



**COMBINED TECHNOLOGIES FOR WATER, ENERGY AND SOLUTE RECOVERY
FROM INDUSTRIAL PROCESS STREAMS**

Deliverable 6.1

Plan for Exploitation and Dissemination of results
(incl. communication activities)

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Author(s)	Christina Jungfer	
Contributors	CORNERSTONE Consortium	
Contact	Christina.jungfer@dechema.de	
Reviewer	Cejna Anna Quist-Jensen	
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¹ R=Document, report; DEM=Demonstrator, pilot, prototype; DEC=website, patent fillings, videos, etc.; DMP=Data Management Plan

² PU=Public, SEN=Sensitive

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Executive Summary

The CORNERSTONE project, “Combined technologies for water, energy and, solute recovery from industrial process streams” is funded by the European Commission under the Horizon Europe Framework Programme. The Plan for Exploitation and Dissemination of Results, incl. Communication activities (PEDR + C) is part of Work package 6: Communication, Dissemination and Exploitation. This plan outlines the project’s Communication, Dissemination and Exploitation Strategy, ensuring that the project consortium has a clear guideline for how to communicate and interact with external stakeholder groups. The strategy focusses on composition, targets and planned interactions of/with stakeholder groups.

Specifically, the PEDR + C present:

- Coordinated stakeholder analysis and mapping,
- Impact focused, scientific/technical & public communication,
- Communication and Dissemination channels, including online and social media presence,
- Relevant journals, events, and related projects,
- Stakeholder engagement, engagement in thematically relevant initiatives & events (on regional, national, European and international level),
- The exploitation strategies of the results

The PEDR+C will support the consortium in maximizing the impact of their dissemination and communication actions while providing the appropriate means to ensure efficient visibility of the activities and outputs of the project as a whole.

The PEDR is updated regularly, occurring at least twice during the development of Deliverables ‘D6.3 (M24) and ‘D6.5 (M40).

1. Introduction and Key Concept

1.1. The context of the project

The CORNERSTONE project - Combined technologies for water, energy and, solute recovery from industrial process streams – is funded by the European Union under the Horizon Europe Framework Programme to support Europe’s Green Deal and transforming European process industries to make them circular and achieve overall climate neutrality at EU level by 2050, while enhancing their global competitiveness.

The overall aim of CORNERSTONE is to enable - via novel technological developments - up to 90% wastewater, energy and solute reuse by tapping the potential of currently difficult-to-treat wastewater streams and using waste heat for water recovery. These new developments, together with digital tools shall be easily deployed cross-sectorial and deliver long-lasting impacts to a sustainable European industrial water management approach.

Part of Work Package 6 (Communication, Dissemination and Exploitation) is a Plan for Exploitation and Dissemination (PEDR) incl. communication activities (Strategic Communication planning).

The strategic communication planning will ensure that the project consortium has a clear communication guideline and mission. The plan for Dissemination and Exploitation outlines the dissemination and exploitation objectives and strategies to ensure the greatest possible impact from the project results.

This plan undergoes regular updates, occurring at least twice during the development of Deliverables ‘D6.3 – Updated Plan for Exploitation and Dissemination of Results’ (M24) and ‘D6.5 – Final Dissemination and Networking Report’ (M40).

1.2. Communication, Dissemination, and Exploitation

The three key concepts of this deliverable are communication, dissemination, and exploitation.

The meaning of communication is self-explanatory and its role for the project is elaborated on in chapter 3. The goal is to reach out to and inform all identified stakeholders about the activities, benefits and impact of the project. The focus of communication is to inform about and promote the project and its results/success in a non-technical manner and through strategically planned actions – possibly engaging in a two-way exchange.

The dissemination and exploitation strategies refer solely to the disclosure and transfer (dissemination) and uptake (exploitation) of the project results. Focus of the dissemination is to describe and ensure results available for others to use or reuse. The dissemination channels are part of the communication channels and are therefore only briefly mentioned in Chapter 4. The focus of the exploitation is in making concrete use and reuse of research results. The exploitation strategy is described in Chapter 5.

How the EC defines Communication, dissemination and exploitation is shown in Fig. 1.







 Communication	 Dissemination	 Exploitation	
<p>Reach out to society and show the impact and benefits of EU-funded R&I activities. Targeted communication activities must address the public policy perspective of European R&I funding by considering aspects such as (i) the benefits of transnational cooperation in a European consortium or (ii) scientific excellence or (iii) contributing to competitiveness and to solving societal challenges.</p>	<p>Transfer knowledge & results with the aim to enable others to use or reuse and take up results, thus maximising the impact of EU-funded research.</p>	<p>Effectively use/reuse project results through scientific, economic, political or societal exploitation routes aiming to turn R&I actions into concrete value and impact for society.</p>	 Objective
<p>Inform about and promote the project AND its results/success in a non-technical manner and through strategically planned actions – possibly engaging in a two-way exchange.</p>	<p>Describe and ensure results available for others to USE or REUSE → focus on results only!</p>	<p>Make concrete use/reuse of research results (not restricted to commercial use.)</p>	 Focus
<p>Multiple audiences beyond the project's own community incl. media and the broad public.</p>	<p>Audiences that may take an interest in the potential USE/REUSE of the results (e.g. scientific community, industrial partner, policymakers).</p>	<p>People/organisations including project partners themselves that make concrete use/reuse of the project results, as well as user groups outside the project.</p>	 Target Audience

Figure 1: Definition of Communication, dissemination and exploitation (European IP Helpdesk).

Source: The European IP Helpdesk. Successful valorisation of knowledge and research results in Horizon Europe: Boosting the impact of your project through effective communication, dissemination and exploitation.

1.3. CORNERSTONE communication, dissemination, and exploitation objectives

For the project strategy and action plan for the Exploitation and Dissemination of project Results, including Communication activities (PEDR+C), each component (Dissemination, Exploitation, and Communication) has been designed to maximize the possibilities for the main Key Exploitable Result (KER) i.e. the CORNERSTONE systems at TRL6 to find its way to the market and generate impacts in the long run, without prejudice for the possibility of individual exploitation of the separate system components by the relevant owners.

Accordingly, the following objectives are set out respectively:

- **To communicate** to the widest general public the importance and relevance of the CORNERSTONE project, its results and the expected impacts in terms of future improvements for the quality of their lives, for the competitiveness of the European economy, and for preservation of the environment.

