iCAREPLAST INTEGRATED CATALYTIC RECYCLING OF PLASTIC RESIDUES INTO ADDED-VALUE CHEMICALS

D9.1 Project Communication and Dissemination Plan

Deliverable Information WP9

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Project Information

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Project Acronym	iCAREPLAST
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Executive Summary

This document shows a solid "Project Communication and Dissemination Plan" of the European funded project iCAREPLAST (deliverable D9.1), including the formulation of iCAREPLAST dissemination strategy and the action plan proposed for the whole project duration (months 1-48).

Proper project dissemination and communication is a key in order to ensure the maximum impact of iCAREPLAST project. The main goal of the planned communication activities is to increase the visibility of iCAREPLAST project on selected communities and target groups, from local to European and International levels, in order to promote the implementation and use of project results (exploitation, WP10), always considering confidentiality and IPR protection aspects. All partners of the consortium will contribute to the iCAREPLAST dissemination, according to their foreseen role and effort and using all available tools and channels.

This deliverable outlines iCAREPLAST communication and dissemination strategy in terms of identification and description of the communication/dissemination key elements:

- the objectives (why, mission & vision)
- the subjects (what)
- the target audience (to whom)
- the timing (when)
- the tools and channels (how)
- the responsibilities for dissemination (who will perform the dissemination)
- the rules for performing the dissemination activities
- the way to evaluate and assess the impact of the dissemination activities

It also includes a description of the actions foreseen of the whole project, explaining in more detail the activities that have already been carried out (mainly iCAREPLAST visual identity, dissemination material, website and social networks).

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1. Introduction

1.1 iCAREPLAST in brief

The aim of the iCAREPLAST project is to provide a cost and energy-efficient alternative to recycle and valorise non-recycled plastic waste (ca. 70% of European plastic waste) that, due to their characteristics or their contamination, are currently disposed into landfills (27%) or underexploited through energy recovery (42%). iCAREPLAST project, summarized in Fig.1, combines pyrolysis, catalytic treatment and membrane separation technologies to obtain high added-value chemicals, as they are (alkyl-)aromatics (BTXs and medium to long-chain alkyl-aromatics), that can be used to produce virgin-quality polymers or as raw materials for other processes in petrochemicals, fine chemicals and surfactants industries. To ensure efficiency and sustainability of the process, advanced control techniques will be applied that aim at harmonising economic and environmental targets, making use of meaningful indicators defined taking into account LCA and LCC analyses. Hydrocarbon-rich side-streams will be recovered for energy valorisation through oxy-fuel combustion integrated with CO_2 capture, improving energy sustainability and avoiding GHG emissions. The valorisation of by-products (coke and CO_2) will contribute to economic sustainability of the process and avoid generation of wastes.

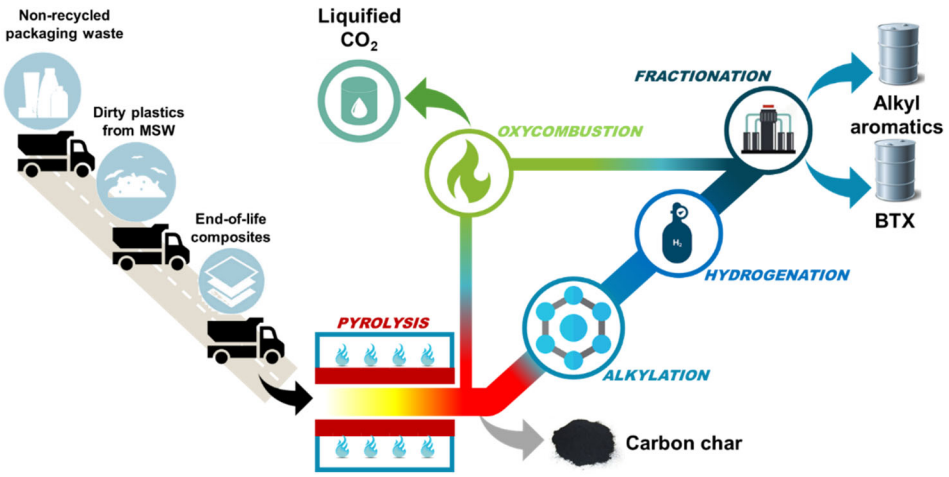

Figure 1. Overall concept behind iCAREPLAST process.

The nature of iCAREPLAST project involves, among industrial and scientific stakeholders, the participation of citizens and policy makers, that should be aware of project potential environmental advantages, so a special communication effort must be directed to raise social acceptance.

1.2 Scope and Objective of this Deliverable

The objective of the Project Communication and Dissemination Plan (PCDP) is to identify and organise the activities to be performed in order to communicate the benefits of the iCAREPLAST process for Plastic Recycling and Plastic Waste Management Industries, as well as for Chemical and Petrochemical Industries, and its potential impact over plastic waste mitigation and contribution towards circular economy; to disseminate results of the project, technological innovations achieved and their potential impact over other processes or industries; and to raise citizens awareness and policy makers implication.

The present document constitutes Deliverable D9.1 (PCDP, Project Communication and Dissemination Plan) in the framework of WP9 (Communication, dissemination and training), regarding Tasks 9.1 and 9.2 (Project Communication and Dissemination, respectively). This report summarizes the strategy of the consortium and concrete actions to disseminate the foreground generated by the project, pointing out responsibilities and activities. In the PCDP the type of messages, key audiences and channels are specified and detailed. The PCDP also includes a project visual identity and common layout for the communication materials (guaranteeing a professional and consistent look).

Dissemination is a horizontal activity and concentrates on disseminating the results of iCAREPLAST project itself to a wide range of existing and/or potential stakeholders. The practical experience and guidance that will emerge from the project work, will be of relevance to an array of stakeholders within EC and beyond and will be of value across different sectors and internationally. To fulfil these aims, the iCAREPLAST project will work through various carefully focused groups and committees through formal and informal mechanisms. Clear channels of communications between the project partners themselves as well as with a broader community will play a crucial role in the success of the project.

2. Project Communication and Dissemination Plan

2.1 Goal and Strategy

The final objective of the communication and dissemination activities is to promote the iCAREPLAST project and spread its results to the largest possible concerned audience (at the national, European and international level) in order to encourage the implementation and use of the project results (exploitation), always considering the confidentiality and IPR protection aspects.

