PRECEPT
Less Energy > Smarter Buildings

Project Acronym:	**PRECEPT**
Project Title:	**"A novel decentralized edge-enabled PREsCriptivE and ProacTive framework for increased energy efficiency and well-being in residential buildings"**

Deliverable D6.6
Report on Dissemination Activities v1

Work Package	:	**WP6**
Deliverable Status	:	**Final**
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Submission Date	:	**08/10/2021**
Leading Partner	:	**WVT**
Dissemination Level	:	**Public**

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LIST OF BENEFICIARIES

Short Name	Full Name	Country
WVT[1]	WATT AND VOLT A.E.	Greece
CERTH	Centre for Research and Technology Hellas	Greece
KTU	Kaunas University of Technology	Lithuania
FRC	Frederick Research Center	Cyprus
CLEO	Cleopa GmbH	Germany
NURO	Nuromedia	Germany
OdinS	Odin Solutions S.L.	Spain
DEMO	DEMO Consultants B.V.	The Netherlands
ASI	Austrian Standards International	Austria
LCII	LC Innoconsult International	Hungary
PSACEA	STATE HIGHER EDUCATIONAL INSTITUTION PRYDNIPROVSKA STATE	Ukraine
CON	Contecht GmbH	Germany
STROITEL-P	PRIVATE CONSTRACTION AND ASSEMBLY ENTERPRISE	Ukraine
MIWENERGIA	MY ENERGIA ONER S.L.	Spain
POLIMI	Politecnico di Milano	Italy

[1] Coordinator

REVISION CONTROL

Version	Date	Author / Reviewer	Status
0.1	01/07/2021	WVT	ToC creation
0.2	17/09/2021	WVT	Reviewed
0.3	30/09/2021	WVT	Added 30/09/2021 Details
1.0	**08/10/2021**	**WVT**	**Final**

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LIST OF DEFINITIONS AND ABBREVIATIONS

Abbreviation	Definition
AIDA	Awareness, Interest, Desire, Action (Methodology)
BIM	Building Information Modeling
BMs	Building Management System
DC, D&C	Dissemination and Communication
EU	European Union
KPI	Key Performance Indicators
IoT	Internet of Things
R&D	Research and Development
SME	Small and Medium-sized Enterprises
UAT	User Acceptance Testing
UI	User Interface
UX	User Experience

EXECUTIVE SUMMARY

This document constitutes D6.6 and is the preliminary report on the dissemination activities performed in this first year of the PRECEPT project. The deliverable is part of Dissemination, Exploitation and Promotion of the project and it illustrates the third deliverable of WP6, hence it relies on PRECEPT previous deliverables, D6.4-Project Website & dissemination materials and D6.1-Dissemination & Communication Plans submitted in M3 and M5, respectively.

More specifically, the deliverable organized as follows:

Chapter 1 describes the appropriate material and tools decided and executed by all partners to effectively communicate the project while the PRECEPT poster, the project presentation slides, and functional templates are identified.

Chapter 2 includes all the activities at local and international level that are used for the dissemination via the different channels. PRECEPT main achievements include the establishment of project website and social media pages as well as the promulgation of several press releases, newsletters and scientific publications.

Chapter 3 summarizes the relevant KPIs in accordance with the DC methodology and the strategy for evaluating the effectiveness of the proposed activities so far.

The project marketing planning and the next steps are described in Chapter 4.

1 Dissemination & communication material

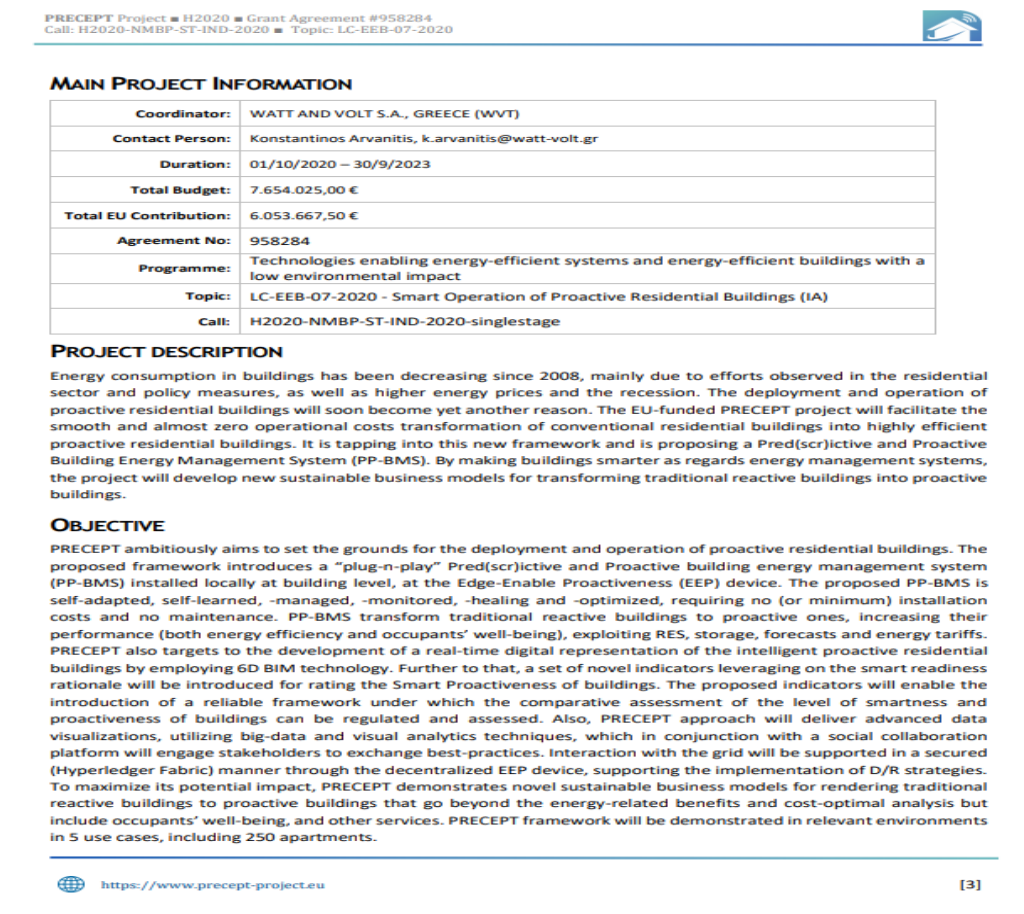
During the first year, efforts were put on the establishment of the project visual identity and the production of the appropriate material that would consolidate and enhance the communication of the project's awareness widely.

1.1 Brand identity

The project brand identity has been introduced during the kick-off meeting (October 2020). The project logo it was agreed to be enriched with the project motto: *"Less energy > Smarter Buildings"*. This motto summarizes the PRECEPT vision in a phrase creating attention at the first glance. The new version of the project branding was designed and presented in D6.4 where the colors and the total project visibility and graphics where presented.

1.1.1 Templates

In D6.4 were presented the project documents that have been prepared and are used by the partners for both internal and external communication needs. Internal communication includes templates related to meeting agendas, meeting minutes, slides presentations as well as formats for reports and deliverables. Furthermore, the project Factsheet is available in the website link: https://www.precept-project.eu/wp-content/uploads/2020/12/PRECEPT_factsheet_v1.0.pdf while the Press Release template and Letterhead is shared into the private consortium section. Figure 1 illustrates the main information including in the factsheet.



PRECEPT Project ■ H2020 ■ Grant Agreement #958284
Call: H2020-NMBP-ST-IND-2020 ■ Topic: LC-EEB-07-2020

MAIN PROJECT INFORMATION

Coordinator:	WATT AND VOLT S.A., GREECE (WVT)
Contact Person:	Konstantinos Arvanitis, k.arvanitis@watt-volt.gr
Duration:	01/10/2020 – 30/9/2023
Total Budget:	7.654.025,00 €
Total EU Contribution:	6.053.667,50 €
Agreement No:	958284
Programme:	Technologies enabling energy-efficient systems and energy-efficient buildings with a low environmental impact
Topic:	LC-EEB-07-2020 - Smart Operation of Proactive Residential Buildings (IA)
Call:	H2020-NMBP-ST-IND-2020-singlestage

PROJECT DESCRIPTION

Energy consumption in buildings has been decreasing since 2008, mainly due to efforts observed in the residential sector and policy measures, as well as higher energy prices and the recession. The deployment and operation of proactive residential buildings will soon become yet another reason. The EU-funded PRECEPT project will facilitate the smooth and almost zero operational costs transformation of conventional residential buildings into highly efficient proactive residential buildings. It is tapping into this new framework and is proposing a Pred(scr)ictive and Proactive Building Energy Management System (PP-BMS). By making buildings smarter as regards energy management systems, the project will develop new sustainable business models for transforming traditional reactive buildings into proactive buildings.

OBJECTIVE

PRECEPT ambitiously aims to set the grounds for the deployment and operation of proactive residential buildings. The proposed framework introduces a "plug-n-play" Pred(scr)ictive and Proactive building energy management system (PP-BMS) installed locally at building level, at the Edge-Enable Proactiveness (EEP) device. The proposed PP-BMS is self-adapted, self-learned, -managed, -monitored, -healing and -optimized, requiring no (or minimum) installation costs and no maintenance. PP-BMS transform traditional reactive buildings to proactive ones, increasing their performance (both energy efficiency and occupants' well-being), exploiting RES, storage, forecasts and energy tariffs. PRECEPT also targets to the development of a real-time digital representation of the intelligent proactive residential buildings by employing 6D BIM technology. Further to that, a set of novel indicators leveraging on the smart readiness rationale will be introduced for rating the Smart Proactiveness of buildings. The proposed indicators will enable the introduction of a reliable framework under which the comparative assessment of the level of smartness and proactiveness of buildings can be regulated and assessed. Also, PRECEPT approach will deliver advanced data visualizations, utilizing big-data and visual analytics techniques, which in conjunction with a social collaboration platform will engage stakeholders to exchange best-practices. Interaction with the grid will be supported in a secured (Hyperledger Fabric) manner through the decentralized EEP device, supporting the implementation of D/R strategies. To maximize its potential impact, PRECEPT demonstrates novel sustainable business models for rendering traditional reactive buildings to proactive buildings that go beyond the energy-related benefits and cost-optimal analysis but include occupants' well-being, and other services. PRECEPT framework will be demonstrated in relevant environments in 5 use cases, including 250 apartments.

https://www.precept-project.eu [3]

Figure 1: Part of the information including in the project factsheet

1.2 Poster / Banner

The generation of the poster focuses on increasing the brand awareness of the PRECEPT approach. The Poster uses a graphic display to represent in a friendly way the PRECEPT approach and vision. The language used is clear and straightforward while bright colours and an appealing optical design attempt to widen the public outreach. The information displayed can be translated into different languages serving the specific needs of each project partner such as during public events and workshops. The poster is also available in a digital format to be used via e-mails and all digital media.

The preparation of the material initiated by WVT via design thinking, and its final form resulted from the contribution of all partners and released by the marketing expert team of WVT.

An image copy of the PRECEPT poster can be found in Annex I.

1.3 Presentation Slides

A reference set of presentation slides was produced to support the base information material for the different public events and affairs and it is available for all the consortium members. The presentation provides an overall briefing of the project, including among all, the objectives, the demonstration sites as well as the proposed value impact of the PRECEPT project. The full version is available in Annex I.

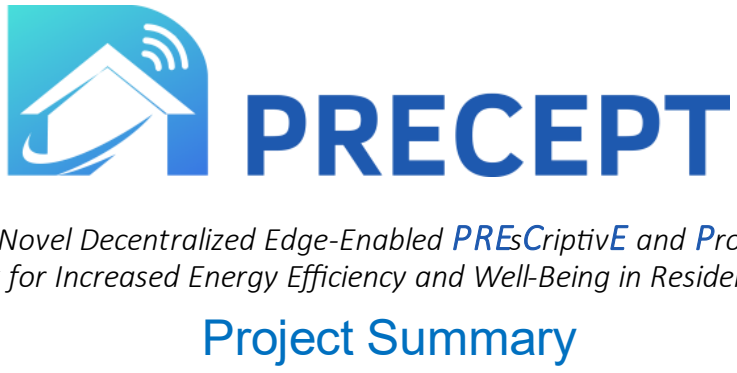


Figure 2: Cover page of project's presentation

2 Communication and Dissemination at international level

This section attempts to provide a clear view of the main DC actions that were performed during the first year of the project lifecycle. The DC actions that took place, enrich the dissemination levels and attempt to achieve broad awareness. A wide range of channels are used to effectively communicate the project in accordance with the needs of each different target audience group. Due to the covid-19 social distancing restrictions, the social interaction was quite limited and all the actions took advantage of utilizing the digital channels.

The DC progress of the PRECEPT first year is depicted via:

- Website
- Social media channels
- Corporate channels
- Press releases
- Newsletters
- Publications
- Networking activities and
- Joint dissemination activities

2.1 PRECEPT Website

The project website acts as the central repository of the PRECEPT information, containing most of the material produced during its lifetime.

The website is available from 30/11/2021 and accessible at the link: https://www.precept-project.eu/ , following the necessary H2020 guidelines.

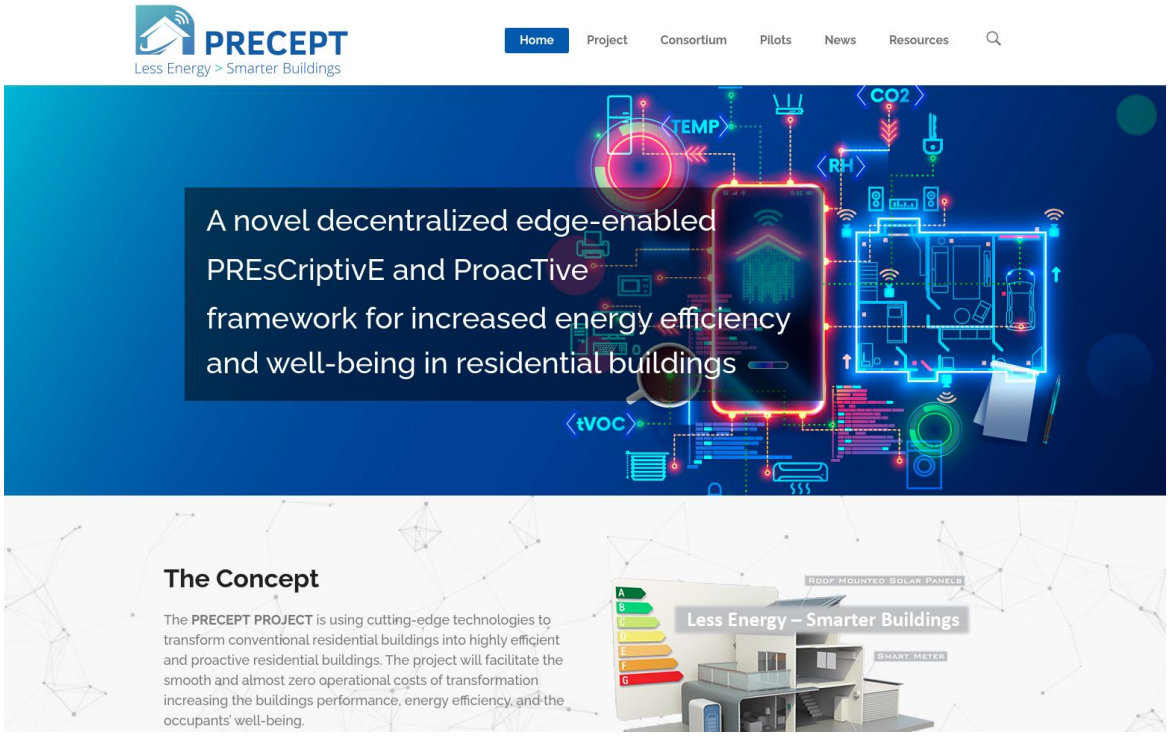


Figure 3: Snapshot from the PRECEPT official website

It concludes six main sections: Home, Project, Consortium, Pilots, News, Resources.

