TwinEU pathways for dissemination and exploitation

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Executive Summary

TwinEU, as the flagship project under the EU's "Digitalising the Power System" Action Plan, is tasked with developing the concept of a pan-European Digital Twin for the electricity system. Deliverable D10.1 outlines the project's approach to **communication, dissemination, exploitation**, and **clustering activities**, forming the foundation for maximizing the visibility, uptake, and impact of TwinEU's outcomes across stakeholders within the industry, academia, and policy makers.

1. Communication & Dissemination Strategy

The TwinEU communication strategy is designed to both raise awareness and foster engagement with key stakeholders—ranging from system operators and IT providers to policymakers and citizens. The strategy is built around dynamic phases: **awareness-raising (Year 1)**, **targeted messaging (Year 2)**, and **impact maximization (Year 3)**.

Key achievements:

- A clearly defined brand and identity, including a symbolic and memorable TwinEU logo and visual language.
- A structured **stakeholder engagement framework** using a power-interest matrix to prioritize outreach.
- Implementation of a **GLOCAL approach**: combining global messaging with localized dissemination by partners.
- Use of a rich toolbox, linked with the identifeid stakeholder groups, including the website, brochures, factsheets, social media, press releases, peer-reviewed articles, and dedicated webinars (e.g. *TwInsider Sessions*).

2. Communication Activities

Within the first 18 months, TwinEU has made significant progress toward its visibility and dissemination goals:

- **Website** launched as a central hub for project updates, publications, and media.
- Strong **LinkedIn presence** with over **1,100 followers**, positioning TwinEU as a community builder in energy digitalization.
- **Nine professional videos** produced, highlighting the project scope and demonstrators.
- Participation in over **15 key events** across Europe, including ENLIT, IEEE, and European Big Data Value Forum.
- Launch of the **TwInsider webinar series**, fostering high-level dialogue between policy makers, grid operators, and fellow Horizon projects.
- Media outreach led to **25+ press mentions**, including both EU-level publications and national outlets, especially in demo host countries.

Despite limited use of platform X (Twitter) due to declining relevance, LinkedIn and YouTube remain effective outreach tools. KPI targets such as webinars and technical brochures are progressing and will intensify toward project conclusion.

3. Exploitation Strategy & Key Results

TwinEU aims to ensure that its innovations are sustained and widely adopted. Its exploitation strategy rests on two pillars:

1. **A concept of a federated, open-source digital twin architecture** available to all European energy stakeholders.
2. **Individual exploitable results** developed across eight national demonstrators.

To date, **38 Key Exploitable Results (KERs)** have been identified, spanning software tools, AI models, simulation platforms, and recommendations. These are categorized into:

- **Commercial results**: tools and models with strong market potential (e.g. forecasting models, grid planning DTs).
- **Societal results**: including transparency tools like hosting capacity visualizers.
- **Policy & academic results**: guidelines, methodologies, and datasets.

Open-source components will be hosted via a **Linux Foundation for Energy (LFE)** project to guarantee sustainability, while **CRESYM** will coordinate ongoing community engagement and uptake beyond TwinEU's timeline.

4. Clustering & Collaboration

TwinEU actively participates in **BRIDGE** working groups (Data Management, Business Models, Regulation), and has contributed to its General Assemblies and surveys. TwinEU also collaborates with major clusters, including:

- The **Energy Data Space Cluster** (e.g., Omega-X, Enershare),
- The **E-NERGY cluster** (e.g., DIGITISE, DECODIT),
- Individual HorizonEurope projects like **DEDALUS** and **DECODIT**—which were invited to TwinEU's first *TwInsider Session*.

These efforts not only amplify visibility but enable valuable cross-project learning and integration, especially around data spaces and interoperability standards.

1 Introduction

1.1 Work Package 10: Communication, BRIDGE and Dissemination activities

Work Package 10 comprises three different areas: Task 10.1) communication & dissemination, Task 10.2) exploitation, Task 10.3) clustering activities. Although these are three diverse tasks, they are all related in a way that one supports the achievements of the other. Therefore, these three tasks are closely correlated and the materials are co-developed.

Following this guideline, the communication and dissemination strategy of TwinEU was designed to support effectively the creation of exploitation pathways. The communication activities were not only concentrating on gaining visibility for the project and its objectives, but also to build a follower base with potential key stakeholders, later adopters or users of the TwinEU outcomes.

These efforts are complemented by clustering activities, to cooperate and share knowledge within the Horizon-domain with like-minded projects. Being an active partner of the BRIDGE initiative, TwinEU brings a unique angle to the digital transformation of the European electricity system. Thus, using the channels offered by BRIDGE and the further collaboration in different dissemination activities with projects of similar scope, TwinEU maximizes its impact not only on the level of industry and academia, but towards the EU policy makers as well.

1.2 Objectives of the Work Reported in this Deliverable

TwinEU with its ambitious goal set – to develop the concept of a federated digital twin of the European electricity system – has been in the spotlight since its start. The project is the flagship of the implementation of the “Digitalizing the Power System” EU Action plan, therefore it is followed with great attention by all stakeholder groups. This factor - being in the forefront of materializing advanced digital twins on a system level - was reflected in the development of the communication and dissemination strategy.

As TwinEU is not the final step in achieving the goals set by the EU, it is highly important that the project looks beyond its timeframe of operation. Many of its innovations will need additional development before they can be deployed and integrated into larger systems. The sustainable element of such further developments is already covered by the exploitation approach, which looks to create a community around the core open-source architecture and modules of TwinEU, that can bridge the gap between the maturity stage at the end of the project and the level needed for integration and deployment.

The current Deliverable is the first version of the document, the final version is to be submitted at M36, at the very end of the project. Therefore, certain chapters will not present the fully mature stage of the strategy – especially with regards to the exploitation pathways, where based on the identified Key Exploitable Results, further crystallization and refinement will take place in the coming months.

1.3 Outline of the Deliverable

Chapter 2 starts with the communication & dissemination strategy of the TwinEU. It goes through the cornerstones, the building blocks and the different approaches used throughout the 3 years of the project. It provides an overview of the identified key external stakeholders and their mapping, and links the used communication and dissemination channels to them in order to find the most effective ways to reach out to them.

Chapter 3 follows the topic of communication & dissemination as well, and it provides the highlights of the communication activities of the TwinEU consortium during the first 18 months of its operation. The efforts are presented channel by channel, providing visual materials as well. The chapter concludes with the overall status of the Key Performance Indicators (KPIs) related to the communication and dissemination activities of TwinEU.

Chapter 4 revolves around creating the pathways to exploit the KERs of the project. It provides an overview of all the identified KERs, with short descriptions and expected TRLs. Although the full characterization is going to be developed by the final version of this deliverable, this chapter already provides information on the activities related to long-term and sustainable development of certain KERs of the project.

Chapter 5 present all the clustering activities of TwinEU in the first 18 months of the project. This includes the activities related to the BRIDGE initiative and its relevant working groups. Furthermore, it highlights the activities of collaboration with other Horizon-projects that has a scope relevant for the topics covered by TwinEU.

2 Communication & Dissemination strategy

The communication & dissemination strategy aims to create and use a variety of channels to be able to reach out to the identified key stakeholder groups and to talk to them through a set of carefully designed messages. The strategy supports gaining increased visibility of TwinEU and its developed solutions, but also to facilitate knowledge sharing within both the industry and research/academia domains.

This chapter provides the building blocks of the communication and dissemination strategy of the project, including the key messages, the mapping of stakeholders, the engagement of the partners in the consortium and the used channels. The objective of all the activities is to lay the ground for the exploitation of the Key Exploitable Results of TwinEU and to be able to build a community of potential users and developers of the main project outcomes.

2.1 Key Messages

Formulating the key messages must reflect the core objectives of TwinEU, but the aim is to present them in a short, easy-to-understand way which gives immediately an impression about the project. The main messages are designed for multiple uses, starting from a longer definition to a one-liner.

Storyline:

- European power systems are under a digital transformation
- This trend is supported by the European Commission through the Digitalizing the European Energy System Action Plan
- System operators are facing complex challenges due to the boom of renewables and distributed energy resources
- With adding a digital layer over the physical grid, cyber-security became even more critical
- New, advanced solutions are required to optimize the current network, to enhance the efficiency of system operation and to strengthen the security of supply
- The adoption of digital twins will enable a successful digital transformation through interoperable data and model exchanges and the provision of new tools and services across the value chain

TwinEU definition:

TwinEU leverages a unique set of competences coming from grid and market operators, technology providers and research centres to create a concept of a pan-European digital twin based on the federation of local twins to enable a reliable, resilient, and safe operation of the infrastructure while facilitating new business models that will accelerate the deployment of renewable energy sources in Europe.