In more detail, the goals of PCDP are:

- To raise public awareness about the project, its expected results and progress within defined target groups,
- To disseminate the fundamental knowledge, the methodologies and technologies developed during the project to enhance its use for an overall benefit of society,
- To exchange experience with projects and groups working in the field in order to join efforts, minimize duplication and maximize potential.
- To pave the way for a successful (commercial and non-commercial) exploitation of the project outcomes in key industrial segments,
- To contribute in the exploitation and use of the project results, in order to play a role in recycling of nowadays non-recycled mixed plastics across Europe

As previously mentioned, the objective of the dissemination strategy is to identify and organise properly the activities needed to achieve these objectives. The following sections describe the main pillars of the dissemination strategy: (i) subjects (what will be disseminated), (ii) target audience (who will most benefit from the project results and who would be interested in learning about the project findings), (iii) the timing (when dissemination will take place); (iv) tools and channels (how to reach the target audience); and (v) dissemination management and policy.

2.2 Subject of Communication/Dissemination

The following general subjects of dissemination have been identified up to now:

- iCAREPLAST project itself: goals, approach, pilot scale demonstration and expected benefits.
- The innovative plastic waste treatment with the possibility of application to other waste streams (such as biomass waste) contributing to reduce the impact of waste generation and boosting circular economy.
- The techniques, methodologies and software used for the technical development of the project in all the involved areas:
  - Pyrolysis of plastic mixtures and mixed plastic waste, including composites.
  - Membrane technologies applied to separation of complex hydrocarbon blends.
  - Oxycombustion with oxygen extracted from air using membrane technologies and CO_2 capture.
  - Artificial intelligence applied to industrial process modelling, optimisation and advanced control.

- Energy, material and resource efficiency, and holistic life cycle management applied to industrial process and recycling technologies.
- The achieved results and the validation of the iCAREPLAST approach in the pilot plant of URBASER.
- The transferability to other sectors such as the chemical and petrochemical.
- The sustainability indicators and Key Performance Indicators in the process industry

2.3 Target Audience

According to the goal of the iCAREPLAST project, the target audience for the dissemination activities has been divided in the following groups:

1. Policy makers. European and national policy makers are key to promote comprehensive plastic recycling, without excluding any plastic products, using superior technologies that yield high added-value products for a more competitive industry. Dissemination to this target audience is focused on transmitting project contribution towards a wide range of EC initiatives and objectives, like the European Strategy for Plastics in a Circular Economy, the Circular Economy Package, and the 2030 targets for CO_2 emission reduction agreed at the Paris Agreement. This audience will be achieved through participation in a workshop that will take place in Brussels in the CSIC delegation, by month 30, which will be centred in discussions about the policy impact of iCAREPLAST, especially the possibilities this process opens to further reinforce the restrictions about landfill and energy recovery of plastic waste. Two main channels will be used to contact European representatives and promote their involvement in this workshop: (i) *CSIC delegation in Brussels* and (ii) contact with *Fundación Comunidad Valenciana – Región Europea* (a letter of intent was signed giving their support to this project). Besides, participation in trade fairs and conferences in which specific forums are prepared for discussing policy issues and policy impact, will also allow to reach this audience (see Table 2,4).

2. Municipalities and local authorities. This target audience includes the local, municipal authorities and responsibles of the plastic waste management and treatment. These policy makers will represent one of the most important target audience as they are responsible of adopting advanced and new sustainable waste management systems as alternative to the most conventional collection and disposal strategies. Dissemination to this target audience will be focused on promoting the potential benefits of implementing iCAREPLAST system, which will reduce the volume of waste disposed in landfills (extending life-time of these facilities and diminishing environmental footprint) and will yield economic profit from materials that nowadays generate loss. These audiences will be achieved through participation in a second workshop, organised by month 36 in the Centre of Technological Innovation “Alfonso Maillo” (CiAM) where the demonstration plant is placed, in the city of Zaragoza (Spain). Direct involvement of local authorities from different European regions will be achieved through the European Regions Research and Innovation Network (ERRIN) which is involved in the project through the participation of Fundación Comunidad Valenciana – Región Europea, that is the Valencian representation in ERRIN. Besides, a communication campaign will be held from an early stage to promote involvement of key representatives in the aforementioned workshops.

3. Citizens. Involvement of citizens is of great importance to promote and facilitate recycling operations. However, the message that an important part of the plastic products they daily use and dispose cannot be efficiently recycled frequently discourage population to participate in this chain.

Dissemination to this target audience will be focused on transmitting the idea that iCAREPLAST will make possible to recycle their plastic waste keeping the actual commodities. To reach this target audience, promotional campaigns are planned as well as civic education activities directed manly to next generation of consumers, young citizens: materials and campaigns to present iCAREPLAST among school students, including visits to the training space of CTRUZ (https://www.zaragozarecicla.org/el-aula-de-formacion/visitas-al-aula-de-formacion/) and the Summer School of UPV (http://www.escoladestiu.upv.es/).

4. Current and next generation of employees of the SPIRE sectors. In order to promote the usage and exploitation of major innovation outcomes of the iCAREPLAST project, effective dissemination to their future users and designers is needed. Dissemination to these audiences will be conducted to increase knowledge and awareness of availability of these innovative technologies, as well as to communicate their main advantages over more traditional solutions. In this regard, learning resources and training materials will be developed ready to be easily integrated in existing curricula and modules for undergraduate level and lifelong learning programmes. Besides, as a demonstration of the usability of these materials, a course will be organised by UPV about advanced control and real time optimisation applied to process and productive industries. This course will be taught in month 40 at the Lifelong Learning Centre of the UPV, in Valencia (Spain), and will be open to engineers and other professionals of the SPIRE sectors with background in traditional control schemes. Finally, for selected contents, a MOOC will be designed to be launched at UPV[X] e-learning platform, reaching around 2,000 students per year.

5. Waste management companies. These are the main adopters of iCAREPLAST process, since they have access to the raw materials of this process and need solutions to valorise non-recyclable waste. The main dissemination message for this audience is centred in the advantages that the process can offer to them: economic profit from otherwise waste materials through a flexible process able to treat heterogeneous plastic waste, with low requirements of sorting and cleaning pre-treatments. Achieving this audience is crucial for a successful deployment of this technology, for this reason specific exploitation activities will be designed, like participation in trade fairs and congresses of importance for this sector (see Table 2,4) to reach it.

6. Recycling companies. This target audience includes all kind of plastic recyclers, either those that apply mechanical and chemical processes, as well as those devoted to recycle other wastes, like biomass waste. For these companies, iCAREPLAST will offer a new market opportunity by recycling materials that have not been of interest. Besides, for industries based on thermochemical cracking, chemical upgrading applied in iCAREPLAST process will offer them an alternative to traditional products (generally low value fuels) of lower value. Thus, dissemination to this audience will be focused on communicating the economic impact that iCAREPLAST will have for them by offering new raw materials and better products. This is also a key audience for the exploitation of iCAREPLAST technology, and so there will also be specific exploitation activities, like participation in trade fairs and congresses of importance for this sector, designed to reach them (see Table 2,4).

