SCARABEUS

A H2020 Research and Innovation Action project, Grant Agreement number 814985

D7.7 – Second Dissemination and Communication Plan

This Deliverable 7.1 report is part of a project than has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 814985

WP 7: Dissemination, Communication and Exploitation

Task 7.2: Dissemination

Version: 01, Thursday, 22 October 2020

Technical References

Deliverable No.	D7.7
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Work Package	WP7
Task	T7.2
Lead beneficiary	University of Seville
Contributing beneficiary(ies)	All
Due date of deliverable	September 2020 (M18)
Actual submission date	October 2020 (M19)

[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

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History of Changes

Version	Date	Changes
0	12/10/2020	Version created by Tomás Sánchez Lencero
1	14/10/2020	Comments made by Giampaolo Manzolini and implemented by David Sánchez
2	21/10/2020	Final version approved by Giampaolo Manzolini
3		
4		

Disclaimer

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Executive Summary

This document provides the updated Dissemination & Communication Plan of SCARABEUS at M18 of the project. To this end, the document is structured in a number of Sections.

Sections 1 to 3 introduces the objectives of the project, to which dissemination and communications activities are inherently linked, and the scope of this deliverable report. Also, for the sake of clarity, precise definitions of the terms Dissemination, Communication and Exploitation are provided, as defined in the documents issued by the European Commission. Section 4 complements the foregoing information with the Contractual Obligations of the partners set forth in the Grant Agreement. Additional references to this information are given in Section 5.

Section 6 outlines the governance and managerial structure of the project, including the contact details of the key consortium members involved.

Section 7 provides the details of the Dissemination and Communication Plan of SCARABEUS. This includes the overall strategy and key stakeholders targeted by the consortium as well as the channels that will be used to reach out to them. Specific dissemination activities are also listed, including the commitments of each consortium member put forward in the Grant Agreement. Section 7 also includes the metrics that are being used to assess how effectively the Dissemination and Communication plan is implemented, and a schedule (calendar) of dissemination and communications activities to be developed by the consortium in the first eighteen months of the project. In this regard, it is worth noting that the current success of the project, according to the metrics reported in the Grant Agreement, is *moderate* (1.2 in a scale from 0 to 3) in spite of the current COVID-19 pandemic. Indeed, different external (i.e., not arranged by the consortium) dissemination activities like conferences and workshops have been cancelled due to the restricted mobility of researchers and the same has happened to SCARABEUS-specific activities. This has forced mandatory changes to the original Dissemination & Communication Plan (D7.1) like a transition from conference publications towards journal papers, or a conversion of face-to-face seminars, workshops and general dissemination events into virtual events of the same nature.

Nevertheless, in spite of the quick actions brought about by the new situation, the consortium has already accomplished significant D&C milestones. For instance, at the time of writing this report, the consortium has already achieved 50% of the overall target regarding conference and journal papers and 100% of the targeted PhD and MSc theses are already under development. Moreover, the first promotional video has had more than a thousand views and the same applies to some posts on the SCARABEUS LinkedIn account.

Finally, Section 8 provides a quick look at the content of the Dissemination Logbook.

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Nomenclature/Acronyms

ABE	Abengoa
BoS	Board of Stakeholders
CapEx	Capital Costs
CITY	City, University of London
CSP	Concentrated Solar Power
DCP	Dissemination and Communication Plan
DM	Dissemination Manager
ESTELA	European Solar Thermal Electricity Association
EXY	Exergy
GOA	Gold Open Access
IMB	Innovation Management Board
IPR	Intellectual Property Right
KAIST	Korea Advance Institute of Technology
KEL	Kelvion
LCoE	Levelized Cost of Electricty
NREL	National Renewable Energy Laboratory
OpEx	Operating Costs
PC	Project Coordinator
PMT	Project Management Team
POLIMI	Politecnico di Milano
PP	Restricted to other programme participants (including the Commission Services)
PU	Public
QUA	Quantis
QUT	Queensland University of Technology
RE	Restricted to a group specified by the consortium (including the Commission Services)
RES	Renewable Energies
R&I	Research and Innovation
RM	Risk Manager
TUW	Vienna University of Technology
UNIBS	University of Brescia
USE	University of Seville
WP	Work Package
WPL	Work Package Leader

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Introduction

1 Project Objectives

SCARABEUS is framed in call H2020-LC-SC3-2018-RES (topic LC-SC3RES-11-2018) of the Horizon 2020 programme, whose specific challenge and expected impact are as follows:

- Specific challenge: Achieving or maintaining global leadership in renewable energy technology requires that the innovative solutions are also affordable. Therefore, cost reductions remain a crucial necessity for existing or new technologies. This specific challenge is in line with the sectorial cost reduction targets stated in the respective Declarations of Intent of the SET Plan, where applicable.
- Expected impact: The proposed solution will reduce the CAPEX and/or OPEX of energy generation from any of the mentioned renewable sources making it comparable to generation costs from competing fossil fuel sources.

With these features of the work programme in mind, the project is aimed at demonstrating that the application of supercritical CO_2 blends to CSP plants has the potential to reduce Capital Cost (CapEx) by 30% and Operating Cost (OpEx) by 35% with respect to state-of-the-art steam cycles, thus exceeding the reduction achievable with standard supercritical CO_2 technology. Such accomplishment would ultimately translate into a LCoE lower than 96 €/MWh, which is 30% lower than currently possible, as depicted in Figure 1. Also, a unique feature of the project is that it will demonstrate the innovative fluid and newly developed heat-exchangers at a relevant scale (300 kWth), for 300 h and in a CSP-like operating environment.

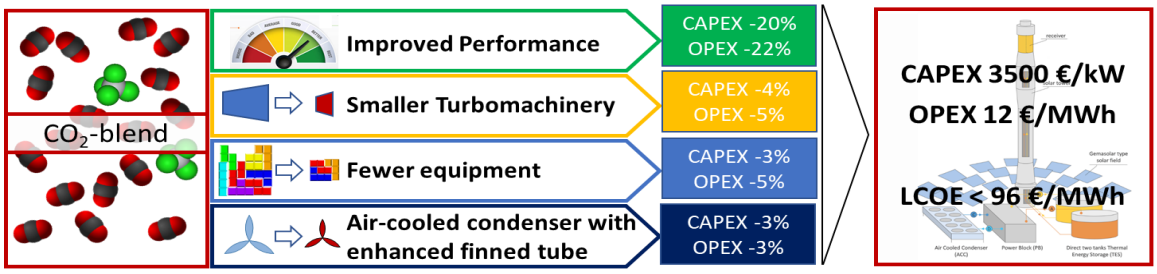

Figure 1 – Breakdown of cost reduction potential of SCARABEUS

The stepwise approach to this large cost reduction is illustrated in Figure 2 where the CapEx and OpEx reduction from state-of-the-art CSP plants based on steam turbines to the proposed SCARABEUS is shown.