The PRECEPT news section (https://www.precept-project.eu/news/) is the most recently updated section hosting noteworthy information about related events and achievements.

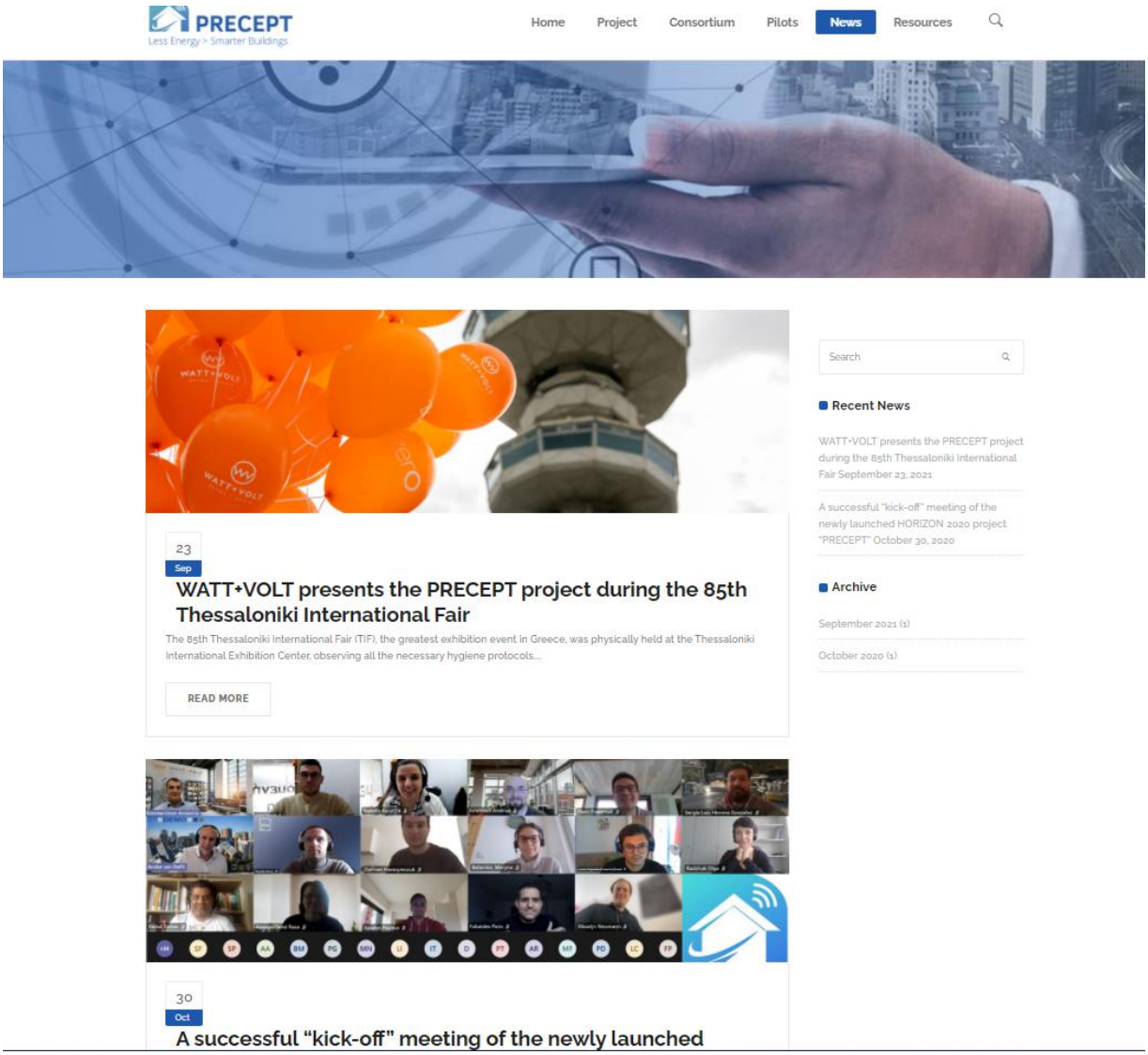


Figure 4: Snapshot from the PRECEPT official website

The website material would be updated occasionally and inform the audience about the project achievements.

A more detailed website description is presented in PRECEPT D6.4-PROJECT WEBSITE & DISSEMINATION MATERIALS v1.

Some metrics of the website traffic and audience are presented in the following images and tables.

Figure 5 presents the website traffic per month from the launch of the website in November 2020 until month 12, September of 2021.

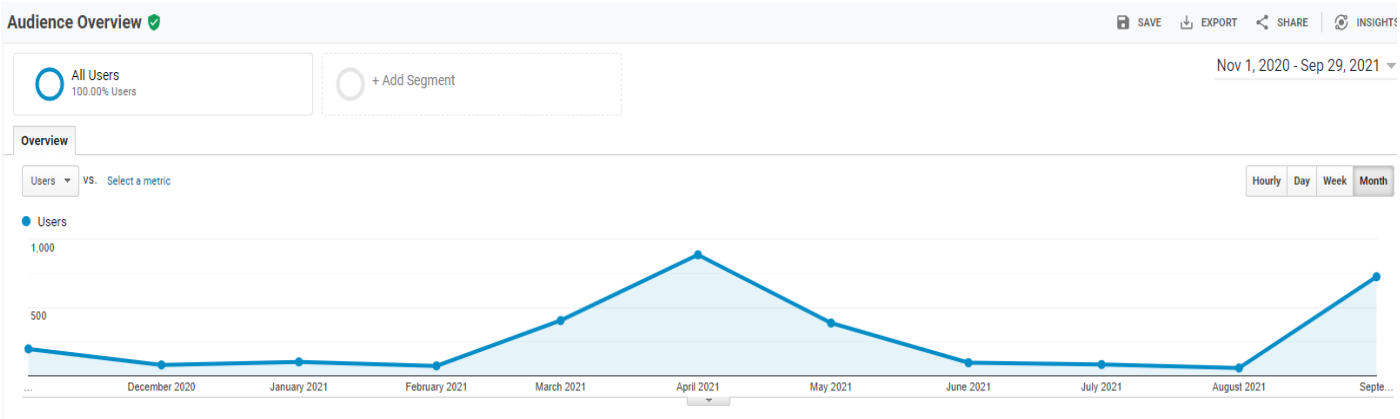


Figure 5: Website traffic from M1-M12

So far a total number of 2,420 unique users has visited the PRECEPT website, while some statistics about the sessions, pageviews and visit duration are also presented below in Figure 6.

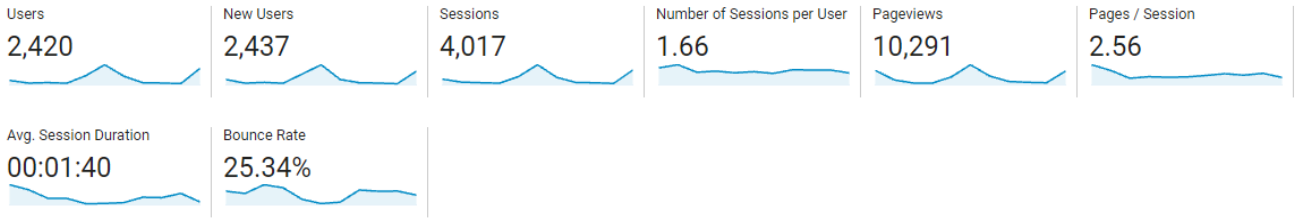


Figure 6: Website Analytics information

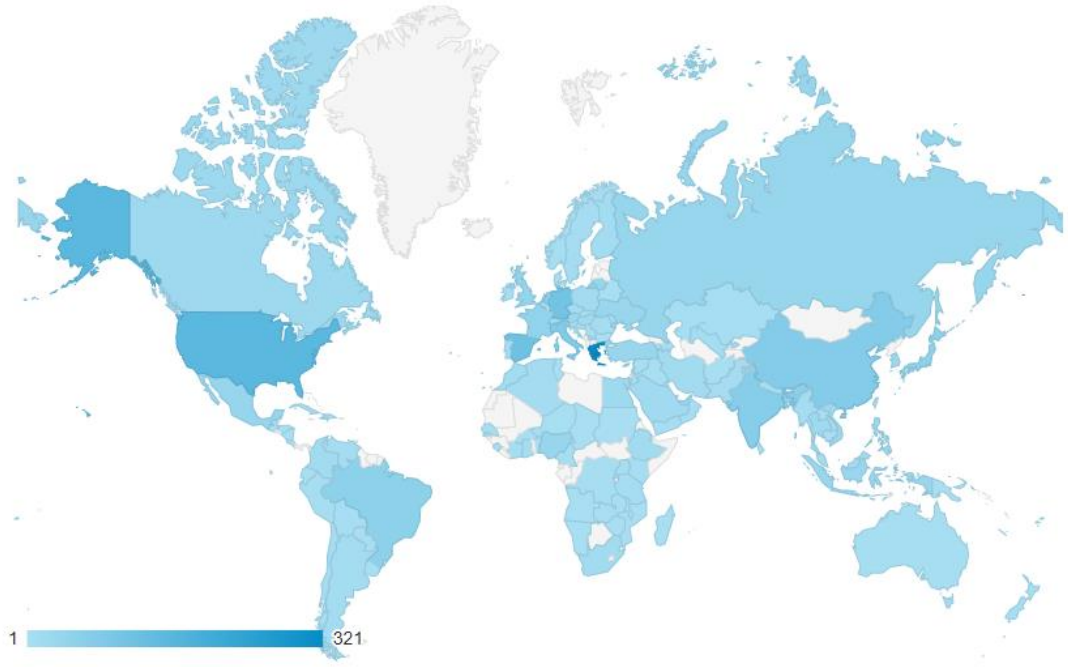


Figure 7: Location of website visitors

The project website has already attracted the public interest worldwide as shown in Figure 7. The dark blue color represents the locations where the project is most popular. It is noteworthy that among the top nine countries of the site traffic (Figure 8) are included regions such as the United States, China, India and Brazil that are not part of the PRECEPT's consortium. This fact indicates that the project has begun to make its own impact outside the borders of the European Union.

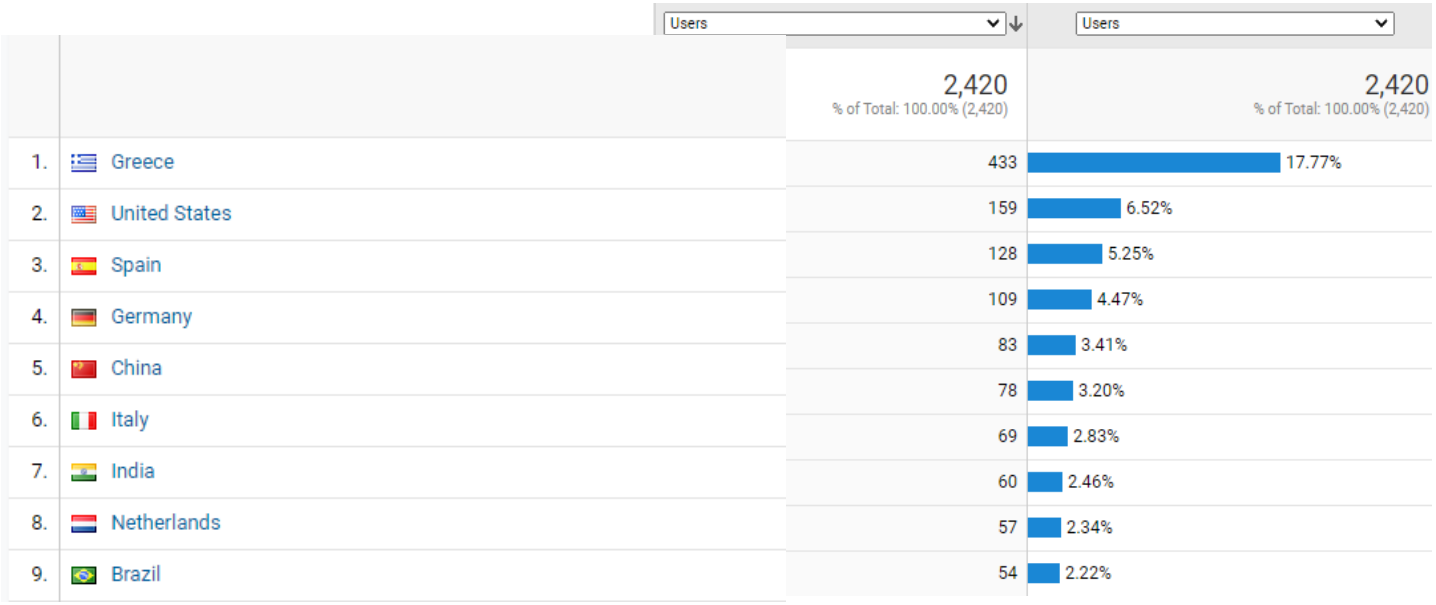


Figure 8: Top 9 countries visiting the website

Table 1 presents the website pages that collected the most traction so far. This metric is a valuable information on where to concentrate the site audience.

Table 1: Website pageviews

Page	Pageviews (%)
Home	63,55
Project	5,23
Project Partners	4,93
Pilots	3,65
News	2,34
Deliverables	3,22

The google analytics platform has also been installed to monitor and feed the according project's KPI's. The following table represents the target number of the website visitors for the first year versus the actual number that visited the website during these almost 12 months.

Table 2: Targeted vs Achieved number of Website visitors

KPIs for DC	Target of 1st Year	Achieved in 1st Year
Number of unique visitors to the project website (based on Google Analytics)	1.000	2.420

The results regarding the website visitors are quite satisfactory, indicating that PRECEPT project has attracted significant public attention.

2.2 PRECEPT Social Media Channels

Social media pages have been used extensively all this time. Posts about the inception of the PRECEPT, describing the project's and partners' goals, were used to attach the people's interest, being the first acquaintance to a wider audience. The social media channels on Twitter, LinkedIn and Facebook will continue serving up-to-date project news as well as information about related topics.

2.2.1 Twitter

The PRECEPT's account in Twitter, @PreceptProject, allows the easily promotion of the research work and enables the communication processes. Twitter has been also created to acquire updated news from the BIM energy and sustainability domains. The Twitter channel also embraces a more friendly approach, reaching a large number of audience quickly though tweets, retweets and likes. Below are depicted screenshots of Twitter posts concerning the PRECEPT project.

