposition of the assets, obtain media exposure, and establish a strong brand presence in the energy performance certification sector by using public relations methods.

**Press Releases:** Press releases will be delivered to announce significant advancements, collaborations, new product launches, or notable successes involving the D^2EPC web platform and its individual modules. This strategic communication tool is ideal for B2B marketing because it allows for the targeted distribution of critical information to industry stakeholders. These press releases will be distributed via web directories, trade publications, and select media outlets. To increase the likelihood of receiving media attention, efforts will be made to establish contacts with industry journalists and editors. Journalists will be given clear and informative press kits emphasizing the unique value proposition of the D^2EPC web platform and its individual modules, ensuring accurate and compelling media coverage.

**Engaging Journalists and Industry Influencers:** Journalists, bloggers, and industry influencers who cover energy conservation, sustainability, or building performance will be connected by providing them with useful information, exclusive insights, or early access to notable D^2EPC material. Guest contributions or expert analysis on industry trends or changes will be requested. To gain insights into the project, media and influencers will be invited to product launches, demos, or webinars. This is critical for B2B organizations, particularly for the D^2EPC web platform, submodules, and methodologies, as it allows for the development of strong relationships with industry influencers. D^2EPC can benefit from the endorsement and expanded reach of key influencers and industry thought leaders by cultivating these relationships, increasing its visibility and credibility in the target market.

**European standardisation working group:** D^2EPC proposed the creation of a European working group (CEN/TC 371/WG 5) to develop a standard on operational assessment of energy performance of buildings. This group includes experts from industry, academia or public bodies and can also disseminate the news about dEPC in Europe and, in particular, D^2EPC activities.



## d) Measurement and evaluation

Key performance indicators (KPIs) will be developed to track the effectiveness of marketing and promotion operations. Analytic tools can be used to track the number of website visitors, session time, and page views. Conversion tracking will be implemented to track the number of leads and conversion rate. Consumer feedback systems, such as surveys or reviews, will be put in place to assess customer satisfaction and gather valuable insights for future improvements. Data will be analyzed and assessed on a regular basis in order to optimize distribution processes, identify areas for improvement, and make informed resource allocation decisions. More information on these monitoring and analysis processes will be provided in the report's subsequent pages.

**Sales Performance:** The effectiveness of sales activities will be tracked and evaluated to determine the distribution plan's success. Earnings from D<sup>2</sup>EPC sales, including both direct sales and partnerships, will be tracked. Sales growth rates will be tracked over time in order to assess the effectiveness of distribution initiatives and identify patterns or trends. The customer acquisition cost (CAC) will be calculated to ensure that the budget and profitability targets are met. The effectiveness of lead nurturing will also be evaluated. Further information about tracking and evaluating sales activities will be provided in the report's subsequent pages.

### 3.3.5 Sales Forecast

**Sales forecasting** is the process of predicting future sales in order to acquire funds from lenders and investors or to make confident business decisions. Making projections for certain time periods, such as the upcoming three, six, or twelve months, may prove valuable.

In this section, with a focus on the commercial exploitation of the D<sup>2</sup>EPC features, more fundamental financial assumptions and first predictions for the business strategy are presented. The forecasts are based on the project's exploitable assets and a scenario of cooperative exploitation, while individual exploitation options are considered.

**Product categories and Revenue Streams:** The revenue streams have been divided into five types of goods and services in order to examine the financial projections:

#### 1) Revenues from D<sup>2</sup>EPC Platform Permanent Licenses:

The D<sup>2</sup>EPC platform will offer a one-time permanent license at a cost of 60,000 Euros, accompanied by an annual maintenance fee of 15%. This package includes unlimited users and training, providing clients with unrestricted access to the platform's functionalities. Based on historical data and market demand, the sales forecast for permanent licenses is demonstrated in Table 3.

#### 2) Revenues from Leasing Options of D<sup>2</sup>EPC Platform (SAAS):

D<sup>2</sup>EPC also will offer flexible leasing options on a yearly and monthly basis, with training included in every package. Similarly, the monthly leasing packages are structured in the same base as the yearly package. The yearly and monthly leasing packages vary according to the number of users and it is described in the Table 3.



#### 4) Revenues from EPC Calculation Engine:

The EPC Calculation Engine, a crucial component of the D^2EPC platform, will offer a permanent license at a cost of 25,000 Euros, along with an annual maintenance fee of 15%. Similar to the platform's permanent licenses, this package includes unlimited users and training. Another option for EPC Calculation Engine is the Building Registration Packages. To enable building owners to register their properties with ease, D^2EPC will offer building registration packages with a 15% maintenance cost, which includes training. The sales forecast is described in the Table 3.

#### 5) Revenues from different Stand-alone Tools:

D^2EPC will offer three stand-alone tools, each with its own permanent license and methodological approach of each one, including training. The Table 3 demonstrates the stand-alone tools sales forecast.