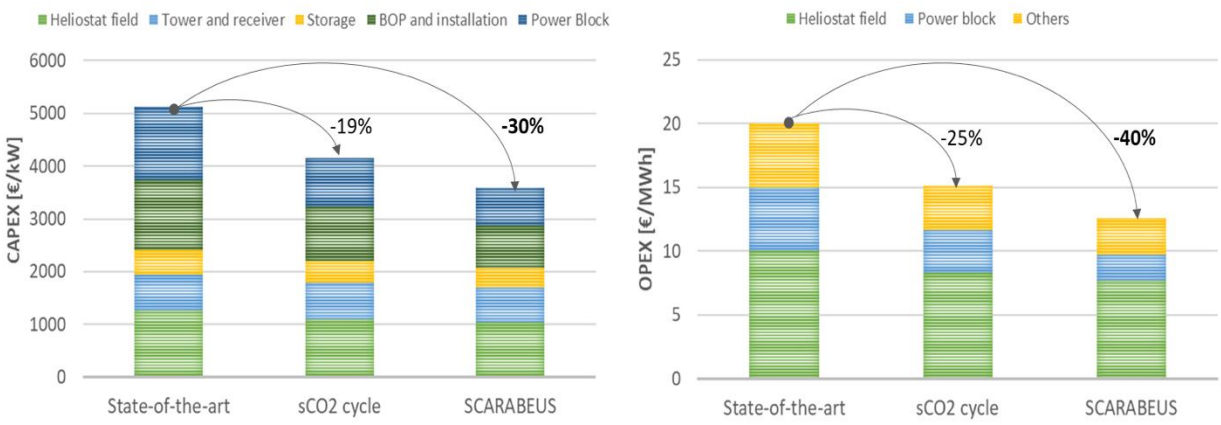

Figure 2 – Comparison of the cost reduction potential of SCARABEUS and standard sCO_2

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2 Scope of the Document

This Deliverable Report D7.7 presents the first update (second version) of the Dissemination and Communication Plan whose scope is defined in Annex 1 of the Grant Agreement: *The Dissemination and Communication Plan will contain the information regarding overall dissemination activity: type of activities, schedule, who's who information (roles and responsibilities) of both the past and future dissemination activities. This is devised as a roadmap to any information produced by the project.* Being the second version of the DCP, deliverable D7.7 presents the dissemination and communication activities that have been carried out in the first eighteen months of the project. The document also provides information about the activities planned for 2021, between M18 and M30. Activities scheduled for dates later than M30 will be reported in the Final Dissemination and Communication Plan (D7.8 due in M30).

3 Definitions

Dissemination and communication are key elements of any H2020 project. They have the purpose to increase the awareness of EU-funded R&I activities and project results in the understanding that this will directly and indirectly provide many benefits; for example, by helping to secure or increase research and innovation funding, establish new research or business contacts, and stimulate further research[1].

The terms Dissemination and Communication do imply a certain amount of overlap and the boundaries between the two might be unclear to individuals for whom the H2020 programme is not familiar. This is why the European Commission regularly issues documents aimed at facilitating the effective communication and dissemination activities in research and innovation actions; for instance, through the European IPR Helpdesk project.

The differences between Dissemination, Communication and Exploitation are shown in Figure 3. Whilst the latter is clearly dealing with paving the way to market deployment of the technology developed in the project, the first two are more similar. Indeed, dissemination and communication are related to disclosing information about the project. Nevertheless, despite this similarity, the focus of each activity is different:

- Communication is general and informative in a twofold sense: i) it is aimed at a much wider audience, and ii) it aims to inform about and promote the project and its results.
- Dissemination is technical in nature since it must provide the interested stakeholders with the necessary information to make use of the project results. Therefore, accessibility and usability of results are key to any dissemination activity.

A useful example of the difference and interlink between communication and dissemination is extracted from the "*Making the Most Out of Your H2020 Project*" report:

> *A magazine article highlighting the project's work and achievements that is written for communication purposes could end up in the hands of potential stakeholders outside the project and trigger interest in using some of the results. The initial communication tool has now become a dissemination tool as well. This illustrates how certain tools and activities can oscillate between communication and dissemination, depending on the target group and content.*

[1] The European IPR Helpdesk, 2015, *Making the Most of Your H2020 Project*, H2020 programme, Grant Agreement No. 641474.

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	Communication	Dissemination	Exploitation
Definition	"Communication on projects is a strategically planned process that starts at the outset of the action and continues throughout its entire lifetime, aimed at promoting the action and its results. It requires strategic and targeted measures for communicating about (i) the action and (ii) its results to a multitude of audiences, including the media and the public and possibly engaging in a two-way exchange." (Source: EC Research & Innovation Participant Portal Glossary/Reference Terms)	"The public disclosure of the results by any appropriate means (other than resulting from protecting or exploiting the results), including by scientific publications in any medium." (Source: EC Research & Innovation Participant Portal Glossary/Reference Terms)	"The utilisation of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities." (Source: EC Research & Innovation Participant Portal Glossary/Reference Terms)
Objective	**Reach out to society and show the impact and benefits** of EU-funded R&I activities, e.g. by addressing and providing possible solutions to fundamental societal challenges.	**Transfer knowledge & results** with the aim to enable others to use and take up results, thus maximising the impact of EU-funded research.	**Effectively use project results** through scientific, economic, political or societal exploitation routes aiming to turn R&I actions into concrete value and impact for society.
Focus	**Inform** about and **promote** the project AND its results/success.	**Describe** and **ensure results available** for others to **USE** ➡ focus on results only!	**Make concrete use** of research results (not restricted to commercial use.)
Target Audience	Multiple audiences beyond the project's own community incl. media and the broad public.	Audiences that may take an interest in the potential **USE** of the results (e.g. scientific community, industrial partner, policymakers).	People/organisations including project partners themselves that make concrete use of the project results, as well as user groups outside the project.
Formal Obligations	• Rules for Participants • RIA & IA Proposal Template 2.2 b) • Grant Agreement Art. 38.1	• Rules for Participants • RIA & IA Proposal emplate 2.2 a) • Grant Agreement Art. 29	• Rules for Participants • RIA & IA Proposal Template 1.1, 2.1, 2.2 a) • Grant Agreement Art. 28

Figure 3 – Communication, Dissemination, Exploitation. Definitions[1].

4 Contractual Obligations of the Partners

The aforecited report "*Making the Most of Your Horizon 2020 Project*" issued by the European IPR Helpdesk project provides a summary of the contractual obligations of the partners in regards to dissemination and communications activities. Indeed, this report states that "a number of obligations related to communication, dissemination and exploitation are formally outlined in different Horizon 2020 documents; such as the Rules of Participation, the proposal template for Research & Innovation Actions (RIA)/Innovation Actions (IA), or the respective Model Grant Agreement". These obligations can thus be found in the Grant Agreement of SCARABEUS:

- Promote the action and its results, by providing targeted information to multiple audiences (including the media and the public), in a strategic and effective manner and possibly engaging in a two-way exchange (Article 38 of the Model Grant Agreement).

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- Disseminate results — as soon as possible — through appropriate means, including in scientific publications (Article 29 of the Model Grant Agreement).
- Ensure open access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results (Article 29 of the Model Grant Agreement).
- Take measures aiming to ensure 'exploitation' of the results — up to four years after the end of the project – by using them in further research activities; developing, creating or marketing a product or process; creating and providing a service, or using them in standardisation activities (Article 28 of the Model Grant Agreement).
- Acknowledge EU funding in all communication, dissemination and exploitation activities (including IPR protection and standards) as well as on all equipment, infrastructure and major results financed by the action by using the wording and criteria specified in the Grant Agreement (Articles 27, 28, 29, 38).

5 Additional References

- Horizon 2020 Participant Portal Inline Manual "Communicating Your Project".
- Guide: Communicating EU Research & Innovation.
- Guide: The EU Guide to Science Communication.
- Webinar: 60-minute Communication Workout.
- H2020 Programme: Guidance - Social media guide for EU funded R&I projects.

Overview of Management Structure and Governance

6 Management Structure

The management of SCARABEUS is devised around a number of features ensuring the overall success of the proposal. Internally (within the consortium), this means that the management structure must ensure the autonomy and effectiveness of each partner, the timely exchange of information between them, especially when working in different Work Packages, the clear definition of the responsibilities and scope of the tasks assigned and others. Externally, the management structure must make sure that the outreach of the project is maximized. This also implies aspects such as raising public awareness of the problems that SCARABEUS is attempting to resolve, making the project known to the scientific community and the administration, engaging the general public in bridging the usual gap between the industry and R&D communities and society at large…

To accomplish all these objectives, the consortium has developed the management structure presented in Figure 4.

