



PEDR – Plan for the communication, Dissemination and Exploitation of Results

Concerto Project

Cabin nOise reduction ground Checked by nEw loudspeakeR exciTatiOn
GA # 886836

DELIVERABLE NO.	LT-NA-21-003-00-RES-CON-D5.2
DELIVERABLE TITLE	PEDR – Plan for the communication, Dissemination and Exploitation of Results
DELIVERABLE TYPE	Report
DISSEMINATION LEVEL	Public release
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CHECKED BY	BIANCO Raffaele

REVISION	CHANGES	DATE
0	First release	13-January-2021

This project has received funding from the European Union's H2020 research and innovation programme under Grant Agreement no. 886836.



Project Abstract

The current race for green mobility is changing the design philosophy in all engineering disciplines; this is tangible especially in aeronautical segment, where optimization and innovation are the key for a sustainable future mobility. In addition, the comfort of passengers is a critical issue for both, manufacturer and airlines, and the noise levels in the passenger cabin of turbopropeller-driven aircraft are typically higher than the levels in comparable turbofan-powered aircraft [1]-[2].

The noise generated during cruise phase is dominated by frequencies originated from boundary layer flow, whereas during the others flight phases noise is dominated by the propellers and engine rate; currently noise reduction development is based on experimental tests that, in the most cases, are very time consuming.

The **CONCERTO** project aims to develop an innovative cabin/fuselage noise testing equipment for regional aircraft platforms that will be user-friendly and fully configurable in all its parts to speed-up test procedures in several configurations and improve results accuracy. Scope of this research project will be the design, development, manufacturing and integration of an innovative Noise Generation System (iNGS) to test and validate new technologies for Regional Cabin Interior Noise evaluation. The innovative system, implementing advanced algorithms able to generate and control the real noise spectrum distributions and levels for all the flight conditions, will pave the way to a new scenario for cabin noise testing.

Main expected project outcome is to deliver a ready to use smart testing system that would be:

- Innovative: it will be adopted a closed control loop to obtain high speed performance with a control strategy and a pre-test analysis to reduce the number of control microphones, time and costs in the test set-up.
- Modular: its mechanical structure and software will be designed to accept fuselage of different diameters (from 2.5 m to 4 m) and customizable speakers/microphones configurations.
- Advanced: a dedicated software implementation will be developed in order to allow an easy and user-friendly interface.



Executive Summary

In this report, the dissemination and exploitation strategy for the CONCERTO project is described, as an extended description of the dissemination plan described in the description of work.

The dissemination and exploitation measures described in the present document are aimed to achieve higher visibility of the project and its outcomes, to the most relevant target groups. Apart from the strategy, this document will serve as a project dissemination guideline for all project partners, who are expected to refer back to it whenever performing a dissemination action.

Applicable Documents

[AD1] H2020-CS2-CFP10-2019-01

[AD2] Proposal number: 886836

[AD3] Concerto proposal granted part B

References

- [1] J. S. Mixson and C. A. Powell, " Review of Recent Research on Interior Noise of Propeller Aircraft," AIAA/NASA 9th Aeroacoustics Conference, AIAA Paper 84-2349, Williamsburg, VA., October 1984
- [2] J. F. Wilby, "Aircraft Interior Noise", Journal of Sound and Vibration, 1996



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List of abbreviations

ACRONYM / SHORT NAME	MEANING
CONCERTO	Cabin nOise reductionN ground Checked by nEw loudspeakeR exciTatiOn
EC	European Community
KUL	Katholieke Universiteit Leuven
LT	Lead Tech
MS	MicroSoft
PEDR	Plan for the communication, Dissemination and Exploitation of Results
R&D	Research and Development
RTO	Registered Training Organisation



Introduction

During CONCERTO development, a collection of results stemming from the noise generation and closed loop control will be prototyped, stimulated, and validated. In order to disseminate these results, a draft dissemination strategy is proposed that targets:

- Researchers, promoting scientific publication in and participation to conferences/events;
- Public, updating by social media (LinkedIn and Twitter) to involve people into project results.