**Table 3 Table of product's pricing list**

Product	Product package	Price
Revenues from D <sup>2</sup> EPC Platform Permanent Licenses	Permenanet licence	60000 (x15% maintenance every year)
Revenues from Leasing Options of D <sup>2</sup> EPC Platform (per year)	1 User Package: 500 Euros per year	500.00 €
	2-10 Users Package: 3,000 Euros per year	3,000.00 €
	11-25 Users Package: 7,500 Euros per year	7,500.00 €
	16-50 Users Package: 9,000 Euros per year	9,000.00 €
	51-100 Users Package: 11,000 Euros per year	11,000.00 €
	101-200 Users Package: 12,000 Euros per year	12,000.00 €
	201-500 Users Package: 13,000 Euros per year	13,000.00 €
Revenues from Leasing Options of D <sup>2</sup> EPC Platform (per month)	1 User Package: 50 Euros per month	50.00 €
	2-10 Users Package: 275 Euros per month	275.00 €
	11-25 Users Package: 600 Euros per month	600.00 €
	16-50 Users Package: 850 Euros per month	850.00 €
	51-100 Users Package: 1100 Euros per month	1,100.00 €
	101-200 Users Package: 1350 Euros per month	1,350.00 €
	201-500 Users Package: 1600 Euros per month	1,600.00 €
EPC Calculation engine	Permenant licence	25000 (x15% maintenance every year )
EPC building registration package	1 Building Package: 200 Euros	200.00 €
	2-10 Buildings Package: 600 Euros	600.00 €
	11-25 Buildings Package: 1000 Euros	1,000.00 €
	16-50 Buildings Package: 1800 Euros	1,800.00 €
	51-100 Buildings Package: 3500 Euros	3,500.00 €
	101-200 Buildings Package: 7000 Euros	7,000.00 €
	201-500 Buildings Package: 9500 Euros	9,500.00 €
The Information Management Layer: 15,000 Euros	Package along with methodology	15,000.00 €
The WebGIS tool: 20,000 Euros	Package along with methodology	20,000.00 €
EPC Calculation Engine: 28,000 Euros	Package along with methodology	28,000.00 €



### 3.3.6 Cost Structure

An in-depth approach of cost management and analysis is part of the D<sup>2</sup>EPC solution. A quick summary of the cost breakdown and analysis for the main project components is given in this section. Labor and expertise costs, infrastructure costs, operational costs, marketing, and advertising costs, contingency and risk management costs, and miscellaneous costs are the seven areas that make up the cost breakdown. Stakeholders can efficiently manage resources, identify risks, and make choices by understanding the financial implications of the D<sup>2</sup>EPC solution thanks to a thorough analysis of each category. It's crucial to remember that the cost breakdown offered is an estimate and may change depending on the needs of the project and the state of the market. Nevertheless, this review offers insightful information about the costs associated with putting the D<sup>2</sup>EPC solution into practice. These costs are demonstrated in the Table 4.

**Table 4 Table of Cost categories**

Costs Category	Cost Components
<i>Operations and Infrastructure Costs</i>	<ul style="list-style-type: none"> <li>➤ Office Rent</li> <li>➤ Software Licenses</li> <li>➤ Cloud Storage/In-house Servers</li> <li>➤ Server Maintenance</li> <li>➤ IT Support</li> <li>➤ Insurance</li> <li>➤ Communication Expenses</li> </ul>
<i>Personnel and Human Resources Costs</i>	<ul style="list-style-type: none"> <li>➤ Salaries and Benefits</li> <li>➤ Recruitment Costs</li> <li>➤ Training and Development</li> <li>➤ Employee Benefits</li> </ul>
<i>Certification and Compliance Costs</i>	<ul style="list-style-type: none"> <li>➤ Industry Certification</li> <li>➤ Data Security and Privacy</li> <li>➤ Licensing and Intellectual Property</li> <li>➤ Legal and Consulting Services</li> </ul>
<i>Marketing and Advertising Costs</i>	<ul style="list-style-type: none"> <li>➤ Digital Marketing <ul style="list-style-type: none"> <li>– Search Engine Optimization (SEO)</li> <li>– Pay-per-click</li> <li>– Content marketing</li> <li>– Social media marketing</li> <li>– Email Marketing</li> </ul> </li> <li>➤ Trade Shows &amp; Events <ul style="list-style-type: none"> <li>– Select Relevant Events</li> <li>– Create an Engaging Booth Presence</li> </ul> </li> </ul>
<i>Contingency and Risk Management Costs:</i>	<ul style="list-style-type: none"> <li>➤ Contingency Reserve</li> <li>➤ Risk Mitigation Strategies</li> </ul>



### Miscellaneous Costs

- Office Supplies and Equipment
- Travel and Accommodation

### Operations and Infrastructure Costs:

Several expenditures must be addressed to ensure the smooth operation and infrastructure support for the D<sup>2</sup>EPC project. These expenses include:

**Office Space Rental:** Renting office space for the D<sup>2</sup>EPC project team is essential in order to create a dedicated workspace that encourages cooperation, productivity, and efficiency. Moreover, in server data storage solution there will be a need for renting extra rooms in order to place the servers. Last but not least, costs like the electricity, are adapted in the rent price for the most countries.

**Software Licenses:** Using software tools and apps simplifies processes, increases productivity, and allows team members to collaborate more effectively. However, purchasing licenses for these tools is an expenditure.