One-liner:

"TwinEU – as the flagship project of the Digitalization of Energy System Action Plan - develops the concept of a pan-EU digital twin for the electricity system"

2.2 Communication goals

The main goal of the communication and dissemination effort within TwinEU is to support exploitation through:

1) Visibility
2) Understanding/Knowledge sharing
3) Engagement/Impact

2.3 Target audience

The key stakeholders of TwinEU can be defined by these 3 general groups:

Table 1: TwinEU Stakeholder analysis

Industry	Decision makers	Research & academia
System operators	Policy makers	Standardization bodies
Market operators	Regulators	Universities & students
IT providers	National ministries	Research institutes
Energy service providers		General public

Detailed analysis:

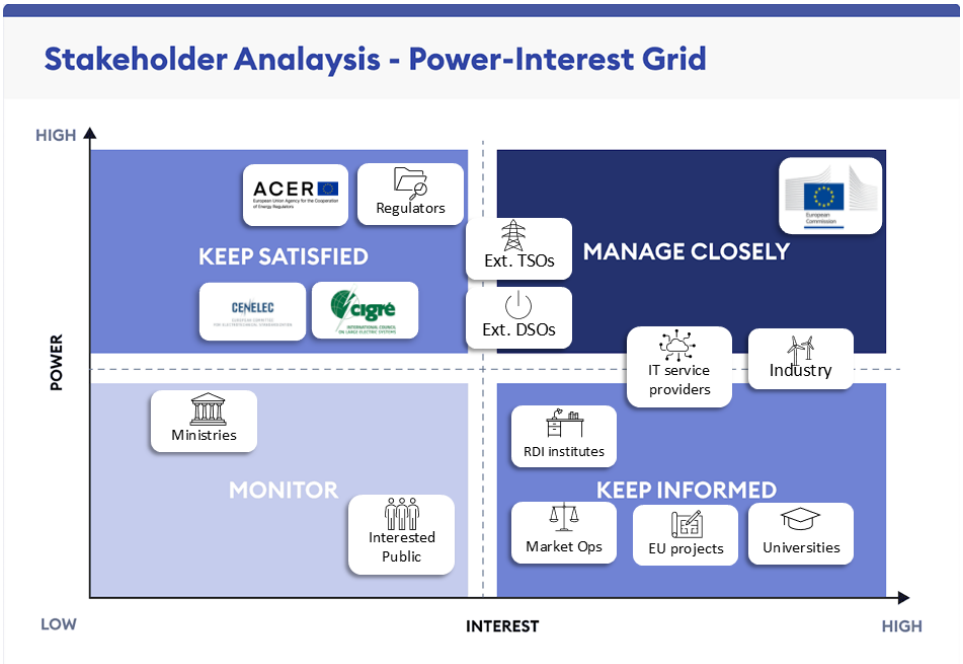

Figure 1: TwinEU Stakeholder mapping

On this graph, the concretely identified stakeholders are mapped according to 2 factors:

- their interest in TwinEU
- their power related to the TwinEU results

The map is divided into 4 quadrants, based on the power-interest ratio of the stakeholders:

Low interest, high power:

- Stakeholders with significant influence but limited interest in project's outcomes, or those with low capacity to engage.
- Priority of engagement: medium/high.
- Objective: Maintain positive relationships to prevent negative consequences from their disengagement. Keep them adequately informed and maintain regular contact.

High interest, high power:

- Essential stakeholders for maximizing post-project impact.
- Priority of engagement: high.
- Objective: actively engage, secure full support, and build partnerships. Their role is instrumental, especially for cooperation or co-development, making them a primary focus in dissemination and exploitation strategies.

Low interest, low power:

- Low levels of both interest and impact, thus not the primary focus for engagement.
- Priority of engagement: low.
- Objective: ensure they are well-informed and monitor their interest with minimum effort as the project unfolds and results get more tangible.

High interest, low power:

- High interest in project's results but limited influence on the project.
- Priority of engagement: medium/low.
- Objective: keep them informed through regular updates and meaningful interactions

2.4 Communication phases

The communication strategy is not static. It takes into account dynamically the various stages of the project and concentrates on different set of messages and activities. The time-based development is presented through the graphs below:

Figure 2: TwinEU Communication Phases

Table 2: TwinEU Communication & Dissemination strategy over the 3 years

	Year 1 - Awareness raising	Year 2 - Targeted messages	Year 3 - Impact maximization
Objectives	- To raise awareness of the initiation of the project, its objectives, vision and consortium	- Present **early results** of the project - Create **links** with relevant EU projects - Focused **presence** on communication channels - **Feedback** from key external stakeholders	- Present **final results** - Pave the way for exploitation of KERs - Based on the outcomes and lessons learnt, transmit recommendations to key stakeholders
Actions	- Build up communication channels - Develop basic materials (brochure, factsheets, roll-up) - Transmit general messages about the project - Open approach on communication & dissemination opportunities (the more the merrier)	- Sustaining frequent communication on the established channels - Update materials (factsheets) - Organize own webinar and event sessions with stakeholders/projects -Focused approach on communication & dissemination opportunities (taking those that are most relevant for presenting the KERs)	- Present & demonstrate final results on communication channels - Organize public final event with EC, regulators, standardization bodies - Develop materials with lessons learnt and recommendations

Focus target audience	All	- External system operators - Industry - Research & academia - Relevant RDI projects - Market operators - Service providers - Interested public	- European Commission - Standardization bodies - Regulators - Policy makers

2.5 Approach

Although the communication & dissemination activities are coordinated by the WP10 leader BME, engagement of the other consortium partners is essential. While the communication activities to the general audiences are most effectively done in a central, coordinated way, the local outreach potential is much higher of the individual partners, especially the ones working with the demonstrators.

For this reason, TwinEU implements a "GLOCAL" approach, described below.

GLOCAL approach:

Two-way communication between WP10 leader & the project partners, in which both sides are equally important to maximize the impact of the communication and dissemination activities.

Global aspect: central project materials to be used by the partners

Local aspect: local/regional communication actions by the partners that can be used on project level too

The GLOCAL approach refers to the use of the TwinEU channels and materials by the partners in their local communication activities, but also the WP10 leader uses the local activities in the mainstream of communication of the project.

2.6 Tools

TwinEU utilizes a set of tools to carry out its communication & dissemination strategy, in complete alignment with the identified stakeholder groups and the set of Key Performance Indicators that were approved in the Grant Agreement. The complete list of tools is the following:

- Branding, logo
- Website
- Brochure, roll-up
- Graphic factsheets
- Videos/Podcasts
- Social media channels (Linkedin, X, Youtube)

- Newsletters
- Press releases/News pieces
- Events/Conferences
- Webinars (Twinsider Sessions)
- Peer-reviewed articles

3 Communication & Dissemination activities

In this chapter we present the main communication and dissemination activities which were carried out by the TwinEU consortium until M18 of the project. The text highlights only the main achievements and presents the most visible activities by the used communication and dissemination channels. The detailed list of activities is in Annex A.

3.1 Communication Reporting

3.1.1 Visual identity and branding

TwinEU is a unique project both in size and ambition, not to mention the composition of the consortium. The design of the "TwinEU" letter logo is a thoughtful reflection of the project's essence and its European roots. The use of a letter logo, specifically focusing on the letter "T", symbolizes the project's primary focus on "Technology" and "Twinning" in the realm of Electrical Grid Digital Twin technology. This design choice succinctly captures the core of the project in a visually striking manner.

The "TwinEU" logo ingeniously incorporates a symbol that merges a single star from the European Union emblem with a geometric shape reminiscent of transmission towers. This creative fusion not only establishes the project's European identity, rooted in the Horizon initiative, but also cleverly signifies its focus on Digital Electrical Grids - futuristic network shapes Twin technology.

Figure 3: Origins of the TwinEU logo

Distinctive and Memorable Brand Identity

The chosen design for the "TwinEU" logo is not only distinctive but also highly memorable. It encapsulates the project's essence in a visually appealing and symbolically rich manner. The logo's innovative style ensures that it stands out in all forms of communication, from digital media to print, enhancing the project's visibility and recognizability.

Overall, the "TwinEU" letter logo is a masterful blend of European symbolism, technological representation, and visual storytelling. It effectively captures the project's essence – its European roots, its focus on technological advancement in electrical grids, and its collaborative spirit - making it an exemplary choice for the TwinEU HorizonEurope project.