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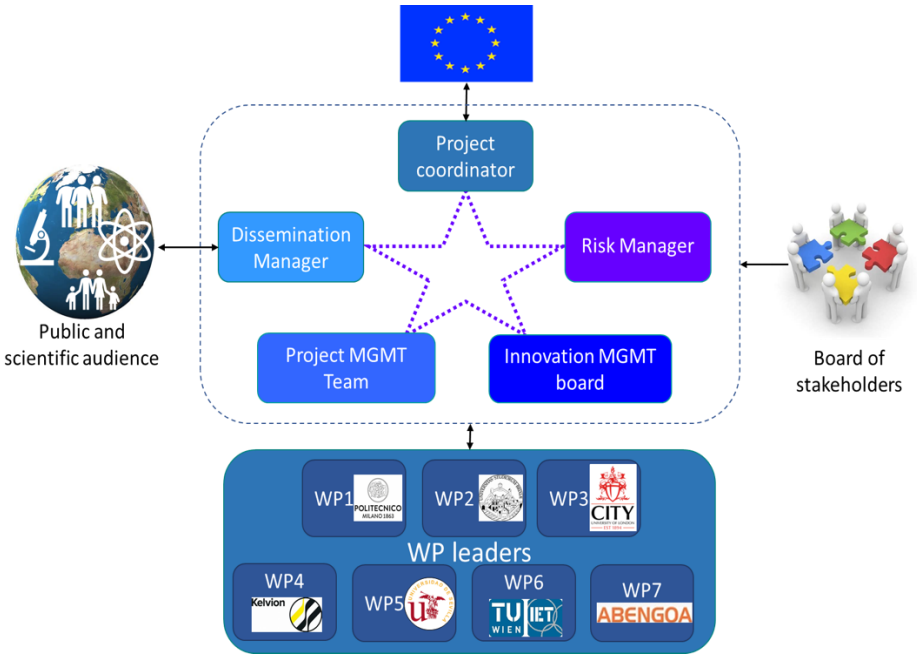

Figure 4 – Management structure of SCARABEUS

The management structure is comprised of the following key individuals and groups:

- The Project Coordinator (Prof. Giampaolo Manzolini, Politecnico di Milano) acts as the link between the Consortium and the European Commission in all matters concerning the project directly. The PC is responsible for the overall management of the project and, as such, he coordinates the deliverables and milestones and reports to the Scientific Officer of the European Commission. The PC informs the Project Management Team (see below) of all relevant exceptions and can also consult the Project Management Team, the Risk Manager, and the Innovation Management Board for advice.
- Project Management Team. The PMT is chaired by the PC and includes a representative from each partner in the project. The PMT is the ultimate decision-making body and it ensures a joint control of the work progress resulting in a rapid decision making. Amongst the responsibilities of the PMT, the following can be found: make budget-related decisions, critical decision-making in application of the Risk Management Plan, authorize exceptions from the project plan, keep the Risk Manager (see below) and the Innovation Management Board (see below) informed of project highlights and exceptions, voting
- Innovation Management Board. The IMB is comprised of a representative from each industrial partner (Kelvion, Abengoa Energia, Exergy and Quantis). The IMB advises the PMT on the best strategies to manage the innovative results of the project with a market-oriented approach aiming at the mid and long-exploitation of the project results. In addition, the IMB keeps track of developments outside the project that may be relevant to SCARABEUS or that may be conflicting in terms of intellectual property rights.
- Dissemination Manager (Prof. David Sánchez, University of Seville). The role of the DM is to ensure that the results and findings of the project become known by a community as wide as possible, not only scientists but also institutions, industry and society in general. To this end, the DM (i) ensures that each partner disseminates its results in the most accessible (for instance using open-access tools) and effective (high impact) way possible within the target community of primary interest, (ii) liaises with the project partners to design the most effective Dissemination Plan possible, and (iii) coordinates the organization of the academic workshops held at each academic partner and the two general workshops at the demonstration site.
- Risk Manager (Dr. Cristina Prieto, Abengoa Energía). The activity of the RM is three-fold. First, she oversees transversal risks that may rise in the course of development of the project. Second, she collates the risks stemming in each work package, which must be sent to her by the corresponding WP leader. Third, she is responsible for maintaining an up to date risk register necessary for carrying out such a large project. The RM reports to the PC at regular intervals and co-ordinates the risk mitigation strategy throughout the project.

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- Work package leaders (WPL). WPLs are responsible for achieving the objectives, targets, milestones, and deliverables in their Work Packages, as defined in Annex I of the Grant Agreement. This implies that they are also responsible for the detailed co-ordination, planning, monitoring and reporting of their WP.
- Board of Stakeholders (BoS). The external BoS, steered by the IMB (in month M6 of the project at the latest), has the main duty to assist and facilitate the decisions made by the PMT and to provide an external (therefore independent) assessment of the progress made by the report on an annual basis. The BoS is comprised of reputed individuals known worldwide for their knowledge and experience in the area of CSP and representing all the potential regional markets in the world: North America, Europe, Australia and Asia.
  As of today, the Project Coordinator has got in contact with different members of the Project Board to comment on certain aspects of the project. On M24, the BoS as a whole will be called to a review meeting and the members will be asked to provide feedback to improve/enhance the project outcome.

The individual roles in the project and the composition of each governance structure are listed in Table 1 below.

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Table 1 – Roles in SCARABEUS[2]

Role/Body		Name	Affiliation	Contact
Project Coordinator		Giampaolo Manzolini	POLIMI	giampaolo.manzolini@polimi.it
Innovation Management Board		Xavier Guerif	KEL	Xavier.Guerif@kelvion.com
		Arnaud Dauriat	QUA	arnaud.dauriat@quantis-intl.com
		Cristina Prieto	ABE	cristina.prieto@abengoa.com
Project Management Team		Giampaolo Manzolini	POLIMI	giampaolo.manzolini@polimi.it
		David Sánchez	USE	ds@us.es
		Abdulnaser Sayma	CITY	a.sayma@city.ac.uk
		Andreas Werner	TUW	andreas.werner@tuwien.ac.at
		Paolo Iora	UNIBS	paolo.iora@unibs.it
		Xavier Guerif	KEL	Xavier.Guerif@kelvion.com
		Xun Liao	QUA	xun.liao@quantis-intl.com
		Cristina Prieto	ABE	cristina.prieto@abengoa.com
Dissemination Coordinator		David Sánchez	USE	ds@us.es
Risk Manager		Cristina Prieto	ABE	cristina.prieto@abengoa.com
WP Leaders	WPs 1/9	Giampaolo Manzolini	POLIMI	giampaolo.manzolini@polimi.it
	WP 2	Paolo Iora	UNIBS	paolo.iora@unibs.it
	WP3	Abdulnaser Sayma	CITY	a.sayma@city.ac.uk
	WP4	Xavier Guerif	KEL	Xavier.Guerif@kelvion.com
	WP5	David Sánchez	USE	ds@us.es
	WP6	Andreas Werner	TUW	andreas.werner@tuwien.ac.at
	WP7	Cristina Prieto	ABE	cristina.prieto@abengoa.com
	WP8	Giampaolo Manzolini	POLIMI	giampaolo.manzolini@polimi.it
Board of Stakeholders		José Luis Martínez-Dalmau	ESTELA	jlmartinez@estelasolar.org
		Craig Turchi	NREL	Craig.Turchi@nrel.gov
		Jeong Ik Lee	KAIST	jeongiklee@kaist.ac.kr
		Ted Steinberg	QUT	t.steinberg@qut.edu.au

[2] At the time of writing this deliverable report, the vacant left by Exergy SpA in the consortium (and, in particular, in the Innovation Management Board and Project Management Team) has not been replaced yet. The information about Roles in SCARABEUS will thus be updated again in D7.8 and in the project website.