- **To disseminate** the project results to key stakeholders, in particular toward those expected to be the KER adopters, **explaining** the relevance of project’s results in terms of circular value chains in the industrial processes, economic benefits for their business, possibility to **redefine** their business models, **paving** the way to market leadership, and **enabling** future research and innovation activities based on CORNERSTONE project concept.
- **To enable the protection & exploitation of results**, directly or indirectly, with a focus on results showing the highest potential for exploitation, and to **facilitate** the uptake of results within the scientific community, **opening** new routes to membrane materials and membrane technologies integrated with renewable energy sources.

The PEDR+C strategic approaches have adopted an impact-driven approach since the very beginning of the project conceptualization, as illustrated in Figure 2.

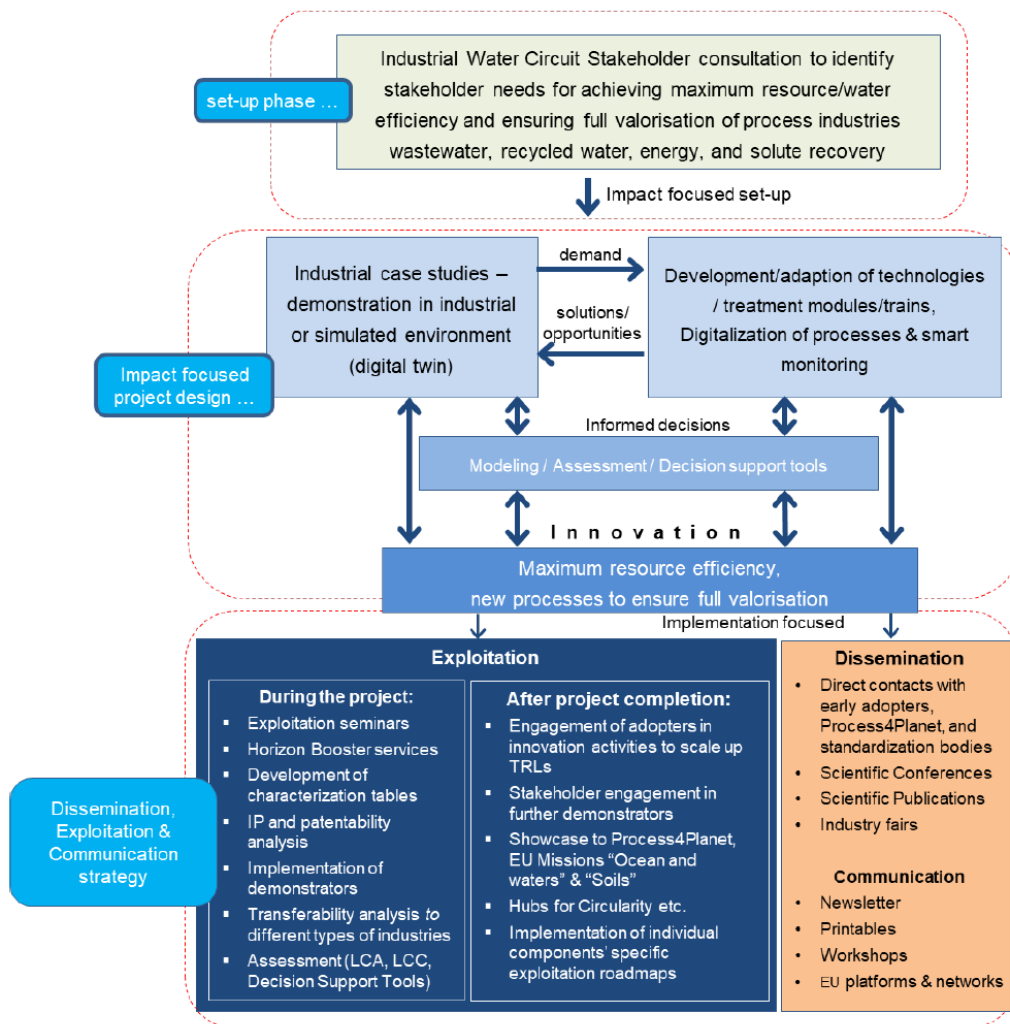


Figure 2: Overall strategy to maximize the impact (Communication & Dissemination & Exploitation)

1.4. CORNERSTONE Key Exploitable Results

The expected results from CORNERSTONE are listed below:

- **R1: Six stand-alone module components** developed to achieve the best performance in terms of water, energy and solute recovery, as well reduction of hazardous substances, as minimum maintenance and CO₂ impact.
- **R2: Three integrated module-trains** (CORNERSTONE systems) developed at lab scale for each case study (three case studies – one for each demonstration site).
- **R3: Smart monitoring and sensors** integrated into CORNERSTONE systems for optimized treatment (reduce downtime, minimize cleaning, improve process performance, predict maintenance/risks).
- **R4: Digital Twins** of developed technologies and technology trains validated with the real data from two demonstration sites (Steel and P&P).
- **R5: Complete CORNERSTONE systems** demonstrated at pilot-scale at three demonstration sites (steel, P&P, chemical) to assess water and valuables recycling, energy demand and CO₂ footprint reduction through continuous operation.
- **R6: Environmental impact profiles, techno-economic assessment and social analysis** of CORNERSTONE solutions.
- **R7: Exploitation toolbox** developed for CORNERSTONE systems to be easily replicable and scalable to reach a significant impact at European scale.

During the first exploitation workshop in June 2024, the key exploitable results (KER), including the initial Exploitation Pathway and the adopters - were discussed (details see Chapter 5.1). No changes were suggested by the partners at this stage.

2. Plan for Strategic Communication

2.1. Communication objectives

A strategically planned communication activity started at the outset of CORNERSTONE and continue throughout its entire lifetime. The aim is to provide universally comprehensible information to the public at large about CORNERSTONE's goals, the importance and relevance of the CORNERSTONE project, its results and the expected impacts in terms of future improvements for the quality of their lives, for the competitiveness of the European economy, and for the preservation of the environment. To this end, it will use a variety of instruments and relations to communicate the project's expected and achieved results, along with the overall framework within which it is implemented and funded, making it more understandable to the wide public audience.

CORNERSTONE's approach will focus on clear and easy-to-understand messages matching content with targets, objectives, and channels.

The design and creation of communication materials will comply with the project visual identity elaborated at the very beginning of the project, identifying values and characteristics that represent the project. A common graphic identity will be developed to enable better visibility and recognition as well as branding of the project. Therefore, all materials will refer to or include the name of the project, the project website URL, the project logo, and acknowledgements to EC public funds, considering the required compliance with the GA obligations.

Communication tools like the project website, Social media, a Media kit, Press releases, Short videos as well as e-Newsletters are planned - targeting the mass audience, with non-technical information concerning the long-term benefits of project's results once introduced on a large-scale into industrial plants in Europe.