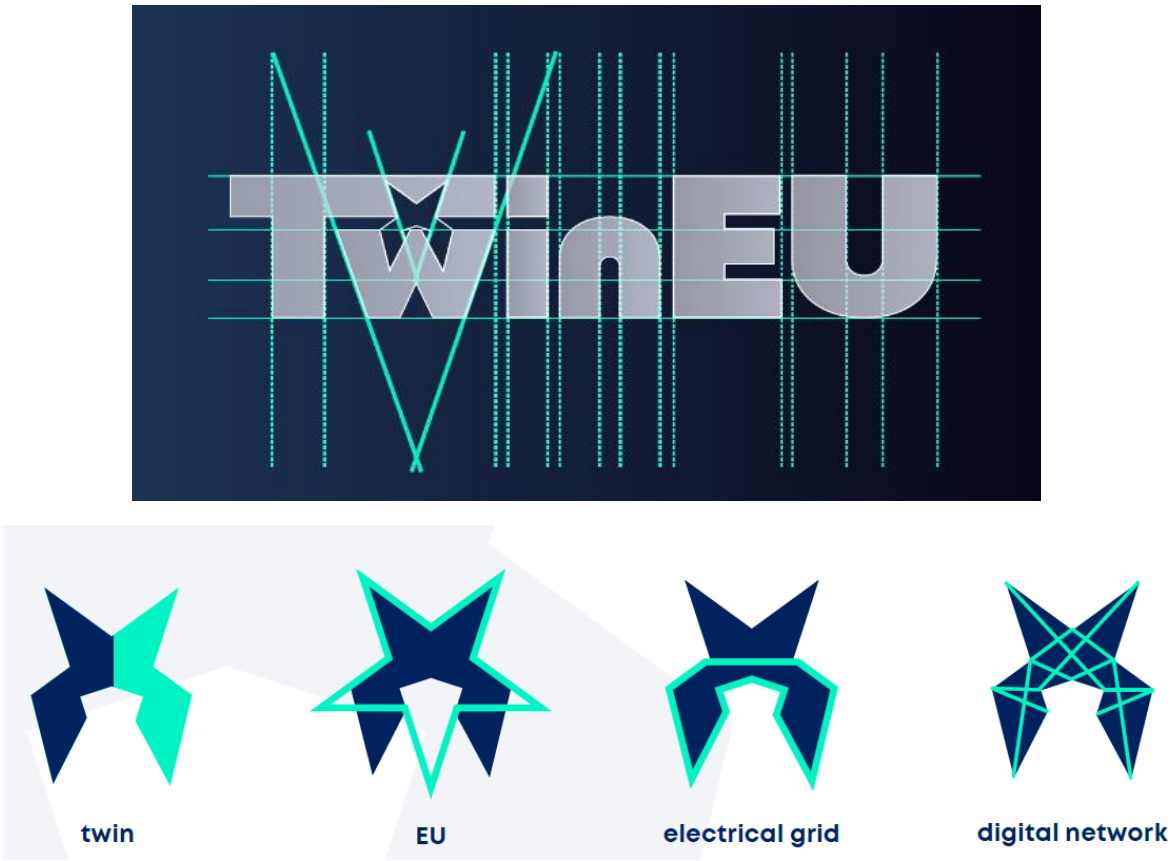

Figure 4: The TwinEU logo and its symbolism

The professionally designed **TwinEU brandbook** ensures that the visual identity of the project is used in a consistent manner in all communication and dissemination channels, regardless of the graphic context or the nature of the materials. The brandbook provides:

- a color palette
- a font kit
- variations of the TwinEU logo
- variations of the TwinEU icon
- and a set of rules to use all the visual identity elements

Figure 5: Excerpt from the TwinEU brandbook: colour palette, font set, logo and icon variations

3.1.2 Website

The TwinEU website (twineu.net) is the main information hub of the project. The well structured, dynamic design provides an efficient way to get the essence of this thoroughly complex project. The main objectives and the work structure are made well visible even for the first glimpse.

Overall, the website is a powerful tool to capture and share all the publicly available information about TwinEU. It does not only contain the latest news about the project, but also the communication materials, the science publications and the official deliverables as well.

The static content gives an overview of the characteristics and basic facts about the project. It presents the 8 demonstrators and the central architecture of the TwinEU federated digital twin in a graphic way.

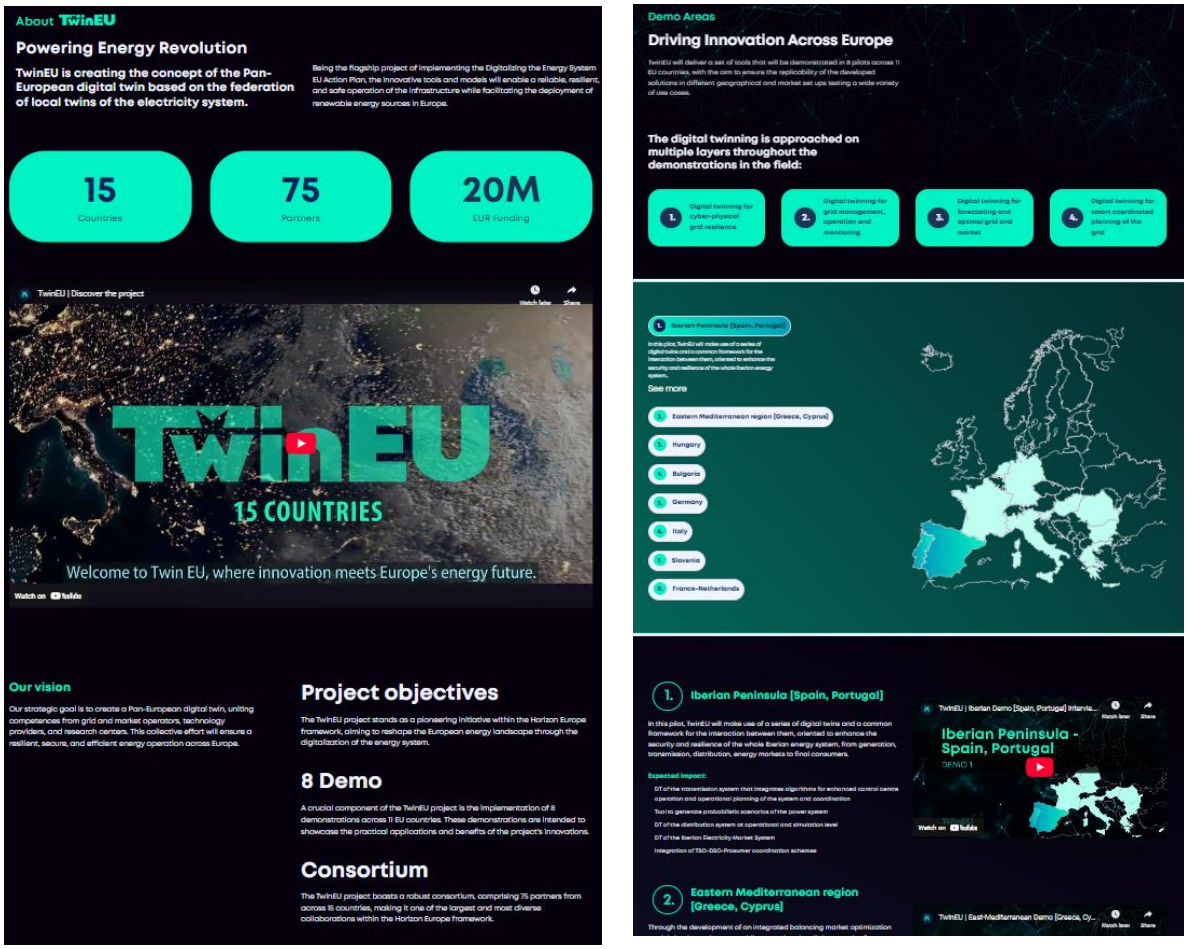

Figure 6: The TwinEU website

3.1.3 Social media channels

Originally, TwinEU set up 3 social media channels according to the stakeholder analysis, selecting the ones that proved most efficient to reach out to the target audience:

- LinkedIn
- X (formerly Twitter)
- YouTube

LinkedIn: The most efficient way to reach the key external stakeholders of the project, including policy makers, the industry and the representatives of research and academia. This proved to be the best performing channel, capable of building a strong base with more than 1150 followers. As TwinEU is developing pan-European solutions, it is important that the project is capable of building a community in order to attract third parties to utilize its achievements even after the end of the project.

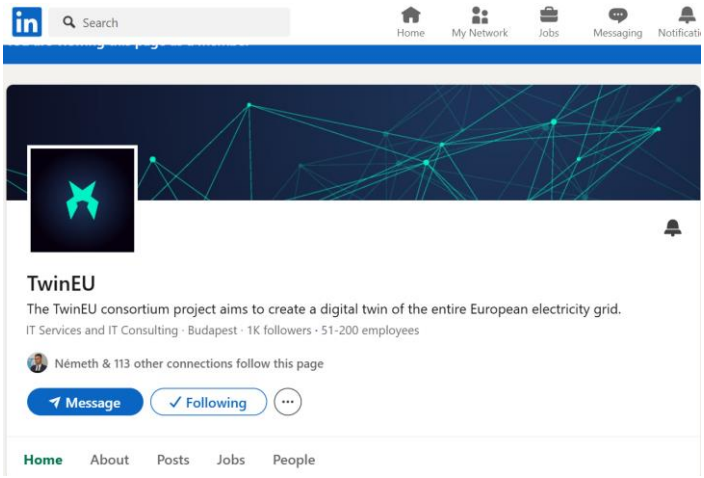

Figure 7: TwinEU LinkedIn Channel

X: Although formerly this channel used to be an important platform for industry and policy related exchanges of the EU bubble, since its change of direction it lost its relevance in Europe, which was well tracked through the low number of followers and interactions. Realizing that, TwinEU did not pursue maintaining this channel, and put its efforts to other channels, especially LinkedIn.

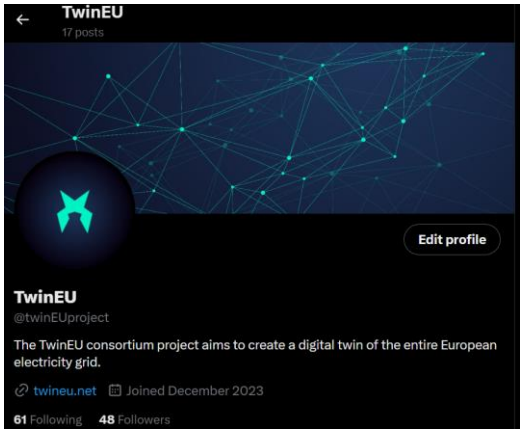

Figure 8: TwinEU X Channel

YouTube: This platform remains the most useful hub for sharing video contents as it is not only a storage site, but also a channel that is capable of attracting additional viewers to the project's

materials. Video content is a cornerstone of the TwinEU communication actions, regarded as one of the most powerful ways to convey the key messages of the project and the main aspects of the 8 demos.