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Dissemination and Communication Plan

7 Description of the Dissemination and Communication Plan

7.1 Aim and scope. Key stakeholders implied

The dissemination and communication activities are aimed at maximizing the impact of the project on a number of target stakeholders. This is outlined in Section *2.2. Measures to Maximize Impact* of Annex 1 in the Grant Agreement and it is also briefly summarized below.

Dissemination, exploitation, communication and other activities related to Intellectual Property Rights support the effective and timely development of the project they also look into the future in order to enable the further development of the technology; indeed, a long-term objective of SCARABEUS is to bring together and streamline the skills and expertise in the field of CSP technology using CO_2 blends within Europe. To this end, maximizing the current and future impact on society, the Implementation Plan includes a complete Work Package (WP7) which is entirely dedicated to the exploitation/dissemination and IPR management of the knowledge gained in the project, in particular focusing on the communication to the general public, the dissemination of new knowledge both within and outside of the consortium, the implementation of the current EU research policy and the development of energy and associated policies. Within this WP, and in order to ensure that the knowledge generated within SCARABEUS is protected, disseminated and exploited to its full potential, the Consortium has appointed David Sánchez in the role of Dissemination Manager (see Table 1).

The Dissemination and Communication Strategy of SCARABEUS is presented in Figure 5. It targets four main stakeholders, whose characteristics are:

- General Public: general public (sometimes termed society at large) is characterized by having a common environmental consciousness and a concern for sustainability. Therefore, even if this audience is considered to not have a scientific or technical background, it does have the capacity to judge the impact of the technology on the life of current and future generations.
- Scientific Community: this community has a strong scientific background, enabling a critical assessment of the information provided. This implies the analysis of the Key Performance Indicators reported and the achievements made by the consortium. Furthermore, it is in the interest of the scientific community to make use of the data produced by SCARABEUS to further advance science and technology.
- Policy Makers: at the local, regional, national and continental levels, policy makers are of primary interest for the SCARABEUS consortium given that they are responsible for setting the guidelines of the current and future energy policies that will affect the commercial feasibility of SCARABEUS. Although not necessarily having a technical background, this audience is knowledgeable about the impact of the resulting power generation technology onto the environment, the security of (energy) supply and the economic sustainability of the power industry.
- Industry: the power generation industry, especially if based on renewable energies, is the last target stakeholder. The industry is interested in the general technical features of the technology and, most importantly, also in the key economic indicators.

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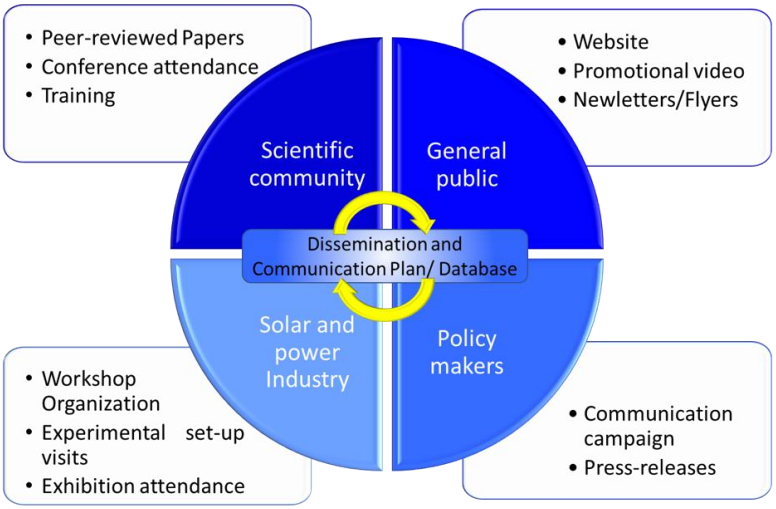

Figure 5 – Dissemination and Communication Strategy of SCARABEUS

As a concluding remark, it is worth noting that a unique feature of SCARABEUS is **the creation of a Dissemination and Communication Database** where all the dissemination activities of the project, past and future, will be stored electronically. The Dissemination and Communication Plan and Database will serve the twofold objective of (i) being a digital repository of all the carried out or planned dissemination activities of SCARABEUS at any time during the project and (ii) becoming a sort of logbook for future researchers who will be able to track all the dissemination activities developed in the project and, therefore, download any item of their interest. To enable this latter objective, the consortium is committed to keep the database in operation for, at least, five years after the completion of the project.

7.2 Implementation of the Dissemination and Communication Plan. Activities

The Dissemination and Communication Plan is devised as a tool to provide both the project partners and interested visitors to the project website with the overall dissemination strategy, schedule of activities, roles and responsibilities, definition of target groups and appropriate channels to convey messages to each audience type; to this end, this DCP will be updated regularly throughout the project lifetime.

In order to ensure an effective dissemination, the SCARABEUS consortium will make sure that a collaborative and interactive approach is adopted between the project partners and stakeholders from the very beginning of the project. Indeed, in line with the concept of "*Open Innovation*" promoted by the European Communication, attention will be paid to involving all stakeholders (see Figure 5) during the entire project lifespan and to ensuring that mechanisms are in place for engagement beyond the project lifetime. This will be facilitated through establishing routes to obtain feedback from each group to ensure that the SCARABEUS results respond to their needs and expectations, and to guarantee ownership of results by all the groups involved. These responsibilities will bear on the shoulders of a specifically appointed Innovation Management Board (see Figure 4) in the managing structure of SCARABEUS.

In this context, it is also worth highlighting that the consortium will reach out to persons within the target groups identified in the previous subsection and, once their interest has been attracted, the partners will include these people in a project database with the aim to keep them updated on the progress of the project via a biannual newsletter. They will also be invited to the following specific engagement and dissemination activities:

A) Dissemination activities:

Project progress and achievements will be disseminated through a variety of mechanisms both within the individual participants, the consortium's Member States and the wider European industrial sector, through the channels identified below:

1) Organization of conferences: in order to ensure knowledge share and to maximize the impact of

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research funds on the development of transformational technologies for a sustainable future, the SCARABEUS project will take the lead to organize a conference where the results of the Research and Innovation Actions (RIAs) or the Innovation Actions (IAs) funded by the European Commission will be disclosed and openly discussed between peers and with stakeholders: industry, academia and government.