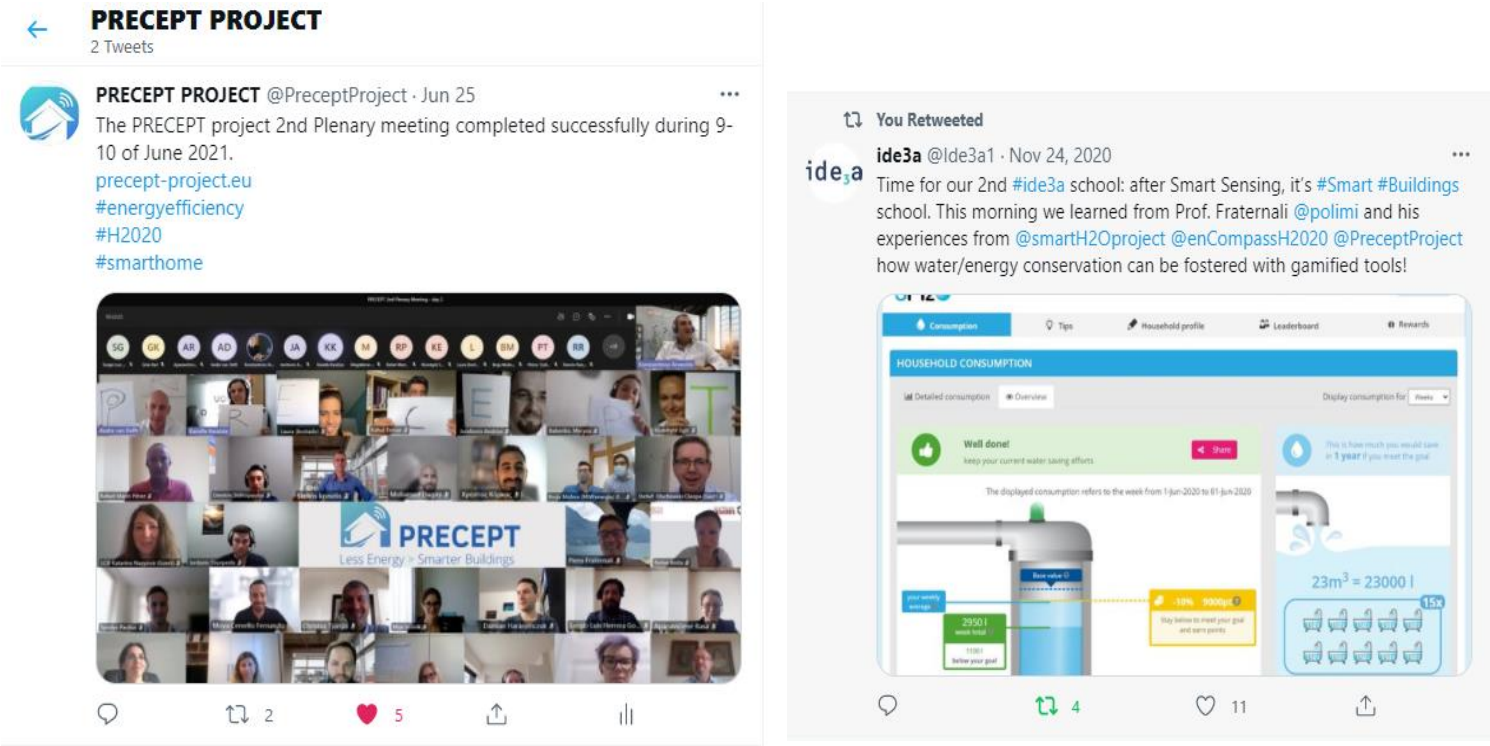


Figure 9: Snapshots from the PRECEPT Twitter account

The effectiveness of Twitter account, from the dissemination strategy perspective, is evaluated by the total number of followers, reactions, and posts of the PRECEPT account. Table 3 shows the number of followers on Twitter account on September 2021. It is noteworthy that during the last month of September the Twitter PRECEPT account gathered more than 8.000 profile visits.

Table 3: Targeted vs Achieved number of Twitter followers

KPIs for DC	Target of 1st Year	Achieved in 1st Year
Number of followers on Twitter account	200	211

2.2.2 LinkedIn

The LinkedIn account PRECEPT PROJECT addresses to a more professional group, including scientific and commercial partners from different cognitive areas. PRECEPT LinkedIn account is delivering posts about the project's progress, gathering its very first posts already 399 views. The LinkedIn channel would be updated with all the PRECEPT events, publications and any other useful information.

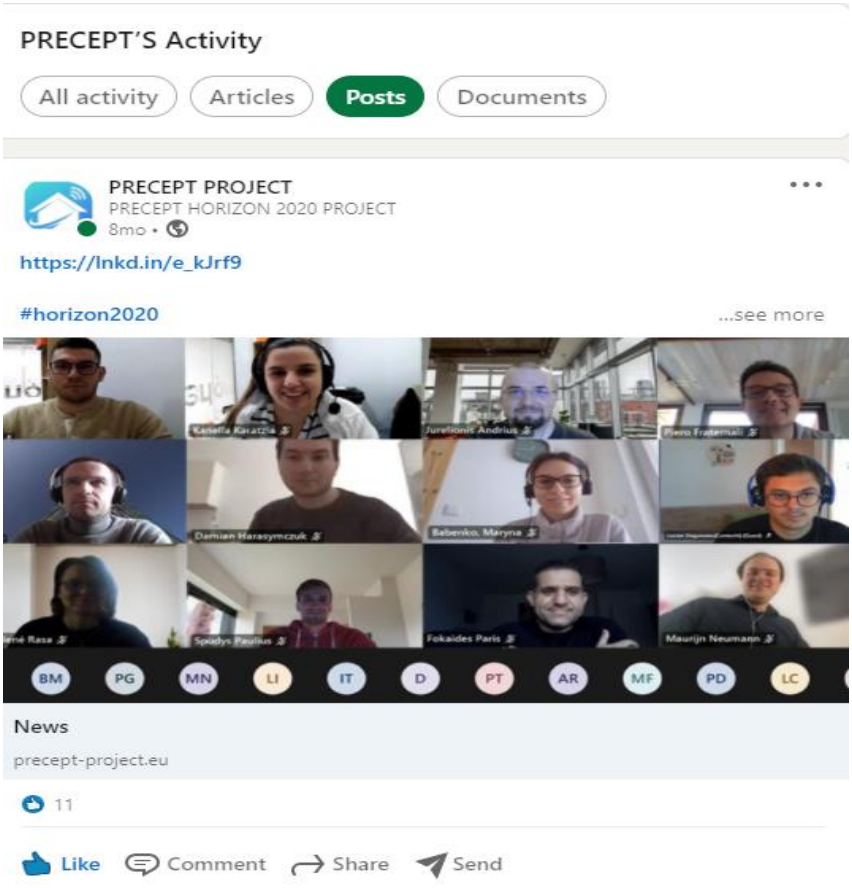


Figure 10: Snapshot from the PRECEPT LinkedIn account

Moreover, connections with affiliate EU projects occurred, reaching other expert groups and new opportunities for collaborations. PRECEPT has already conjunctions with H2020 projects like inteGRIDy, D^2EPC, CAPRI, Level-Up and Niove.

The LinkedIn objectives in KPI's for the PRECEPT lifecycle is reported in Table 4 while below is also reported the actual number of followers in the LinkedIn account.

Table 4: Targeted vs Achieved number of LinkedIn followers

KPIs for DC	Target of 1st Year	Achieved in 1st Year
Number of followers on LinkedIn account	150	295

2.2.3 Facebook

Based on the DC strategy introduced in D6.1, PRECEPT's Facebook page @PreceptProject created to incorporate persons and companies, specialized or not, in related fields of energy or automation. Facebook as the most visited social media site benefits of the more direct contact and communication that it offers, allowing discussion among its members. PRECEPT takes advantage of the channel for engaging more individuals to its concept.

Facebook social community KPI's for acquiring the maximum individuals reach, are illustrated in Table 5.

Table 5: Targeted vs Achieved number of followers in Facebook

KPIs for DC	Target of 1st Year	Achieved in 1st Year
Number of direct followers of PRECEPT Facebook	200	354

2.3 Corporate channels

The project partners are maintaining their own websites, possessing different groups of audience according to their expertise. PRECEPT exploits the existing partners' channels to further increase its DC impact. The following table shows the members' channels that are used during the whole period of PRECEPT project for Dissemination reasons (Table 6 extracted from D6.1).

Table 6: Partner's channel used for the dissemination of PRECEPT project

Partner	Channel Type	Channel
WVT	Website	https://watt-volt.gr/company_news
	Social Media	▪ Facebook https://www.facebook.com/wattandvolt/ ▪ Twitter account https://twitter.com/wattandvolt ▪ LinkedIn account https://www.linkedin.com/company/watt-volt
	Bill statement "communication section"	WATT+VOLT Bill Statement

	Retail Stores Network	80 Retail Stores all over Greece with TV Displays and banner space availability. https://www.watt-volt.gr/customers-support/stores/map/
CERTH	Website	http://www.certh.gr/B43848A3.en.aspx
	Press Releases	http://www.certh.gr/3D7F7F73.enaspx
	Newsletters	http://www.certh.gr/FC60F832.en.aspx
	Social Media	▪ Facebook account ▪ Twitter account https://twitter.com/CERTHellas ▪ YouTube account ▪ LinkedIn account https://www.linkedin.com/company/certh
KTU	Website	www.ktu.edu
	Social media	▪ Facebook site of the Faculty of Civil Engineering and Architecture, KTU: https://www.facebook.com/KTU.SAF ▪ YouTube channel of the Faculty of Civil Engineering and Architecture, KTU: https://www.youtube.com/channel/UCKbu9J-uO_pjw441NA0Q7bA ▪ LinkedIn account of the Centre for Smart Cities and Infrastructure, KTU: https://www.linkedin.com/company/ktu-csci/
FRC	Website	▪ Website of FRC http://frederick.ac.cy/ ▪ Website of SERG https://www.serg-web.com/
	Social media	▪ Facebook site of the FREDERICK UNIVERSITY OF CYPRUS, FRC: https://el-gr.facebook.com/frederickuniversity ▪ YouTube: https://www.youtube.com/user/FrederickUniversity ▪ Instagram: https://www.instagram.com/frederick_university/
CLEO	Website	https://cleopa.de/
	Social media	▪ LinkedIn account: https://www.linkedin.com/company/cleopa-gmbh/
NURO	Website	www.nuromedia.com
	Social media	▪ Facebook site: https://www.facebook.com/Nuromedia-GmbH-109564584162 ▪ LinkedIn: https://www.linkedin.com/company/nuromedia-gmbh/
ODINS	Website	www.odins.es/en
	Social media	▪ Twitter: https://twitter.com/odinsolutions ▪ LinkedIn: https://www.linkedin.com/in/odinsolutions/
DEMO	Website	www.demobv.nl
	Social media	▪ Facebook site: https://www.facebook.com/democonsultants ▪ Twitter: https://twitter.com/democonsultants ▪ Youtube:

		▪ https://www.youtube.com/channel/UChfL18LrHCDuLuc0EuWhPZA ▪ LinkedIn: https://www.linkedin.com/company/demo-consultants/
ASI	Website	https://www.austrian-standards.at/
	Social media	▪ Facebook site: https://www.facebook.com/austrianstandards/ ▪ Twitter: https://twitter.com/atstandards ▪ LinkedIn:https://www.linkedin.com/company/austrian-standards/?viewAsMember=true
LCII	Website	▪ https://lcinnoconsult.com/
	Social media	▪ LinkedIn: https://www.linkedin.com/company/5388986/admin/
PSACEA	Website	▪ https://pgasa.dp.ua/en/
	Social media	▪ Facebook site: https://www.facebook.com/pgasa.prkom/ ▪ Instagram: https://www.instagram.com/pgasa.dp.ua/?igshid=hqyyrau0588h ▪ YouTube: https://www.youtube.com/c/pgasa_dnipro
CON	Website	▪ www.contecht.eu
STROITEL-P	Website	▪ https://www.stroitel-p.com/en/company
	Social media	▪ Facebook: https://www.facebook.com/Stroitel.P.com.ua/ ▪ Instagram: https://www.instagram.com/stroitel_p/ ▪ YouTube: https://www.youtube.com/channel/UCHn9vqcCUEO7bVcVA
MIWenergia	Website	https://www.miwenergia.com/
	Social media	▪ Facebook: https://www.facebook.com/MIWenerg%C3%ADa-138903583521614/ https://www.facebook.com/MIWenerg%C3%ADa-Proyectos-ID-170357131261381 ▪ Twitter: https://twitter.com/MIWenergia_IDi https://twitter.com/MIWEnergia ▪ LinkedIn: https://www.linkedin.com/company/miwenia/ https://www.linkedin.com/company/miwenergia-proyectos-i-d-i ▪ Instagram: https://www.instagram.com/miwenergia_/
POLIMI	Website	▪ http://www.polimi.it/ ▪ SlideShare site(s) of PMI https://www.slideshare.net/
	Social Media	Social Media FB Twitter Instagram (requires permission from Communication Office) ▪ Facebook: https://www.facebook.com/polimi/ ▪ Twitter: https://twitter.com/polimi ▪ YouTube: https://www.youtube.com/user/polimi ▪ LinkedIn: https://www.linkedin.com/school/polimi/ ▪ Instagram: https://www.instagram.com/polimi ▪ iTunes:

		https://podcasts.apple.com/it/artist/politecnico-di-milano/1280589395 POLIMI/DEIB ▪ Facebook: https://www.facebook.com/DEIBpolimi/ ▪ LinkedIn:https://www.linkedin.com/company/dipartimento-di-elettronica-informazione-e-bioingegneria/ ▪ YouTube: https://www.youtube.com/user/deipolimi

During this first year more over than 60 related posts released by the consortium partners on the various available channels.

Below are given snapshots from the partners' channels related to project information and achievements, used for broadcasting the PRECEPT approach.