Strategic communication will rely on powerful and effective messages, including the project slogans and pay-offs will be developed during the project and included/updated in the PEDR.

Since the boundary between communication and dissemination activities is fluid, the communication and dissemination objectives and strategies will partially overlap and complement each other.

2.2. Target- and Stakeholdergroups

Many stakeholders are potentially interested in the CORNERSTONE results and can directly benefit from access to them (dissemination) or by involvement in exploitation. As a first step, during the proposal phase and included in CORNERSTONE's Grant Agreement, the project target stakeholder groups were identified, their interests and how they are affected by the problem and the research, as well as their capacity and motivation to bring about the change.

The main CORNERSTONE target stakeholder groups (TG) are:

Industry

- TG1: Industrial actors (end-users, and adopters of the CORNERSTONE systems)
- TG2: Water and wastewater technology providers (adopters of innovations pertaining to modules)
- TG3: Technology platforms, Clusters and Associations

Universities and other Research Organisations

- TG4: Scientific community

Public Bodies

- TG5: Policy makers
- TG6: Standardisation bodies

The second step was to further elaborate upon these initial findings by sending out communication questionnaires to the entire consortium with the request for the following information:

- Each partner’s contact information including communication channels (website, social media, newsletters, and press department), asking whether these channels can be used for CORNERSTONE’s dissemination purposes;
- Relevant events and publications for targeting stakeholders - the involvement of each partner throughout the project will be recorded in a “Dissemination monitoring table”; and
- Relevant networks, which will be used for stakeholder outreach.

The third step will be to summarize the information collected on potential stakeholders in a “stakeholder list” which the consortium can access internally, where every partner can add additional institutions and contacts. Based on this inventory, suitable stakeholders for planned activities can be selected and contacted in a coordinated approach which respects data protection rights. This procedure avoids overlaps in communication and helps identify gaps in the stakeholder networks of the consortium partners.

If important stakeholder groups are missing, existing events and conferences will be used to reach out to these groups.

Table 1: CORNERSTONE Networks and target audience

Name of the network	Target audience
A.SPIRE	European association which represents innovative process industries, 20% of the total European manufacturing sector in employment and turnover, and more than 170 industrial and research process stakeholders from more than 20 countries spread throughout Europe
AMTA (American Membrane Technology Association)	Industry, researchers and academia

Austrian Green Chemistry Platform	Industry, researchers and academia
AXELERA	Industry, researchers and academia
Bio-based Industries Consortium (BIC)	Members cover the whole value chain, from primary production to market and represent multiple and diverse sectors, such as agriculture and agri-food, aquaculture and marine, chemicals and materials (including bioplastics), forestry, pulp and paper and technology providers and waste management and treatment. BIC also has associate members such as research organisations, academia and trade associations.
CEFIC (European Chemical Industry Council)	European Chemical Industry
COPACEL	Industry
Danish water forum	Industry, researchers and academia
EFCE (European Federation of Chemical Engineering) - Working Party Process Intensification	Industry, researchers and academia
European Membrane Society	Industry, researchers and academia
France Water team	Industry, researchers and academia
German Association for Water, Wastewater and Waste (DWA)	Industry, researchers and academia
German Water Partnership (GWP)	Industry
IWA (International Water Association)	Industry, researchers and academia
Researchgate	Researchers
SEDA (Southeast Desalting Association)	Industry
SWMOA (Southwest Membrane Operator Association)	Industry
VCI (Verband der Chemischen Industrie)	Process industry
Water Europe	Multinational corporations, Research and Technology Developers, Water Utilities, Suppliers and SMEs, Large Water Users, Public Authorities, Civil Society Organizations
Water Europe Industry Group	Industry
Water Stewardship Ireland	Industry
Water Valey Denmark	Industry, researchers, academia, policy makers

WEF (Water Environment Federation)	All
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2.3. Communication and Networking activities

After outlining the objectives and the target audience, the initial plan of core activities is outlined below, which consists of setting up a visual identity and several communication and dissemination channels. Information about the communication channels of all CORNERSTONE partners was gathered via the Communication and Dissemination Questionnaire. The input will be used for more detailed planning. The following section presents the relevance of each communication activity, its specific target audience, and its goals.

2.3.1. Visual identity

A visual identity of CORNERSTONE is very important for homogenisation and branding of the communication. Presentation templates, Microsoft Word templates for internal use, flyers and leaflets will always include the funding acknowledgement (Figure 3) and the CORNERSTONE logo (Figure 4), which is shown below. This will be made available for and deployed by the entire CORNERSTONE consortium via different channels and languages. Next to communication, CORNERSTONE visual identity will be applied in all dissemination and exploitation activities.



Figure 3: Funding acknowledgement



Figure 4: CORNERSTONE Logo

According to Article 17 of the Grant Agreement (GA), any communication activity and publication part of the project, including the project website must acknowledge EU support and display the European flag (emblem) and funding statement. The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text. Apart from the emblem, no other visual identity or logo may be used to highlight EU support. When displayed in association with other logos (e.g., of beneficiaries), the emblem must be displayed at least as prominently and visible as the other logos. Furthermore, it must indicate the following disclaimer: "Funded by the European Union. Horizon Europe Grant Agreement no. 101138504. View and opinions expressed are however those of the author(s)."

2.3.2. Website

The CORNERSTONE website (www.cornerstone-industrial-water.eu) will serve as a focal point for all the project's communication activities, and targets both the general public and an expert audience. It is a public platform for visitors to learn about the added value of CORNERSTONE, and to support dissemination and exploitation activities by providing the full range of information related to CORNERSTONE.

The website will be continuously updated by DECHEMA with input from all partners and will raise public awareness about developments within the projects.

- Information on the project's scope, work packages, modules and case studies are presented in the "Project" section.
www.cornerstone-industrial-water.eu/Project/Scope
www.cornerstone-industrial-water.eu/Project/Work+Packages
www.cornerstone-industrial-water.eu/Project/Modules
www.cornerstone-industrial-water.eu/Project/Case+studies
- The section "About us" gives information concerning the partners as well as related projects.
www.cornerstone-industrial-water.eu/About+us/Partners
www.cornerstone-industrial-water.eu/About+us/Related+projects
- The section "News" provides press releases, a blog, as well as the newsletter. In addition, there is a registration area for engaged stakeholders to become part of the CORNERSTONE community by subscribing to a newsletter.
www.cornerstone-industrial-water.eu/News/Blog
www.cornerstone-industrial-water.eu/News/Press
www.cornerstone-industrial-water.eu/News/Newsletter
- The section "Events" gives information about dissemination activities (conferences seminars, and meetings etc.).
www.cornerstone-industrial-water.eu/Events

- The section “Media Kits” provides the project’s documents (e.g. flyers, logo pack, communication material).
www.cornerstone-industrial-water.eu/Media/Media+Kits
- The sections “Results” offers the possibility to download project results (e.g. public deliverables and reports, scientific paper etc).
www.cornerstone-industrial-water.eu/Results
- Through the contact form on the website, questions and requests will directly reach the project team.