2) The Dissemination Coordinator of SCARABEUS will liaise with the Project Officer and representatives of other EU projects to make decisions regarding venue, dates and full conference schedule. At the moment (M18), the conference will tentatively take place at the Premises of Politecnico di Milano (coordinating institution of SCARABEUS) in the last term of 2021. Also, in order to ensure that the results presented are indexed and remain available in the public domain, Open Access publication in a leading scientific journal will be negotiated with different editors.
3) Exhibition: the innovative test-rig at TU Wien is one of the key features of SCARABEUS. In correspondence with the inauguration of this set-up, and provided that the situation created because of COVID-19 is resolved, an exhibition opened to both the scientific community, renewable energy and power industries and policy-makers will be carried out. In this way, potential investors will be able to familiarize with the CO_2 blend concept and the innovative heat exchanger technologies as well as to discuss with the partners/researchers involved in their development. Simultaneously, other researchers will be able to visit the test-rig, thus paving the way for new collaborations and knowledge-share.
4) Publication of peer-reviewed papers: to maximize the impact on the scientific community, the consortium has already published, and will remain doing so, the most relevant scientific results in peer-reviewed journals such as “Applied Thermal Engineering” or “Applied Sciences”. So far (M18), three papers have been published and there are 5 more in the review process. This is 20% of the total number of papers aimed by the consortium initially, Table 2 and Table 3, which is an excellent accomplishment given that results exploitable are typically produced in the second half of the project. Some of the papers referred above have been published with *Gold Open-Access* whilst others are available to registered users only. The latter will be completed by future works which the consortium is committed to publishing in *Gold Open-Access* to ensure accessibility of the project results. Any researcher interested in accessing the available bibliographic metadata of each of these works can get in contact with the *Dissemination Coordinator* to get access to the open-access repository of the project (Dissemination and Communication Database). These metadata will be available in a standard format as requested by the European Commission.
5) Presentations at international scientific conferences: these are also considered to be a core dissemination activity, with the unique feature of enabling presenting the latest results of the project while networking with other members of the scientific, governmental and industrial communities. For these reasons, conferences are a key route to disseminating project results in SCARABEUS. Unfortunately, mobility has been constrained since early 2020 and this has had a tremendous, unprecedented impact on virtually all the conferences in this calendar year. Some of the technical meetings of interest for the SCARABEUS partners were rescheduled to 2021 (such is the case of the *International Supercritical CO_2 Power Cycle Symposium*) whereas others were changed to a virtual format, such as *SolarPACES* and *ASME Turbo Expo*. This brought about some uncertainty in regard to the impact (dissemination-wise) of papers presented virtually, as opposed to traditional face-to-face events.

   Nevertheless, the experience of participating to virtual conferences has proved excellent and creativity and technology have joint forces to make networking possible through the numerous applications available. The SCARABEUS consortium was proactively present at *SolarPACES* 2020, presenting papers and supporting the organization, and the experience was most rewarding. Based on this, the participation to the following conferences is scheduled by the consortium:

   - SolarPACES 2021, dates to be determined, Albuquerque, NM (United States).
   - International Supercritical CO2 Power Cycle Symposium 2020, February 22-25, San Antonio, TX (United States).
   - 4th European Supercritical CO2 Conference, March 22-26, Prague (Czech Republic).
   - ASME Turbo Expo 2021, June 7-11, Virtual conference.

   As of today, a total of eight conference papers have been submitted/accepted/presented at conferences by the SCARABEUS consortium members.

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Table 2 – Particular dissemination actions planned in SCARABEUS (actions of the consortium as a whole not included)

Partner	Journal Publications	OA	Conferences			Theses		Pats.	Miscellaneus
			Event	Poster	Oral	MSc	PhD		
POLIMI	1 Solar Energy 1 Applied Thermal Engineering 1 ASME Journal of Solar Energy Engineering	GL	SolarPACES ASME Conference on Energy Sustainability International sCO2 Symposium	1 (2nd year)	3 (3rd and 4th year)	3	1	1	Newsletter, Social media, promotional video
USE	1 Solar Energy 1 Journal of Engineering for Gas Turbines and Power 2 Applied Energy	GL	ASME Turbo Expo International sCO2 Symposium	-	3 (3rd and 4th year)	2	2	No	Web, newsletter, social media
UNIBS	3 Applied Thermal Engineering	GL	SolarPACES ASME Conference on Energy Sustainability	1 (2nd year)	3 (3rd and 4th year)	3	1	1	Newsletter, social media
TUW	1 Applied Energy	GL	SolarPACES International sCO2 Symposium	No	2 (3rd and 4th year)	2	1	1	
CITY	1 Journal of Turbomachinery 1 Journal of Engineering for Gas Turbine and Power 1 Applied Energy	GL	ASME Turbo Expo International Gas Turbine Conference	2 (2nd year)	2 (3rd and 4th year)	-	2	1	
AE	-	No	>1 conference attendance	>1	-	-	-	1	
EXY	-	No	>1 conference attendance	>1	-	-	-	1	
KEL	-	No	>1 conference attendance	>1	-	-	-	1	
QUA	-	No	>1 conference attendance	>1	-	-	-	-	

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Table 3 – Particular dissemination actions completed in SCARABEUS (actions of the consortium as a whole not included)

Partner	Journal Publications	OA	Conferences			Theses		Pats.	Miscellaneus
			Event	Poster	Oral	MSc	PhD[1]		
POLIMI	1 Applied Thermal Engineering (P)	GL	SolarPACES European sCO2 conference	1 (Pr)	1 (Pr) 1 (Pr)	2	1	-	Newsletter, LinkedIn, video
USE	1 Applied Sciences (P) 1 Applied Thermal Engineering (S)	GL GL	International sCO2 Symposium European sCO2 conference	-	1 (PA) 1 (AA)	1	2	-	Web, LinkedIn, Webinar, Flyer
UNIBS	1 Energy (S)	GL GL				2	1	-	Website, LinkedIn
TUW						4	1	-	
CITY	1 Applied Sciences (P) 1 Applied Thermal Engineering (S)	GL GL	European sCO2 conference		1 (AA)	-	3	-	

Key: P – Published; S – Submitted; GL – Gold Open Access; Pr – Presented; PA – Paper accepted; AA – Abstract Accepted;

[1] All PhD theses are currently under development

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6) Organization of Workshops: workshops are excellent opportunities for communication, networking and training. A total of five academic workshops collocated with regular progress meetings of the consortium were originally scheduled, as illustrated in the preliminary Dissemination and Communication plan (D7.1). Unfortunately, even if the first workshop was organized at University of Seville in April 2020 (alongside the second progress meeting), this event had to be cancelled due to COVID.
   Given that, for the time being (M18), the limitations on mobility that have come about because of COVID do not seem to subside, the consortium has made the decision to carry out this activity online through a webinar format. Using this will enable to reach out to the target audience originally intended by the workshops. Nevertheless, rather than organizing the workshop on a single day, the consortium has decided to organize a webinar series whereby the workshop will be broadcasted weekly for a period of two months (nine sessions). The advantage of this schedule is multiple-fold. More attendees will be able to attend the sessions (it is highly unlikely that someone interested is busy on all dates), the dissemination activity will last longer and will have permanent contact with the stakeholders of SCARABEUS (rather than one very intense but single event as originally scheduled).
   Tentative dates of the webinar series are shown below in Table 4 and will be displayed and regularly updated on the project's website:

Table 4 – Schedule of the SCARABEUS webinar series

Partner	Topic	Date
POLIMI	The SCARABEUS project: a breakthrough for a bright future of CSP	2020.11.18
USE	Introduction to power plant modelling and simulation	2020.11.25
ABE	Modelling and simulation of solar fields	2020.12.02
POLIMI	Modelling and simulation of Thermal Energy Storage systems	2020.12.09
UNIBS	Modeling and evaluation of the main properties of working fluids	2020.12.16
CITY	Design and simulation of turbomachinery	2021.01.13
TUW	Design and simulation of heat exchangers	2021.01.20
QUANTIS	Life Cycle Assessment of heat exchangers	2021.01.27
LEAP	Natural Capital Valuation of Concentrated Solar Power plants	2021.02.03