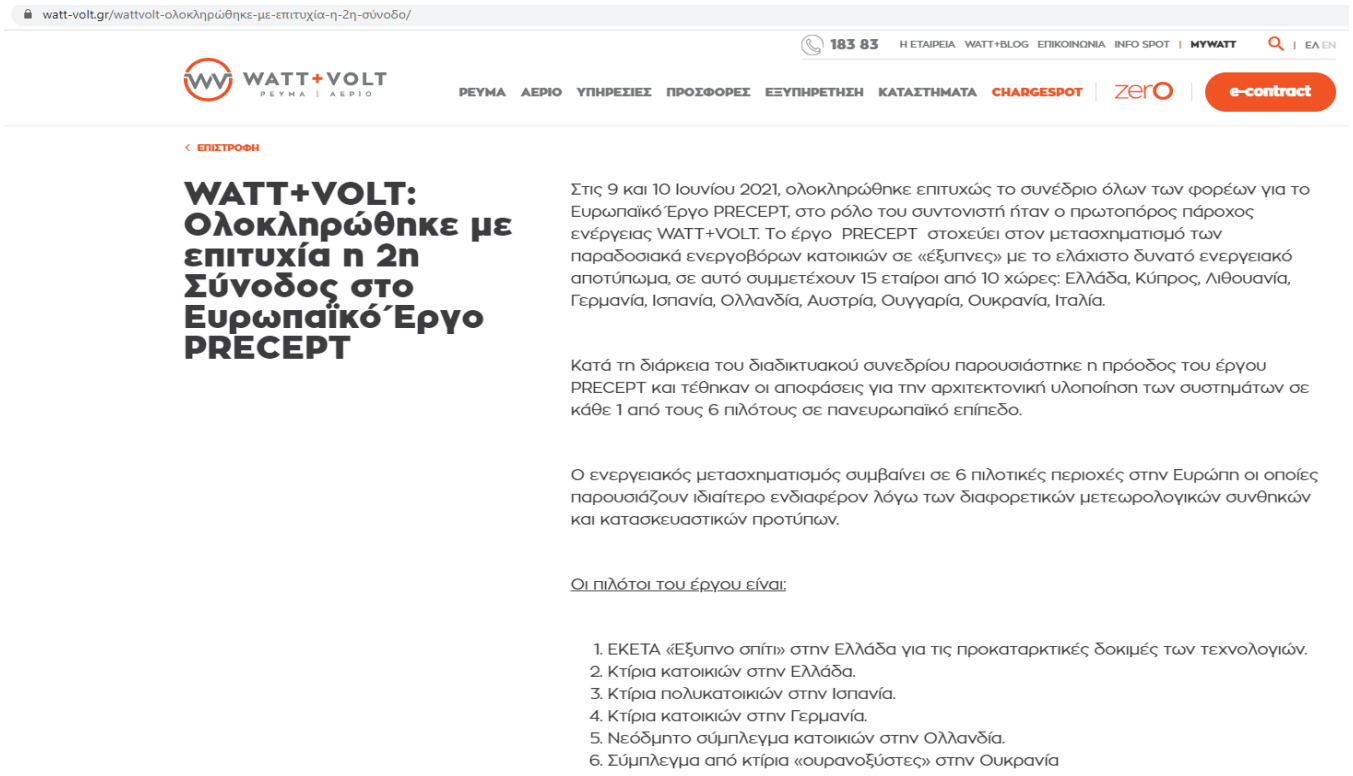


Figure 11: Snapshot from the WVT website

Figure 12: Snapshots from the OdinS and KTU websites

Figure 13: Snapshot from the MIWenergia website

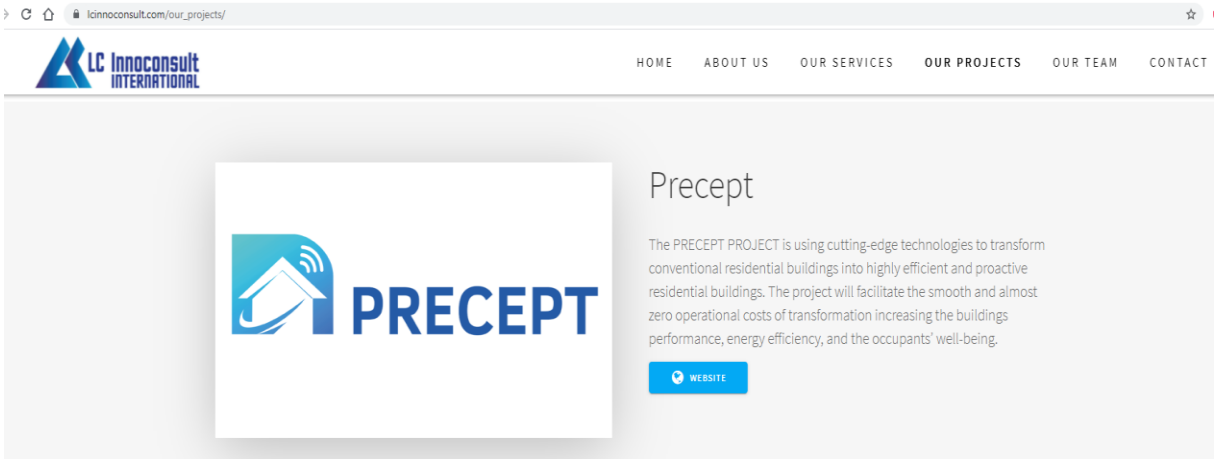


Figure 14: Snapshot from the LCII website

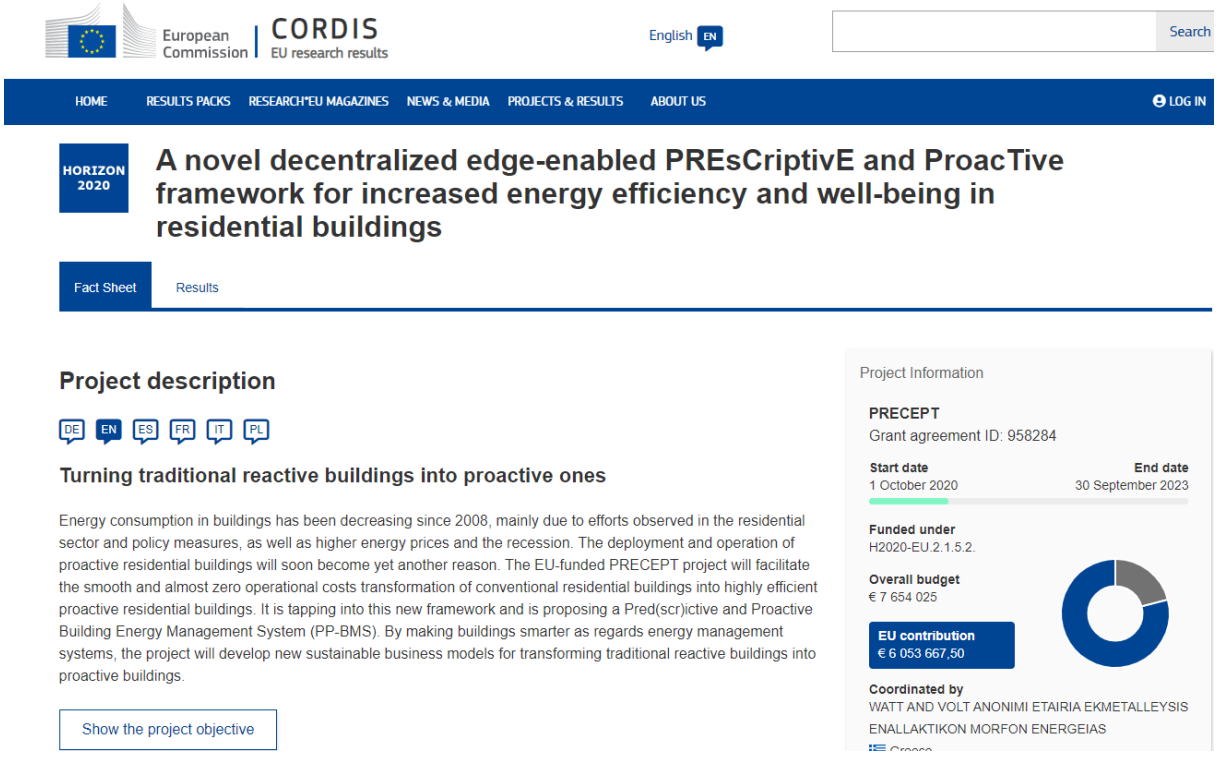


Figure 15: Snapshot from the CORDIS official website

Partners' social media presence via the different media channels are also presented below:

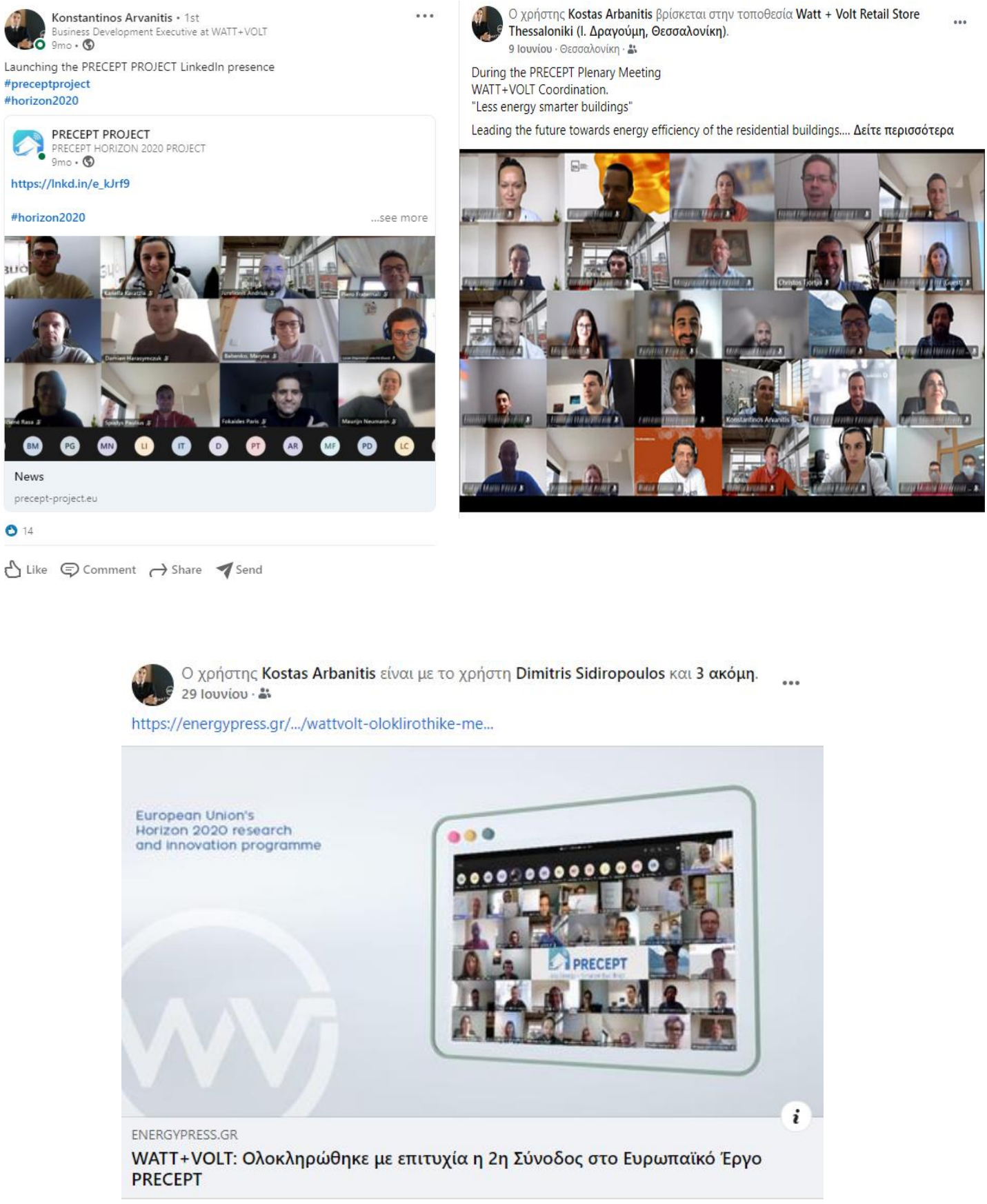


Figure 16: Snapshots from WVT posts

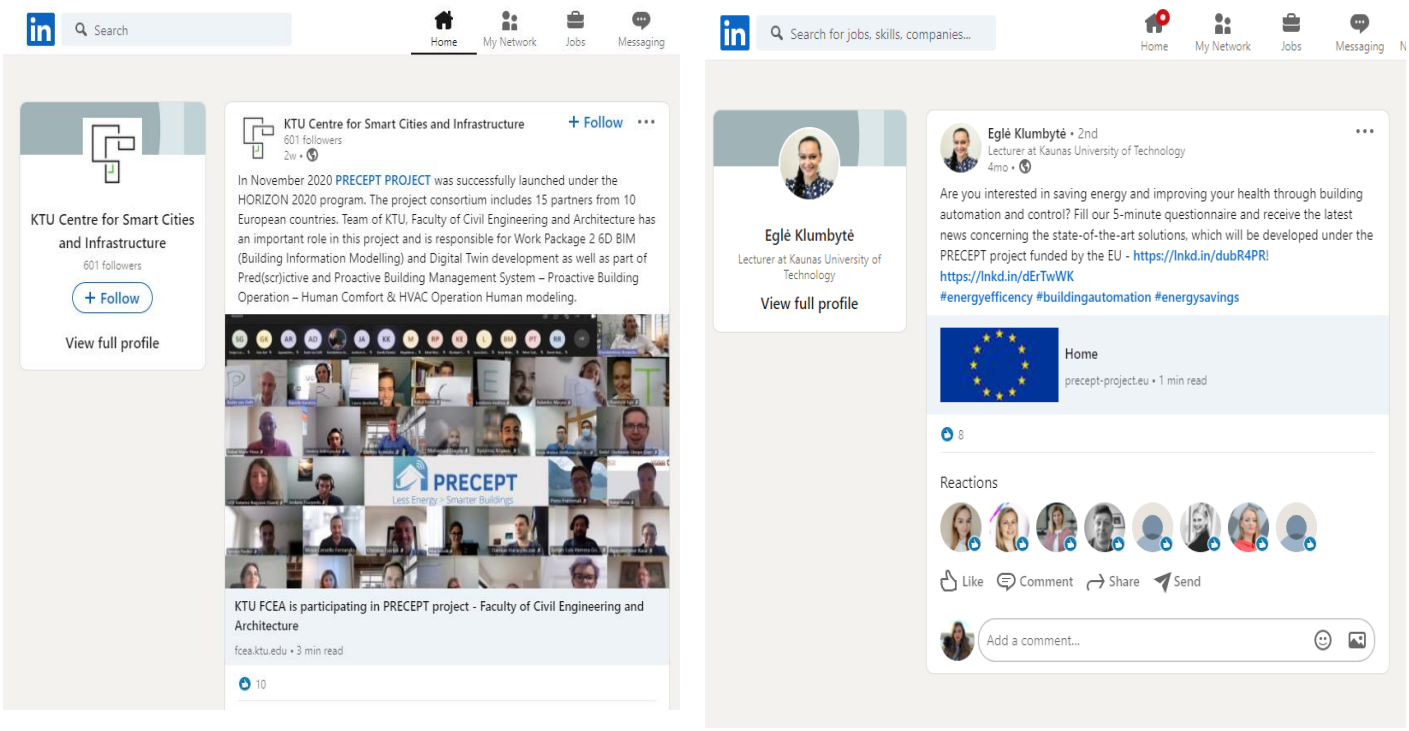
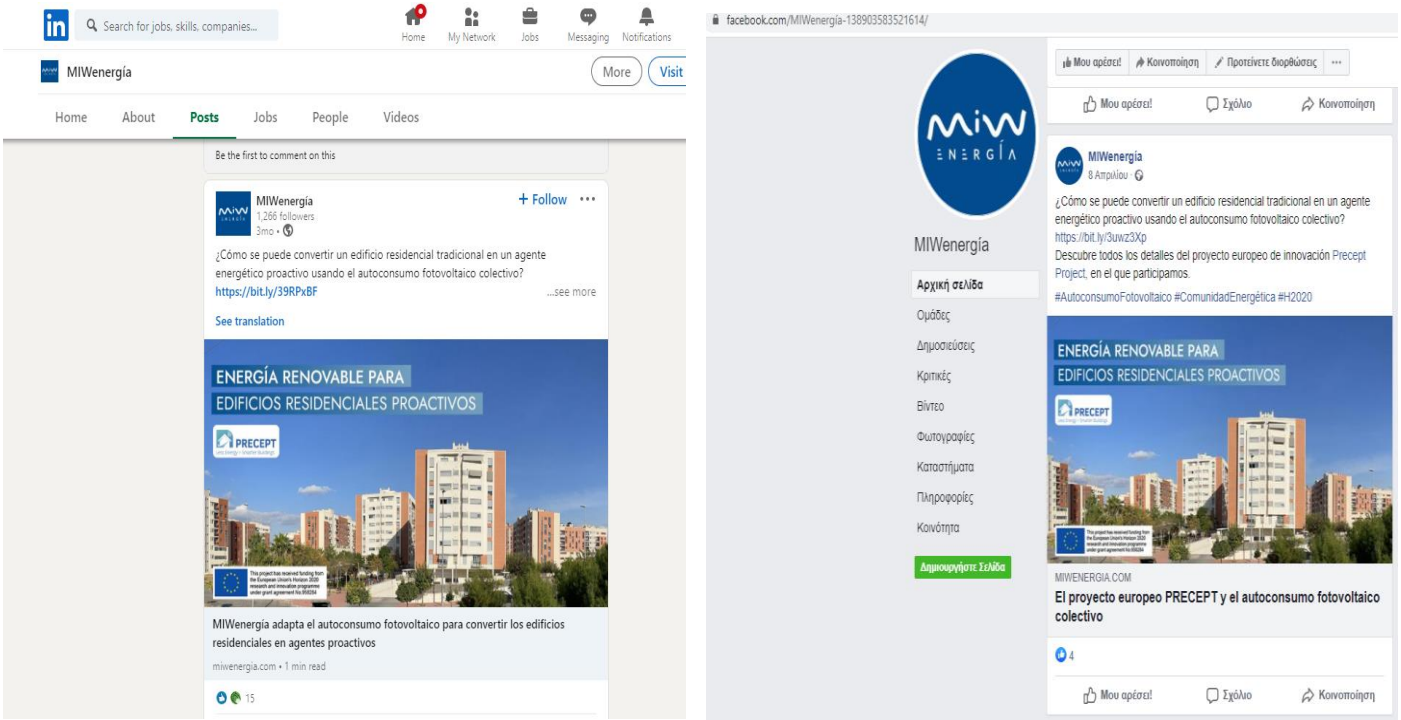