**Cloud Storage/ In-house Servers:** In the digital age, effective data management is essential. Cloud storage services offer scalable, secure, and easily accessible data storage options, allowing for simple data administration and communication among team members. On the other hand, in-house server has the advantages of better security, it is one-time purchase of the hardware and offer low – latency access and provide real – time data processing and minimum response time.

**Server Maintenance:** Server maintenance is required to ensure continuous access to project data, software applications, and collaborative platforms. Regular maintenance and hosting services help to an IT infrastructure that is dependable and efficient.

**IT Support:** Technical problems can stymie business development and reduce productivity. Investing in IT support services guarantees that the project's IT infrastructure is troubleshooted and maintained on schedule. This reduces downtime and increases team efficiency.

**Insurance:** Obtaining insurance coverage is critical to mitigating any risks and liabilities associated with the business. Insurance offers financial security and protections against unanticipated events, adding to total project security.

**Communication expenses:** Effective communication is critical for seamless business coordination, client engagements, and team cooperation. Investing in dependable communication services, such as internet access, phone lines, and video conferencing technologies, guarantees that communication channels run smoothly and efficiently.

In summary, the **overall anticipated expenses for the D<sup>2</sup>EPC project's operational and infrastructure components are as follows:**

- Office Rent
- Software Licenses
- Cloud Storage/In-house Servers
- Server Maintenance
- IT Support



- **Insurance**

- **Communication Expenses**

These combined costs contribute to the D^2EPC project's unhindered operation, infrastructure support, and effective communication, supporting its successful implementation and operation.

### **Personnel and Human Resources Costs:**

The success of any project is strongly dependent on the persons engaged and the successful management of human resources. It is critical to factor in various personnel-related expenditures. There are various components and their anticipated costs:

**Salaries:** Competitive wages and benefits are required to establish a strong and loyal staff. This includes paying managers, R&D team members, sales and marketing personnel, and customer service agents. Offering appealing remuneration guarantees the acquisition and retention of outstanding personnel, nurturing a skilled team to fuel the project's success.

**Training and Development:** Another important cost is the invest in staff training programs, workshops, and professional development opportunities in order to ensure continual growth and progress. Providing chances for learning and skill development ensures that the business team stays current with industry trends, resulting in enhanced performance and creativity

**Employee Benefits:** Offering a complete benefits package is critical for ensuring employee happiness, retention, and general well-being. Health insurance, retirement programs, and paid time off are examples of perks. Offering appealing perks displays a commitment to employee wellbeing and helps to foster a healthy work environment.

In summary, the **overall expected expenses for personnel and human resources components are as follows:**

- **Salaries and Benefits**
- **Recruitment Costs**
- **Training and Development**
- **Employee Benefits**

### **Certification and Compliance Costs:**

In addition to the prices already indicated, various more charges must be considered for the effective development and deployment of the D^2EPC solution. These expenses include:

**Industry Certification:** Obtaining industry certifications and accreditations for the D^2EPC system guarantees its quality, dependability, and compliance.

**Data Security and Privacy:** It is critical to invest in strong security methods and processes to secure sensitive consumer data. Data security and privacy safeguards foster client trust and indicate a commitment to protecting their information.

**Licensing and Intellectual Property:** The D^2EPC solution, as state of the art modules and methodologies has to be secured regarding the intellectual property rights in order to maintain its uniqueness and competitive edge. Expenses for licensing and intellectual property give legal protection against infringement.

**Legal and Consulting Services:** In order to handle complicated legal requirements, contracts, and intellectual property issues, legal and consulting services must be engaged. These services give compliance counseling, safeguard the project's interests, and assure legal compliance.



In summary, the **overall anticipated expenses for the D<sup>2</sup>EPC project's certification and compliance costs are as follows:**

- **Industry Certification**
- **Data Security and Privacy**
- **Licensing and Intellectual Property**
- **Legal and Consulting Services**

### **Marketing and Advertising Costs:**

Promoting and creating knowledge about the D<sup>2</sup>EPC solution is critical to its market success. Several marketing and advertising costs must be addressed. Examine the various components and their projected costs:

#### **Digital Marketing**

A comprehensive digital marketing strategy is essential for effectively reaching and engaging the target population. Here's an explanation of the tactics and their annual costs:

**Search Engine Optimization (SEO):** SEO practitioners are required to do thorough keyword research and optimize the website and content for search engines. An annual budget would cover their time and work in discovering relevant and high-ranking keywords, applying on-page optimization procedures, and assuring the website's exposure in search engine results.

**Pay-per-click (PPC) advertising** include keyword research, ad production, campaign optimization, and constant monitoring. This cost is provided for effective targeting and engaging potential clients who are actively seeking for energy performance certification solutions. The price includes both ad expenditure and, if appropriate, PPC management costs.

**Content marketing:** Content marketing necessitates the provision of meaningful and helpful content that addresses the target audience's pain points and issues. A budget will be needed in order to pay the wages or fees of content writers, editors, and strategists engaged in the creation of compelling blog posts, articles, whitepapers, and case studies. It also has to take into account the cost of content distribution and promotion.