For high visibility and dissemination, the website link will be included in all communication materials.

2.3.3. Social Media

Apart from the CORNERSTONE website, social media is a crucial and powerful tool for reaching a wider audience and disseminating project updates and important events in an easy and creative way. To this end, CORNERSTONE has already established a LinkedIn account (<https://www.linkedin.com/company/cornerstone-industrial-water/>) as it is the most widely used international professional network covering many different sectors. DECHEMA will be responsible for creating posts and obtaining the required input from project partners. In addition, already existing discussion groups and communities, including the partners’ social media channels, will be used to actively post news and topics for discussion.

2.3.4. Project releases and materials

Dedicated materials for creating awareness and promoting project events will be created. So far, a CORNERSTONE Business Card was developed with a direct link to the website (Figure 7). Additionally, a radio contribution about CORNERSTONE was recorded and published at a German Channel (SWR2).

At this stage, the following materials are planned:

- Project leaflet giving an overview of the project.
- A CORNERSTONE project poster and a short presentation slide deck introducing the project.
- Short videos as a fit for multi-channel publication, to present the project in an easy-to-understand way based on animations, simulations and infographics and addressing potential adopters at large. Towards the end of the project, a second video will be produced to show the project outcomes and benefits for society, and how CORNERSTONE outcomes transform into marketable solutions.
- Periodic project eNewsletter will be issued every year (three main editions) to provide information on the project progress, news on relevant developments, training activities, etc.

- Need for further materials will be determined during the lifetime of the project (e.g. factsheets for the modules etc).



Figure 5: CORNERSTONE Business card

2.3.5. Publications

Technical and scientific publications are an important channel to raise awareness about the project, foster public acceptance and disseminate information for the uptake of solutions. Table 2 shows a selection of scientific journals and journals targeted at experts from policy and industry as well as magazines for the general public, which could form a channel for diffusion of CORNERSTONE results. The KPI targeted at the end of the project are ≥ 15 publications in peer-reviewed journals or trusted repositories.

Table 2: Relevant Technical Magazines and Scientific Journals

Name of the journal	Target audience	Language
Aktuel Naturvidenskab	Academia, industry, public	Danish
ATIP	Pulp & Paper Industry, suppliers	French
Chemie Ingenieur Technik	Process industry Researchers	German / English
EMWIS - Euro-Mediterranean Information System on know-how in the Water sector	Water stakeholders (incl. academia, researchers, water utilities, technology providers, etc.) from the 27 EU member states and 16 Mediterranean Partner Countries (Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Jordan, Israel, Lebanon, Mauritania, Monaco, Montenegro, Morocco, Palestinian Authority, Syria, Tunisia, Turkey)	English
EUWID	Water industry	German
Filtration and Separation	Water & Wastewater, Process, Filter Media	English
Filtrieren und Separieren	Membrane Filtration	German

Global Water Intelligence (GWI)	International water industry	English
gwf Wasser Abwasser	Researchers Water & Wastewater treatment	German / English
Hydrotechnica	Academia, researchers, engineers, agronomists, geologists and other scientists involved in researching and applying scientific and technological methods to solve hydraulic problems	Greek
Ingeniøren	Engineers	Danish
Innovation, Research & Technology	Scientists, academia, researchers, policy makers, private entities	Greek
knowH2O	Water industry	German
Nachhaltige Technologien	German newspaper magazine (AEE)	German
Process	Industry magazine for process industry	German / (English ?)
TAPPI	Pulp & Paper Industry, suppliers	English
The Source Magazine	Researchers, Practitioners	English
Umweltmagazin	German Environmental Engineers community	German
Water Desalination Report (WDR)	Desalination, membrane, and water reuse industries	English
Water Resources and Industry	Industry, academia	English
Water Reuse	Academia, industry, technology developer, technology provider etc.	English
Water Research	Industry, academia	English

2.3.6. Face-to-face and online Meetings

Face-to-face, online or hybrid events are an important communication channel to reach experts, build trust, and encourage technology providers, utilities, and decision-makers to trust, promote and use CORNERSTONES results. The partners of the CORNERSTONE consortium aim at participating in several events for networking activities to give presentations and distribute material. A first summary of potential events is depicted in Table 3.

Table 3: Potential events

Name of event	Date	Location	Participating partner	Potential activity
IFAT 2024 - World's Leading Trade Fair for Water, Sewage, Waste	13.-17.05.2024	Munich	TU Da, MANN+HUMMEL GmbH, DECHEMA	Material Distribution, attendance, networking

and Raw Materials Management				
AD18 - 18th IWA World Conference on Anaerobic Digestion	02.-06.06.2024	Istanbul	biothane	attendance, networking
ACHEMA 2024	10.-14.06.2024	Frankfurt a.M., Germany	DECHEMA	Networking, CORNERSTONE business card
National Sustainability Practitioner Conference in Ireland	13.06.2024	Limerick, Ireland	20FP	Presentation, networking
TriState Seminars	08.-09.08.2024	Tucson, AZ, USA	MANN+HUMMEL GmbH	networking
IWA World Water Congress & Exhibition	11.-15.08.2024	Toronto	AAU	Presentation, attendance, networking, distribution of materials
Aquatech Mexico	03.-05.09.2024	Ciudad de México, Mexico	MANN+HUMMEL GmbH	networking
Thessaloniki International Fair	07.-15.09.2024	Thessaloniki	CERTH	Information booth, presentation, material distribution, networking
Euromembrane	08.-12.09.2024	Prague	AAU	Presentation, attendance, networking, distribution of materials
Water in Industry Researchers Night	23.-27.09.2024 27.09.2024	Nanjing Thessaloniki (and 6 other Greek cities – parallel event in 25 EU countries – 350 cities)	TU Da CERTH	Attendance Information booth, material distribution, networking
WEFTEC	07.-09.10.2024	New Orleans, Louisiana, USA	MANN+HUMMEL GmbH	Material distribution, attendance, networking
IWC (International Water Conference)	03.-07.11.2024	Las Vegas, Nevada USA	MANN+HUMMEL GmbH	booth
SWMOA	13.-14.11.2024	Monterey, USA	MANN+HUMMEL GmbH	networking
PhD course: Membrane technology for circular economy	26.-29.11.2024	Aalborg	AAU	Lecture, attendance, networking, distribution of materials
Nordic Filtration Symposium	03.-04.12.2024	Copenhagen	AAU	Presentation, attendance, networking, distribution of materials