7. Petrochemical industry. iCAREPLAST will represent an alternative, more sustainable, source of raw materials for this industry,. This will offer them two main benefits: 1) extend their range of raw material sources, which will be of increasing importance as oil price increases, and 2) improve citizen perception over these industries. Dissemination to this audience will be centred in these two key aspects. Commercial dissemination activities, like participation in trade fairs and congresses of importance for this sector, will be the way to reach this audience.

8. Chemical industry. This industry is considered as the end-user of the resulting products of iCAREPLAST process. Dissemination to this audience will be focused on communicating that these products have the same specifications than the corresponding products obtained from more traditional processes, but with lower prices (which is achievable thanks to inexpensive raw materials and process efficiency) and environmental footprint, which also improves citizen perception of the companies. Moreover, this audience is key for the deployment of the iCAREPLAST technology in the European market. To reach this audience, specific exploitation activities like participation in trade fairs and congresses of importance for this sector will be performed (see Table 2,4).

9. Industries and services that generate great amount of heterogeneous plastic waste. Within facilities like supermarkets or shopping centres, the rate of plastic waste per capita generated is much higher than the generated by households. It is quite common in these sectors to collect plastic residues separated from other wastes, with the aim of compacting these bulky materials. But plastics present in these sectors are commonly non-recycled plastics, like plastic bags, plastic films, foam trays for fresh food packaging, or food to-go containers. On the other hand, industrial parks devoted to plastic-related industries, like the packaging industry or the toy industry, generate a number of processed residues, that cannot be directly reintroduced within the production process and so they generate loss. Dissemination to this audience will be focused in showing these sectors the benefits of introducing the iCAREPLAST process: it will allow them to obtain economic profit from a waste stream that is abundant in their sector and flexible enough to be able to process heterogeneous and changing plastic compositions and distributions. These audiences will be reached through promotion campaigns and participation in fairs (see Table 2,4).

2.4 Timing of Communication/Dissemination

Communication and dissemination activities are planned in accordance with the stage of development in the project. Although a number of communication actions will take place during the first half of the project, the most significant dissemination activities will take place as final research results are available. The dissemination will follow the **AIDA** model: **A**wareness to attract the attention of the target audience, **I**nterest of the target audience, **D**esire of the target audience to know more about the project, and **A**ction to lead the target audience towards get involved in the project and to promote its results to facilitate their exploitation. According to this principle, three phases are considered, summarized in Figure 2:

- **Initial phase** (**A**wareness) (month 1 – month 24): focused on increasing the visibility of the project and mobilising stakeholders and multipliers. At this phase, the main activities will be related to the implementation of the communication/dissemination tools (website, social networks, visual identity), preparation of dissemination material, general presentations of the iCAREPLAST project, the distribution of publishable abstracts and progress resumes.
- **Intermediate phase** (**I**nterest/**D**esire) (month 24 – month 36): focused on disseminating available initial data and evidences on scientific advances and technological results. Each partner will contribute at specific levels according to their expertise and business activities focused on informing and engaging to the target stakeholders when preliminary results become available. The project results and their future applications will be presented in journals and conferences to specialize

audience with the objective of stimulating the interaction with the concerned scientific and industrial community and determining the expectations of the stakeholders.

- **Final phase** (**A**ction) (month 36-48): focused on encouraging further exploitation of the iCAREPLAST outcomes (transfer to other industries, market of new products, replicability,...). At this phase, the results of the validation of the iCAREPLAST approach at TRL7 and the transferability analysis will be presented in journals, conferences and industrial events.

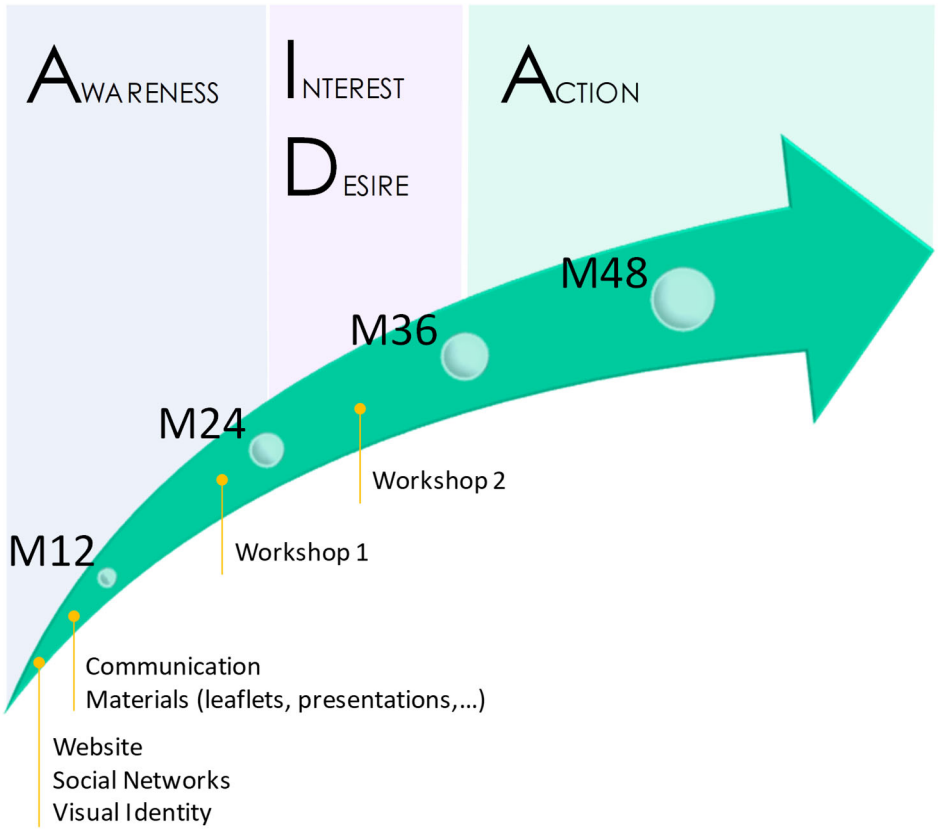

Figure 2. Timing of communication/dissemination activities planned for iCAREPLAST process.