Figure 17: Snapshot from KTU posts



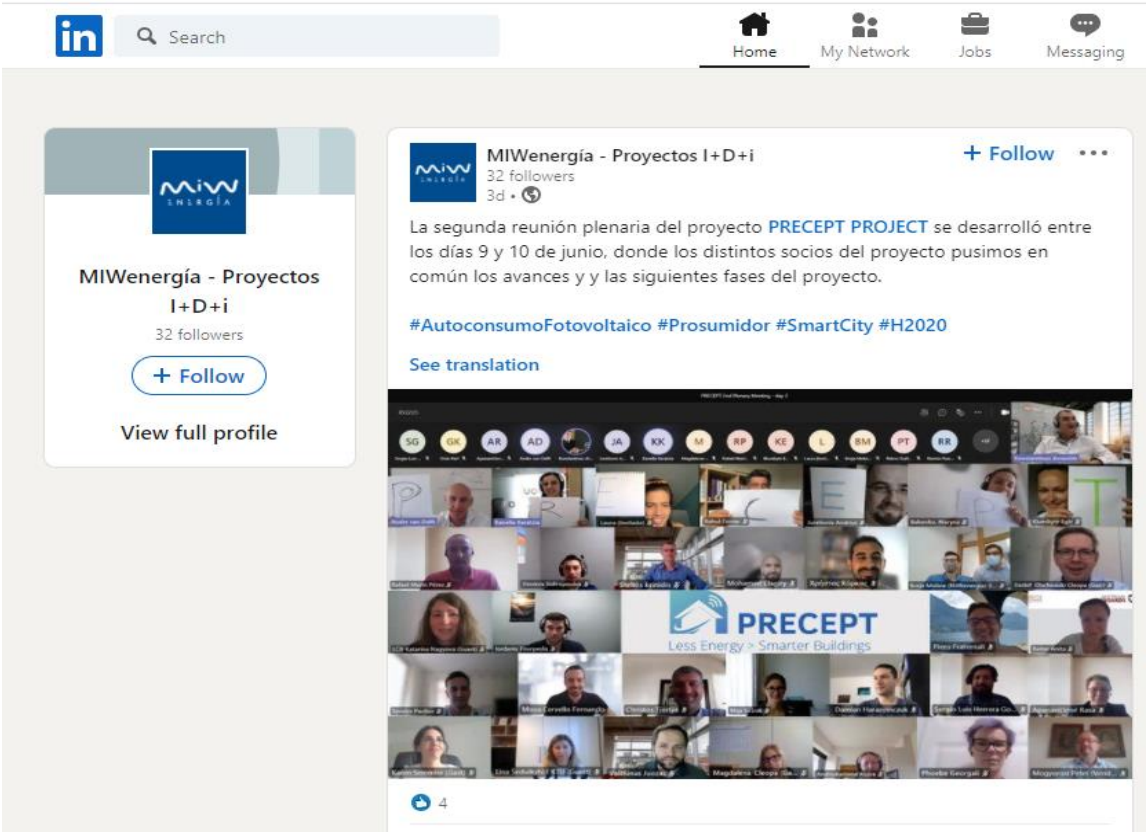


Figure 18: Snapshot from MIWenergia posts

Figure 19: Snapshot from OdinS posts

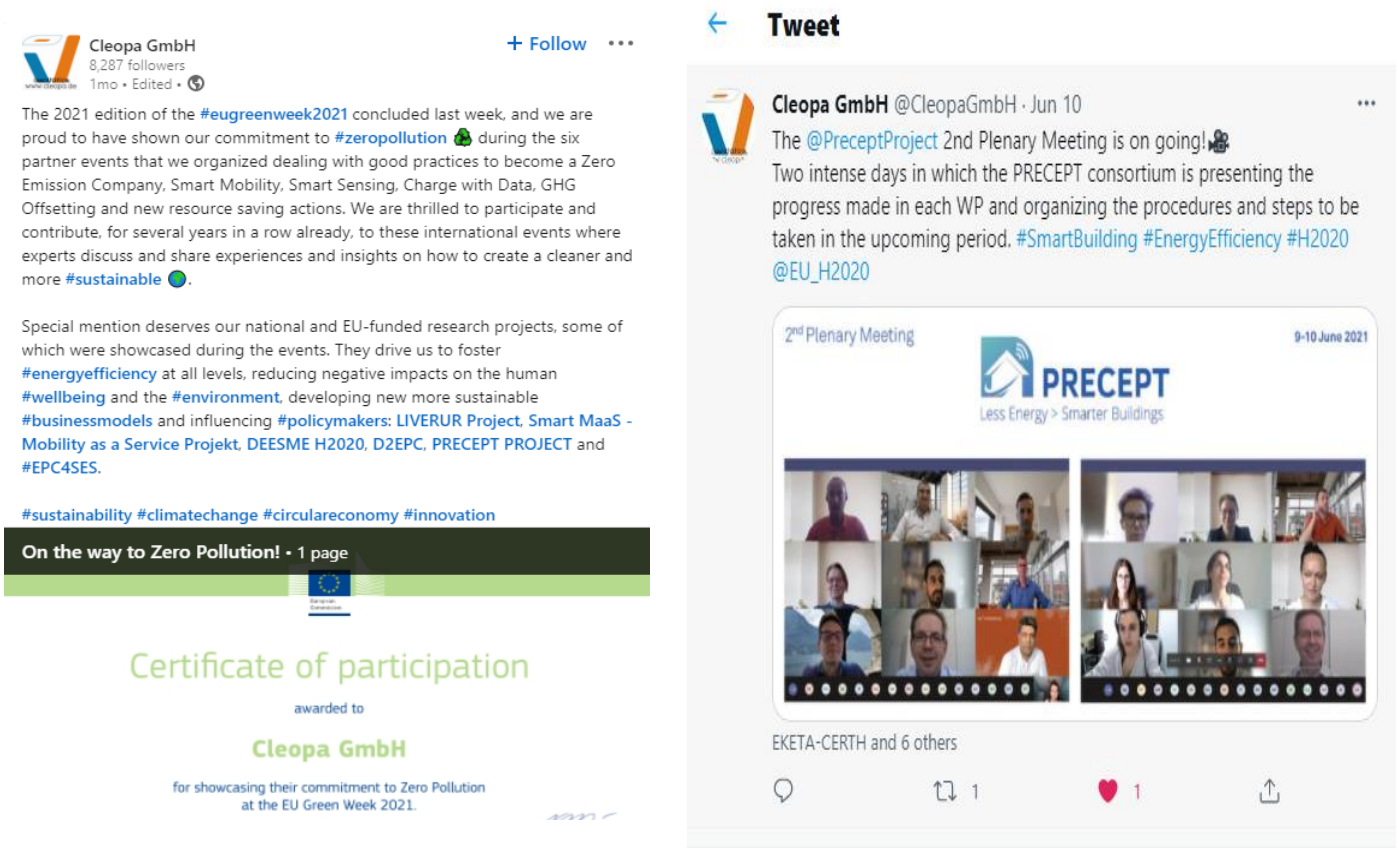


Figure 20: Snapshot from CLEO posts

Since the beginning of the project seventeen press releases were produced concerning related activities and developments, published at media of different countries. Table below provides the KPI targets and achievements for the first year and it is visible from the numbers that clearly overachieving the initial goal.

Table 7: Targeted vs Achieved number of press releases

KPIs for DC	Target of 1st Year	Achieved in 1st Year
Number of press releases delivered to traditional media	5	17

More information can be found at following links:

1. https://energypress.gr/news/h-wattvolt-syntonistis-sto-eyropaiko-ergo-h2020-precept
2. https://www.4green.gr/news/data/ellhnika-nea/Gia-diadrastika-eksypna-spitia-eksoikonomhsh_131317.asp
3. https://www.inewsgr.com/393/h-wattvolt-syntonistis-sto-evropaiko-ergo-h2020-precept.htm
4. https://www.news247.gr/advertorial/h-watt-volt-syntonistis-sto-eyropaiko-ergo-h2020-precept.9045941.html
5. https://www.newmoney.gr/roh/palmos-oikonomias/epixeiriseis/wattvolt-sintonistis-tou-evropaikou-ergou-h2020-precept/
6. https://marketingweek.gr/h-wattvolt-syntonistis-tou-ergou-precept/
7. https://theglobalnews.gr/wattvolt-συντονιστής-του-ευρωπαϊκού-έργου-h2020-prece/
8. https://www.newsit.gr/oikonomia/Watt-Volt-syntonistis-sto-eyropaiko-ergo-H2020-Precert/3138836/
9. https://issuu.com/kabusiness/docs/dekemvrios/28

10. https://murciaempresarial.com/
11. https://www.eseficiencia.es/
12. https://futurenergyweb.es/
13. https://www.miwenergia.com/
14. https://fcea.ktu.edu/news/ktu-fcea-is-participating-in-precept-project/
15. https://www.energetica21.com/revistas-digitales/mayo-2021
16. https://www.murcia.com/empresas/noticias/2021/07/28-miwenergia-hace-balance-de-los-proyectos-de-idi.asp
17. https://www.energetica21.com/noticia/miwenergia-participa-en-ocho-proyectos-europeos-de-innovacion-del-programa-horizonte-2020

ΣΥΝΕΝΤΕΥΞΗ / KA-BUSINESS

Η WATT+VOLT συντονιστής στο Ευρωπαϊκό Έργο H2020 PRECEPT.

Άρθρο του
Κωνσταντίνου Αρβανίτη
Business Development Manager
WATT AND VOLT S.A.

Εικόνα 1: Απόσπασμα από την εναρκτήρια σύσκεψη του έργου

ΑΦΙΕΡΩΜΑ SMART ENERGY

WATT+VOLT
ΡΕΥΜΑ | ΑΕΡΙΟ

Στις 29 και 30 Οκτωβρίου 2020 πραγματοποιήθηκε με επιτυχία η έναρξη του Ευρωπαϊκού Έργου PRECEPT στα πλαίσια του προγράμματος HORIZON2020. Το έργο συντονίζει η εταιρία WATT+VOLT ορίζοντας ως συντονιστή τον κύριο Κωνσταντίνο Αρβανίτη. Η κοινοπραξία του έργου περιλαμβάνει 15 εταίρους από 10 Ευρωπαϊκές χώρες.

Το έργο **PRECEPT** φιλοδοξεί να μετατρέψει τις συμβατικές και ενεργοβόρες κατοικίες σε διαδραστικές και «έξυπνες» με σχεδόν μηδενικό κόστος μετασχηματισμού και συντήρησης. Η δράση στοχεύει σε μείωση των δαπανών κατά 15%, ενισχύοντας ταυτόχρονα την άνεση των καταναλωτών.

Στις ημέρες μας, συναντάμε συχνότερα διάφορα μοντέλα απεικόνισης πληροφοριών κτιρίων (Buildings Information Modeling) τα μοντέλα αυτά αποτυπώνουν τα κατασκευαστικά ή τα δομικά χαρακτηριστικά κάθε κτιρίου σε 3 διαστάσεις στον χώρο (μήκος-πλάτος-ύψος).

Η συγκεκριμένη αναπαράσταση χαρακτηρίζεται ως τρισδιάστατο μοντέλο χαρακτηριστικών κτιρίου (3D Building Information Modeling). Το ευρωπαϊκό έργο PRECEPT φιλοδοξεί να αναπαραστήσει τα κτίρια σε 6 διαστάσεις χρησιμοποιώντας 3 επιπλέον διαστάσεις:

Διάσταση 4 (Χρόνος):
Ο χρόνος και ο χρονικός προγραμματισμός των συμβάντων σε ένα κτίριο όπως για παράδειγμα οι καταναλώσεις ηλεκτρικής ενέργειας, η εσωτερική και η εξωτερική θερμοκρασία/υγρασία, τα μετεωρολογικά δεδομένα της περιοχής, η παραγωγή ενέργειας από φωτοβολταϊκά συστήματα. Η αναπαράσταση συμβαίνει σε πραγματικό χρόνο (4D Building Information Modeling)

Διάσταση 5 (Κόστος):
Αφορά στην παρακολούθηση του κόστους σε πραγματικό χρόνο όλων των συμβάντων σε ένα κτίριο (κόστος ενέργειας, κόστος συντήρησης , κόστος θέρμανσης – ψύξης) (5D Building Information Modeling)

Διάσταση 6 (Πρόληψη):
Αφορά στις προτάσεις εξοικονόμησης, στις προληπτικές ενέργειες συντήρησης, και στις δράσεις βελτίωσης της συνολικής αποδοτικότητας του κτιρίου σε πραγματικό χρόνο (6D Building Information Modeling).

Κατά την διάρκεια του έργου PRECEPT αξιοποιούνται οι ανανεώσιμες πηγές ενέργειας σε συνδυασμό με τις τεχνολογίες IoT και τις τεχνολογίες αποθήκευσης ενέργειας. Παράλληλα αναπτύσσονται μοντέλα πρόβλεψης κατανάλωσης και κόστους. Τέλος, η ψηφιακή αναπαράσταση των κτιρίων σε 6 διαστάσεις (6D Building Information Modeling προσθέτει πρωτόγνωρες δυνατότητες διαχείρισης στην κάθε κατοικία.

Για την υλοποίηση του έργου PRECEPT προτείνονται καινοτόμοι δείκτες οι οποίοι αξιολογούν την αποδοτικότητα και προλαμβάνουν ενεργοβόρα συμβάντα σε κάθε κατοικία.

Κατά την διάρκεια της πρώτης συνάντησης του έργου **PRECEPT** οι συμμετέχοντες παρουσίασαν λεπτομερές πλάνο δραστηριοτήτων, μεθοδολογιών και τεχνολογιών των προς επίτευξη **στόχων του έργου, οι οποίοι συνοψίζονται στους εξής:**

- Μετατροπή των παραδοσιακών κτιρίων σε διαδραστικά με χρήση εργαλειοθήκης "fogenabled", η οποία θα αλληλοεπιδρά με το δίκτυο παροχής ενέργειας.
- Ενίσχυση ενεργειακής απόδοσης του κτιρίου και αύξηση της ευημερίας των κατοίκων.
- Εισαγωγή καινοτόμων τεχνολογιών IoT και τεχνητής νοημοσύνης οι οποίες επιτρέπουν την αυτοδιαχείριση, την παρακολούθηση, την επίλυση προβλημάτων και την συντήρηση του κτιρίου
- Προηγμένη πλατφόρμα οπτικοποίησης των δεδομένων μεγάλης κλίμακας (BigData) του κάθε κτιρίου, για την καλύτερη λήψη απόφασης συντήρησης.
- Βελτιωμένη εμπειρία, συνεργασία και εκπαίδευση όλων των εμπλεκομένων φορέων (κάτοικοι, συντηρητές κτιρίων, εταιρίες κοινοχρήστων, κατασκευαστικές εταιρίες) με χρήση κοινοτήτων και πλατφόρμας ανταλλαγής γνώσεων.
- Αναπαράσταση, σε πραγματικό χρόνο, του ψηφιακού διδύμου κάθε κτιρίου(Building Digital Twin).
- Ανάπτυξη τυποποιημένων έξυπνων δεικτών πρόληψης (Smart Proactiveness Indicators).
- Ανάπτυξη διαδικασιών και αλγορίθμων προληπτικής συντήρησης κτιρίων.
- Εισαγωγή και αξιολόγηση νέων μοντέλων επιχειρείν για την προληπτική συντήρηση των κτιρίων.