   The webinars, delivered by the consortium partners specializing in each area, will be comprised of a 45 minutes introduction to each specific topic followed by 30 minutes Q&A. Since the events are live, the attendees will have the opportunity to interact with the speakers and dive into their particular interest.
   A second webinar series will be scheduled to start in the fourth term of 2021 (M30). It is noted that this second series will not be organized in the second term of 2021 because several conferences take place before the summer break and also to allow for the organization of joint dissemination events with other H2020 projects (see below).
7) Joint activities H2020 projects: several partners of SCARABEUS are involved in other EU H2020 projects dealing with solar energy, renewable energy, and turbomachinery development (i.e., sCO2flex, SOLARsCO2OL, NextMGT). This represents an opportunity for SCARABEUS to reach out to a wider audience by leveraging on the dissemination networks of these other projects. At the same time, from an R&D standpoint, these joint activities largely increase the impact of the funds invested by the European Commission by enabling cross-fertilization between the projects.
   A joint dissemination activity with the SOCRATCES project (www.socratces.eu) was organized in April 2020 (M12). This activity was comprised of two sessions open to interested attendees. In the first session, high level representatives of the industry, research centres and government were to share their view on the needs of the CSP industry to increase its share in the European energy mix. In the second sessions, the main objectives and outcomes of each project were to be presented by the project coordinators. Unfortunately, this joint activity was cancelled for the reasons cited above.
   A similar session will be organized again in March-April 2021 (M23-24), expectedly with more than one H2020 project. Dates and agenda will be announced through the project website and LinkedIn account.
8) Other: it makes sense to take advantage of any opportunity to effectively communicate the project

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results. In this regard, the Dissemination Manager is elaborating a press-package containing general information about Concentrated Solar Power technologies and how SCARABEUS has the potential to shape the future energy landscape in Europe. This press-package will then be translated to the local language of each partner and distributed to mass-media: newspaper, magazines, radio and television. The content of the package will be accessible and comprehensive for people who are not educated in science, with the multiple-fold objective to: i) raise awareness of the environmental challenges faced by humankind; ii) raise awareness of the technical challenges that must be overcome in order to have 100% renewable energy supply in the future; iii) make the research and development efforts by the European scientific community in order to accomplish this fully renewable energy supply; iv) illustrate how tax-money is used by the European Union in initiatives aimed at ensuring the sustainability of future generations.

B) Dissemination channels and platforms:
The channels identified to ensure the effective communication of results to the right audiences using the best methods are listed below:

1) Press releases: several press-releases (>5) are planned to publicize the most important milestones and achievements of the project: i.e. beginning of the project, major achievements and inauguration of the test rig. Press release will be prepared by all the partners to target all the EU nations involved in the project.
2) Non-scientific and non-peer-reviewed publications: publications with a general description of the project and the targets achieved (>4) will be pursued as an activity. Previous participation of the partners in European projects showed the importance of preparing papers for newspapers and magazines in order to raise awareness of the importance of renewable energy exploitation and of how the development of CSP can tackle some of the most pressing issues. This dissemination channel is linked to activity 8) in the previous category -A) Dissemination activities-.
3) Flyers/Newsletters: the first Dissemination & Communication Plan (D7.1) included the elaboration and distribution of a newsletter every six months, making a total of 8 newsletters with relevant information about the project status and related activities. The newsletter would be made available on the project website, and subscribers would receive it automatically. In addition, the newsletter would be circulated through the social media such as LinkedIn, ResearchGate, and Twitter.
   Nevertheless, the first eighteen months of SCARABEUS have shown that relying on social media (mostly LinkedIn) and the website is a much more effective, versatile and agile means to get in contact with the target stakeholders of the project. These channels provide flexibility and direct feedback, not to say much more frequent updates to have the stakeholders engaged and up to date. For this reason, the Dissemination Coordinator of the project, in agreement with the Project Coordinator and the Innovation Manager, have made the decision to not produce a newsletter but, rather, intensify dissemination through LinkedIn and the website.
   A flyer with the most relevant information about the project (objectives, timing, consortium, funding body, contact) has been released and is available on the project's website.
4) Training: the SCARABEUS project supports the importance of training the next generation of engineers. Also, it is envisaged that early stage researchers within the academic institutions will be incorporated into the project team, hence developing research at the doctoral level for the complete duration of SCARABEUS (see later). In addition, students from the five universities involved in the project (USE, TUW, UNIBS, CITY and POLIMI) will have the opportunity to visit partners where the experimental campaign will be performed (UNIBS and TUW), supporting data elaboration and performance assessment. In addition, training of technicians performing the experimental campaign is planned.
   The incorporation of PhD students to all the academic partners of SCARABEUS has been announced through LinkedIn and the project's website. Also, several undergraduate and graduate students have already developed their theses incardinated in the research teams at each institution and this activity will remain in the future as a means to instruct a new generation of engineers in innovative CSP technologies. Unfortunately, mobility between these partner is currently hindered and thus the exchange of researchers has not been possible.
5) Website/Social media: Nowadays, most of the communication activities are performed on the internet. Therefore, SCARABEUS will dedicate significant efforts on (i) setting up the website to make it easily accessible, (ii) setting up the open LinkedIn page related to the project to get potential stakeholders

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involved and (iii) setting up the ResearchGate portal to share the project achievements with the scientific community. These instruments will be linked to the social media of all the partners and the CSP world in general, to keep the audience engaged, and they will be updated every month with the latest news related to the project. POLIMI's social media manager will support this activity to make the communication more effective and increase the impact of the profiles.

6) Communication Campaign: interviews in local television and radio stations will be pursued to reach a different type of audience with respect to the former activities and to increase the impact of dissemination. This activity will be undertaken by all partners so as to ensure that large communities in all the EU nations involved in the project are reached out. During the initial stage of the project, the Coordinator (Prof. Giampaolo Mazolini) has been very active in this regard as credited by the Dissemination Logbook.
7) Other events: the communication office of each institution participating in the project has several dissemination activities already planned. Each partner will make sure that the communication office is aware of the project so that its presentation can be added to other general or specific events that could be organized.
8) Video/film: YouTube is certainly a very effective way to communicate the project concept, ambition and achievements. Therefore, two dedicated videos will be prepared along to the project. The first one presents the SCARABEUS concept together with its main advantages and innovation and it was released on July 2020 (M16). The second video will be prepared in the last year of the project and will include the demonstration set-up and most significant results.
9) Other: any other opportunity to effectively communicate the project results will be evaluated and performed along the project.

C) Key stakeholders

As already depicted in Figure 5, the dissemination activities in the project will not only target the relevant scientific and industrial communities but also the public at large. Establishing a positive relationship with all stakeholders is hence crucial to disseminating the outcome of SCARABEUS. For this purpose, based on the techno-economic results and the social assessment produced in Work Package WP5, strategies to address policy makers and engage the public will be identified in addition to those listed above. The following groups will be targeted, within the stakeholders listed in the previous subsection:

- Original equipment manufacturers of critical components (i.e., condenser, heat exchanger, turbomachinery);
- Research organizations and academic groups which are active in the field of sCO_2 technology;
- Research organizations and industries which are involved in CSP technology;
- European policy-makers at relevant institutions such as the European Commission, the European Environment Agency or the Innovation & Networks Executive Agency.

Table 5 shows the connection of the consortium participants to other networks. All these contacts will also be inserted in the contacts database of the project, so as to keep them regularly informed about SCARABEUS and in order to maximize collaboration.

D) Dissemination after project conclusion:

Consortium members are committed to keeping the project website and project-dedicated social network tools updated for at least two years after the project completion. Furthermore, adequate IPR management and protection will be ensured after the project end-date. When not confidential, all the main project findings and dissemination deliverables will be made available through the Dissemination and Communication Database along with all the dissemination activities/items and, shared with all main target groups as much as possible during and after the end of the project. Also, both during and after the project end-date, the partners will liaise with other internationally relevant research groups and R&D projects on the same or related topics, thus exchanging good practices and ideas to take innovation further and eventually contributing to the further development and sustainable exploitation of the results. The afore-mentioned EU relevant institutions will be kept updated during and after the project through: a) participation of EU partners in EU-level workshops and Info-Days on themes related to the project; b) invitation of representatives of EU institutions to project events; c) sending of the project newsletter to contacts in such EU institutions; d) inclusion of these e-mail accounts in the project contact database.