**Social media marketing** is developing appealing content, maintaining social media platforms, and implementing paid advertising campaigns on major social media networks such as Facebook, Twitter, LinkedIn, and Instagram. This cost includes content generation, community administration, paid social media advertising, and analytics tools for measuring success and optimizing campaigns.

**Email Marketing:** Creating an email list of prospective and present customers, as well as tailored email campaigns, necessitates the use of email marketing tools and experience. This budget includes the costs of email marketing tools, campaign creation, segmentation, automation, and performance tracking. It may also involve expenditures for email list management and data protection legislation compliance.

#### **Trade Shows & Events**

Exhibiting the D<sup>2</sup>EPC solution at trade shows, conferences, and industry events is a terrific opportunity to network with new clients and create brand awareness. Here is an explanation of the tactics and their annual costs:



**Select Relevant Events:** Conducting research and carefully selecting events that attract the target audience, such as industry-specific conferences, green building expos, and energy efficiency summits, necessitates meticulous planning and strategic decision-making. A budget will be needed to cover event registration fees, booth rents, travel expenditures (including flights and lodging), marketing materials (such as brochures and banners), and other relevant costs. Costs for event preparation and coordination may also be included.

**Create an Engaging Booth Presence:** Professional booth design services and production materials are required to design and put up aesthetically appealing booths with high-quality photos, interactive displays, and multimedia presentations. An annual budget in booth presence will allow the construction of a compelling booth presence that effectively demonstrates D<sup>2</sup>EPC's primary features and advantages. The charge for booth designers, graphic artists, multimedia specialists, and the fabrication of booth items is included in the cost.

In summary, the following are the **total expected expenses for marketing and advertising components**:

- **Digital Marketing**
- **Events & Trade Shows**

#### **Contingency and Risk Management Costs:**

Managing risks and contingencies are essential parts of project management. Allocating resources for contingency and risk management aids in the resilience and success of the project. Examine the various components and their projected costs:

**Contingency Reserve:** It is critical to set aside a particular proportion of the entire budget as a contingency reserve. This reserve serves as a financial cushion for unanticipated expenditures or changes in project scope. Having a contingency reserve enables for flexibility and quick reactions to unanticipated events, decreasing the impact of risks on project development.

**Risk Mitigation strategies:** To identify and handle possible project risks, it is critical to invest in risk assessment, management, and mitigation techniques. This entails completing comprehensive risk assessments, establishing mitigation measures, and putting risk monitoring systems in place. Proactive risk management identifies possible roadblocks, enables for prompt mitigation steps, and keeps the project on schedule while minimizing financial and operational risks.

In summary, the following are the **total anticipated expenses for contingency and risk management components**:

- **Contingency Reserve**
- **Risk Mitigation Strategies**

#### **Miscellaneous Costs:**

Aside from the above listed prices, there is a number of other charges to be considered. These expenses contribute to the project's seamless operation and support. Examine the various components and their projected costs:

**Office Supplies and Equipment:** Maintaining a sufficient supply of office necessities such as stationery, furniture, and equipment is critical for a productive work environment. Budgeting for equipment maintenance also contributes to operational efficiency. This allocation includes the resources required for the day-to-day operation and upkeep of the project team's workplace.



**Travel and Accommodation:** Business travel may be necessary for a variety of reasons, including client meetings, industry conferences, or on-site project requirements. Transportation, lodging, and meal expenses must all be considered. Allocating resources for business travel allows team members to collaborate effectively, create contacts, and keep current on industry changes.

In summary, the following are the **total anticipated expenditures** for various components:

- **Office Supplies and Equipment**
- **Travel and Accommodation**

The aforementioned costs are essential to the D<sup>2</sup>EPC platform's effective use. Each element has a specific function and helps the company's overall effectiveness, security, compliance, and expansion. It is crucial to remember that the actual costs could differ based on the operating country and particular contextual factors. To manage the platform effectively and efficiently while preserving financial stability, it is imperative to analyze the best solutions for these costs.

### 3.3.7 KPIs of the D<sup>2</sup>EPC Distribution plan

**Sales Key Performance Indicators (KPIs) and Digital Presence KPIs** are critical in determining the effectiveness of D<sup>2</sup>EPC's distribution strategy. These metrics give useful information on the efficacy of sales activities and the project's internet presence. The distribution plan may be modified to boost acceptance and enhance the effect of D<sup>2</sup>EPC by measuring and evaluating key KPIs. The sales key performance indicators (KPIs) give insight into the financial success and market acceptance of D<sup>2</sup>EPC products. The distribution plan may discover effective sales methods, adjust pricing, target specific client categories, and customize marketing activities to boost sales and revenue growth by monitoring these indicators. Furthermore, measuring client satisfaction and repeat purchases aids in the development of long-term customer connections and the promotion of loyalty.

In contrast, digital presence KPIs allow the distribution plan to analyze the efficiency of digital marketing initiatives and online exposure. The plan may analyze the effectiveness of digital marketing, enhance website performance, and increase consumer interaction by analyzing website traffic, conversion rates, and lead creation. Social media engagement and media mentions aid in raising brand visibility and credibility, while partnership performance KPIs provide light on the effectiveness of collaboration operations and income creation.