2.5 Communication/Dissemination tools and channels

This section describes the main tools and channels that will be used/implemented by the iCAREPLAST partners for the communication of the project and its results. Some of the tools are of general purpose, while other ones are oriented to specific target groups.

iCAREPLAST Web page

The iCAREPLAST website (www.icareplast.eu) will be the main interface for communication to the public. It contains information on the iCAREPLAST goals, the partnership, the proposed activities and the foreseen/achieved results. It will also allow having access to the dissemination material and will host a blog to facilitate the interaction between partners and interested parties. In order to maximize its visibility, free or affordable methods to increase page ranking on search engines will be used. The web will include information of the project and the possibility to contact with project partners for interested stakeholders. Interested parties will have the possibility to register to receive updated information and networking opportunities. Electronic newsletters reporting on project events

and results will be published half-yearly on the website of the project reaching a wide community of potential stakeholders. Apart from the public area, a link to the internal platform created in Microsoft Office Teams will be set up. All confidential project documents have been and will keep uploaded in the platform to enable the exchange of information and reporting activities.

Social networks

In order to reach a broad target audience while establishing two-ways communication channels, the presence of the iCAREPLAST project in social media will be encouraged. A Twitter account (https://twitter.com/iCAREPLAST/) will be used as a direct communication instrument for reaching the general public and following Horizon 2020 communication and dissemination campaigns launched by the European Commission. The social media platforms the Commission and its agencies use will be employed to expand project audience, which will be accomplished by adding *#H2020* and tagging *@EU_H2020* to iCAREPLAST tweets. Additionally, in order to reflect the relation of the project with the SPIRE community, references to *@Spire2030* will be included whenever possible. On the other hand, a LinkedIn (https://www.linkedin.com/company/icareplast/) page will be used for reaching stakeholders and industry professionals. Official LinkedIn groups will be joined to raise awareness among the different project topics professionals and industry.

The website will have direct access to these social networks by clicking over the icons situated on a visible part of the website. In this way, it will be easy for every user to participate in this when the website is visited.

Visual Identity and dissemination material

The visual identity (logo and style) of the project will help external audience to easily identify iCAREPLAST and contribute to the project visibility by providing a clear identity from the very beginning of the project. All the communication and dissemination tools (project website, Twitter, LinkedIn page,...), materials (leaflets, presentations, posters,...) and deliverables will employ the visual identity developed for the project, guaranteeing a professional and consistent look.

Different communication materials will be produced along the project lifetime, for instance:

- **Project leaflets**, to provide our audiences with an attractive and written project overview and summary of the main project objectives and results. Two sets of leaflets are scheduled in the project: the first at the beginning of the project, focused on the objectives and vision of the project; and the second in the last year, highlighting the most promising results and validating the TRL7 demonstration achievement. Each set will include two different versions to reach two well distinguished target audiences: on the one hand, employees of SPIRE sectors, industrial, and scientific stakeholders will be tackled with a technical language and contents (detailed flow charts, data graphics, etc.). On the other hand, citizens and policy makers will be engaged with a plain language and a higher content of graphics and images. The latter will be translated to the different languages of the partners involved in the project. The brochures will be able to be distributed in printed form (handed out at conferences or other events) or in electronic version (PDF file) and will be also downloadable from the project website.
- **Short Project presentations**, describing the objectives and the main achieved results for presenting the project in different forums, such as internal presentations inside of the partners, presentations at schools/universities, visits with clients, etc. These presentations will be downloadable from the website and could be uploaded in SlideShare.

- **Project related videos**, to communicate the project's vision, objectives and results. These presentations will be accessible from the website and could be uploaded in YouTube.
- **Deliverables**, to show the performed activities and achieved results. Public deliverables will be accessible from the website, meanwhile confidential deliverables will be used to spread the knowledge inside the partners´ organizations.

European Commission and SPIRE Channels

In order to spread the project diffusion, iCAREPLAST partners will make use of the tools offered by the European Commission and SPIRE:

European Commission

- *CORDIS' "projects and results" service*: It provides: (i) "project information" based on the project's grant agreement, (ii) "report summaries" that come from the publishable summaries of periodic and final reports submitted by the project participants and approved by the project officer and (iii) "results in brief" written by CORDIS science editors based on each report summary,
- *CORDIS Wire*, to publish articles on the CORDIS News and Events service,
- *research*eu results magazine*, that features highlights from the most exciting EU-funded research and development projects.

A.SPIRE

A.SPIRE is the European Association which is committed to manage and implement the SPIRE Public-Private Partnership. It represents innovative process industries, 20% of the total European manufacturing sector, and more than 130 industrial and research process stakeholders from over a dozen countries spread throughout Europe. A.SPIRE offers different communication tools/channels for dissemination of project outputs such as:

- A dedicated page on the SPIRE website where information about all SPIRE projects and links to project-dedicated websites are published.
- A section of the SPIRE website, SPIRE Newsletter and Twitter account where project related announcements can be published.
- Annual projects brochure.
- SPIRE events (workshops, SPIRE projects' conferences, etc.).

Scientific and trade journals

Scientific publications are an effective way to disseminate high-level project information and to attract the interest of representatives of various target groups. The research partners will preferably publish the results in indexed peer-reviewed journals (Q1-Q2), which are addressed to academic staff as well as industry professionals. Companies within the consortium, and research partners when applicable, will present iCAREPLAST in trade journals of magazines of sectors and industries related to the project outcomes (recycling technologies, oxycombustion and CO_2 capture, membrane technology, control and LCA software and systems, etc.), always taking into account confidentiality and IPR protection aspects. Table 1 provides some examples of scientific and trade journals where the iCAREPLAST partners could submit papers during the project.

National and international conferences

National and international conferences are a good opportunity to share the results with experts in the field and therefore, to achieve an effective dissemination of the project. Table 2

provides some examples of national and international conferences where the project and its results could be presented.

Exhibitions, trade fairs and workshops

The partners will attend workshops and large events such as exhibitions and trade fairs to disseminate both the techniques developed during the project and the achieved results. Table 4 provides some examples of potential events.

Four workshops will be organised during the project lifetime, two with an industrial focus to meet potential clients (either in the public or private fields), investors, and researchers; and two with a political focus, to enhance social acceptance of project outcomes.

Workshops 1 and 2 will be conducted to present iCAREPLAST to key local, regional, national and international representatives. To both events the Environment and Waste Management Authorities will be invited, thanks to the collaboration of Fundación Comunidad Valenciana – Región Europea (http://www.ue.gva.es/es), an ERRIN member, allowing the involvement of regional authorities from different European countries, and a larger audience of policy makers and regional representatives. Workshop 1 will be organised by URB in Madrid by month 19 and Workshop 2 will take place in Brussels through the CSIC delegation by month 30.