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Table 5 – Connection of the consortium participants to other networks

Partner	Networks
POLIMI	Member of the Italian Energy Cluster and part of a working task of SOLARPACES. LEAP, linked third party of POLIMI, is member of the High Technology Network of Regione Emilia-Romagna which includes a high-tech network comprised of industrial research labs, innovation centres, regional academic institutions and public research centres
TUW	TUW is a leading member in the frame of the Austrian Climate and Energy Fund, which defines and funds energy research in Austria. Within that organization, TUW is also a member of the Energy demonstration region NEFI: New Energy for Industry. TUW represents Austria within the VGB scientific committee and SOLARPACES executive committee and participates in working tasks related to particles and to storage
KEL	Member of EMC2 which is an innovation cluster including industrial companies, labs, academic institutions, public research centers
EXERGY	Member of the Italian Energy Cluster and of the Lombardy energy cleantech cluster
USE	Associated partner of the Joint Programme for Concentrated Solar Power of the European Energy Research Alliance (EERA-CSP), having collaborated to this platform through projects like STAGE-STE. USE is also a member of the European Turbine Network, the association gathering the whole supply chain of stationary gas turbines in Europe and worldwide (ETN Global), including turbomachinery operating on Supercritical Carbon Dioxide. Prof. Sánchez is a member of the Project Board of the ETN. USE is also the founder of the European Micro gas Turbine Forum.
CITY	Member of the European Turbine Network (ETN). City is also the founder of the European Micro gas Turbine Forum and the current leader of its Advisory Board
QUA	Member of the LCA forum and part of the École Polytechnique Fédérale de Lausanne innovation Park
ABE	Large network of customers and suppliers, and long-lasting, solid relationships with R&D centres and governmental institutions. In addition, Abengoa Energia is a member of ESTELA, the European Solar Thermal Electricity Association and PROTERMOSOLAR, the equivalent association in Spain
UNIBS	Member of the Italian Energy Cluster and of the Lombardy energy cleantech cluster

7.3 Dissemination and Communication Metrics

The Dissemination and Communication Plan presented in this document is certainly ambitious. Therefore, given also the large scale of the project also, it is mandatory to develop certain metrics upon which the success of the Plan can be measured. Such metrics of the Dissemination and Communication Plan are listed in Table 6 for each dissemination and communication activity. The following notes are worth noting:

- The current count of the first four items indicates a very good progress towards excellence, given that the project has not even reached its half-life. More publications and academic works are expected between M24 and M48 once the experimental activities start and the theoretical activities are more advanced.
- Metrics related to Twitter and Newsletter have been removed given that these Dissemination and Communication Activities will eventually not be developed, as explained earlier in this document.
- The number of visits to the website presents the average value of the last twelve months (M6-M18). The same applies to the posts on LinkedIn.
- The number of views of the promotional video has already exceeded (in less than four months) the excellence threshold.
- The programme of the webinar series in Table 4 confirms that a similar level of excellence will be achieved by this activity.

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The rightmost column in Table 6 provides an assessment of the current level of success of the Dissemination and Communication activities carried out by the consortium partners, where the following score has been assigned to each category:

- Excellent: 3 points.
- Good: 2 points.
- Moderate: 1 point.
- Poor: 0 points.

The last row in the table provides the average success of the project. A total score of 10 points for a total of 10 categories yields an average success score of 1.2, which falls into the **Moderate** success category, transitioning towards **Good**. This is considered acceptable at the current stage of development of the project given that dissemination is typically more intense once research projects are reaching the halftime. Also, as reported in this document, the recent pandemic experienced in Europe and worldwide has brought about the cancellation of several dissemination activities (conferences, seminars, joint events). These have been rescheduled, organized but not yet developed, what has a strongly negative impact on the scores in Table 6.

Nevertheless, in spite of the last considerations in the previous paragraph, the consortium acknowledges the need to strengthen the commitment to work hard on the effective dissemination and communication of the project.

8 Dissemination Logbook

The SCARABEUS activities carried out so far by the project partners are listed in the Dissemination Logbook available on the project website. The information in the document confirms that, during the first eighteen months of SCARABEUS, dissemination and communication activities have been developed according to the guidelines set forth in the first Dissemination and Communication Plan (D7.1). This also serves as an indicator of the type of activities that will be developed in the next year and a half (M19-M30).

A screenshot of the Dissemination Logbook is shown in Table 7.

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Table 6 – Dissemination and communication metrics of SCARABEUS (in red current count)

Action	Metric	Success				Current Success
		Excellent (3)	Good (2)	Moderate (1)	Poor (0)	
Journal articles (1^{st}/2^{nd} quartile, peer-reviewed)	Number	x≥12	12>x≥8	8>x≥5 (6)	x<5	Moderate
Conference papers (oral, international)	Number	x≥12	12>x≥7	7>x≥4 (5)	x<4	Moderate
MSc thesis (in English)	Number	x≥9 (9)	9>x≥6	6>x≥4	x<4	Excellent
PhD thesis (in English)	Number	x≥6 (6)	6>x≥4	4>x≥3	x<3	Excellent
Patents (European)	Number	x≥4	4>x≥2	2>x≥1	x=0	Poor
Website (October 2019 – October 2020)	Visits (monthly)	x≥400	400>x≥250	250>x≥100 (207)	x<100	Moderate
LinkedIn	Posts (monthly)	x≥15	15>x≥10	10>x≥5	x<5 (4)	Poor
Promotional videos	Views	x≥1000 (1076)	1000>x≥650	650>x≥250	x<250	Excellent
Webinars (MSc and PhD students)	Number	x≥10	10>x≥7	7>x≥4	x<4	Poor
Webinars (MSc and PhD students)	Attendees (per event)	x≥20	20>x≥10	10>x≥5	x<5	Poor
Overall success (score)						**Moderate (1.2)**

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Table 7 – Dissemination & Communication activities listed in the Dissemination Logbook available on the project website (part 1)

SCARABEUS

DISSEMINATION LOGBOOK (WP7)