Measuring sales KPIs and digital presence KPIs enables D<sup>2</sup>EPC's distribution strategy to make data-driven choices, optimize sales tactics, improve customer happiness, drive revenue development, and maximize the project's effect in the energy performance certification market.

#### 3.3.7.1 Sales KPIs

Sales KPI are critical measures that allow D<sup>2</sup>EPC to evaluate the efficacy of its sales operations. These KPIs give important information about financial performance, market penetration, customer happiness, and overall sales success. D<sup>2</sup>EPC may make data-driven choices, discover areas for



improvement, and enhance sales tactics by measuring and evaluating these KPIs. The following approaches allow for accurate measurement of sales KPIs:

**Total revenue:** This is the most common metric that will calculate the total income earned by D^2EPC product sales, which includes the D^2EPC Basic Package, D^2EPC Holistic Platform, and System Update and Maintenance payments. This KPI gives an overall assessment of the sales function's financial success.

**Unit Sales:** Keeping track of how many units are sold in each product category (D^2EPC Basic Package, D^2EPC Holistic Platform, and System Update and Maintenance) it is an essential KPI. This measures D^2EPC product demand and market penetration.

**Average Unit Price:** This KPI will calculate the average price per unit for each product category to evaluate pricing strategies and profitability. It is crucial to keep an eye on any changes in the average unit price over time to discover future pricing difficulties or opportunities.

**Customer Acquisition Cost (CAC):** Taking into account marketing and sales expenditures and the cost of acquiring each new client, the CAC will be measured. CAC assesses the efficiency and efficacy of client acquisition activities and gives insights into the sales process's profitability.

**Sales Growth Rate:** The sales growth rate KPI will measure the rate at which sales increase over particular time periods, such as monthly, quarterly, or yearly. The purpose of this KPI is to calculate the rate at which D^2EPC assets are acquiring market traction and shows overall sales performance.

**Customer Retention Rate:** The percentage of customers that renew their System Update and Maintenance services year after year, will give an estimation of the client happiness, loyalty, and the value of ongoing support and maintenance.

**Customer Satisfaction:** Surveys, feedback forms, or customer reviews will be used to gauge customer satisfaction. This KPI gives information on the entire customer experience, highlights opportunities for improvement, and aids in the development of long-term customer relationships.

**Market Share:** Last but not least, the percentage of market share held by D^2EPC asset in comparison to rivals, it is essential for the sales KPIs. These statistics assist in determining the efficiency of sales and marketing tactics in increasing market share in the energy performance certification sector.

### 3.3.7.2 Digital Presence KPIs

D^2EPC's digital marketing approach relies heavily on its website and online presence. D^2EPC can easily monitor the efficacy of its online operations and enhance marketing campaigns by tracking website traffic and evaluating KPIs. The following KPIs are critical in analyzing and enhancing the success of D^2EPC's website and online presence:

**Conversion Rate:** The conversion rate is the percentage of website visitors who do a desired action, such as filling out a contact form or requesting a demo. D^2EPC will assess the efficiency of its website in increasing user engagement and conversions by tracking this KPI.

**SEO Performance:** The effectiveness of the search engine optimization initiatives by tracking keyword ranks, organic search traffic, and backlink profiles it is important for the digital presence of the D^2EPC



assets. Improving SEO effectiveness boosts visibility in search engine results, boosting organic visitors and improving overall online exposure.

**Lead Generation:** Tracking the quantity of leads created through different channels, such as website inquiries, event engagements, and partnership referrals, offers insight into the efficacy of D<sup>2</sup>EPC's lead generation tactics. Lead conversion rates will be used to discover opportunities for improvement in the sales process.

**Customer Satisfaction:** The amount of client loyalty, advocacy, and overall happiness will be analysed by measuring customer satisfaction using metrics such as Customer Satisfaction Score (CSAT) and Net Promoter Score (NPS). Regular surveys or interviews give useful information for improving the customer experience.

**Brand Awareness:** Social media engagement indicators like followers, likes, shares, and comments will help depict the assess D<sup>2</sup>EPC asset brand's exposure and engagement levels. Tracking media references in trade journals, blogs, or news sources will offers insight into D<sup>2</sup>EPC's industry reach and visibility.







**Partnership Performance:** It is critical to truck the number of strategic partnerships formed and assessing the income contribution from these collaborations in order to aids in determining the success of collaborative actions. This KPI will demonstrates D<sup>2</sup>EPC's partner network expansion and its influence on revenue creation.