ACWA Fall conference	03.-05.12.2024	Palm Desert, California, USA	MANN+HUMMEL GmbH	networking
Danish water forum Annual conference	Jan 25	tbc	AAU	Presentation, attendance, networking, distribution of materials
IWA Water Reclamation and Reuse	March 2025	South Africa	DECHEMA	Presentation, material distribution, networking
4th International Sustainable Energy Conference (IV ISEC)	Apr 26	Graz	AEE	Presentation, attendance, networking
Industrial Water	every 2 years	Frankfurt a.M., Germany	DECHEMA	Presentation, material distribution, networking
Industrietage Wassertechnik	every 2 years	Frankfurt a.M., Germany	DECHEMA	Presentation, material distribution, networking
Water Europe – 4 events per annum	Various	Brussels	20FP, DECHEMA, etc.	Presentation, attendance, networking
RDV CTP	tbd	Grenoble	CTP	Presentation, attendance, networking
CLUB STEP	tbd	Industrial paper site to define	CTP	Presentation, attendance, networking
CWEA	tbd	tbd	MANN+HUMMEL GmbH	networking
Produced Water Conference	tbd	tbd	MANN+HUMMEL GmbH	networking
AMTA/AWWA	tbd	West Palm Beach, Florida, USA	MANN+HUMMEL GmbH	networking
Water Reuse Symposium	tbd	Denver, Colorado, USA	MANN+HUMMEL GmbH	networking
CheeseCon	tbd	Milwaukee, Wisconsin, USA	MANN+HUMMEL GmbH	networking
ACWA spring conference	tbd	Sacramento, California, USA	MANN+HUMMEL GmbH	networking
SEDA Annual Symposium	tbd	Tampa, Florida, USA	MANN+HUMMEL GmbH	networking
Membrane Tech Forum	tbd	Saint Paul, MN, USA	MANN+HUMMEL GmbH	networking

2.3.7. Additional opportunities for networking

In addition to the topics named above and the collaboration with associations and networks as important target group (see Table 1), connections the consortium has established through related projects are also an important communication channel. Related projects and the respective contacts of each partner are depicted in Table 4. It is planned to establish a close connection to the two sister projects "R3VOLUTION" and "RESURGENCE", which are funded under the same HORIZON-CL4-2023-TWIN-TRANSITION-01-40 program.

Table 4: Related Projects and CORNERSTONE Synergies

Name of the project	Coordinator	Possible synergies & opportunities for cooperation	Contact partner within CORNERSTONE
AccelWater	AGENSO	Agricultural and environmental solutions	UVIC participation
AquaSPICE	RWTH Aachen	Advancing Sustainability of Process Industries through Digital and Circular Water Use Innovations	
BUCK\$\$\$	Sapienza University of Rome	Invitation to events, possible organization of joint events	Konstantinos Plakas (CERTH)
FrüWAn	TUDa	Insights on anaerobic treatment - Development of an early warning system for the operation of anaerobic reactors, incorporating operational, kinetic and microbiological parameters of granulated sludge	Maro Atzorn (TUDa)
GalvanoMD	AEE	Membrane distillation for energy-efficient treatment (concentration) of electroplating liquids. AEE performed pilot testing of MD integrated with waste heat and solar thermal collectors for recycling of wastewater from rinsing processes in the galvanic industry. CORNERSTONE (WP1, WP3) will benefit from the experience gained during the project.	AEE
H2-Mare	Siemens	DECHEMA contributed to design, build and integrate digital twins of water treatment processes for desalination and power-to-X follow-up products (supply, waste water, heat recovery) which has direct synergy with WP2 and WP3 of the CORNERSTONE.	DECHEMA

InspireWater	IVL	Innovative Solutions in the Process Industry for next generation Resource Efficient Water management	DECHEMA
intelWATT	NCSR	Intelligent Water Treatment for water preservation combined with simultaneous energy production and material recovery in energy intensive industries.	
iWaterCheck	AEE	Method for identifying water-related optimisation measures in SMEs as a basis for standardised water audits	AEE
iWAYS	Università degli Studi di Modena e Reggio Emilia	Water closed loop in industrial processes	
Melodizer	Politecnico di Torino	AAU is contributing to this ongoing project through development of novel module designs and fouling/scaling monitoring techniques which is directly relevant for the planned activities (WP1 and WP3) of CORNERSTONE.	AAU
Novafert	Ghent University	Contribution of UVIC on the development of a PEF-compliant LCA methodology for the valorisation of nutrients and water from wastewaters, industrial and wastewater treatment streams.	UVIC
Project Ô	IRIS srl	AAU investigated the potential of MD and NF for water and solute recycling from industrial wastewater. The knowledge generated during the project is directly relevant to WP1 and WP3 of CORNERSTONE.	AAU
R3VOLUTION	CETAQUA	A rEVOLUTIONary approach for maximising process water REuse and REsource REcovery through a smart, circular and integrated solution > Sister project of CORNERSTONE in programme HORIZON-CL4-2023-TWIN-TRANSITION-01-40	
RESURGENCE	CETIM	Events, Outreach Industrial water circularity: Reuse, Resource Recovery and Energy Efficiency for greener digitised EU processes > Sister project of CORNERSTONE in programme HORIZON-CL4-2023-TWIN-TRANSITION-01-40	Colm Gaskin (20FIFTY Partners)

ReWaCEM	Fraunhofer ISE	Resource Recovery from Industrial Waste Water by Cutting Edge Membrane Technologies. AEE contributed to the project by developing MD modules for water, energy and valuable metal recovery from industrial wastewater. CORNERSTONE (WP1, WP3) will benefit from the results and experience gained.	AEE
RiKovery	Covestro	Recycling of industrial saline waters by ion separation, concentration and intelligent monitoring	Christoph Blöcher (COV)
SpotView	CTP	Sustainable Processes and Optimized Technologies for Industrially Efficient Water Usage. CTP coordinated this project. The project evaluated 14 existing and new technologies to optimise the use of natural resources, in particular water, in 3 industrial sectors (dairy, P&P, and steel). CORNERSTONE will benefit from the results, experience, and effective collaboration of the partners: ion balance and heat recovery models (CTP), testing of capacitive deionisation (BFI), ultrafiltration (CERTH) and reverse osmosis technologies.	CERTH, BFI
Waste2Fresh		Bring innovative solution to the textile manufacturing industry to address freshwater resource scarcity and industrial water pollution, into the market.	
WaterMining	TU Delft	CORNERSTONE (WP5) will benefit from the working experience of DCHEMA on the n demonstration of large-scale demonstrations of large water systems for a circular economy and society.	DECHEMA
ZHyRON	CIRCE	Invitation to events, water treatment/recovery	Pavel Ivashechkin (BFI)