Workshops 3 and 4 will involve end-users and key stakeholders, key players in the market and value-chain, including industrials from oil refining, fine chemistry and pharmacy, automotive industry, etc. Workshop 3 will also be organised by URB in Madrid by month 36, and Workshop 2 will be organized in London and managed by IC in month 42.

Announcement of the different workshops will be done through all the available channels (web, Twitter, LinkedIn, EU/SPIRE tools, related Platforms and Associations, etc.) to reach the maximum audience as possible.

Media and social media coverage

iCAREPLAST news in the media (newspapers, magazines, radio, ...) are expected to inform to general public about the project and reflect the impact of EU research and innovation funding on European industry and environment. Press relations will be coordinated by KERIONICS with required input from all partners (translation, distribution and press book).

Civic education activities

Civic education activities addressed to young citizens are planned: materials and campaigns will be developed to present iCAREPLAST among school and high school students, including visits to the training space of CTRUZ in Zaragoza (www.zaragozarecicla.org/el-aula-de-formacion/visitas-al-aula-de-formacion) or the Summer School of UPV in Valencia (www.escoladestiu.upv.es).

Learning resources and training activities

Innovation results derived from iCAREPLAST project will be disseminated among the current and next generations of professionals of the SPIRE sector, in order to increase their awareness of availability and advantages of these innovative technologies, thus promoting their deployment and exploitation.

Other activities

The consortium will be actively seeking contact with Plastic Recycling and Plastic Waste Management Industries. Besides activating the value of process introduction between the different target audiences, networking will enable to create an innovative and promising

environment where the project outcomes will be disseminated through shared events, communication materials, press relations, etc. Presentations of the project at the universities will be carried out mainly by the academic partners, in order to promote the research activities performed in the project.

3. Dissemination management

3.1 Distribution of responsibilities

According to the Grant Agreement (Article 29.1) "Unless it goes against their legitimate interests, each beneficiary must - as soon as possible - 'disseminate' its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium)". Therefore, all possible opportunities must be tackled by individual partners or on collective basis, through joint appearance by more than one partner, to spread the iCAREPLAST project among technicians and general public.

KERIONICS will act as Communication and Dissemination Manager of the project, coordinating and supervising all the dissemination activities. On the other hand, all partners of the consortium will contribute to the dissemination tasks, according to their role and using all available tools and channels (for instance participating and giving presentations at conferences, workshops, publishing papers, networking, attending to fairs and showcases where technical achievements and prototypes can be shown to stakeholders, etc.).

3.2 Dissemination policy and rules

As pointed out the grant agreement, iCAREPLAST dissemination activities are closely linked with the intellectual property rights protection and confidentiality (articles 23a and 36, respectively). It is necessary an excellent understanding between academia and industrial partners in order to achieve a successful exploitation of iCAREPLAST outputs. For this purpose, the consortium agreement, in article 29.1, states the following basic rules for dissemination activities:

- A beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of — unless agreed otherwise — at least 45 days, together with sufficient information on the results it will disseminate.
- Any other beneficiary may object within — unless agreed otherwise — 30 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.

The EU may assume ownership of results to protect them, if a beneficiary intends — up to four years after the period set out in Article 3 of the grant agreement— to disseminate its results without protecting them, except in any of the following cases: (a) the lack of protection is because protecting the results is not possible, reasonable or justified (given the circumstances), (b) the lack of protection is because there is a lack of potential for commercial or industrial exploitation, or (c) the beneficiary intends to transfer the results to another beneficiary or third party established in an EU Member State or associated country, which will protect them. Before the results are disseminated and unless any of the cases above under Points (a), (b) or (c) applies, the beneficiary must formally notify the Commission and at the same time inform it of any reasons for refusing consent. The beneficiary may refuse consent only if it can show that its legitimate interests would suffer significant harm. If the Commission decides to assume ownership, it will formally notify the beneficiary concerned within 45 days of receiving notification. No dissemination relating to these results may take place before the end of this period or, if the Commission takes a positive decision, until it has taken the necessary steps to protect the results.

Each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results.

They will publish their results based on the green model (http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hioa-pilot-guide_en.pdf). In particular, it must:

(a) deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications, as soon as possible and at the latest on publication. Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) ensure open access to the deposited publication — via the repository — at the latest: (i) on publication, if an electronic version is available for free via the publisher, or (ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include the following:

- the terms “European Union (EU)” and “Horizon 2020”,

- the name of the action, acronym and grant number,

- the publication date, and length of embargo period if applicable

- a persistent identifier.

According to Article 29.4, unless the Commission requests or agrees otherwise or unless it is impossible, any dissemination of results (in any form, including electronic) must:

(a) display the EU emblem

(b) include the following text:

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 820770”.

According to the article 29.5, any dissemination of results must indicate that it reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains:

“This [insert type of activity] reflects only the author’s views and the Commission is not responsible for any use that may be made of the information contained therein”

Finally, in addition to the acknowledgement to the EU, all the dissemination material will include:

- the acronym of the project,
- the logo of the project,
- the website URL of the project.

4. Work plan

This section describes the main dissemination and communication activities planned for the project. Some of these activities have already been carried out while most of them are in progress.

4.1 Design of iCAREPLAST logo and visual identity

The development of a visual identity and a project logo ensures project outputs are consistent and easily recognisable. A brainstorming took place to find an appropriate concept for the project logo. For this, key aspects of the project were considered. The core elements represented in the logo shown in Figure 3 are: the cyclic arrows, related to recycling and revalorisation, forming a circle (i.e. delocalised electrons) inside the ring of an alkylaromatic structure, one of the main commodity chemical product that can be obtained in the process, that turns into a green plug, which indicates that iCAREPLAST solution is accomplished in an energy efficient context. A second version, shown in Figure 4, incorporates the tittle of the project. A squared version, Figure 5, will be employed in space limited context, such as Twitter profile picture.

Figure 3. iCAREPLAST logo.

Figure 4. iCAREPLAST logo including the tittle of the project.

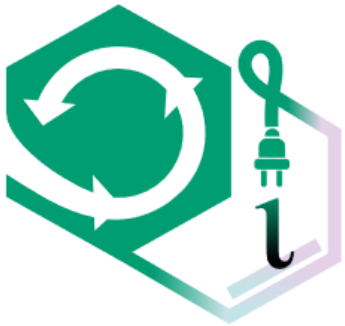

Figure 5. iCAREPLAST logo squared version.