Για την αξιολόγηση, ανάπτυξη και παρουσίαση του οικοσυστήματος **PRECET** επιλέγονται 6 πιλοτικές περιοχές διαφορετικών κλιματικών και κατασκευαστικών προτύπων στην Ευρώπη. Οι πιλότοι του έργου είναι:

1. ΕΚΕΤΑ «Έξυπνο σπίτι» στην Ελλάδα για τις προκαταρκτικές δοκιμές των τεχνολογιών.
2. Κτίρια κατοικιών στην Ελλάδα.
3. Κτίρια πολυκατοικιών στην Ισπανία.
4. Κτίρια κατοικιών στην Γερμανία.
5. Νεόδμητο σύμπλεγμα κατοικιών στην Ολλανδία.
6. Πολυώροφο κτίριο κατοικιών στην Ουκρανία.

Ο Συντονιστής του έργου, κύριος Κωνσταντίνος Αρβανίτης δήλωσε: «Το ταξίδι του έργου PRECEPT μόλις ξεκίνησε! Θέτουμε υψηλά τον πήχη των προσδοκιών. Η κοινοπραξία PRECEPT συνδυάζει τεχνογνωσία, εμπειρία, εξειδίκευση, τεχνολογίες και μεθοδολογίες οι οποίες αντανοκρίνονται πλήρως στην πρόκληση της Ευρωπαϊκής Ένωσης για την ελαχιστοποίηση του ενεργειακού αποτυπώματος και την μείωση του κόστους διαβίωσης των κατοίκων. Οι προσπάθειες όλων των εταίρων πρόκειται να οδηγήσουν σε ένα πραγματικά καινοτόμο, καρποφόρο και επιτυχημένο αποτέλεσμα».

Κοινοπραξία του έργου:

Συντονιστής:
- WATT+VOLTA.E. (WVT), Ελλάδα

1 Φορέας τυποποίησης:
- AUSTRIAN STANDARDS INTERNATIONAL (ASI), Αυστρία.

5 Ερευνητικά Ινστιτούτα και Ακαδημαϊκά Ιδρύματα.
- ΕΚΕΤΑ: Εθνικό Κέντρο Έρευνας και Τεχνολογικής Ανάπτυξης (CERTH), Ελλάδα.
- KAUNAS TECHNOLOGY UNIVERSITY (KTU), Λιθουανία.
- FREDERICK RESEARCH CENTER (FRC), Κύπρος.
- POLITECNICO DI MILANO (POLIMI), Ιταλία.
- STATE HIGHER EDUCATIONAL INSTITUTION PRYDNIPROVSKA STATE ACADEMY OF CIVIL ENGINEERING AND ARCHITECTURE (PSACEA), Ουκρανία.

8 Επιχειρήσεις και Κατασκευαστικές εταιρίες:
- CLEOPA GMBH (CLEO), Γερμανία.
- NUROMEDIA GMBH (NURO), Γερμανία.
- CONTECHT GMBH (CON), Γερμανία.
- DEMO CONSULTANTS BV (DEMO), Ολλανδία.
- ODIN SOLUTIONS S.L. (OdinS) , Ισπανία.
- MY ENERGIA ONER SL, (MIWENERGIA), Ισπανία.
- LASER CONSULT (LCII), Ουγγαρία.
- PRIVATNE BUDIVELNO MONTAGNE PIDPRIJEMSTVOconstructions (STROITEL), Ουκρανία.

Επωνυμία:	*A Novel Decentralized Edge -Enabled **PREsCriptivE** and **ProacTive** Framework for Increased Energy Efficiency and Well-Being in Residential Buildings.*
Ακρωνύμιο	PRECEPT
Αρ.Συμφωνίας:	958284
H2020 Call:	LC-EEB-07-2020 - Smart Operation of Proactive Residential Buildings (IA)
Διάρκεια:	36 μήνες
Αφετηρία:	Οκτώβριος 2020
Λήξη:	Σεπτέμβριος 2023
Προϋπολογισμός:	7.654.025 €
Συμβολή Ε.Ε:	6.053.667,50 €
Χώρες:	Ελλάδα, Κύπρος, Λιθουανία, Γερμανία, Ισπανία, Ολλανδία, Αυστρία, Ουγγαρία, Ουκρανία, Ιταλία.

Figure 21: Press release in Greek media

INICIO CATEGORÍAS NACIONAL INTERNACIONAL MARKETING DIGITAL

INDUSTRIA Y ENERGÍA

MIWenergía adapta el autoconsumo fotovoltaico para convertir los edificios residenciales en agentes proactivos

By Mari Carmen Cerezo Hernández - Abril 08, 2021 - 3 minutos de lectura

La compañía murciana participa en el proyecto de innovación europeo PRECEPT, que aspira a sentar las bases para el despliegue y funcionamiento de edificios residenciales proactivos gracias al uso de la tecnología y el autoconsumo fotovoltaico.

El proyecto europeo PRECEPT y el autoconsumo fotovoltaico

Dentro del marco del programa Horizonte 2020 está contemplado el desarrollo de edificios que consuman menos energías de origen fósil y empleen de forma más eficiente sus recursos energéticos. Bajo esta perspectiva nace **PRECEPT**: un ambicioso proyecto cuyo **objetivo es el de sentar las bases para implementar y desarrollar el funcionamiento de edificios residenciales como prosumidores energéticos,** por medio del uso de

AUTOCONSUMO

Autoconsumo residencial: los edificios como agentes proactivos

La compañía murciana MIW Energía participa en el proyecto de innovación europeo PRECEPT, que aspira a sentar las bases para el despliegue y funcionamiento de edificios residenciales proactivos gracias al uso de la tecnología y el autoconsumo fotovoltaico.

MIW ENERGÍA

Dentro del marco del programa Horizonte 2020 está contemplado el desarrollo de edificios que consuman menos energías de origen fósil y empleen de forma más eficiente sus recursos energéticos. Bajo esta perspectiva nace PRECEPT: un ambicioso proyecto cuyo objetivo es el de sentar las bases para implementar y desarrollar el funcionamiento de edificios residenciales como prosumidores energéticos, por medio del uso de tecnologías adaptadas a energías renovables.

Este proyecto pretende introducir un sistema de gestión energética proactiva y preventiva en los edificios por medio de dispositivos inteligentes, capaces de adaptarse, aprender, repararse y optimizarse de forma automática.

Además, el enfoque de PRECEPT ofrecerá visualizaciones de datos avanzados, utilizando técnicas de big data y análisis visual que, junto con una plataforma de colaboración social, permitirá que los usuarios puedan intercambiar datos que mejoren la actividad del proyecto.

Para maximizar su impacto potencial se desarrollarán nuevos modelos de negocio sostenibles, para convertir los edificios inactivos tradicionales en edificios prosumidores que van más allá de los beneficios relacionados con la energía y el análisis de costes óptimos, incluyendo el bienestar de los ocupantes, la seguridad y la salud.

La prueba piloto española del proyecto PRECEPT se realizará en 20 viviendas del barrio de Joven Futura en la ciudad de Murcia.

PRECEPT en España

MIWenergía participa en este proyecto como socio desarrollador del piloto español, que implementará la tecnología de PRECEPT en 20 viviendas residenciales del barrio de Joven Futura en la ciudad de Murcia.

El piloto murciano tiene como objetivo principal generar una comunidad energética basándose en el autoconsumo fotovoltaico, adaptado al 100% a las necesidades concretas de cada usuario del proyecto. Para lograr este hito, se instalarán dispositivos de gestión energética que ayuden a realizar el cálculo de consumos energéticos.

Hay que tener en cuenta que la mayor parte de los edificios residenciales incluidos dentro de este proyecto no tenían lugar para emplazar ningún tipo de autoconsumo fotovoltaico, por lo que MIW Energía ha empleado sus sistemas de análisis de datos para encontrar alternativas de instalación de placas fotovoltaicas. De este modo, y sin emplear los espacios propios del edificio, los usuarios del proyecto recibirán el servicio de autoconsumo fotovoltaico ajustado al dimensionamiento específico de su consumo real, sin ningún tipo de complicación técnica para ellos y beneficiándose del autoconsumo colectivo adaptado proporcionalmente al consumo real de sus viviendas.

El autoconsumo fotovoltaico: especificaciones técnicas

El autoconsumo fotovoltaico instalado en este proyecto comprende 70 kW de potencia, que será repartida entre los usuarios dependiendo de las necesidades específicas de cada vivienda.

En este proyecto, como en toda instalación fotovoltaica que realiza MIW Energía, se emplearán las mejores marcas que cumplan con el certificado Bloomberg Tier I, manteniendo una producción lineal de energía de hasta el 80% durante 25 años y una garantía de 10 años en los materiales.

La parte tecnológica apoyada por el proyecto PRECEPT viene apoyada por un sistema de gestión 'Plug&Play Building Management System (PP-BMS)' instalado en el dispositivo Edge Enable Proactiveness (EEP) de cada vivienda, capaz de aumentar los rendimientos de ésta a nivel de eficiencia energética y bienestar de los ocupantes, aprovechando las energías renovables, el almacenamiento, previsiones mediante inteligencia artificial y las tarifas energéticas.

Además, se incluirá una representación digital en tiempo real de los consumos de las viviendas mediante el empleo de la tecnología BIM 6D. La interacción con la red se apoyará de forma segura (Hyperledger Fabric) a través del dispositivo EEP descentralizado, garantizando la correcta implementación de estrategias de gestión de la demanda.

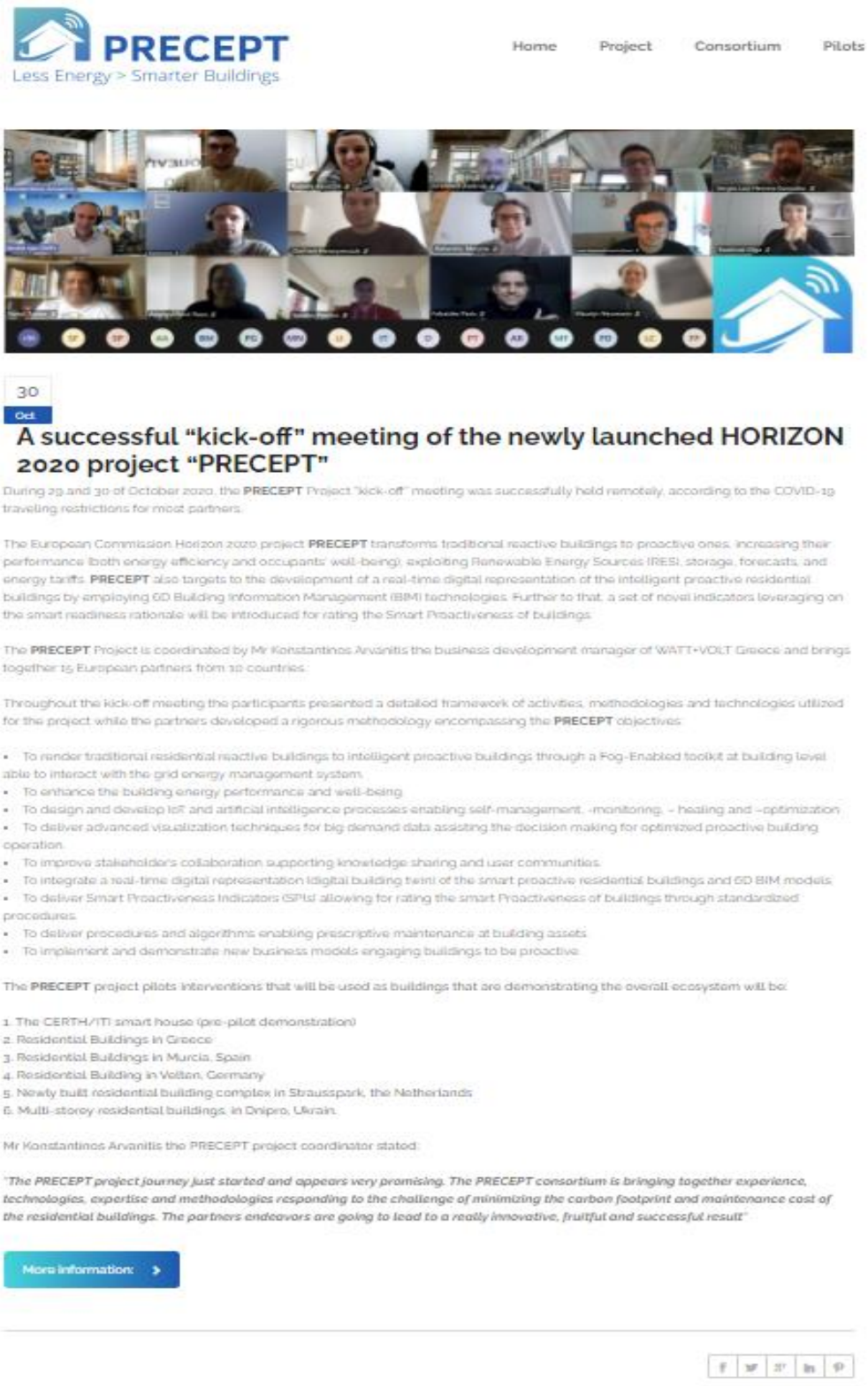
Nuevos avances del autoconsumo fotovoltaico colectivo para el cliente residencial

A nivel de usuario se ha avanzado mucho este año, desde que se lanzase en marzo a consulta pública la orden que permite el reparto variable para cada hora del año de la energía generada por las instalaciones de autoconsumo compartido. Con PRECEPT, se ha ido un paso más allá; gracias al conjunto de soluciones propuestas, se van a ofrecer a los participantes del piloto la oportunidad de mejorar su confort y analizar las mejores posibilidades energéticas en cada momento del día. Desde controlar la intensidad de la luz de las estancias, controlar la temperatura, encender o apagar el aire acondicionado según horas, o garantizar la acumulación necesaria de agua caliente, entre otros ejemplos. Todo ello impulsado por la energía fotovoltaica que genere la instalación colectiva que se va a instalar en el proyecto. De este modo, se establece un paso más en la carrera por transformar los edificios residenciales en agentes activos del cambio en las futuras Smart Cities.

Figure 22: Press release in Spanish media

2.4 Newsletters

PRECEPT released its first newsletter during October 2020, available on the project's website (https://www.precept-project.eu/a-successful-kick-off-meeting-of-the-newly-launched-horizon-2020-project-precept/) and also published through the different social media accounts of the project as well as through the partner's individual channels.



PRECEPT
Less Energy > Smarter Buildings

Home Project Consortium Pilots

30
Oct

A successful "kick-off" meeting of the newly launched HORIZON 2020 project "PRECEPT"

During 29 and 30 of October 2020, the **PRECEPT** Project "kick-off" meeting was successfully held remotely, according to the COVID-19 traveling restrictions for most partners.

The European Commission Horizon 2020 project **PRECEPT** transforms traditional reactive buildings to proactive ones, increasing their performance (both energy efficiency and occupants' well-being), exploiting Renewable Energy Sources (RES), storage, forecasts, and energy tariffs. **PRECEPT** also targets to the development of a real-time digital representation of the intelligent proactive residential buildings by employing 6D Building Information Management (BIM) technologies. Further to that, a set of novel indicators leveraging on the smart readiness rationale will be introduced for rating the Smart Proactiveness of buildings.

The **PRECEPT** Project is coordinated by Mr Konstantinos Arvanitis the business development manager of WATT+VOLT Greece and brings together 15 European partners from 10 countries.