2.3.1. Monitoring and Assessment

Monitoring and assessment of the communication, dissemination and exploitation activities is an important aspect of the communication strategy. It requires a structured procedure to ensure that the right messages have reached the right stakeholders and to measure the effectiveness of the communication activities. Key performance indicators (KPIs) will be used to compare the original goals with what has been achieved in the end. Suitable procedures for project-internal monitoring will be applied. CORNERSTONE will use the following categories to measure performance:

- Number of conferences/workshops/exhibitions organized and number of attendees.
- Number of publications in peer reviewed journals or in technical magazines in trusted repositories.
- Number of project newsletters/ contribution to newsletters of the partners/contribution to external newsletters.
- Number of lectures linked to CORNERSTONE.
- Number of followers in social media channels/ social media statistics.

Estimated numbers for most categories are summarized in Table 5.

Table 5: Overview of CORNERSTONE communication and dissemination activities and the respective KPIs

Comm. mean/tool	KPI	Traget
Project website	# of visits	~1000 unique visits, 5.000 views per year
Official press releases	# of press releases	~6
Short video	Video duration	~2 min
Social networks	# of interactions	~100 views/likes/comments per month
eNewsletters	# of eNewsletters	~1 per year
Channel for dissemination	KPI	KPI goals
Publications of peer reviewed articles / trusted repositories	# of articles published	At least 15
Presentations during scientific conferences, workshops, and seminars	# of conferences attended	32
Annual meetings hosted by the University of Aalborg within Center for Membrane technology	# of events organised # of people to events	3 70
Sharing of information and knowledge with Process4Planet and further Platforms	# of interactions with the Partnership	26
Participation in sector industry fairs	# of fairs participated # of bilateral meetings	9 at least 27
Direct contacts with stakeholders	# of meetings	12

Meetings of the Advisory Board	# of meetings	4
Posts on Sector-Specific Groups on mainstream social media	# of sector groups joined on social media # of posts published	10 at least 120

3. Dissemination Strategy

The main objective of **CORNERSTONE’s dissemination strategy** is

- to ensure that the CORNERSTONE results and the knowledge generated (concepts, scientific results, methodologies, validated work, problem awareness) are disseminated to the communities of potential adopters,
- to facilitate the process of use or transfer of results, enabling replicability /exploitation,
- therefore multiplying the possibility to generate the desired project outcomes.

The objectives of the Dissemination Plan are

- i) to inform the target groups about the technological progress achieved in wastewater reuse and recycling, water, energy and solutes recovery;
- ii) to prepare and facilitate an effective transfer of CORNERSTONE’s results in view of the foreseen exploitation pathways, by monitoring the market and business opportunities of CORNERSTONE’s modules and systems.

3.1. Target Groups and Dissemination measure

A crucial part of the dissemination strategy is to identify the right audience and determine the appropriate key messages. Both the language and the content of the message have to be considered. The Communication plan describes the identification of stakeholders and presents six different target groups TG) (see 3.2 Target and stakeholder groups). The dissemination of results will be targeted at these same groups. These groups will be reached through different communication and dissemination channels.

Table 6: CORNERSTONE Target Groups including dissemination measures.

TG1: Industrial actors (end-users, and adopters of the Cornerstone systems)
<p>Dissemination Measures:</p> <ul style="list-style-type: none"> ➤ Direct contacts with potential early adopters ➤ showcase during industry fairs (ACHEMA Frankfurt, IFAT Munich, AQUATEC Amsterdam, NORDIWA) ➤ presentations during scientific and application-oriented conferences (IWA, Euromembrane, ICOM)

<ul style="list-style-type: none"> ➤ participation and showcase in clustering events <p>The immediate effect sought is to raise the attention of this target group to launch the demonstration in other industrial sites, and finding other actors interested to be involved in the required innovation activity to reach higher TRLs. On a broader scale, a secondary interest is to place the project's partners as frontrunners in this technology domain against direct competitors.</p>
TG2: Water and wastewater technological providers (adopters of innovations pertaining to modules)
<p>Dissemination Measures:</p> <ul style="list-style-type: none"> ➤ Annual meetings hosted by the AAU within Center for Membrane technology ➤ project's results available via project's website download area <p>To demonstrate the operational capacity of the complete system and the economic potential of the individual innovative components (module & sensors) for the concerned technology providers industry, in view of early adoption and further mass production.</p>
TG3: Technology platforms, Clusters and Associations
<p>Dissemination Measures:</p> <ul style="list-style-type: none"> ➤ Regular participation (1-2 p.a.) in platform meetings or their specific subgroups (Water Europe, ESTEP, CEPI, GWP, ...) <p>To inform and raise awareness at multipliers and potential users in our core sectors and sectors beyond Processes4Planet (P4P) on (I) exploitable results, (II) potential implementation pathways, (III) joint opportunities to progress towards in TRL levels 7-9.</p>
TG4: Scientific community
<p>Dissemination Measures:</p> <ul style="list-style-type: none"> ➤ Scientific publications (Journal of Membrane Science, Water Research, Water Resources and Industry) ➤ presentations during scientific conferences (Euromembrane, ICOM, IWA) <p>To address this community about the research data and the breakthroughs for further study in similar initiatives, broader TRLs, and integrate the scientific findings into academic curricula, PhDs thesis and stimulate further publications.</p>
TG5: Policy makers
<p>Dissemination Measures:</p> <ul style="list-style-type: none"> ➤ Presentations during conferences

- exchange of information with European decision makers

To involve and persuade decision makers about the estimated environmental, economic and social performance, opportunities to lever and accelerate public policies implementation (taxes reduction, regulatory frameworks) on waste recycling.

TG6: Standardisation bodies

Dissemination Measures:

- Two-ways information flow with standardization bodies and with the Processes4Planet (P4P) European Partnership

The involvement of standardisation bodies in the essential to boost the valorisation strategy, prepare the possibility to set new innovation as emerging European or international standard.