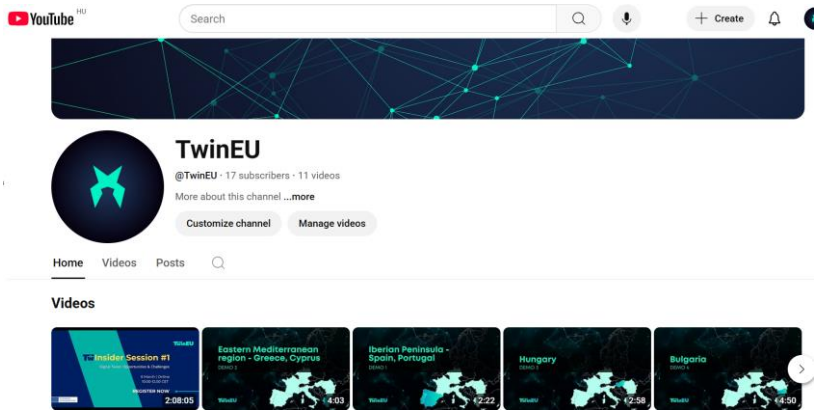

Figure 9: TwinEU YouTube Channel

3.1.4 Events & webinars

External events

TwinEU partners have participated in more than 10 events both online and offline in the first half of the project. The events were carefully selected according to the best outreach potential to most relevant stakeholder groups. The attended events were scaling from smaller webinars with focused audience group to large European energy fair with 15,000 participants. A highlight of the events is presented below:

- European Big Data Value Forum '24 – 04. 10. 2024, Budapest - Hungary
- ENLIT Europe '24 – 22-24. 10. 2024, Milan - Italy
- Regional Session on Data Driven Distribution 2025 – 29-30. 01. 2025, Inárcs - Hungary
- FutureGrid 2025 innovation Summit – 06. 02. 2025, Brussels – Belgium
- **IEEE Standardization Committee meeting** – 01. 03. 2025, online
- Green Powered Future Mission webinar – 14. 03. 2025, online
- Association of Energy Engineers Europe Conference – 23. 04. 2025, Paris – France
- 3rd Annual Asset Management Summit for Electricity Providers – 15-16. 05. 2025, Prague - Czechia

Figure 10: TwinEU presence at the FuturGrid, the Regional Session on Data Driven Distribution and Enlit Europe

TwInsider Session #1

TwinEU organized the first edition of its very own TwInsider Session on 6 March 2025. The project initiated this series of webinars to create a platform to connect industry players, like-minded EU-projects and policy makers to discuss the European energy transition based on Digital Twins.

In the first session, both DG ENER and DG CNECT were represented, so as the Data Management Working Group of the BRIDGE initiative. Besides this, TwinEU invited speakers from ENTSO-E and the DSO Entity to build a link between the joint digital twin workstream of the two Associations and the project. Furthermore, to complete the value chain, HorizonEurope projects DEDALUS and DECODIT were also represented, which are dealing with digital twins for consumers, energy communities and buildings.

The first edition was revolving around the challenges and opportunities of digital twins in the electricity systems, based on the recent deliverable of TwinEU. The further editions will dive deeper on various related topics such as data spaces or digital twin use cases with pan-European potential.

Figure 11: TwInsider Session #1 - agenda and panel discussions

3.1.5 Videos

As TwinEU is a highly complex, technical project, for an effective communication a graphic approach is essential. Therefore, TwinEU put a large emphasis on creating video content to be able to explain the main objectives and the context of the project and its eight demonstrators.

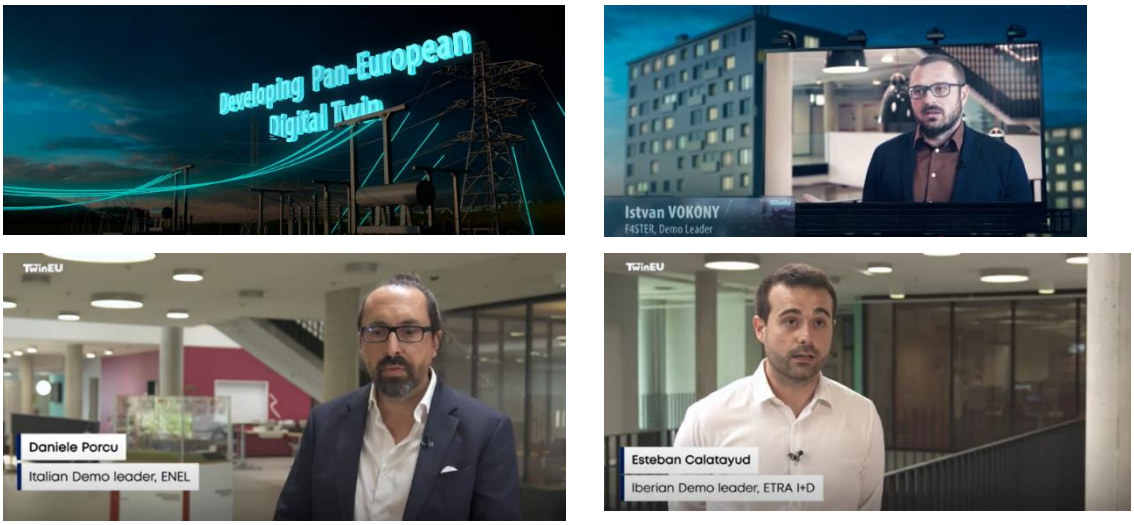

Figure 12: Screenshots from the TwinEU project video and the demo interviews

In the first 18 months, TwinEU produced 9, high quality short videos: 1 to present the project and its vision in a graphic way, while the 8 others are short interviews with the demo leaders about key

aspects of their pilots, and their view on the role of the adoption of digital twin in the power systems. All videos are available on the project website and its YouTube channel, and were also used on the social media channels, newsletters and event participations as supporting materials.

3.1.6 Media and press releases

As part of its 360° communication strategy, TwinEU capitalizes on the outreach potential of traditional media too. Non-scientific publications provide angles that can attract more stakeholder groups compared to the academic papers, especially on the local level. This way engagement in those countries that hosts a demonstrator, additional engagement levels can be facilitated.

Using the GLOCAL strategy that is presented in the previous chapter, successful media presence was achieved in Hungary from the kick-off of the project, which then generated additional interest from the press to follow the developments of the Hungarian demonstrator. As a result, overall during the first half of the project at least 15 publications were achieved in the local traditional media.

Besides this, media outlets with European level outreach were also targeted successfully, such as the Smart Energy International, or ScienceBusiness.com. Furthermore, the media platforms of some of the largest and most prestigious European smart energy events were also utilized (E-World Magazine, ENLIT Insights).

Figure 13: Cover of the E-World Preview magazine and the headlines of the TwinEU articles in the Hungarian press

3.1.7 Newsletters

Newsletters are powerful, complementary tools to engage with the identified stakeholder groups on a regular basis. TwinEU posts it newsletter in every 6 months, providing news of the project from the past half a year, and a bit of an outlook to what is coming in the next period. Additionally, the

project uses special editions as well to invite participants to its own events – such as the TwInsider Sessions.

TwinEU issued 3 regular and 1 special edition of the newsletter to **206 recipients**. Additionally, the Newsletter is available on the LinkedIn channel as well since 2025, helping to reach out to further **close to 400 followers.**

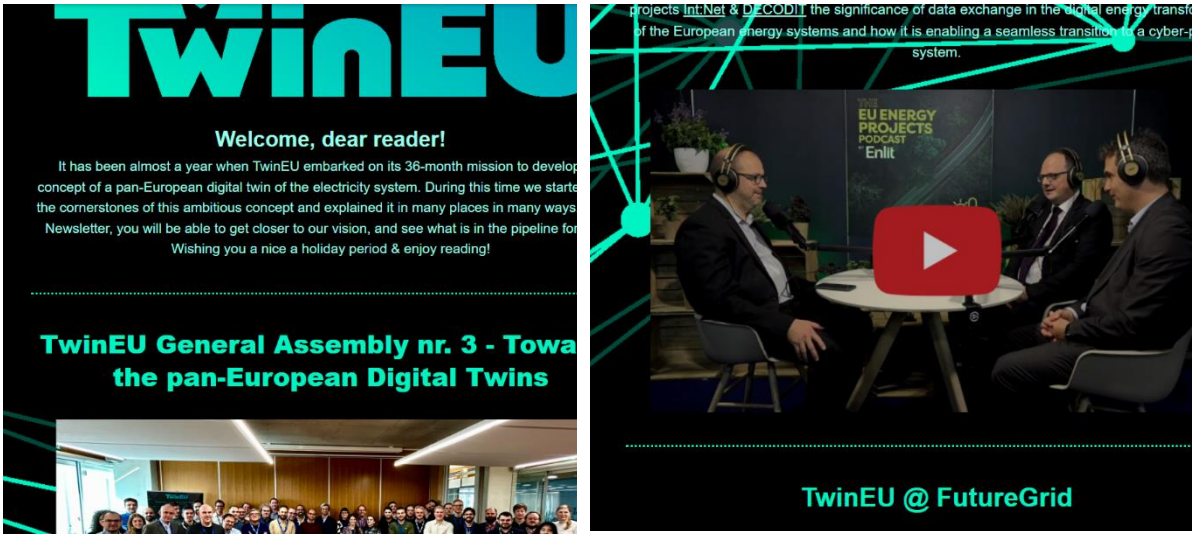

Figure 14: Screenshot of the 2nd issue of TwinEU newsletter

3.1.8 Brochures and factsheets

For supporting material, TwinEU created a brochure to present the project in brief, and to give an overview of all the eight demonstrators. Published in 200 physical copies, it has been a success at both events where TwinEU appeared with a booth (Enlit, FuturGrid).