The project logo will be used in the following cases:

- all documents developed within the framework of the iCAREPLAST project and documents to be submitted to the EC (e.g. deliverables),
- PowerPoint presentations to be used for communication and dissemination activities to be carried out by each participant within the framework of the project,
- iCAREPLAST website and websites of the participants with a link to the project website and social profiles.

It is important to follow and respect the project visual identity in order to maximize the impact on the audience. For this purpose, templates with iCAREPLAST brand have been prepared for partners use:

- A4 Microsoft Word template (and other open formats) using the header and footer areas of the document (Figure 6),

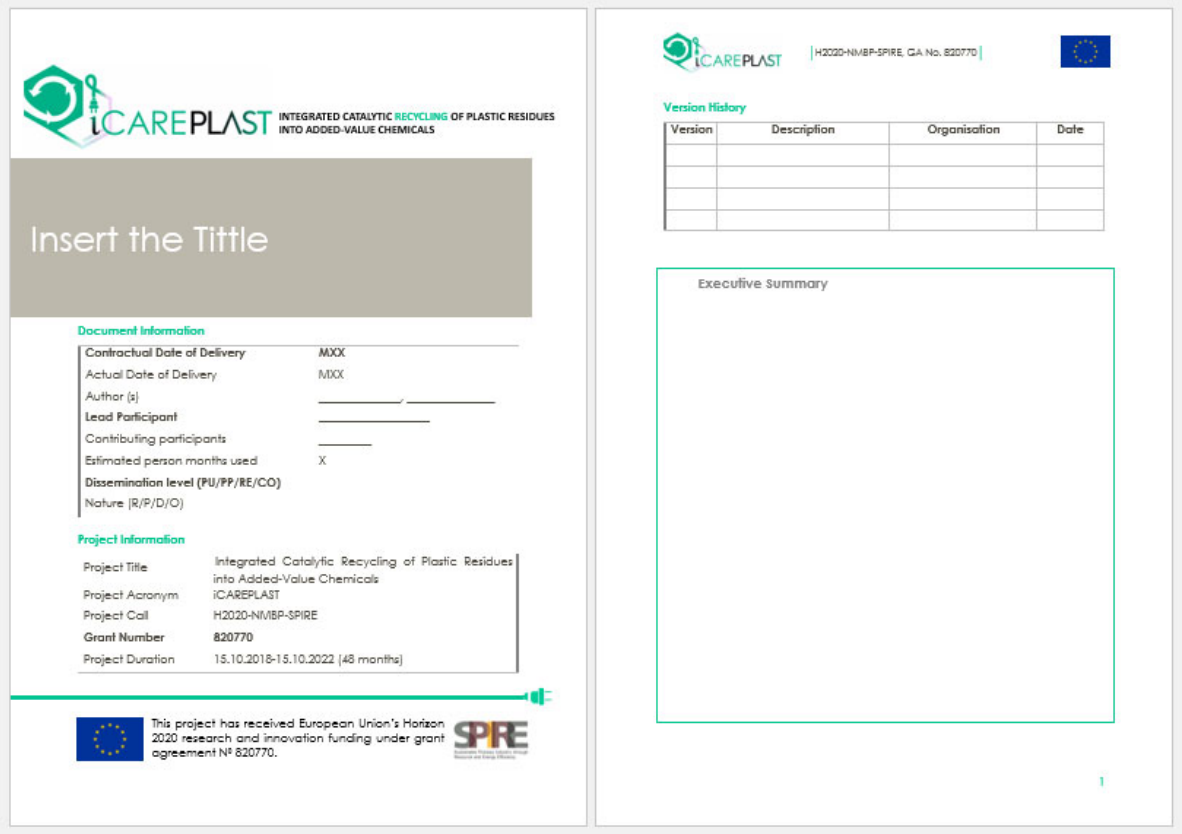

Figure 6. Template for internal reports and deliverables.

- A Power Point presentation template to be used by all project partners containing iCAREPLAST logo, Horizon 2020 funding statement and EU flag, indication of WP, partner organization, place and time of the event (Figure 7).