## 4 IPR Protection Plan

One of the main steps required at the beginning of an Exploitation Strategy is to protect the **Intellectual Property (IP)**. IP includes intangible creations of the human intellect and the connection with the Exploitation strategy may be interpreted in many ways. To better understand how the exploitation strategy and the IP are interconnected and how organizations are affected by an IP strategy<sup>7</sup>, it is explained as follows. It is important to underline that Intellectual Property Rights (IPRs) are business assets and may be categorized<sup>8</sup> as illustrated:

**Table 5. Common IPRs**

		
<b>Trademarks</b>	<b>Patents</b>	<b>Design</b>
Signals the origin of products to consumers	Rights granted for inventions, that are either products or a process offering new technical solutions	Protects the external appearance of the product
		
<b>Utility model</b>	<b>Copyrights</b>	<b>Trade secrets</b>
Rights for technical inventions for a shorter period than patents	Are relative to artwork and audio-visual creations (i.e., books, music, paintings) as well as scientific works	Valuable information not to be publicly disclosed

The D<sup>2</sup>EPC project's Intellectual Property Rights (IPR) plan seeks to efficiently manage and protect the primary exploitable outcomes owned by the project partners. The following sections highlight the essential elements of the IPR plan:

### IP Strategy Development:

The IPR plan for the D<sup>2</sup>EPC project describes the ownership and transfer processes for the project's outcomes. The party that produced the results owns them. In the case of joint ownership, each joint

<sup>7</sup> <http://www.iphandbook.org/handbook/ch05/p01/>

<sup>8</sup> <https://www.wipo.int/portal/en/index.html>



owner has the right to utilize the jointly held results for non-commercial research purposes without the approval of the other joint owners. They also use the jointly owned findings and provide non-exclusive licenses to third parties, as long as the other joint owners are given adequate advance notice and appropriate recompense.

Each party may transfer ownership of its own results by following the steps outlined in Grant Agreement Article 30 with regard to the transfer of results. The other parties may forgo their rights to prior notice and protest for transfers to named third parties, and the transferring party may name specific third parties to which it wishes to transfer ownership.

The transferring party must make sure that the rights of the other parties are not compromised by failing to notify them of any transfers. The Plenary Board must decide on any additions to the list of third-party transfers. The transferring party acknowledges that in the event of a merger or acquisition, complete notification may not be practicable due to legal restrictions, while still protecting the interests of other parties.

**Background IP Verification:** During the project's early phase, a thorough evaluation of the background IP stated by each partner in the Grant Agreement (GA) was carried out.

The content of the IP plan for the exploitable D<sup>2</sup>EPC results/assets is presented below and includes the following items that are part of the foreground intellectual property rights (IPR) strategy.

The roadmapping tool for performance has a copyright IPR foundation, and the IPR approach entails direct marketing to relevant stakeholders and licensing it as a stand-alone solution. In future study, the tool can be reused and repurposed.

The Performance forecasting tool has a copyright IPR history and employs a direct selling strategy to relevant stakeholders as well as licensing as a stand-alone solution. It can be reused and repurposed for future study in the same way that the roadmapping tool can.

The Performance notifications and alerts tool is copyrighted and designed for direct sale to key stakeholders, with license available as a stand-alone option. The tool can be reused and repurposed in future study.

The energy performance benchmarking software is copyrighted and will be licensed as a stand-alone solution while being marketed directly to important stakeholders. Future studies can look into reuse and repurposing solutions.

D<sup>2</sup>EPC added value services and extended dEPCs applications toolkit, both available as Software as a Service (SaaS) are copyrighted, with the IPR approach focusing on direct sale to important stakeholders and licensing as a stand-alone solution.

Finally, the D<sup>2</sup>EPC digital platform, delivered as a Software as a Service (SaaS), is the result of all partners working together. It is copyrighted and follows the IPR strategy of direct marketing to stakeholders and potential spin-off opportunities.



### Foreground IP:

The foreground intellectual property rights (IPR) strategy for D<sup>2</sup>EPC focuses on protecting and leveraging the value of the project's developed assets. The strategy is tailored for each specific component as follows:

#### ***D<sup>2</sup>EPC Web platform:***

Ownership: CERTH. CERTH has developed the final D<sup>2</sup>EPC Web platform and SEC has developed an initial testing environment for its use cases and has tested the access to the main D<sup>2</sup>EPC Web platform by a third party through API.

Copyright protection will be sought for the web platform.

Licensing: The web platform may be licensed to relevant stakeholders and industry players, allowing them to utilize and benefit from its features.

Spin-off Opportunities: The potential for a spin-off company dedicated to the continued development and commercialization of the web platform will be explored.

#### ***Asset Rating Calculation Module:***

Ownership: CERTH

Copyright protection will be sought for the calculation module.

Licensing: The calculation module can be licensed to stakeholders in the industry, enabling them to perform accurate asset ratings and assessments.

#### ***Operational Rating Calculation Module:***

Ownership: CERTH/FRC. CERTH has developed the software component for the calculation of operational rating and FRC has developed the methodology for operational rating indicators.

Copyright protection will be sought for the calculation module.

Licensing: The operational rating calculation module can be licensed to stakeholders interested in evaluating and optimizing the operational performance of buildings.

#### ***WebGIS tool:***

Ownership: GSH

Copyright protection will be sought for the WebGIS tool.

Licensing: The WebGIS tool can be licensed to stakeholders, providing them with geospatial analysis capabilities for building performance assessment and decision-making.



***Information Management Layer:***

Ownership: Hypertech

Copyright protection will be sought for the information management layer.