3.2. Processes4Planet European Partnership

An important milestone in the dissemination strategy will be the collaboration with the Processes4Planet (P4P) European Partnership. The collaboration with the European partnership will focus primarily on:

- Using P4P project platforms for circulation and sharing of knowledge and best practice through the EU-wide Community of Practice, and to established Hubs for Circularity (H4Cs) in order to make novel technologies known for later deployment within circular economy concepts at scale.
- Active presentation of CORNERSTONE results and technology achievements at A.SPIRE networking or thematic meetings, to foster discussion with industry members and for deployment of project results at wider level.
- Crosslinking CORNERSTONE water solutions with innovation needs of the process industry in new circular economy concepts (via A.SPIRE networking meetings; A.SPIRE working group activities)
- Bringing novel research questions into new P4P research agenda

3.3. Dissemination channels

Most of the same channels used for CORNERSTONE's communication activities will also be used for the dissemination activities. Important channels for distributing results include:

- Publications of peer reviewed articles / trusted repositories
- Presentations during scientific conferences, workshops, and seminars

- Sharing of information and knowledge with Process4Planet and further Platforms
- Participation in sector industry fairs
- Direct contacts with stakeholders
- Meetings of the Advisory Board
- Posts on Sector-Specific Groups on mainstream social media
- CORNERSTONE Newsletter

3.4. Dissemination governance

All partners will contribute to the **dissemination** according to their role in the project, their access level to the results, and the assigned confidentiality level. The dissemination of a specific result will mainly be under the responsibility of the organisation that generated/co-generated it, without prejudice for additional dissemination activities carried out by authorised partners, and to the possible extent allowed by the access to the foreground knowledge.

The Work Package (WP) Leader and the Project Coordinator (PC) will be responsible for the coordination and monitoring of the individual dissemination efforts and the design, creation, maintenance and operation of the horizontal dissemination activities, including common means and tools (i.e. project visual identity, website, social media, kit press, organisation of project events, and interaction with associations of stakeholders). Although dissemination activities are intertwined with the intellectual property (IP) too, the practical application of IP rights protection agreed among partners is described in the exploitation strategy of the proposal (section 2.2.2), and it will be set out in the Consortium Agreement (CA).

4. Exploitation strategy

As the communication and dissemination activities both aim to transfer knowledge and results, the exploitation is in making concrete use and reuse of research results *“in further activities (other than those covered by the project, e.g., in other research activities; in developing, creating and marketing a product, process or service; in standardisation activities)”* (Source: EC Research & Innovation Participant Portal Glossary/Reference Terms).

Consequently, the exploitation objectives are:

- To foster the transfer of research results within the circular economy routes.
- To support the uptake of results within CORNERSTONE.
- To ensure the uptake of results beyond CORNERSTONE.

CORNERSTONE’s exploitation strategy is designed to secure an effective and efficient use of the project results and to prepare the transition towards their industrial and commercial uptake. The expected impact beyond the project duration will be fully achieved when the innovations reach the market and upscale to mass production.

Even though the main expected result is the CORNERSTONE complete systems (main KER), this solution is the result of a portfolio of underpinning technologies and innovations. Therefore, the “twofold” exploitation strategy considers the possibility of **exploiting both the integrated solution** (main KER i.e. CORNERSTONE systems, by means of IP licensing), **and the individual technologies** (exploitation of individual components of modules and sensors by each relevant result owner, mostly by adoption for internal production, or licensing).

As shown in Figure 1 the exploitation activities will start during the project, even if the very milestone for the further exploitation of the KER will be the successful implementation of demonstrators. **During the project**, partners will

- Carry out internal exploitation seminars,
- Activate and participate to the Horizon Booster services,
- Finetune the KERs characterization tables,
- IP and patentability analysis,
- Forster the Implementation of the demonstrators
- Transferability analysis to different types of industries,
- Assessment of the demonstrators through LCA, LCC, and other decision support tools.

After project completion of the project it is foreseen to

- Engage adopters in innovative activities to scale up TRL,
- Engage stakeholders in further demonstrators,
- Showcase to Process4Planet as well as EU Missions “Ocean and Waters” and “Soils”,
- Hubs for Circularity (H4C),
- Implement individual components` specific exploitation roadmaps.

The planned exploitation of results also beyond the project is shown in figure 6.

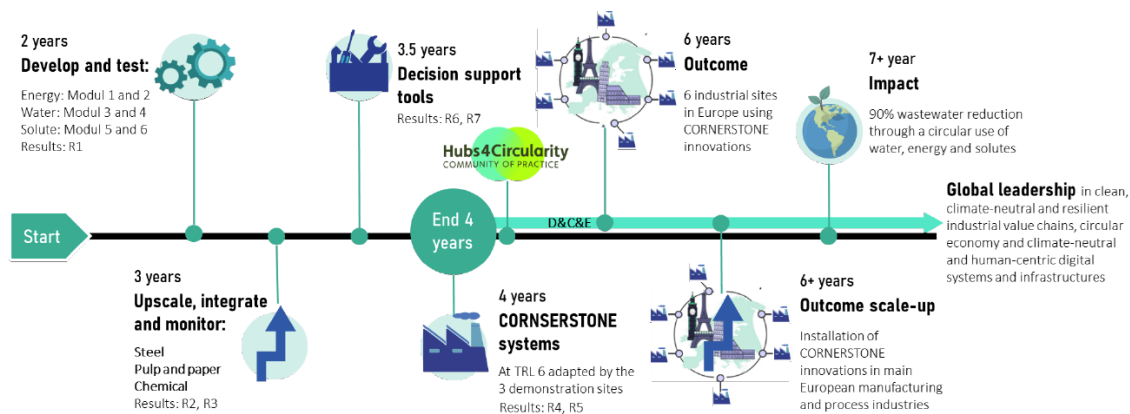


Figure 6: Timeline and expected implementations for CORNERSTONE

CORNERSTONE’s exploitation strategy includes several pillars which will be used to achieve the desired objectives:

- Exploitation pathway for Key exploitable results (KER) (both, integrated solution, and individual technologies).
- Exploitation support via market system analysis.
- Exploitation support via Sector specific exploitation pathways roadmap (Paper, Steel, Chemical).

4.1. Exploitation pathways of Key Exploitable Results

CORNERSTONE aims to provide solutions to be able to accelerate the transition to a circular economy and climate neutral industry by developing novel technologies in combination with existing processes – combined with smart monitoring technologies and digital tools for risk and decision management.