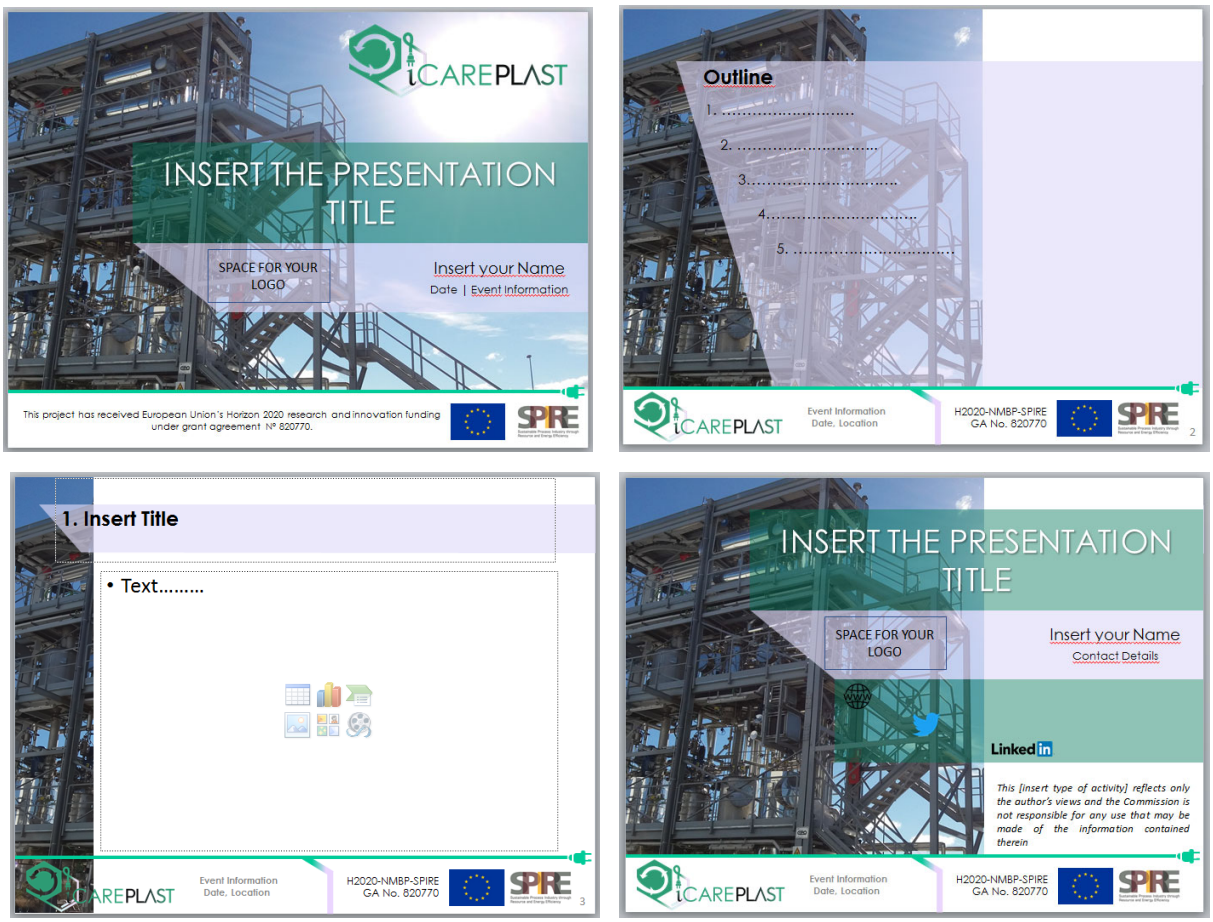

Figure 7. Template for project presentations.

4.2 Implementation and update of the iCAREPLAST Website

The iCAREPLAST website www.icareplast.eu is available from the month 3 of the project. The website will be actively maintained during the project period by iPoint. The aim of the website is to increase the recognition of the iCAREPLAST project to the public. It is divided into two sections:

- The *public area* of the project website provides all relevant project information for the public at large, including: background information of the project, public documents with the possibility of downloads (brochures, working papers, presentations, reports, etc.), news and events (workshops, seminars, conferences etc.), a newsletter each 6 months, and information about the partners (including links to their websites). Different sections have been and will be included in the public area, with a clear dissemination orientation:
  - Home: provide an overview of the project.
  - Project details: provide a description of project objectives and work packages.
  - Consortium: present the involved partners.

- Documents: provide access to public documents of the project (public deliverables, open access papers, etc.) and dissemination material (flyers, newsletters, presentations, videos,…).
- News: provide general information (both internal and external) related to the project.
- Events: provide information about events organised/attended by the consortium (meetings and dissemination events).
- Blog: it is an excellent tool to share information and facilitate the interaction with stakeholders. Only iCAREPLAST partners will have access to upload posts in the blog, and the discussion with the external community will be activated in a specific debate group that will be created in LinkedIn.

- The *private section* includes a link to the platform created in Microsoft Office Teams and is available only for the project partners serving as document repository, exchange and internal communication tool.

The iCAREPLAST webpage will be connected to H2020 and SPIRE webpages and the published content will be aligned and linked with iCAREPLAST Twitter and LinkedIn accounts. Google Analytics utilities will be employed to monitor the website access: number of visitors, duration of the visits, geographical area, pages of the website more visited, etc.

The website will be updated regularly by the webmaster upon with inputs of partners. In relation to the blog, it will be updated at least monthly with information about the project (deliverables, main results, etc.) or information about the technologies related to the iCAREPLAST goals/activities (new trends, tools, products, etc).

4.3 iCAREPLAST at social networks

Both the Twitter and LinkedIn accounts for the iCAREPLAST project have been already created and will be used to publish announcement and relevant information of the project. Official Twitter/LinkedIn accounts and groups will be joined to raise awareness among interested stakeholders. Different sectors will be joined according to iCAREPLAST project topics: plastic and waste management, membrane technologies, artificial intelligence applied to industry, energy, material and resource efficiency, etc.

The Dissemination Manager from KER (Isaac Herraiz) and an assigned person (Laura Almar) from the coordination team (CSIC) will be responsible to oversee project's social media activities. They will set up and manage social media accounts, centralise the information to be shared and communicate with the audience, including replying to messages. Social media communications will be accomplished by following "H2020 Guidance — Social media guide for EU funded R&I projects: v1.0 – 06.04.2018". Social networks will be day-to-day revised, joining groups and profiles under the project topics, and re-tweeting/quote-tweeting relevant information from EC and/or from other SPIRE projects. Own posts for the general public and media will be published at the exact moment they are taking place, for example: project breakthrough, (genuine) milestone or results achieved, project featured at a conference or event, presentation at an exhibition fair stand or publication of a press release. In addition, each two months a different partner will be the responsible to create a post in the website blog related to a hot topic in its field, that will be aligned with iCAREPLAST social networks. An iCAREPLAST LinkedIn debate group will be created and linked to the blog to discuss about the different

post with external community, and share information on the topics related to the project. This group will also be used as discussion platform for the post of the website blog.

4.4 Preparation of dissemination material

A first leaflet of the iCAREPLAST project will be prepared at the beginning of the project. It presents the goals, the approach, the consortium and the main (expected) benefits from a technical point of view. A second flyer will be produced at month 6 to show project benefits to citizens, policy makers and local and municipal authorities, in a way easily understandable by the target end users. Both leaflets will be printed (about 1,500 units/each) and an electronic version will be available in the website. Distinguishing both audiences, general presentations of the project will be produced and uploaded to the website. It will describe the motivation and objectives, the approach, the pilot cases, the potential impact and the consortium of the project. New presentations will be produced during the first period to highlight the achieved results.

Finally, a newsletter will be produced each six months highlighting project results and milestones. It will be uploaded to the website.

4.5 Publications in scientific journals

The partners will publish the project activities and results in different scientific journals. Table 1 shows the tentative journal that have already been identified for publication in the different topics.

Table 1. Tentative scientific journal for publication.

Topic	Responsible Partner	Journal
Plastic and Recycling Technologies	URB	International Journal of Plastics Technology
Pyrolysis	LNEG CSIC IC	Journal of analytical and applied pyrolysis
Membrane Technologies	UT KER CSIC	Journal of Membrane Science
Process Modelling, Control and Automation	UPV	Computers & Chemical Engineering European Journal of Control Journal of Process Control
Manufacturing Engineering	TUBS	Manufacturing Science and Technology.
Target Audience		Current and next generation of employees of the SPIRE sectors (4), Recycling companies (6), Petrochemical industry (7), Chemical industry (8)

4.6 Presentations at national and international scientific conferences

The partners will present the project activities and results at national and international conferences. Table 2 shows the presentations that have already been planned up to now.

Table 2. Scientific conferences identified for presentation.