Date	Title	Description	Type	WP	Task	Lead	Available	Additional Info
12/04/2019	Kick-off meeting	SCARABEUS kick-off meeting	M	1	1.1	POLIMI	NA	Brussels
01/07/2019	Supercritical CARbon dioxide/Alternative fluids Blends for Efficiency Upgrade of Solar power plant	Italian National Infoday for the 2020 - SC3 Secure, Clean and Efficient Energy	Gen	7		UNIBS	Yes	Presentation by Paolo Iora Rome, Italy
24/07/2019	Abengoa announces its participation in the SCARABEUS project through its blog	Publication in the company blog	Gen	7		ABE	Yes	General public communication action
02/08/2019	Investigating the effect of using different CO2 blends as working fluids on the turbine design for a 100 MWe Power plant	7th International sCO2 Power Cycles Symposium	Con	3		CITY	No	Abstract submitted Conference rescheduled for February 22th to 25th 2021, San Antonio (TX)
02/08/2019	An evaluation of sCO2-additives for properties modification used for power cycle applications based on process simulation	7th International sCO2 Power Cycles Symposium	Con	4		TUW	No	Abstract submitted Conference rescheduled for February 22th to 25th 2021, San Antonio (TX)
02/08/2019	Updated Review of the Potential of Supercritical Carbon Dioxide Cycles for Concentrating Solar Power Applications	7th International sCO2 Power Cycles Symposium	Con	5		USE	No	Paper accepted Conference rescheduled for February 22th to 25th 2021, San Antonio (TX)
02/08/2019	Supercritical CO2 power cycle research by European Academia: SCARABEUS	7th International sCO2 Power Cycles Symposium	Spk	5		USE	No	Invited speaker Conference rescheduled for February 22th to 25th 2021, San Antonio (TX)
14/08/2019	Types of heat exchangers for sCO2 power cycles	Bachelor thesis; author: Alexandra Puchegger	Gen	6		TUW	Yes	printed version available at Institute for Energy Systems and Thermodynamics
20/09/2019	Supercritical CO2/Alternative Fluid Blends for Efficiency Upgrade of Solar Power Plant	Presentation at the 3rd European Supercritical CO2 Conference	Con	7		POLIMI	Yes	Paris, 19th and 20th of September 2019
01/10/2019	Writing successful proposals for the H2020 programme: SCARABEUS	Presentation at the Infoday for the 2020 - SC3 Secure, Clean and Efficient Energy	Gen	7		USE	No	Panel session. David Sánchez panelist Seville, Spain
01/10/2019	Poster presentation	25th SolarPACES conference	Con	7		POLIMI	No	Poster session
08/10/2019	Interview with Prof. Manzolini	Interview by Maurizio Melis for Smart City, broadcasted nationally by Radio 24	Gen	7		POLIMI	Yes	Podcast available for download
22/11/2019	Charakterisierung der Wärmeübergangseigenschaften von superkritischem CO2	Bachelor thesis; author: Paul Schwarzmayr; title translated in English: `characterisation of heat transfer of supercritical CO2`	Gen	6		TUW	Yes	Printed version (German language) available at Institute for Energy Systems and Thermodynamics; results will be shown in paper soon
27/11/2019	Presentation of the project and synergies discussion with other EU projects	Attendance to the CSP workshop arranged by the EU commission	Gen	1		POLIMI	Yes	
04/12/2019	Mean-line design of a supercritical CO2 micro axial turbine	Paper submitted to ASME Turbo Expo 2020	Con	3		CITY	On-request	Conference paper. Withdrawn due to conference being virtual.
24/12/2019	Methodology for CO2 mixture identification	Applied Thermal Engineering	Jou PR	2		POLIMI	Yes	Gold Open Access
31/01/2019	Überblick und Ergebnisse bestehender sCO2 Forschungsanlagen	Term paper; author: Philip Bukovcan	Gen	6		TUW	On-request	Title translated to English: `Overview and results of existing sCO2 test rigs`
17/02/2020	Wärmeübergangseigenschaften von superkritischem CO2	Term paper; author: Paul Schwarzmayr	Gen	6		TUW	On-request	More theoretical work of bachelor thesis
31/03/2020	Experimental and analytical procedure for the characterization of innovative working fluids for power plants applications	Journal paper submitted to Applied Thermal Engi	Jou PR	2	2.1	UNIBS	Yes	Revised version submitted. Available when published

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Table 8 – Dissemination & Communication activities listed in the Dissemination Logbook available on the project website (part 2)

SCARABEUS

DISSEMINATION LOGBOOK (WP7)

Date	Title	Description	Type	WP	Task	Lead	Available	Additional Info
02/04/2020	Blended sCO2 fluids could slash CSP costs, early data shows	Article in New Energy Update	Jou NPR	7		USE	Yes	Article publised online in the New Energy Update journal. Link: https://analysis.newenergyupdate.com/csp-today/blended-sco2-fluids-could-slash-csp-costs-early-data-shows
22/04/2020	Modelling and simulation of CSP systems	Workshop	Gen	5		USE	On-request	Workshop for MSc and PhD students interested in the topic. Delivered at USE during the 2nd Progress Meeting (CANCELLED due to COVID-19)
22/04/2020	Role and challenges for CSP in the future energy landscape	Networking event	Gen	7		USE	On-request	Networking event jointly organised by SCARABEUS and SOCRATCES. Co-located with the 2nd Progress Meeting at USE (April 21st 2020) (CANCELLED due to COVID-19)
29/04/2020	CO2-based mixtures for transcritical cycle in CSP applications	Master Thesis dissertion	Gen	2		POLIMI	No	Master thesis dissertion
30/04/2020	Cost of Electricity of Concentrated Solar Power Plants Using Supercritical Carbon Dioxide Power Cycles	Journal paper for Applied Themal Engineering's special issue on sCO2 technologies	Jou PR	5	T5.1.1	USE	Yes	Under review
01/07/2020	Influence of CO2 based mixture transport properties on the design of heat exchangers	Master Thesis dissertion (start)	Gen	2		UNIBS	On-request	
14/07/2020	Corrosion behavior ofmetallic alloys used in sCO2 power cycles	Master Thesis dissertion	Gen	2		UNIBS	On-request	
22/07/2020	Potential of Supercritical Carbon Dioxide Power Cycles to Reduce the Levelised Cost of Electricity of Contemporary Concentrated Solar Power Plants	Journal paper for Applied Sciences's special issue on sCO2 technologies	Jou PR	5	T5.1.1	USE	Yes	Open Access
28/07/2020	Assessment of the relative importance of boundary conditions on the performance of a cascade of axial compressor blades operating on ideal and non-ideal working fluids	Bachelor thesis	Gen	3 & 5		USE	Yes	In Spanish. Available upon request.
13/08/2020	Thermal efficiency gains enabled by using supercritical CO2 mixtures in Concentrated Solar Power applications	Abstract submitted to the 4th European sCO2 Conference for Energy Systems	Con	5	T5.2	USE	Yes	Abstract accepted. Paper submission in early November 2020
01/09/2020	SCARABEUS project page on Quantis website	Dissemination through website	Gen	5		QUA	Yes	Available on company's website
25/09/2020	Influence of the Equations of State on the performance of CO2+C6F6 as innovative working fluid in transcritical cycles	Journal paper submitted to Energy	Jou PR	2		UNIBS	Yes	Available when published (Gold Open Access)
01/10/2020	Adoption of CO2 blended with C6F6 as working fluid in CSP plants	Conference paper	Con	2 & 5		POLIMI	No	Oral presentation at SolarPACES 2020 (online), September 28 - October 2 Joint activity by POLIMI, UNIBS and USE
07/10/2020	Supercritical CO2 blends for Concentrated Solar Power plants: H2020 SCARABEUS project	Live webinar: Supercritical CO2 cycles - Theory and applications	Spk	5		ABE	Yes	Invited spearker to live webinar sponsored by KTH Energy Platform, October 7 2020
07/10/2020	Modifications to the conductance-ratio methodology to enable transient performance assessment of heat exchangers of unknown geometry	Master thesis dissertation	Gen	4 & 5		USE	Yes	Master thesis by POLIMI Erasmus student at USE. Joint development by USE and POLIMI

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Conclusions

This Deliverable report has presented the definition, scope and features of the Dissemination and Communication Plan, confirming or modifying the strategies and schedule of activities provided in the first version of the document (M3). While doing so, the document has also commented on the type and impact of the most relevant dissemination and communication activities carried out by the project partners so far.

The following conclusions must be noted:

- The situation brought about by COVID-19, in particular the impact on mobility of researchers, has introduced mandatory changes to the schedule of activities presented in the first Dissemination and Communication Plan. Face-to-face conferences and dissemination events are no longer possible.
- Dissemination through peer-reviewed journal papers is preferred over conference presentations.
- Face-to-face workshops and events have been cancelled and they have been replaced by webinars broadcasted live. Virtually all the consortium participates to this activity.
- Social media and website have been able to reach out to the target audience and stakeholders. This confirms the appropriateness of the dissemination routes even though efforts must be made to increase the frequency of the regular updates and the technical contents of the information sent out.

Overall, the dissemination metrics confirm that the consortium is walking in the right direction, especially in the more scientific activities. The highest scores for each category are achievable and this indicates that communication and dissemination are currently effective.

For any query about Dissemination and Communication activities, please get in contact with Prof. David Sánchez at ds@us.es .

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