Licensing: The information management layer can be licensed to stakeholders, enabling effective data management and integration within the D<sup>2</sup>EPC ecosystem.

***BIM-Based Digital Twin:***

Ownership: CERTH

Copyright protection will be sought for the BIM-Based Digital Twin.

Licensing: The BIM-Based Digital Twin can be licensed to stakeholders, offering them a powerful tool for building simulation, visualization, and analysis.

***Added Value Service Suite:***

Ownership: CERTH

Copyright protection will be sought for the suite of added value services, including the road mapping tool, AI-driven performance forecasts, performance alerts, and notifications.

Licensing: The added value service suite can be licensed to stakeholders, providing them with advanced capabilities to optimize building performance and energy efficiency.

***Extended dEPCs Applications Toolkit:***

Ownership: CERTH/Hypertech. CERTH has developed the Building Energy Performance Benchmarking and HYP has developed the Energy Performance and Credibility Verification tool.

Copyright protection will be sought for the extended application toolkit, which includes building energy performance benchmarking, energy performance verification, and credibility assessment.

Licensing: The extended application toolkit can be licensed to stakeholders, supporting them in evaluating and improving the energy performance of buildings.

***Building Performance Module:***

Ownership: CERTH. CERTH has developed the Building Performance Module that implements the calculation of the additional indicators based on the procedures elaborated within WP2 by leading partners CLEO, FRC, HYP and DMO.

Copyright protection will be sought for the building performance module.

Licensing: The building performance module can be licensed to stakeholders, offering them comprehensive tools for analyzing and optimizing building performance.

Table 6 highlights the primary exploitable outcomes and the partner in charge of each module.



**Table 6. The Primary Exploitable outcomes and the partner in charge of each module**

Key Exploitable Results	Developer/Responsible partner	Contributors
<b>D<sup>2</sup>EPC web platform</b>	CERTH	KTU, CLEO, SEC, DMO, SGS, HYP, FRC and GSH
<b>Asset Rating Calculation Module</b>	CERTH	CERTH, KTU, and HYP
<b>Operational Rating Calculation Module</b>	CERTH/ FRC	SEC
<b>WebGIS tool</b>	GSH	
<b>Information Management Layer</b>	Hypertech	
<b>BIM-Based Digital Twin</b>	CERTH	
<b>Added Value Service Suite (Road mapping tool, AI-driven Performance Forecasts, Performance Alerts and Notifications)</b>	CERTH	CLEO, SEC, DMO, SGS, HYP, and FRC
<b>Extended Application Toolkit (Building Energy Performance Benchmarking, Energy Performance Verification and Credibility)</b>	CERTH/ HYP	KTU, CLEO, SEC, DMO, SGS, and FRC
<b>Building Performance Module</b>	CERTH	

In conclusion, the D<sup>2</sup>EPC project's IPR plan ensures effective administration, preservation, and exploitation of the project's major exploitable outcomes. The IPR strategy has been carefully crafted, taking into account the knowledge and perceptions of all partners. It is developed throughout the course of the project with particular IPR rules supplied for each module, as they gained technical and operational maturity. This comprehensive plan was agreed upon during the concluding meeting and will be further examined and formalized, either by a notary office or as a potential spin-off after the project is finished. D<sup>2</sup>EPC secure its novel findings and lay the groundwork for successful commercialization and dissemination within the project's scope and applicable standards organizations by adopting this IPR plan.



## 5 Conclusion

The developed exploitation strategy has several purposes:

1. to present the vision behind the adopted approach aiming to establish concrete and useful products related to real-world problems and circumstances, such as the energy crisis
2. to disseminate project's results as tangible and valuable in real-world conditions and,
3. to establish effective and acceptable utilization and commercialization of the D<sup>2</sup>EPC's results.

The chosen strategy will be implemented using the following measures:

- Determine the potential market to exploit by including interested parties and end users
- Determine their requirements, needs, and the possible benefits of using the project's solution
- Present a variety of inventive and practical solutions that solve the defined needs and give clear value propositions

This strategy should include market positioning techniques, a pricing strategy, and revenue estimates. By adapting the business strategy to fit the particular needs and preferences of the target market, the project may optimize its potential for success due to its holistic approach. Different markets and groups are targeted, aiming for the expansion of the project's initial idea.

This deliverable is the **detailed analysis of D<sup>2</sup>EPC's Distribution Plan and Marketing Strategy**. The overall approach will be assessed on a regular basis under particular success criteria, based on required adjustments to tackle the difficulties and to seize emerging possibilities. This iterative method guarantees that the project's requirements are addressed, while remaining current with industry improvements. The impact of the project on the market and the delivery of its objectives can be maximized, by constantly improving and modifying the present strategy.