This brochure will be accompanied by technical factsheets about the demos in a digital format to be able to capture the main achievements, impact and technology advancements in a concise manner. The factsheets to be developed between Q4 2025 – Q1 2026.

Figure 15: TwinEU general brochure

3.2 KPI compliance

Table 3: TwinEU communication & dissemination KPI compliance

KPI - Target value	Status	Planned actions/ Risk mitigation
>20 scientific publications/ papers; >20 participations to R&D conferences; 2 scientific workshops at large conference with >100 participants	5 publications 15 participations 0 scientific workshop	- As the project advances, more result will lead to more publications - Scientific workshops to be held at later stages
>10 short webinars	1 webinar	- -TwInsider Sessions to be complemented with shorter versions, focusing on demos between M24 and M36
>40 appearances to general media	25 appearances	
at least 5 presentations to standardization technical committees; >10 datasets (created from deployed and tested applications and use case	1 presentation 0 datasets	- Standardization committees to be engaged at a more advanced stage

functions), to be prepared for open access		
>5 liaisons with other projects; 5 co-organised webinars on common research areas	2 liaisons 3 webinars	- Keep cooperating with other projects/cluster
website portal	Ready	
>500 followers on LinkedIn; >200 followers on X	1152 followers 48 followers	- X is abandoned due to the loss of its relevance, focus and effort on LinkedIn
9 press releases; pursue > 6 public appearances	3 press releases 4 appearances	- Press releases are following major milestones in the project
Video clips: >10 available in and; (1 on the concept; 1 on final outcomes; 8 on demos technical achievements).	9 videos	
Technical brochures: >5 on technical achievements; >3 nontechnical for the general public Newsletter: 1st version in M06 and new issues every 6 months. >10 public events at universities and events with >80 visitors	0 technical brochures 1 non-technical brochure 3 Newsletters 3 events at universities	- Technical brochures to be developed by Q1 2026 based on the demos

4 Exploitation strategy

The aim of the exploitation strategy is to create pathways to utilize all the results of TwinEU that have either commercial, societal or academic/policy value. As the project aims to develop pan-European solutions for digital twinning, it is essential to ensure that the core developments of TwinEU remain available for all the players of the value chain of the European electricity system.

TwinEU's exploitation strategy is based on 2 pillars: 1) exploitation of the central architecture for a federated digital twin 2) exploitation of individual results developed in the demos. In most cases, an open-source approach is applied to achieve the interconnectivity of the federated digital twin system.

In this chapter the list of key exploitable results (KERs) is presented, and their value is categorized. Apart from the central architecture of the project, the majority of identified KERs are in an earlier stage of development within the demos, therefore in this first version of the document, a complete characterization is not yet provided.

In the final version of the document (M36) the KERs will be further analysed according to their market potential, competition and market risk mapping. In this version however a general identification of potential adopters and end-users is presented.

- **Commercial Results**

These results represent tangible products, technologies, or services that possess clear market potential. They can be commercialized and introduced to the market, often contributing directly to economic growth, competitiveness, or business development.

- **Societal Results**

Societal results provide added value to broader segments of society. They aim to improve social behaviour, well-being, or systemic conditions and are characterized by value that extends beyond financial profit. Such results often support inclusive, ethical, or sustainable development.

- **Policy/Academic Results**

These results contribute to the advancement of scientific knowledge and the development of evidence-based policy. They may include new data, research findings, theoretical frameworks, or analyses. Their primary beneficiaries include the academic community and policy makers, as they support regulatory improvements, academic discourse, and future research.

4.1 Exploitation approach

TwinEU is ultimately expected to deliver key to an **evolutive digital twinning of the European power grid** (or parts of it, and in every respect); that is **effectively implemented** by industrial operators.

The project thus gathers the whole industry sector, from OEMs and software developers and vendors to grid operators and market players; to demonstrate **one common concept** that would transform into an **industrial, opensource platform**; that would be **further developed** by the industrial community with the support of CRESYM.

TwinEU astutely makes use of opensource and license-based developments as follows:

- enable the development of an appealing common opensource[1] software infrastructure, shared and used, and later on jointly maintained, by industry partners;
- allow private players to complement (and value) that common asset through commercial proprietary products.

As a consequence, all opensource software pieces developed by TwinEU will be **non-viral**[2].

4.2 Key Exploitable Results

TwinEU developments are aiming at 4 major objectives of the project:

1) **enhanced observability and controllability**
2) **advanced forecasting for optimized market actions**
3) **smart coordinated planning**
4) **improved physical and cyber grid resilience**

TwinEU identified 38 Key Exploitable Results which are listed below. Out of them:

- 4 are publications in open access.

All others are software pieces, datasets or power system component models, with **commercial impact**:

- 6 are opensource main building blocks of a digital twin platform;
- 4 are opensource focused digital twins (either datasets or models) and their development methods;
- 22 are core parts of license-based tools;
- 2 are internal-use-only digital twins (of the Iberian and Greek systems).

By grey markings are the KERs originally identified in the Grant Agreement, while the rest was identified in an exercise by the demo leaders.

[1] opensource means that the source code of the software piece is available for user to read and check. Further rights on that piece of code are depending on the actual license of the software piece.

[2] I.e. "Non-viral" licenses (e.g. Mozilla Public License v2 or Apache v2), enable to embed the developed Intellectual Property in a further piece of work, without compelling the later to be released opensource as well (rather than e.g. the GNU Public License v3, deterring software vendors wanting to embed the results in their proprietary suites.

Table 4: TwinEU list of KERs

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
1	Open Reference architecture for a federated pan-European Digital Twin	FhG and UBE	Commercial /Academic	tbd	TRL 6-7
2	Federated Digital Twin ecosystem consisting of adaptable DT instances	Engineering	Commercial /Academic	tbd	TRL 6-7
3	Extended lifecycle oriented and spatiotemporal interoperability building blocks	Engineering	Commercial /Academic	tbd	TRL 6-7
4	Adapted DataSpace Connector for enhancing data and model sharing trust	ED	Commercial /Academic	Extension of Minimum Interoperability Mechanisms previously developed for the energy dataspace in the context of ENERSHARE project to address asset- and/or system centred lifecycle management, from beginning to end of life, cope with model interoperability, namely, both AI and reducedorder physical models.	TRL 7
5	Advanced Workbench to orchestrate data, models, computational resources	RWTH and ED	Commercial /Academic	It will be defined as WP4 progresses.	TRL 6-7
6	Advanced physicsinformed AI-based forecasting tool	INESCTEC	Commercial /Academic	tbd	TRL 6-7
7	DTs for network resiliency and stability assessment	RSE	Commercial /Academic	tbd	TRL 6-7

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
8	DTs for network planning (and operation)	ETRA, E.ON	Commercial	tbd	TRL 6-7
9	Recommendations and guidelines for the implementation and operation of Digital Twin platforms for stability assessments by Transmission System Operators (TSOs).	TU Delft	Academic	Report with guidelines providing recommended practices, methodologies, and operational insights for TSOs to effectively implement Digital Twins focused on power system stability assessment.	TRL 3
10	Recommendations and guidelines for the implementation and operation of Digital Twin platforms for cybersecurity assessments by System Operators (TSOs and DSOs).	TU Delft	Academic	Digital twin that will be developed with in the scope of the project which study the cascading failure analysis due to cyberattacks and provide the prevention strategies to mitigate cyberattacks in the system.	TRL 3-5
11	TwinEU DTs as active project in an open-source community for long term sustainability	CRESYM		tbd	N/A
12	ANN-enhanced forecasts for the relevant system parameters (wind production, solar production, OHL ampacity)	SCBG / SETECHCO	Academic / Commercial	The forecasts of the relevant system parameters done by utilizing the developed ANN-based algorithms and high-resolution numerical weather forecasts.	TRL 5
13	DT for Wind Turbine, DT for Wind park, DT for Solar module, DT for Solar park, DT for OHL ampacity forecast - all enhancing DT EHV	SCBG / SETECHCO	Academic / Commercial	Minor digital twins (named like that to make a distinction from the four major digital twins that will be developed in the scope of the pilot) of the individual wind turbines, wind parks, individual solar modules, solar parks, and OHLs, all developed in order to properly upgrade the major DTs and	TRL 5