Throughout the kick-off meeting the participants presented a detailed framework of activities, methodologies and technologies utilized for the project while the partners developed a rigorous methodology encompassing the **PRECEPT** objectives:

- To render traditional residential reactive buildings to intelligent proactive buildings through a Fog-Enabled toolkit at building level able to interact with the grid energy management system.
- To enhance the building energy performance and well-being.
- To design and develop IoT and artificial intelligence processes enabling self-management, -monitoring, - heating and –optimization.
- To deliver advanced visualization techniques for big demand data assisting the decision making for optimized proactive building operation.
- To improve stakeholder's collaboration supporting knowledge sharing and user communities.
- To integrate a real-time digital representation (digital building twin) of the smart proactive residential buildings and 6D BIM models.
- To deliver Smart Proactiveness Indicators (SPIs) allowing for rating the smart Proactiveness of buildings through standardized procedures.
- To deliver procedures and algorithms enabling prescriptive maintenance at building assets.
- To implement and demonstrate new business models engaging buildings to be proactive.

The **PRECEPT** project pilots interventions that will be used as buildings that are demonstrating the overall ecosystem will be:

1. The CERTH/ITI smart house (pre-pilot demonstration)
2. Residential Buildings in Greece
3. Residential Buildings in Murcia, Spain
4. Residential Building in Volten, Germany
5. Newly built residential building complex in Strausspark, the Netherlands
6. Multi-storey residential buildings, in Dnipro, Ukrain

Mr Konstantinos Arvanitis the PRECEPT project coordinator stated:

"The PRECEPT project journey just started and appears very promising. The PRECEPT consortium is bringing together experience, technologies, expertise and methodologies responding to the challenge of minimizing the carbon footprint and maintenance cost of the residential buildings. The partners endeavors are going to lead to a really innovative, fruitful and successful result"

More information: >

Figure 23: PRECEPT's newsletter

MIWenergia at the end of July published its newsletter providing a review of all projects which is currently participating. Of course, special mention is given to PRECEPT project depicting the progress that has occurred in the complicated social period of 2020-2021, as well as the nearest future holds for the company regarding the project. See Figure 24 for a screenshot of the MIWenergia recent newsletter on project's information. Newsletter is also available in the following link: https://acumbamail.com/envio/ver/61e2f498-eed4-11eb-88a3-005056bd5094/

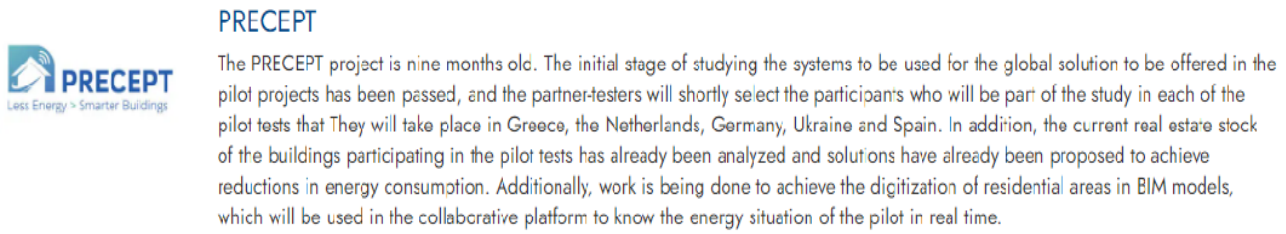


Figure 24:Part of MIWenergia newsletter referring to PRECEPT

2.5 Scientific Publications

Research and innovation aspects of the project will be enhanced through both professional and academic publications based on the project core, BMs, tech aspects and standardization needs. During M1 to M12, a significant number of publications in scientific journals achieved allowing the broadcast of research results. Furthermore, presentations at conferences in the field of smart buildings, new technologies on IoT, energy management and other related fairs are released maximizing the scientific impact of the project. Below are presented the main scientific outputs so far that have been published or submitted and accepted for publication:

Related partners: ODINS

- **"Integrating LPWAN technologies in the 5G ecosystem: A survey on security challenges and solutions",** Jesus Sanchez-Gomez, Dan García Carrillo, Ramon Sanchez-Iborra, José L. Hernández-Ramos, Jorge Granjal, Rafael Marin-Perez. Published in IEEE Access journal with Impact Factor 3.745, November 2020. Available in following link: https://ieeexplore.ieee.org/document/9272765
- **"EAP-Based Bootstrapping for Secondary Service Authentication to Integrate IoT into 5G Networks",** Dan Garcia-Carrillo, Jesus Sanchez-Gomez, Rafael Marin-Perez, Antonio Skarmeta. Book chapter in Communications in Computer and Information Science (CCIS, volume 1121), available in the following link: https://link.springer.com/chapter/10.1007/978-981-15-9609-4_2
- **"MEC-based Architecture for Interoperable and Trustworthy Internet of Moving Things",** Jesus Sanchez-Gomez, Rafael Marin-Perez, Ramon Sanchez-Iborra, Miguel A.Zamora-Izquierdo. Published in Digital Communications and Networks (DCN) journal with Impact Factor 6.797,2021.
- **"Holistic IoT Architecture for Secure Lightweight Communication, Firmware Update, and Trust Monitoring",** Jesus Sanchez-Gomez, Rafael Marin-Perez, Mirko Ross, Antonio Skarmeta. Accepted and presented paper in IEEE International Conference on Smart Internet of Things (SmartIoT 2021), which took place virtually on 13-15 August 2021.

Related partners: PSACEA

- **"Assessment of the carbon footprint of multi-storey hybrid timber-reinforced concrete building",** Shekhorkina S. Yev. Published in Scientific Bulletin of Civil Engineering №3 (101) journal in 2020.
- **"Analysis of the environmental impact of construction by assessing the carbon footprint of building",** Shekhorkina S., Savytskyi M., Yurchenko Y., Koval O. Published in journal Environmental Problems, volume 5, №3 in 2020. Available in the following link: http://ena.lp.edu.ua/bitstream/ntb/56009/2/2020v5n3_Shekhorkina_S-Analysis_of_the_environmental_174-178.pdf
- **"Dynamic modelling and optimal design of buildings with friction dampers using particle swarm optimization",** Savytskyi M. V., Danishevskyy V. V., Gaidar A. M. Published in Ukrainian Journal of Civil Engineering and Architecture, No.1 SHEE PSACEA in 2021.

Related partners: POLIMI

i. **"ODIN: pluggable meta-annotations and metrics for the diagnosis of classification and localization",** Rocio Nahime Torres, Federico Milani and Piero Fraternali. The paper on the machine learning diagnosis tool ODIN, has been accepted for presentation at the 7th International Online & Onsite Conference on Machine Learning, Optimization, and Data Science which will be hold on October 2021. The paper will also be published in the "Springer LNCS Proceedings".

2.6 Networking Activities

This section reports the number of networking activities, conferences, workshops & lectures within the reporting period, that the consortium partners attended or organized.

List of dissemination events during M1-M12:

- MIWenergia participation in workshop of UPCT, an event addressed to scientific community, held on 14/12/2020 in Spain.
- MIWenergia presentation for "CORPORATE BREAKFAST", an event addressed to industries, held on 18/01/2021 in Spain.
- MIWenergia participation in workshop at Joven Futura addressed to civil society, held on 29/01/2021 in Spain.
- MIWenergia participation in workshop addressed to industries, held on 23/02/2021 in Spain.
- PSACEA organized the XVII International Scientific and Practical Conference "Innovative Technologies in Construction, Civil Engineering and Architecture". The purpose of the event is to bring together representatives of scholarly, educational and industrial communities to exchange scientific and technical information, as well as practical examples in the fields of modern construction, civil engineering, architecture; to identify the perspective areas of research and practical application,26/11/2020, Ukraine. More information can be found at: https://pgasa.dp.ua/conferences/.
- POLIMI disseminated the project goals and work plan internally to other relevant departments (e.g., Architecture and Civil Engineering) to gather feedback on the project and acquire further communication channels. This led to the participation of the Doctoral Consortium events of the department of Architecture Build Environment and Construction Engineering, which has research activities and communication channels of potential interest to the project. The program of the events can be found at https://beep.metid.polimi.it/web/abcphd/milestones.
- POLIMI gave an international lecture on "Gamified tools and applications for household water and energy sustainability" in the online "Smart Buildings" school promoted by the Ide3a Net (https://ide3a.net/) university

league, also describing the PRECEPT approach which released in 24/11/2020. More information can be found at:https://moseskonto.tu-berlin.de/moses/modultransfersystem/bolognamodule/beschreibung/anzeigen.html?number=50918&version=1&sprache=2

- MIWenergia participation in two workshops at Joven Futura in Spain for the civil society, held on 21/6/2021 and 28/7/2021 with a size audience of 40 and 120 participants, respectively.
- WVT participated in the 85th Thessaloniki International Fair, the first in person exhibition after the covid-19 pandemic.

2.6.1 PRECEPT at the 85th Thessaloniki International Fair

WVT participation in the yearly International Fair of Thessaloniki (85th TIF), organized during 11-19 of September 2021.

TIF is the largest event in Greece and the first major exhibition organized in Europe this year. The fair attracted a total number of over 87.000 people.

The company as one of the loyal participants in the event, took the opportunity to spread the news about the project.

Figure 25: WATT+VOLT Stand at the 85th T.I.F.

Both energy professionals and general public were informed about the PRECEPT's visions, the project demonstration sites, and its proposed cutting-edge technologies used for the transformation of residential buildings.

The public audience was highly interested in further engagement with the project progress, while discussions with municipalities and Greek Energy Authorities took place, leveraging the PRECEPT approach for further smart cities exploitation.

Figure 26: WVT participation in the International Fair of Thessaloniki

On Sunday, September 12 the European Commission (EC) organized the event "Greece's position in the European family: challenges in the face of a more digital, green and innovative future". The Vice President of the European Commission Mr. Margaritis Schinas, was the keynote speaker.

Mr. Konstantinos Arvanitis from WATT+VOLT attended the event and discussed with the EC Vice President about the digital transformation in European's energy sector towards the minimum carbon footprint and the EU citizens well-being.

Figure 27: PRECEPT Coordinator with EC Vice President

2.6.2 Retail Stores Network

WVT is counting already 80 Retail Stores all over Greece. The existing retail store network is used for maximizing the dissemination potential of the project lifecycle. In Thessaloniki the communication of the PRECEPT project has initiated in the WVT Harilaou retail store, with the visitors being informed about project's approach and developments.

Figure 28: WVT Retail Store in Harilaou

2.6.3 Other activities

Two reports on research work:

- PSACEA report to the Ministry of Education and Science of Ukraine, "Research work and international cooperation at PSACEA in 2020", addressed to scientific community, 29/03/2021, Ukraine.
- PSACEA report at the open session of Academic Board of PSACEA, "Research work and international cooperation at PSACEA in 2020", addressed to local authorities, Vice-Rectors for research from the Universities of Prydniprovsk Region and Rector of the Technical University of Lodz (Poland), 23/03/2021, Ukraine.

2.7 Joint dissemination activities

To expand PRECEPT's community, collaborations with affiliate projects have been established:

D^2EPC project is involving several common partners such as CERTH, KTU, CLEO, DEMO, ASI and FRC. Initial discussions with related members have been occurred on how we can exploit this opportunity for joint dissemination actions and cross fertilization. D^2EPC description is mentioned below:

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

3 ASSESSMENT OF THE COMMUNICATION STRATEGY

Dissemination and exploitation activities are organizing as the key actions to the promotion of the project's outcomes released in parallel to the technical operations for the entire duration of the project.

Informing the public is important so that itself be an active part in the effort of the buildings' transformation in the residential sector. The PRECEPT engagement, dissemination, and communication plan is based on the A.I.D.A marketing strategy (full description in D6.1) which describes the ways and means to communicate and disseminate. A detailed three- phases methodology is following including an initial awareness phase, a strategic phase and a scale-up phase.

Following the aforementioned methodology, the first-year activities, are focused in enhancing the project's publicity (initial phase of project). PRECEPT started on October 2020, so the primary activities were concerned the project's establishment and recognition.

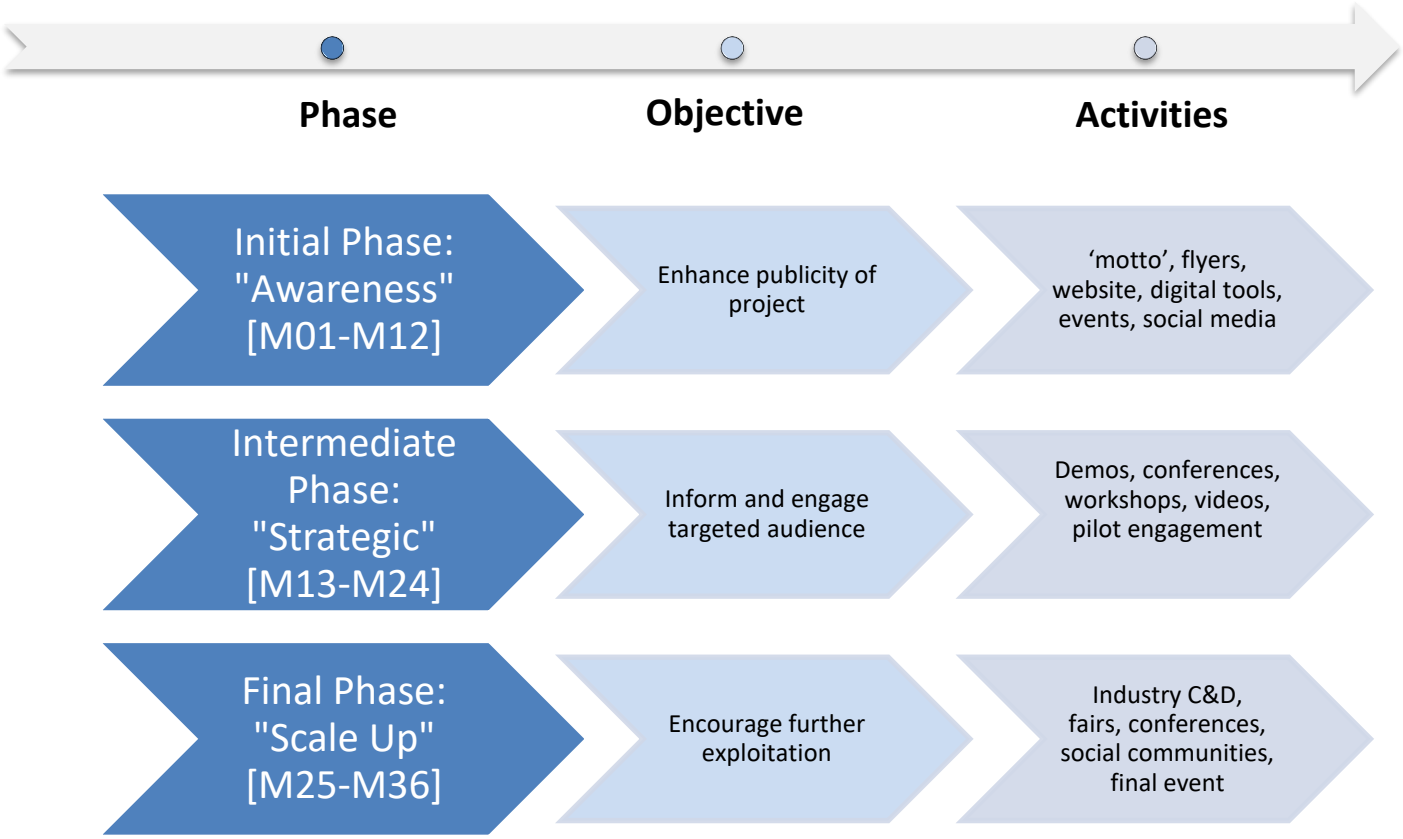


Figure 29: Communication & Dissemination Phases

PRECEPT addresses heterogeneous target groups which are classified in five categories. D6.1 also clarifies measures and provides guidelines for all participants on how to use the respective networks and tools in order to contribute to the spread of PRECEPT. All consortium partners are involved in the dissemination task, contributing according to their expertise field and their related region.