## 6 References

- [1]. Campos A, Codina L. Communication, dissemination and exploitation strategy analysis in Horizon 2020: keys to multiply the impact of European projects. Prisma Social. 2021;32(1):293-319.
- [2]. Dissemination and Exploitation Activities in Horizon 2020, European Commission H2020 Common Support Centre/J5
- [3]. Business Model Generation, New Jersey, John Wiley & Sons, 2010



## Annex 1 1<sup>st</sup> Questionnaire

1. Question 1: Personal suggestion for the selection of the deployable/ scalable solution(s)- ‘pick and mix”, please name them by prioritization per Business Group. Explanation: effectiveness according to the prioritization that each company/ partner can give.
2. Question 2: Personal suggestions for the selection of the deployable- scalable solution(s). Optimal product- mix solution(s) on overall profits-products-cost. Please name them.



## Annex 2 2<sup>nd</sup> Questionnaire

### D<sup>2</sup>EPC

#### Next-generation Dynamic Digital EPCs for Enhanced Quality and User Awareness



### T7.4 Exploitation activities, IPR management and post-project sustainability (M1-M36)

1. Strong D<sup>2</sup>EPC Assets – **To be edited from all partners (comments if any are welcome)**

Methodologies

Asset EPC issuing -> promote the methodology

Operational EPC issuing -> promote the methodology

Modules

Novel Calculation Engine

IoT interfaces

Recommendation Engine

Products

Web Platform

WebGIS

Data analytics

EPC statistical data

Construction materials information

Statistical information on interrelations, e.g. Health and comfort vs EPC, etc.

2. Technical features: To re-evaluate components/outcomes, and list them. Identify and describe the components that will be developed by the partners that are not listed.
3. Identification of the exploitable assets of the project, **technical features VS competitors.**
4. Why a customer to buy D<sup>2</sup>EPC, is friendly, giving new knowledge/innovation responding to specific end-user/societal needs?
5. Offers the following – is it price worth? **To be edited from all partners (comments if any are welcome)**

Easier issuing and comprehension of EPCs

Advanced modelling via BIMs for EPC issuing

Efficient utilization of BIMs in energy sector

Delivery of useful information and energy insights (via Recommendation Engine)

Homogenous methodology and interfaces for EU

Ability to provide useful information and statistics

Digitalization of EPC issuing steps via online procedures



6. **Each partner to name the individual exploitation plan** (Identify the initial partners' exploitation interest and their intentions)

Results of interest	Exploitation route
Which results is the partner interested in?	What is the partner's plan for using the results?

7. Has each partner test the D<sup>2</sup>EPC up to day results? Do those results have been tested under guidance from other partner colleagues? What is the outcome? Are they Assets?
8. Please Update your individual exploitation plans, according to Q7.
9. Partner Ideas... (free text if any)
10. New workshop pls fill <https://doodle.com/meeting/participate/id/e73mDPwe>



### Annex 3 KER Risk Assessment Map

KER Risk Assessment Map							
	Description of Risks	Degree of criticality of the risk related to the final achievement of this Key Exploitable Result. Please rate from 1 to 10 (1 low- 10 high)	Probability of risk happening Please rate from 1 to 10 (1 low - 10 high)	Risk Grade	Potential intervention	Estimated Feasibility/Success of Intervention Please rate from 1 to 10 (1 low- 10 high)	Conclusion
<b>Partnership Risk Factors</b>							
1	Disagreement on ownership rules	9	5	45	Standard IPR and access rights clauses are included in the CA and could be updated if needed to facilitate and ensure commercialisation	8	Control.
2	Limited or inadequate resources to manage the product complexity	6	4	24	Re-allocation of resources; Core D <sup>2</sup> EPC partners have experience in large technology-driven innovation projects as well as in the implementation of large and complex systems	7	Control.
<b>Technological Risk Factors</b>							
3	Significant dependency on other technologies	9	8	72	Deliver the solution in stand-alone packages	7	Action!
4	Difficulty in collecting and fusing data from different end-devices, IoT	8	5	40	establishment of the appropriate tools and procedure for data collection, interoperability and information sharing	7	Control.
5	Complex solution/ Cooperation problems between the different components	9	6	54	Carry out tests prior to components integration into a unified platform as well as for the integrated platform. Pay particular attention to interoperability	7	Action!
<b>Market Risk Factors</b>							
6	Integration of BIM with BEPS and additional indicators (smart readiness, LCA etc.) in the certificate might be seen as too complex	9	6	54	awareness among stakeholders on the operation of the platform and its benefits. A manual will be delivered addressed to EPC Assessors	6	Action!
7	May not be easily adopted by users not familiar with technology	8	6	48	training and dissemination may address this issue to some extent	5	Between Control & No Action
8	Similar integrated solutions introduced by global players on the same time	9	6	54	implement a strong exploitation strategy and strong networking	6	Action!
<b>IPR/Legal Risk Factors</b>							
9	Disputes over IPR or investment	9	5	45	Discuss and agree on such aspects early enough and sign official documents over what's been agreed	8	Control.
<b>Financial/Management Risk Factors</b>							
10	No additional resources secured for exploitation	8	2	16	Apply for attracting investments e.g. Horizon Results Platform	5	Between Control & No Action
11	Weak exploitation strategy	7	5	35	Seek for experts consultancy	7	Control.
<b>Environmental/Regulation/Safety risks:</b>							
12	ISRI assessment not established yet and it can be a barrier for adoption	7	4	28			No Action*