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
	and DT HV-MV grids (TSO and DSO) for grid planning and operations.			implement the ANN-based forecasts into the calculations that will be done in the Bulgarian pilot.	
14	Methodology and codes for optimized connection of RES, enhanced Grid DTs for grid planning.	SCBG / SETECHCO	Academic / Commercial	Codes and methodology description that will elaborate on the optimization techniques' usage in determining the connection manner of RES in observed areas of the Bulgarianpower system. Of course, it can (same goes for the previous two KERs) be modified to fit any other system with the sufficient amount of the necessary input data (both for the grid and for the RES).	TRL 5
15	Digital Twin (DT) Model for Power Line Monitoring and Management - The ANN-based DT integrates real-time sensor data, weather station inputs, and SCADA system parameters to monitor and manage power lines' ampacity dynamically.	BME/F4STER	Academic / Commercial	tbd	tbd
16	Digital Twin (DT) Model for Co-optimizing the energy and balancing capacity market coupling with flow-based auction enhanced with DLR	BME/Artelys	Academic / Commercial	tbd	tbd
17	Digital Twin model for dynamic security assessment and fast frequency response service	ELES	Academic	The document will provide results of the demonstration, lessons learned, impact,...	TRL7

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
18	Dynamic Security Assessment tool	ELES	Academic / Commercial	During the project the tool will be demonstrated in live control room environment. The software will be in the future lifted to TRL 9 and implemented in national control centre in Slovenia.	TRL7
19	DTs for distribution network planning (and operation)	ETRA	Commercial	tbd	tbd
20	DTs for distribution network planning (and operation)	ADAION	Commercial	tbd	tbd
21	High-level DT-based service for frequency response in Transmission Systems	INESC TEC	Academic / Commercial	tbd	tbd
22	AI Agent for the DT of the TSO's control centre	CIRCE / REE	Academic / Commercial	tbd	tbd
23	DT module of renewable resources profiles	CIRCE / REE	Academic / Commercial	tbd	tbd
24	DTs for Transmission network planning (and operation)	R&D NESTER	Commercial	tbd	tbd
25	Iberian electricity markets DTs integration within the TwinEU continuum	OMIE	tbd	tbd	tbd
26	DT for transmission network operation (TSO DT)	IPTO	Academic / Commercial	The results exported from the TSO DT (transmission system operational constraints) will be used as input to the balancing market (BM) DT and the day-ahead market (DAM) tool developed for the Greek EAST-MED pilot. The results will provide an insight of the synergy between the TSO and the BM and DAM tools, highlighting the	TRL4-5

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
				impact of the TSO DT on the reliable transmission network operation, as well as on the effective exploitation of the proposed market products. Insights such as data-exchange procedure, agreed data format, and communication protocol will be of interest to other TSOs and market operators.	
27	DT for congestion evaluation in MV and LV Grids based on balancing market signals	HEDNO	tbd	The DT model is designed to monitor and evaluate congestion risks in medium and low voltage (MV/LV) distribution networks in real time, based on the requests of the balancing market. It integrates grid topology, metering data, and market activation signals to assess the impact of market requests on network performance and reliability and to avoid any congestion issue.The DT will inform the balancing market about the results of the tool.	TRL4-5
28	Utilization monitoring on LV-/MV-level	Envelio/ Westnetz	Commercial	A digital twin-based monitoring solution that enables real-time utilization monitoring at LV/MV levels, built on envelio's IGP platform. This solution helps grid operators handle increasing connection requests and manage grid stability efficiently.	tbd
29	State estimation under changing topology	Envelio/ Westnetz	Academic/Policy	This KER presents advanced state estimation capabilities that account for changing grid topology, providing valuable research insights for grid operation under dynamic conditions, real-time topology tracking and plausibility checks for measured values. It also contains the Implementation of quality indicators to show measurement compliance with regulatory requirements and the development of a comprehensive Measurement Analyzer tool for tracking state estimation runs and validating input values These results support grid modernization efforts by providing more accurate and reliable state estimation capabilities which is crucial for managing dynamic grid conditions.	tbd

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
30	Ad-hoc Control Module for Congestion Management	Envelio/ Westnetz	Academic/Policy	A specialized control module that enables real-time, ad-hoc management of grid congestion. This solution includes automated detection of network bottlenecks, implements discriminatory-free control measures, and provides control interventions with continuous adaptation. The module features automatic documentation of control measures, integration with measurement systems, and supports manual intervention capabilities for grid operators when needed. This enhances grid stability and ensures compliance with §14a EnWG requirements (in Germany).	tbd
31	Advanced monitoring & control tools for congestion management	Envelio/ Westnetz	Academic/Policy	A comprehensive platform for monitoring and managing grid congestion through predictive analytics and flexibility management. This solution incorporates TSO-DSO coordination and enables efficient management of flexibility resources. Key features include AI-based forecasting of time series for grid congestion in low voltage grids, integration of weather forecasts, historical data, and external sensor data. The platform utilizes digital twin model-based grid utilization predictions and provides API interfaces for external stakeholder access. It also offers advanced visualization tools for forecast results, pre-connection evaluations, and envelope curve calculations. Additionally, the system includes quality indicators for measurement compliance with regulatory requirements, making it a complete end-to-end solution for grid management and congestion prevention.	tbd
32	Self-optimization of flexible households under consideration of envelope curve	EDG/EDT	Commercial	Flexible households will optimize their EV-charging based on time periods with cheap prices, but under consideration of grid restrictions (described by the envelope curve). This makes sure that no grid congestions are caused by shifting of charging processes.	TRL 5

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
33	Aggregation platform for flexible households for marked-based participation on future Redispatch	EDG/EDT	Commercial	Flexible households will be aggregated by a Flexibility Service provider (FSP). The aggregated flexible power will then be used to offer flexiblity in a future market based Redispatch framework set up by the TSOs.	TRL 5
34	Determination of small-scale flexibility potential for future TSO-congestion management	Amprion/OFFIS/ RWTH/Westnetz	Academic	tbd	TRL 5
35	Visualizing hosting capacities	Envelio/ Westnetz	Societal	A visualization tool for grid hosting capacities that enables transparent access for third parties, facilitating faster integration of renewable energy sources and supporting the energy transition. The platform enables visualization of power grid asset metadata, making it easier for project developers to understand the infrastructure in their target areas. Advanced filtering capabilities allow users to search for parcels based on both size requirements and available grid capacity, streamlining the site selection process. The Grid Connection Navigator includes comprehensive features like live calculations for instant insights into interconnection point locations and cost estimates. It supports both generators and loads across different voltage levels, making it a versatile tool for various types of projects. Additional functionalities include seasonal and time-series based hosting capacity calculations, which provide a more detailed understanding of grid capacity variations throughout the year. The system also incorporates automatic documentation features and integrates with existing measurement systems, offering a complete solution for project planning and grid connection assessment.	tbd

	KER No. & Definition (IP name)	Partner(s) / Owner(s)	Category / Main Impact Domain (Commercial, Academic/Policy, Societal)	Short description	Expected TRL at the end of TwinEU
36	Set-up a Connector for open data of the German Energy System and Beyond	OFFIS	Academic	tbd	tbd
37	Standardization of different open data formats for data exchange in the data space	OFFIS/Amprion	Academic	tbd	N/A
38	Connector-based interface for simulators	RWTH	Academic	A data interface that is real-time capable enabling communication for simulator-based Digital Twins using Dataspace Connectors	TRL 5

This current list of KERs is only an initial collection of the project outcomes, which will need further consolidation and potentially grouping of the related KERs. This is important in order to carry out proper characterisation with individual exploitation plans. With further developments in demos, KERs and their attributes will be crystallized, which will be reflected in the final version of this document at the end of the project.

4.3 Target Group and Interest

Table 5: TwinEU target groups for exploitation

Target Group	Key Interests / Benefits
Energy Industry Players (Utilities, TSOs, DSOs, Market Operators)	- Reduced operational costs via market flexibility - Enhanced grid monitoring and efficiency - Adoption of innovative service-based business models - Integration of digital twin outputs into operational workflows - Collaboration opportunities for scaling and replicability
IT Industry Players (IT firms, SMEs, software developers)	- Reuse of digital twin components and APIs for new solutions - Business opportunities in platform and data integration - Access to training and documentation - Participation in co-development and pilot deployments
Researchers & Academia (DT, IoT, AI, ML fields)	- Use of project data/tools for advanced research - Research extensions and cross-domain applications - Publication and thesis development - Shaping future R&D based on real-world energy challenges

Standards Bodies & Technical Committees (IEC, CENELEC)	- Input for standardizing digital twin architectures and data exchange formats - Contribution to interoperability frameworks - Alignment with EU-wide digital and energy standards
Policy Makers (EC Units, Ministries, NRAs)	- Evidence-based inputs for shaping digital twin and energy policy - Guidance for regulatory sandboxes and testbeds - Insights into citizen-centric and sustainable energy innovation
General Public (End-users, Citizens)	- Greater transparency of energy systems via open data - Empowerment through citizen engagement tools - Contribution to reliable, affordable, and clean energy services

4.4 Exploitation pathways

4.4.1 Public & advocated papers & reports

All key publications are made available with gold open access or equivalent in order to foster adoption by industry.

The recommendations will be pushed to CIGRE, CIRED conferences; to CENELEC, IEC and other standardization bodies (e.g. to contribute to the development of the CGMES); and to ACER and CEER to foster their adoption.