Table 8 summarizes the different channel's and content approach following per each audience group.

Table 8: The C&D strategy elements (extracted table from D6.1)

Audience	Messages	Channel	C&D Goals
Enablers	PRECEPT Methodology Development of components Project vision and architecture Data Interoperability Progress Results Success Stories in Pilots	Website Social Media (all) Newsletters Press Releases Workshops Components Demonstration	Create awareness Motivate Maintain Interest
End Users	Toolsets presentations Visual Results Software Demonstration UI/UX Presentations UAT platforms Objectives Achievements	Website Digital Media Social Media (all) Demo Apps Press Releases Software Demos Tutorials - PRECEPT wiki PRECEPT videos	Trigger user's engagement Improve PRECEPT ecosystem applications UAT improvements of toolsets Create Impact
Providers	Scientific Results or Findings R&D interoperability issues Scientific activities Lessons learnt and best practices PRECEPT innovations	Website Social Media: LinkedIn Scientific Communities Joint EU Dissemination SME's presentations Open innovation Workshops Conferences	Improve technological developments
Utilizers	PRECEPT Methodology Development of new products/services Project Results Design rules	Website Social Media: LinkedIn Professional Groups SME's presentations Workshops Conferences	Full A.I.D.A strategy elements. Focusing into Desire and Actions for final product and services utilization
Facilitators	PRECEPT Methodology Development of Components Integration of PRECEPT products/services Certifications	Website Social Media (all) Newsletters Press releases Workshops Conference Demonstration	Raise environmental Interest and Impact Towards A.I.D.A Action Set the value proposition for further exploitation

3.1 D&C KPIs

The evaluation of the proposed strategy is based on the defined quantitative and qualitative metrics for dissemination performance indicators. The table below summarizes the work done in dissemination during the first year of the project in accordance with its objectives.

Table 9: PRECEPT KPIs for communication and dissemination

KPIs for communication and dissemination	Target of 1st Year	Achieved in 1st Year
Presence at public events, workshops, and meetings	3	9
Number of events / conferences attended representing the project	3	4
General Public Reach	500	1200[2]
PRECEPT social media / community members	300	860
Reach of the extended PRECEPT social community	2.000	2300
Number of press releases delivered to traditional media	5	17
Number of scientific publications	2	7
Number of unique visitors to the website (based on Google Analytics)	1.000	2.420
Number of recipients of the PRECEPT newsletter (mailing list recipients)	500	500
PRECEPT SOCIAL MEDIA (followers/views)	Twitter: 200	Twitter: 211
	LinkedIn: 150	LinkedIn: 295
	Facebook: 200	Facebook: 354
	YouTube: 300 views	YouTube: -
PRECEPT SOCIAL MEDIA POSTS	Twitter: 20	Twitter: 21
	LinkedIn: 20	LinkedIn: 26
	Facebook: 20	Facebook: 17
	YouTube: 1 Video	YouTube: 0 Videos

[2] PRECEPT numbers in social media plus events average reach

4 Conclusions and Next steps

D6.6 is the first period report on Communication and Dissemination activities that focusses on the preliminary actions performed by the project consortium. The second version of the report is anticipated on M24, September of 2022.

The next steps of the PRECEPT C&D actions are focusing on engaging a more targeted audience into the PRECEPT approach. Hence, training sessions and workshops are scheduled, aiming to gather feedback from different stakeholder groups, concerning potential improvements of the PRECEPT solution.

During the next months, the pilot sites publicity is a priority. At a later stage, further engagement is anticipated when the first results of the demonstration sites implementations would be available. The PRECEPT pilots have a direct impact on participants' perception and engagement and involvement.

Social media channels will continue to broadcast the project progress. In parallel, activities via traditional media, scientific dissemination and joint activities will raise the project's impact and widespread the results.

Joint dissemination efforts will be enriched to maximize benefits, for building an extended PRECEPT users community.

Annex I

i. Presentation Slides

PRECEPT

"A Novel Decentralized Edge-Enabled PREsCriptivE and ProacTive Framework for Increased Energy Efficiency and Well-Being in Residential Buildings"

Project Summary

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 958284

PRECEPT

Precept Project Identity Card

*A Novel Decentralized Edge-Enabled **PREsCriptivE** and **ProacTive** Framework for Increased Energy Efficiency and Well-Being in Residential Buildings.*

Project Name:	Precept
Grant number:	958284
H2020 Call:	LC-EEB-07-2020 -Smart Operation of Proactive Residential Buildings (IA)
Duration:	36 months
Starting Date:	1 October 2020
Total Budget:	7.654.025€
EU contribution:	6.053.667,50€
Countries:	Greece, Lithuania, Cyprus, Germany, Spain, the Netherlands, Austria, Hungary, Ukraine, Italy

PRECEPT

The Consortium

15 Partners from10 Countries

One leading industrial company:

- WVT

8 commercial partners	
▪ CLEO	▪ LCII
▪ NURO	▪ CON
▪ ODINS	▪ STROITEL-P
▪ DEMO	▪ MIWENERGIA

5 Research Centres	
▪ CERTH	▪ POLIMI
▪ KTU	▪ PSACEA
▪ FRC	

One Standardization body(non-profit-organisation):

- ASI

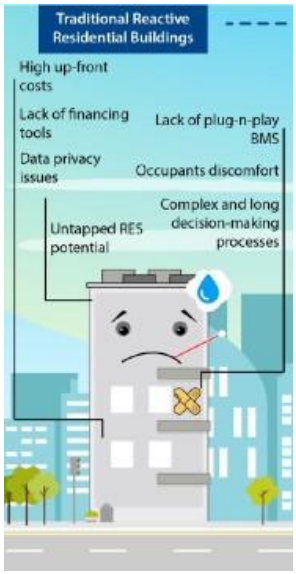
Five research centres:

PRECEPT

The Problem

Traditional Reactive Buildings:

- ❑ High energy consumption
- ❑ Poor emissions footprint
- ❑ Elevated maintenance cost
- ❑ Untapped RES potential
- ❑ Occupants discomfort (well being)
- ❑ No plug and play BMS
- ❑ Data "holes" or data privacy issues
- ❑ Lack of financing tools

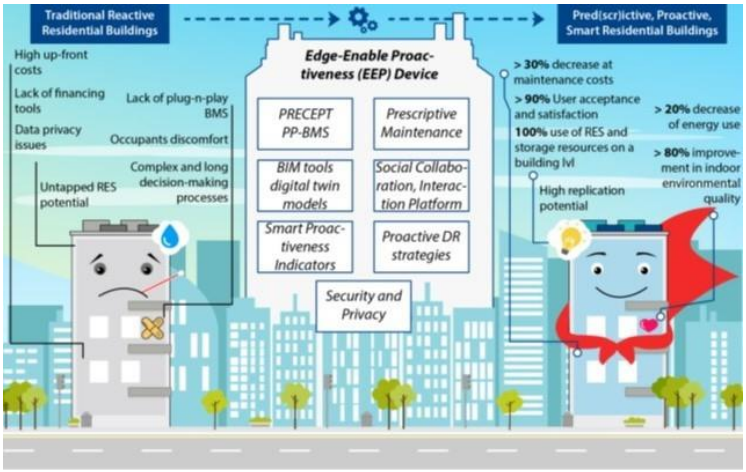


PRECEPT

The Vision

PRECEPT ambition is to **deliver the next-generation of Smart Home (IoT) industry.**

- *Transform to Pred(scr)ictive, Proactive Smart Residential Buildings.*
- *Self-managed "plug-n-play" PP-BMS together with federated learning AI algorithms.*
- *Combine edge-computing, security and privacy.*
- *Development of 6D BIM and building digital twins will be exploited for the 6D representation of the buildings, as well as the digital representation of the building behavior.*
- *Introduction of Novel sustainable business models.*



PRECEPT

Objectives

- To render traditional residential reactive buildings to intelligent proactive buildings through a Fog-Enabled toolkit at building level able to interact with the grid energy management system.
- To enhance the building energy performance and well-being.
- To design and develop IoT and artificial intelligence processes enabling self-management, -monitoring, - healing and –optimization.
- To deliver advanced visualization techniques for big demand data assisting the decision making for optimized proactive building operation.
- To improve stakeholder's collaboration supporting knowledge sharing and user communities.
- To integrate a real-time digital representation (digital building twin) of the smart proactive residential buildings and 6D BIM models.
- To deliver Smart Proactiveness Indicators (SPIs) allowing for rating the smart Proactiveness of buildings through standardized procedures.
- To deliver procedures and algorithms enabling prescriptive maintenance at building assets.
- To implement and demonstrate new business models engaging buildings to be proactive.

PRECEPT Impacts

- **IMPACT 1**: Maintenance cost reductions of at least 20%.
- **IMPACT 2**: Significant decrease of energy use in buildings through application of technologies such as dynamic models, big data analytics, predictive analytics and ultimately artificial intelligence. -> energy saving at least 20%
- **IMPACT 3**: Improved indoor environment quality and user satisfaction
  - Indoor quality improvement 80%
  - User Acceptance 90%
  - User satisfaction 90%
- **IMPACT 4**: High replication potential.
  - 100 stakeholders involved
  - 10 user communities engaged
  - 100 best practices published
- **IMPACT 5**: Optimize the use of renewable energy resources in buildings
- **IMPACT 6**: Contribution to standards, namely the establishment of a Smart Readiness Indicator

PRECEPT Case Studies (Pilots)

- **Use Case 1**: Residential buildings in Thessaloniki, Greece
- **Use Case 2**: Residential/ Multi-family building in Murcia, Spain
- **Use Case 3**: Residential building in Velten, Germany
- **Use Case 4**: Newly built residential building complex in Strausspark in Voorhout, the Netherlands
- **Use Case 5**: Multi-storey residential buildings in Simferopolskaya street, Dnipro, Ukraine

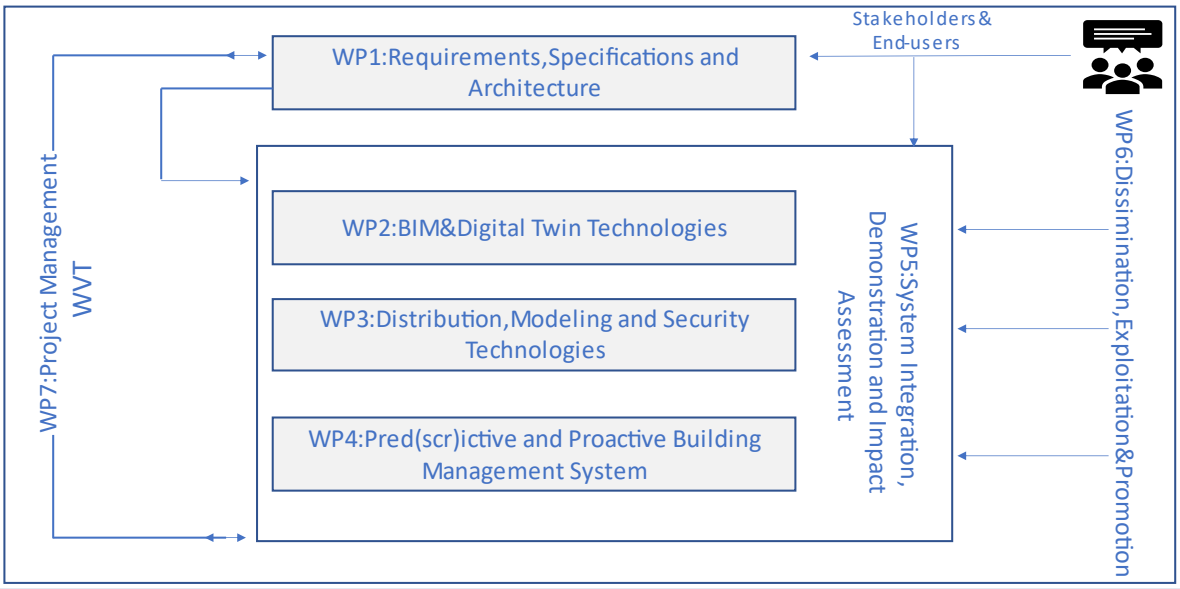

Use Case 2: Murcia, Spain


Use Case 3: Velten, Germany

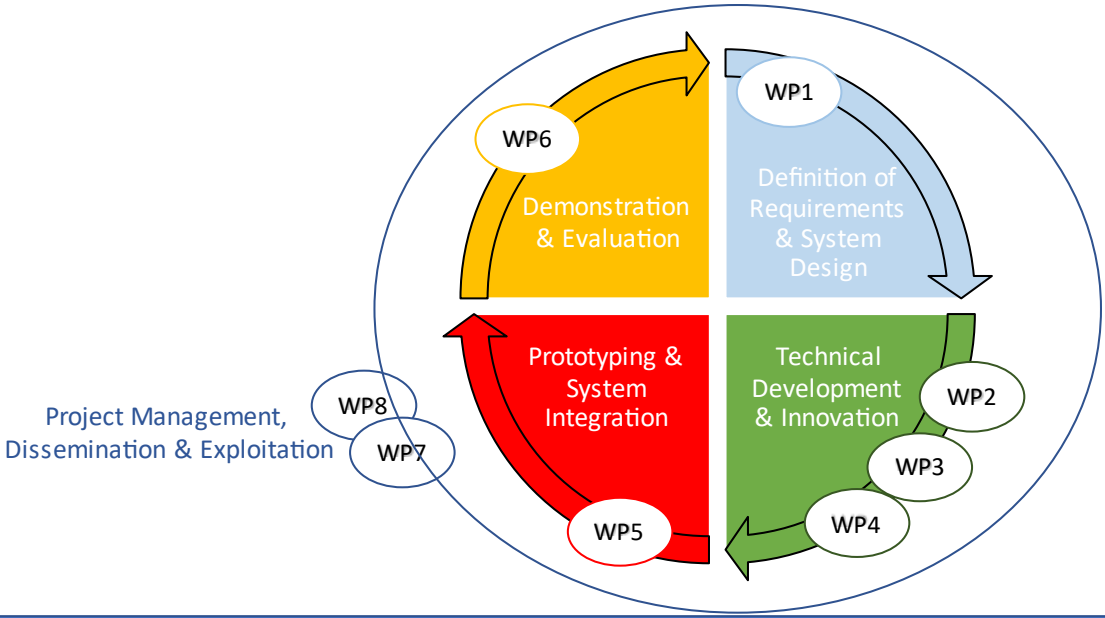

Use Case 4: Voorhout, Netherlands


Use Case 5: Dnipro, Ukraine

Structure of work plan



Project Implementation Approach



PRECEPT

Project Partners

ii. Poster


PRECEPT
Less Energy > Smarter Buildings
The smart, efficient and proactive residence
The PRECEPT PROJECT is using cutting-edge technologies to transform conventional residential buildings into highly efficient and proactive buildings. We facilitate smooth and almost zero operational costs of transformation , achieving better building performance, higher energy efficiency while leveraging the occupant's comfort. The PRECEPT ambition is to deliver the next-generation of Smart Home (IoT) industry.
CO_2
Min
Germany
Netherlands
Ukraine
Spain
Greece
Greece
- 6 Residential Buildings
- Smart House CERTH pre-pilot
in Thessaloniki
Spain
Residential Multi apartment buildings
in Murcia
Germany
3 storey Residential / Multi-family building
in Velten
Netherlands
3 storey residential building
"Huuske van Hooghkamer"
in Voorhout
Ukraine
5 Residential skyscraper buildings
"Panorama Residential Complex"
in Dnipro
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www.precept-project.eu
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