Topic	Responsible Partner	Event/Conferece
Plastic and Waste Management	URB	↳International Solid Waste Association World Congress www.iswa.org ↳Congreso Nacional del Medio Ambiente www.conama.org
Pyrolysis	LNEG CSIC IC	↳International symposium on Analytical and Applied Pyrolysis.
Membrane Technologies	UT KER CSIC	↳ Euromembrane http://www.emsoc.eu/ems/site/events/list_events.php ↳ International Congress on Membranes & Membrane Processes http://www.icom2020.co.uk/ ↳ Aachener Membran Kolloquium ↳ International Conference on Inorganic Membranes ↳International Conferences on Membranes and Membrane Processes of the North American Membrane Society http://www.membranes.org/nams_meetings.htm
Process Control and Automation	UPV	↳ Advanced Control of Chemical Processes ↳ World Congress of the International Federation of Automatic Control ↳ European Control Conference. www.ifac-control.org/events/
Life Cycle Management, Circular Economy and Resource Efficiency	IPT TUBS	↳ ACLCA Life Cycle Assessment Conference aclca.org/ ↳ Life Cycle Management Conference lcm-conferences.org/ ↳ Ressourceneffizienz- und Kreislaufwirtschaft kongress Baden-Württemberg www.ressourceneffizienzkongress.de ↳ Going Green – CARE INNOVATION www.care-electronics.net/ ↳ CIRP International Academy for Production Engineering Meetings www.cirp.net/ ↳ Electronics Goes Green electronicsgoesgreen.org ↳ Automotive Industry Action Group Corporate Responsibility Summit. www.aiag.org
Biomass Recycling and Bioeconomy	BBTX	↳ Bio World Congress. https://www.bio.org/events/bio-world-congress
Target Audience		Current and next generation of employees of the SPIRE sectors (4), Waste management companies (5), Recycling companies (6), Petrochemical industry (7), Chemical industry (8)

4.7 Organisation of Workshops and participation at exhibitions, fairs and workshops

As it has been already commented, during the project it will be organised four different workshops, two with an industrial focus and two addressed for authorities. Table 3 compile the description of the different workshop, detailing the responsible partner, date and location. Additionally, the partners will attend different events such as workshops, exhibitions and fairs, as depicted in Table 4.

Table 3. Description of the different workshops to be organised during the project.

WORKSHOP Goal	Target Audience*	Potential specific actions/ events and details
Presentation to key local, regional, national and international representatives	1,2	Workshop 1 Location: Madrid; Date: Month 19; Organiser: URB Workshop 2 Location: Brussels; Date: Month 30; Organiser: CSIC **Description:** In both events, regional authorities from different European countries, a large audience of policy makers, regional representatives and Environment and Waste Management Authorities will be reached with the collaboration of Fundación Comunidad Valenciana – Región Europea, member of ERRIN.
Presentation to key stakeholders	2,5-8	Workshop 3 Location: Madrid; Date: Month 36; Organiser: URB Workshop 4 Location: London; Date: Month 42; Organiser: IC **Description:** Two industrial Workshops will be conducted for involvement of end-users and key stakeholders, with key players in the market and the value-chain, including industrials from oil refining, fine chemistry and pharmacy, automotive industry, etc.

- According to the classification made in 2.3

Table 4. Events to attend during the project.

Topic	Responsible Partner	Events
Plastic Recycling	URB	↳ Plastics Recycling Show Europe (Netherlands) www.prseventeurope.com
Process Industry	UPV, UT, KER	↳ ACHEMA (Germany): www.achema.de ↳ CEVISAMA (Spain): cevisama.feriavalencia.com ↳ HANNOVER MESSE International industrial show: www.hannovermesse.de ↳ SAMPE SEATTLE www.sampeseattle.org ↳ North America Industrial Gas Conference: www.gasworldconferences.com ↳ ASM INTERNATIONAL HEAT TREAT: https://www.asminternational.org/web/heat-treat-2019
Biomass Recycling and Bioeconomy	BBTX	↳ European Forum for Industrial Biotechnology and Bioeconomy (France) efibforum.com ↳ Advanced Bioeconomy Leadership Conference on Development and Deployment (USA) biofuelsdigest.com/ablc/ ↳ European Biomass Conference and Exhibition (Denmark). www.eubce.com
Target Audience		Policy makers (1), Municipalities and local authorities (2), Current and next generation of employees of the SPIRE sectors (4), Waste management companies (5), Recycling companies (6), Petrochemical industry (7), Chemical industry (8)

4.8 Press Media

Publication of periodic press releases (coinciding with major project meetings and events) to local, national and international media, contributions to specialised magazines (e.g. Recycling International Magazine, Resource Recycling Magazine, BioFuels Digest), social media strategy (i.e. Facebook, YouTube, Twitter, LinkedIn).

4.9 Learning Resources and Training Activities

Academic partners will develop learning resources addressing the following topics:

- Innovative plastic waste treatment and application to other waste streams (CSIC);
- Pyrolysis of plastic mixtures and mixed plastic waste, including composites (IC);
- Membrane technologies applied to separation of complex hydrocarbon blends (UT)
- Oxycombustion with oxygen extracted from air using membrane technologies and CO_2 capture (CSIC)
- Artificial intelligence applied to industrial process modelling, optimisation and advanced control (UPV)
- Energy, material and resource efficiency, and holistic life cycle management applied to industrial process and recycling technologies (TUBS).

These materials will be presented electronically in the form of booklets or dossiers and, when applicable also software pieces will be provided. They will be licensed under CC-BY (Creative Commons Attribution) and placed and advertised in the website, available for open access and download. These materials will be flexible to be integrated easily in existing curricula and modules for graduate and undergraduate level and lifelong learning programmes.

As demonstration of the usability of these materials, a course will be organised by UPV about advanced control and real time optimisation applied to process and productive industries. This course will be taught around month 40 at the Lifelong Learning Centre of the UPV, in Valencia (Spain), and will be open to engineers and other professionals of the SPIRE sectors with background in traditional control schemes.

Besides, methodologies and results, as well as the materials created, will be implemented in Master lectures conducted by academic partners: lectures related to Life Cycle Engineering, Life Cycle Management and Energy, Materials and Resource Efficiency in Production Engineering (TUBS), Advanced Control in Industrial Processes (UPV), Catalysis and Sustainable Chemistry and Chemical Processes (CSIC).

For the most relevant topics among the selected materials a MOOC will be designed to be launched at UPValencia[X], a MOOC platform driven by UPV which is integrated within edX platform.

4.10 Other activities

Finally, the partners will conduct internal presentations at their organisations to show the goals/progress of the project and contribute to the project dissemination with communications in the media and in their day-to-day during visits with clients or meetings with other parties.