4.4.2 Commercial products rooted in a common opensource platform

The opensource software pieces resulting from TwinEU are components of the intended European power system digital-twinning platform. They must be assembled together and be sustained on the long run as an effective tool.

Every proprietary, profit-intended tool resulting from TwinEU development will use and share the opensource platform. To that extent, the opensource platform components that proprietary software pieces would need to embark would be released with non-viral licenses (e.g Apache v2, Mozilla Public License V2), in order to ease their integration with no further constraint on the proprietary pieces. Precisely this dependence of more than a dozen profit-intended tools to a same, common opensource backbone will ensure the long-term sustainability and development of the opensource platform. Conversely, the development of the backbone platform will attract more industry players and turn into a standard.

In practice,

- TwinEU partners will bring the main opensource KERs to a dedicated **Linux Foundation for Energy (LFE)** project, enabling the development of digital twins of the European power systems (and others) on the long run.
- The initial **LFE TwinEU project community** will consist of the TwinEU partners.

– CRESYM will ensure the animation of the community and organise the sustainability and complementation work of the opensource tool.

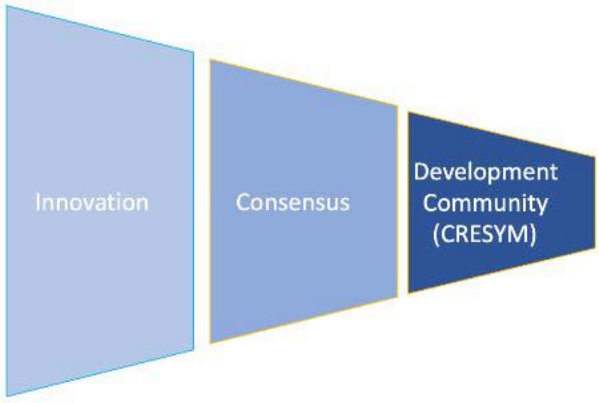

Figure 16: From Innovation to Development

4.4.3 A coordinated exploitation

CRESYM is an association meant for catalysing the transition of the industry sector, organizing research project and sustaining research projects opensource results for the common good. As for other projects, **CRESYM will coordinate** the exploitation and especially:

- Take over the TwinEU domain name renting and website maintenance.
- Sustain & value the project's Zotero library[3] of scientific papers, monitor the popularity of the public legacy material and adapt their FAIR access accordingly.
- Advocate the TwinEU recommendations to policy and standardization bodies.
- Animate the LFE TwinEU project community and develop tutorials to onboard more members and participants.
- Ensure the connection of TwinEU with other power-system-focused LFE projects: PowSyBl[4], OpenSTEF[5], Dynawo[6], etc.
- Sustain and value in COLib[7] the TwinEU dynamic digital twin models whenever appropriate.

[3] https://www.zotero.org/
[4] https://lfenergy.org/projects/powsybl/
[5] https://lfenergy.org/projects/openstef/
[6] https://lfenergy.org/projects/dyna%CF%89o/
[7] https://colib.net/

5 Clustering activities

5.1 BRIDGE

BRIDGE initiative[8] is the hub of knowledge exchange for EU-funded smart energy projects. Therefore, TwinEU took part in the relevant Working Groups of BRIDGE from its kick-off. This included the following WGs:

Table 6: TwinEU participation in BRIDGE WGs

Working Group	Main point of contact	Organization	Substitute member	Organization
Data Management	Philipp Erlinghagen	Envelio	Juan Galeano	RWTH
Business Models	Ilias Zafeiropoulos	UBITECH Energy	Lóránt Dékány	F4STER
Regulations	Selene Liverani	E.DSO	Philipp Erlinghagen	Envelio

BRIDGE working groups provide a two-way knowledge exchange among the represented projects. TwinEU contributed to these workstreams both through the surveys which collect input for the annual BRIDGE reports and the internal knowledge sharing webinars as well, actively presenting the project's overview over the challenges and opportunities of adopting digital twins in the electricity systems.

Figure 17: : BRIDGE General Assembly 2024 & 2025

[8] https://bridge-smart-grid-storage-systems-digital-projects.ec.europa.eu/

TwinEU took part also in the BRIDGE communication activities, being present at the BRIDGE General Assemblies both in 2024 and 2025. In 2024 as a new project TwinEU got the chance to be introduced through a roll-up banner and being part of the event video as well.

Furthermore, TwinEU involved the BRIDGE Working Group Data management to its first edition of TwInsider Sessions. One of the workstreams of this WG deals with standardization issues, therefore its input on the standardization processes related to digital twins brought valuable insights to the online session of the project.

5.2 Cooperation with relevant projects

TwinEU identified several relevant projects around its operational area within the Horizon Europe framework. Based on that, various joint dissemination activities have been carried out together with other projects. This way not only the potential impact of the project was higher, but it opened routes for cross-fertilisation opportunities as well.

Collaboration with the Energy Data Space Cluster (including projects **Int:Net**[9], **Omega-X**[10], **EDDIE**[11], **Enershare**[12], **Synergies**[13] and **DATA CELLAR**[14]) took place on various levels. In January 2024, TwinEU took part in the cluster meeting to introduce the project and its relation to the data spaces. Later that year, TwinEU took part at the panel discussion organized by the Cluster at the ENLIT Europe conference in Milan, bringing the link between data spaces and digital twin applications to the session.

TwinEU was also approached by the E-NERGY cluster (including projects **DIGITISE**[15], **DECODIT**[16], **ENERGENIUS**[17], **EU-DREAM**[18] and **CELINE**[19]) for seeking potential joint dissemination activities which are yet to be realized in the second half of the project.

Furthermore, TwinEU is also actively seeking opportunities to collaborate with relevant fellow projects. For this, the first edition of the TwInsider Sessions provided an excellent opportunity as the project invited **DEDALUS** and **DECODIT** projects to present their digital twin solutions. As TwinEU is working on federated digital twins for the European electricity system, its scope does not include end-user solutions, however its central architecture will enable the connection of 3rd party tools and services. This aspect was brought by the abovementioned two projects, bringing complementary viewpoints to the discussion.

[9] https://cordis.europa.eu/project/id/101070086
[10] https://omega-x.eu/
[11] https://eddie.energy/
[12] https://enershare.eu/
[13] https://synergies-project.eu/
[14] https://datacellarproject.eu/
[15] https://digitise-horizon.eu/
[16] https://cordis.europa.eu/project/id/101160660
[17] https://energenius-project.eu/
[18] https://eu-dream.eu/
[19] https://www.celineproject.eu/

6 Conclusion & next steps

This first version of Deliverable D10.1 reflects a solid foundation for TwinEU's dissemination, communication, exploitation, and clustering efforts during the initial 18 months of the project. TwinEU has established a clear identity, an engaged community of stakeholders, and visibility across key European platforms. These activities have effectively supported early awareness and stakeholder alignment for the project's ambition to develop a federated pan-European Digital Twin for the electricity system.

Clustering efforts, particularly through active participation in the BRIDGE initiative and HorizonEurope clusters, have positioned TwinEU within a broader ecosystem of related projects, enabling both mutual learning and future collaboration.

Next Steps

- **Communication and Dissemination**: Future activities will shift focus toward the **more mature results of the project**, especially the Key Exploitable Results (KERs). TwinEU will capitalize on its **well-established channels**—including its website, LinkedIn community, newsletters, video content, and the TwInsider webinar series—to **maximize the visibility and uptake** of these results among targeted stakeholder groups.
- **Exploitation**: The next phase will involve:
    - **Consolidating the current list of KERs**, selecting the ones to be focused with joint exploitation efforts, eliminating overlaps and grouping related results.
    - Conducting a **detailed characterization exercise** for each KER, assessing market potential, maturity (TRL), stakeholders, and exploitation routes.
    - **Refining exploitation pathways** for the core components of the federated digital twin architecture, with a focus on open-source sustainability, commercial value, and long-term community engagement through the Linux Foundation for Energy and CRESYM.

These steps will ensure that TwinEU's technical achievements are not only disseminated effectively but are also positioned for **real-world adoption** and **continued development beyond the project's lifetime**.

Regarding the clustering activities, TwinEU will continue to be an active part of the Horizon Europe smart-energy domain. The project will keep participating in the BRIDGE Working Groups that are most relevant for the topics of TwinEU and take part of the communication activities as well. Furthermore, the project will keep cooperating with relevant and like-minded projects and clusters in ad-hoc ways and planned activities, such as the future editions of the TwInsider Session webinars which are organized by TwinEU.