The detailed project’s exploitation action plan will be developed during the project, thanks to a number of exploitation workshops. The workshops will aim at analysing exploitation opportunities and progressively finetune them according to achieved results, other R&I achievements external to the project, market trends, and key partners required for the TRLs progresses toward market introduction and scale up.

The first exploitation workshop took place in June 2024 during the consortium meeting in Gleisdorf. Further workshops are foreseen during the project lifespan (tentatively at M25, M33, M41 and M47).

During this first exploitation workshop the following possible exploitation pathways as well as the adopters were reviewed, discussed and slightly adapted (Table 7). No changes were suggested by the partners at this stage. This initial exploitation pathway is regularly adjusted during the lifetime of the project to secure an effective and efficient use of the project results and to prepare the transition towards their industrial and commercial uptake.

Table 7: Initial Exploitation Pathway of CORNERSTONE

Result	Owner	Protect.	Initial Exploitation Pathway	Adopters
R5: Complete CORNERSTONE systems demonstrated at pilot-scale at three demonstration sites (steel, P&P, chemical) to assess water and valuables recycling, energy demand and CO ₂ footprint reduction through continuous operation.				
R5 (KER)	HKM, Essity, COV, AEE AAU, TUDa, AEE, CERTH, BFI, CTP, B.V	Patent	<p>The key characteristics of the integration CORNERSTONE systems can be patented and licensed to relevant parties (technology providers; system solution providers; industry).</p> <p>Overall results will be shared among partners and accessible for public dissemination.</p> <p>The expected next step towards higher TRL will be done in partnership of technology developers (AAU, BFI, AEE, CERTH, CTP, TUDa), technology providers (M+H, BFI, B.V) and industry (HKM, COV, Essity) starting with roll out scenarios at each industry among its sites.</p>	Industrial end-users
R1: Six stand-alone module components developed to achieve the best performance in terms of water, energy and solute recovery, as well reduction of hazardous substances, as minimum maintenance and CO ₂ impact.				

R2: Three integrated module-trains (CORNERSTONE systems) developed at labscale for each case study (three case studies – one for each demonstration site).				
R1 & R2 (KER)	AAU, TUDa, AEE, CERTH, BFI, CTP	Patent	<p>The key results (novel technological module characteristics; key operational parameters; technology trains for specific water problems) can be patented and licensed to relevant parties (technology providers; system solution providers; industry).</p> <p>Overall results will be shared among partners and accessible for public dissemination.</p> <p>The expected next step towards higher TRL will be done in partnership of technology developers (AAU, BFI, AEE, CERTH, CTP, TUDa), technology providers (M+H, BFI) and industry (HKM, COV, Essity).</p>	<p>Research Community</p> <p>Industrial end-users and technology providers</p>
R3: Smart monitoring and sensors integrated into CORNERSTONE systems for optimized treatment (reduce downtime, minimize cleaning, improve process performance, predict maintenance/risks).				
R3 (KER)	BFI, M+H	Patent	<p>The key results will be patented and then licensed to relevant parties. Some peripheral results will be shared with the partners.</p> <p>The expected next step towards higher TRL will be done internally at BFI, M+H.</p>	Industrial end-users
R4: Digital Twins of developed technologies and technology trains validated with the real data from two demonstration sites (Steel and P&P).				
R4 (KER)	BFI, CTP, M+H	Patent	<p>IP licensing: The key results will be patented and then licensed to relevant parties. Some peripheral results will be shared with the partners.</p> <p>The expected next step towards higher TRL will be done internally at BFI, CTP, M+H.</p>	Industrial end-users

A preliminary analysis of **patent clearance** has been already performed showing a good potential of innovation with respect to current state. Such analysis will be updated during and at the end of project implementation. **Licensing issues** will also be discussed among partners or versus third parties, in case of risk of patent infringement. The **overall IPR strategy** of the CORNERSTONE project is to ensure that partners can maximize knowledge exchange and fully exploit its project results impact and market position, involving IP tools. The Consortium Agreement (CA) will cover the rules for ensuring confidentiality (procedure for granting publication of the results), ownership regime and IPR issues (background included and excluded, ownership, licensing terms, etc.), including IP assessment, which will be the starting point for the IPR protection methodology to follow.

4.2. Exploitation support via market system analysis

As part of WP 6, CORNERSTONE will undertake a **Market system analysis**, which includes identifying the right potential customers and understanding the challenges they face, as well as, listing any gaps in competing and complementary solutions.

This entails:

- (i) a thorough review of the current market status in order to gain insights, capture value-chain trends in the marketplace, identify drivers and/or barriers in the waste water treatment industrial ecosystem and reach realistic commercial expectations;
- (ii) a qualitative/quantitative analysis on the economic impact of CORNERSTONE solutions in real market contexts, i.e. how the CORNERSTONE systems can address emerging market needs and requirements and how they perform against alternatives or competing technological solutions.

Business plan description, which involves, among others, outlining, defining, and refining existing models in a two steps process:

- (i) understand, define, and refine the CORNERSTONE's systems and services' value proposition through an ongoing discussion with the consortium partners, the stakeholders, the advisory board and literature review and
- (ii) build financial models describing the cost and revenue projections for each KER and how it will help the stakeholders to be more interested in this technology.

4.3. Exploitation support via Sector specific exploitation pathways roadmap (Paper, Steel, Chemical)

CORNERSTONE will develop a sector specific exploitation pathways roadmap (Paper, Steel, Chemical) for sustainable and efficient water use through water, energy and resource recovery enabled by industrial water digitalisation technologies and solutions to estimate resource saving potentials among industries. Assessing feasibility for replicability and scale at EU level by mainstreaming technologies (material and energy flow assessment, LCA, cost savings) and implications for industry and policy makers. This will include:

- (I) information gained from water flow balancing and water speciation,
- (II) the resulting expertise on the water treatment performance of the developed CORNERSTONE technology modules and
- (III) internal workshops with industry, technology partners and assessment partners to define standards and factors for the implementation as well as scalability/transferability.

5. Conclusion

The CORNERSTONE deliverable D6.1. describes the initial approach of the Plan for the Exploitation and Dissemination of Results including communication activities. It explains how the results obtained are communicated, disseminated, and exploited.

The PEDR + C will be a living document. It will be updated during the whole implementation of CORNERSTONE, involving all partners in the joint effort of developing the Exploitation and Dissemination strategy to ensure successful exploitation and dissemination of the results of the project. All partners have committed to contributing to and engaging in exploitation activities to achieve this objective.

Further versions will be included in the Updated PEDR (D6.3) and the Final Dissemination and Networking Report D6.5.