Annex A List of communication & dissemination activities

Table Error! No text of specified style in document.-1 - List of communication & dissemination activities

Type of Action	What?	Where? (link or city)	When?	Who? (partner name)
Newsletter appearance	ENTSO-E Newsletter - TwinEU kick-off	https://mailchi.mp/entsoe/member-brief-v8mw7qw2hh-447518-yk2xydrf89-450248?e=62831402cd	2024.01.19	BME
General media (non-scientific)	SmartEnergy International - Kick-off	https://www.smart-energy.com/industry-sectors/digitalisation/twineu-to-create-european-electricity-grid-digital-twin/	2024.01.23	Fraunhofer
General media (non-scientific)	SolarQuarter - Kick-off	https://solarquarter.com/2024/02/06/e-on-one-spearheads-twineu-project-advancing-digital-twin-technology-for-european-power-grid-resilience-and-efficiency/#google_vignette	2024.02.06	E.ON
General media (non-scientific)	ScienceBusiness - Kick-off	https://sciencebusiness.net/network-updates/inesc-tec-part-european-project-develop-digital-twin-european-electricity-system	2024.02.07	INESC TEC
General media (non-scientific)	Profitline - Kick-off	https://profitline.hu/kezdetet-vette-a-twineu-458830	2024.02.21	BME
General media (non-scientific)	Gyártástrend - Kick-off	https://gyartastrend.hu/cikk/twineu-digitalis-ikrek-projekt-a-bme-vel	2024.02.21	BME
General media (non-scientific)	Realista ingatlan - Kick-off	https://realista.ingatlan.com/well/elindult-a-digitalis-ikrek-projekt-amely-uj-dimenzioba-helyezi-az-europai-energiapiacot/	2024.02.21	BME
General media (non-scientific)	Azüzlet - Kick-off	https://azuzlet.hu/start-elindult-a-twineu-a-digitalis-ikrek-projekt/	2024.02.21	BME

Type of Action	What?	Where? (link or city)	When?	Who? (partner name)
General media (non-scientific)	Webrádió - Kick-off	https://webradio.hu/hirek/it-tudomany/bme-elindult-a-twineu-a-digitalis-ikrek-projekt	2024.02.20	BME
General media (non-scientific)	Pestinap - Kick-off	https://www.pestinap.hu/egyetem/2024/02/21/bme-elindult-a-twineu-a-digitalis-ikrek-projekt/	2024.02.21	BME
General media (non-scientific)	Computerstrends - Kick-off	https://www.computertrends.hu/technologia/bme-elindult-a-twineu-a-digitalis-ikrek-projekt-353075.html	2024.02.20	BME
General media (non-scientific)	Magyar Hírlap - Kick-off	https://www.magyarhirlap.hu/gazdasag/20240220-elindult-a-twineu-projekt-az-europai-villamosenergia-rendszer-megujitasaert	2024.02.20	BME
General media (non-scientific)	Autoszektor - Kick-off	https://www.autoszektor.hu/hu/content/bme-s-reszvetellel-elstartolt-twineu-digitalis-ikrek-projekt	2024.02.22	BME
General media (non-scientific)	Alternatívenergia - Kick-off	https://alternativenergia.hu/bme-elindult-a-digitalis-ikrek-projekt/107723	2024.02.25	BME
General media (non-scientific)	Tisztajövő - Kick-off	http://www.tisztajovo.hu/kornyezetvedelem/2024/02/26/bme-elindult-a-twineu-a-digitalis-ikrek-projekt	2024.02.26	BME
General media (non-scientific)	Beszerzés.hu - Kick-off	http://beszerzes.hu/2024/02/26/elindult-a-twineu-a-digitalis-ikrek-projekt/	2024.02.26	BME
General media (non-scientific)	Műszaki-magazin - Kick-off	http://www.muszaki-magazin.hu/2024/02/26/twineu-bme-digitalis-iker/	2024.02.26	BME
General media (non-scientific)	OTS - Kick-Off	https://www.ots.at/presseaussendung/OTS_20240125_OTS0032/virtuelle-abbildung-vom-europaeischen-stromnetz	2024.01.25	APG
General media (non-scientific)	TwinEU kick-off	https://hupx.hu/hu/hirek/twineu-project/336; https://hupx.hu/en/articles/twineu-project/336	24.01.2024.	HUPX

Type of Action	What?	Where? (link or city)	When?	Who? (partner name)
Conference/Event participation	Hungarian Electrotechnical Association webinar - TwinEU general	https://www.linkedin.com/posts/twineu_twineu-digitaltwin-energyinnovation-activity-7179436008889847808-Xvao?utm_source=share&utm_medium=member_desktop	2024.03.28	BME/F4STER
Conference/Event participation	BRIDGE General Assembly	https://www.linkedin.com/posts/twineu_twineu-digitaltwin-energyinnovation-activity-7184222410190032896-d5Fh?utm_source=share&utm_medium=member_desktop	9-10.04.2024	Fraunhofer /UBE/ F4STER
Conference/Event participation	IEEE Digital Twin Task Force meeting	https://www.linkedin.com/posts/antonellomonti_digitaltwin-activity-7184443289511579648-2WvC?utm_source=share&utm_medium=member_desktop	2024.04.11	Fraunhofer/ RWTH
Public event at University	BME Mechanical Engineering faculty event series - Digital Twins	https://www.linkedin.com/posts/l%C3%B3r%C3%A1nt-d%C3%A9k%C3%A1ny-6ab62739_digital-twin-is-at-the-beginning-of-an-activity-7188111253158957056-Fo9H?utm_source=share&utm_medium=member_desktop	2024.04.18	F4STER
Newsletter appearance	E.DSO monthly Newsletter - Kick-off	https://mailchi.mp/a8aa5051cb24/edso-internal-newsletter-n7-julyaugust-17643457?e=b79a60d444	2024.01.30	E.DSO
General media (non-scientific)	TwinEU kick-off	https://www.kios.ucy.ac.cy/twineu-a-flagship-project-to-digitize-the-european-energy-system/	2024.03.28	UCY
Newsletter appearance	TwinEU kick-off	https://www.kios.ucy.ac.cy/wp-content/uploads/2024/04/KIOS-eNews-issue-22-april-2024.pdf	2024.04.22	UCY
General media (non-scientific)	Website news: TwinEU kick-off	R&D Nester - R&D NESTER AND REN CONTRIBUTES TO THE EUROPEAN FEDERATION OF DIGITAL TWINS FOR ENERGY (rdnester.com)		R&D Nester

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General media (non-scientific)	Website section: TwinEU project	R&D Nester - TWIN-EU PROJECT (Jan/2024 - Dec/2026) (rdnester.com)		R&D Nester
Conference/Event participation	Hungarian Electrotechnical Association AM	https://vandorgyules.mee.hu/	24-26.09.2024	BME/F4STER
Public event at University	International Youth Conference Energy '24, Colmar	https://www.iyce-conf.org/program	2024.07.03	BME/F4STER
Conference/Event participation	Opportunities and Challenges of GenAI for Energy Grids workshop (DG ENER, DG CNECT)		2024.09.20	F4STER
Conference/Event participation	European Big Data Value Forum '24	https://european-big-data-value-forum.eu/2024-edition/programme/?edition_session_id=13150	2024.10.04	Fraunhofer/ RWTH
Conference/Event participation	ENLIT Europe '24	https://www.enlit-europe.com/exhibition/eu-projects-zone	22-24.10.2024	Fraunhofer/ RWTH/ Engineering/ BME/ F4STER/ E.DSO/ ENEL/ UBE/ E.ON /R&D Nester
Public event at University	Budapest University of Technology & Economics career guidance day		2024.11.29	BME
Conference/Event participation	RSD3 – Regional Session on Data Driven Distribution 2025	https://www.mee.hu/rsd3	29-30.01.2025	F4STER /UBE/ ENG
Conference/Event participation	FutureGrid 2025 Innovation Summit	https://www.edsoforsmartgrids.eu/events/e-dso-futuregrid-innovation-summit/	2025.02.06	Fraunhofer/ RWTH/ F4STER/E.DSO

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General media (non-scientific)	E-World Preview 2025 (distributed at E-World in Essen)	https://www.yumpu.com/en/document/read/69754712/e-world-p-reread-2025/17	2025.02.11	F4STER/BME
General media (non-scientific)	Smart Energy International (ENTSO-E & EU DSO digital twin workstream, including TwinEU)	https://www.smart-energy.com/industry-sectors/digitalisation/digital-twins-at-heart-of-europes-electricity-system-digitalisation/amp/	2025.03.13	
General media (non-scientific)	Készül Európa villamos hálózatának digitális mása (GyártásTrend magazine, in Hungarian	https://gyartastrend.hu/uploads/files/20250329/GYT-2025-2-3-digitalis-pdf.pdf	2025.03.29	BME/F4STER
Presentation to standardization body	IEEE Standardization Technical Committee presentation		2025.03.01	RWTH/ Fraunhofer
Conference/Event participation	CRESYM General Assembly		2-3.04.2025	RWTH/ Fraunhofer
Conference/Event participation	Project presentation at the Electrical and Computer Engineering Student Conference (ECESCON16) in Thessaloniki, Greece	https://www.instagram.com/p/DItwyDsoajF/	25-27.04.2025	IPTO
Conference/Event participation	Association of Energy Engineers Europe Conference - Paris	https://aeeeurope.org/agenda/	23-24.04.2025	F4STER/BME
Conference/Event participation	3rd Annual Asset Management Summit for Electricity Providers	https://globalbsg.com/events/3rd-annual-asset-management-summit-for-electricity-providers/	15-16.05.2025	ENG

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General media (non-scientific)	ENLIT Insights - online magazine	https://www.enlit.world/digitalisation/twineu-empowering-digital-twins-with-data-space-federation/	05. 2025	ENG
Conference/Event participation	ESTELAR Horizon Europe Project Workshop Session Data and risks	https://cordis.europa.eu/project/id/101192574	24.06.2025	ETRA