1. Dissemination rules

All CONCERTO partners will follow dissemination rules as described in the General Conditions annex of the Grant Agreement, in the CONCERTO consortium agreement. Main rules to apply for any dissemination action:

- Any partner will provide a minimum 45 days notice prior to any dissemination action (including publications, presentations and posters at conferences, etc.). Such notification is to be sent to all project partners.
- The aim for this notification is to give the chance to partners to express any objections or comments regarding the publication of sensitive content or unsuitable messages regarding the project of the cluster of projects as a whole. Should no partners express any objections within this timeframe, the dissemination action is automatically considered as valid.
- According to EC rules, any dissemination activities and publications in the project, including the project website will (i) specify that the project has received community research funding and (ii) display the European emblem (Fig. 1). When displayed in association with a logo, the European emblem will be given appropriate prominence. All publications shall include the following statement (from GA art. II.30.4): "The research leading to these results has received funding from the European Community's Horizon 2020 Programme under grant agreement No. 886836 (CONCERTO)."



Figure 1 - European emblem

- All partners are strongly requested to use the material templates produced for the project dissemination, as described in this document.
- All partners should notify their project coordinator and/or dissemination responsible of all dissemination actions they perform and provide them with the final, published dissemination materials for archiving. All dissemination actions will be listed within this report and will be outlined in the periodic reports.



2. Target groups

The objective of the CONCERTO project is to communicate the results to a wide range of target groups. Due to the importance of this spread of knowledge, all CONCERTO partners are involved in this work. To reach the goals of the various dissemination activities, the audience targeted has been defined as follows:

Industry

- Transport aircraft and helicopter manufacturers (mainly R&D departments);
- Innovative noise deadening materials manufacturers;

R&D Community (RTO, Universities...)

- Personnel within CONCERTO consortium organisations not directly involved in CONCERTO to enhance knowledge sharing, awareness of design possibilities, and increase likelihood of technology adoption;
- R&D institutions or groups in the area of aircraft structure research and development cabin noise assessment and ground testing;
- undergraduate / graduate students

Associations and Representative Organisations

Press

General Public

Of course, CONCERTO targeted audience includes the research community actually performing the next-gen transport aircrafts research, and their environmental impact. Researchers in the wider scope of CONCERTO have a scientific interest in the results of the project. For them it is important to get access to the project results and outcomes. All partners of the consortium will participate in forums, workshops and conferences presenting results and discussing CONCERTO objectives & results with other participants. These activities will also include the publication in relevant national and international magazines.

Beside the scientific community, the general public and policy makers should be considered in the dissemination activities. On the one hand, CONCERTO's objectives also contribute to the implementation of several European policies on direct and indirect levels. Informing the general public of the latest results and technologies will help in implementing the projects results and will increase the awareness of lightweight related problems and the potential of the considered high technology. Informing the public is again closely linked to the training activities of the project.



3. Project Identity

Project Logo

The project logo represents the project identity, and it must appear in all documents together with institutional logos. The overall aim was to create a unique, highly recognisable image of the project and to present CONCERTO as a well-coordinated effort to project outsider. The design of the logos was guided by the following principles:

- Symbolic representation of the content of the different projects
- Symbolic representation of the cross-linking of the cluster projects
- Memorability
- Appealing design

It shows the shape of the supporting structure in which speakers generate soundwaves with the project name in it (Figure 2).



Figure 2 – CONCERTO project logo



Report and Presentation Templates

Common templates for written deliverables (MS Word, see format of this report), minutes of meeting and CONCERTO presentations (MS PowerPoint) are to be used throughout the project. All partners are requested to use this template when presenting CONCERTO results within and outside the project.



Cabin nOise reductionN ground Checked by nEw loudspeakeR exciTatiOn
GA # 886836

PRESENTATION TITLE

Occasion, location

Date

CONCERTO - Grant Agreement no. 886836

1

Figure 3 - Presentation template frontpage



Title style 1

- Default dictionary language is UK English

CONCERTO - Grant Agreement no. 886836

2

Figure 4 - Presentation template slide



4. Dissemination Materials

4.1. Project Website

The CONCERTO website (www.project-concerto.eu/) will be the project's main point of reference and communication tool to obtain detailed information on its objectives, partners, results, recommendations and project deliverables. The homepage is composed of a general description of the project and its objectives, participating partners and information on the research performed and results obtained as far as they are for public use. At a later stage links will be given to organisations, public bodies and projects connected to CONCERTO. The project newsletter will also be available through the website, which will be updated on a continuous basis.

Moreover, the social coverage includes LinkedIn and Twitter, that will be updated with the latest news.

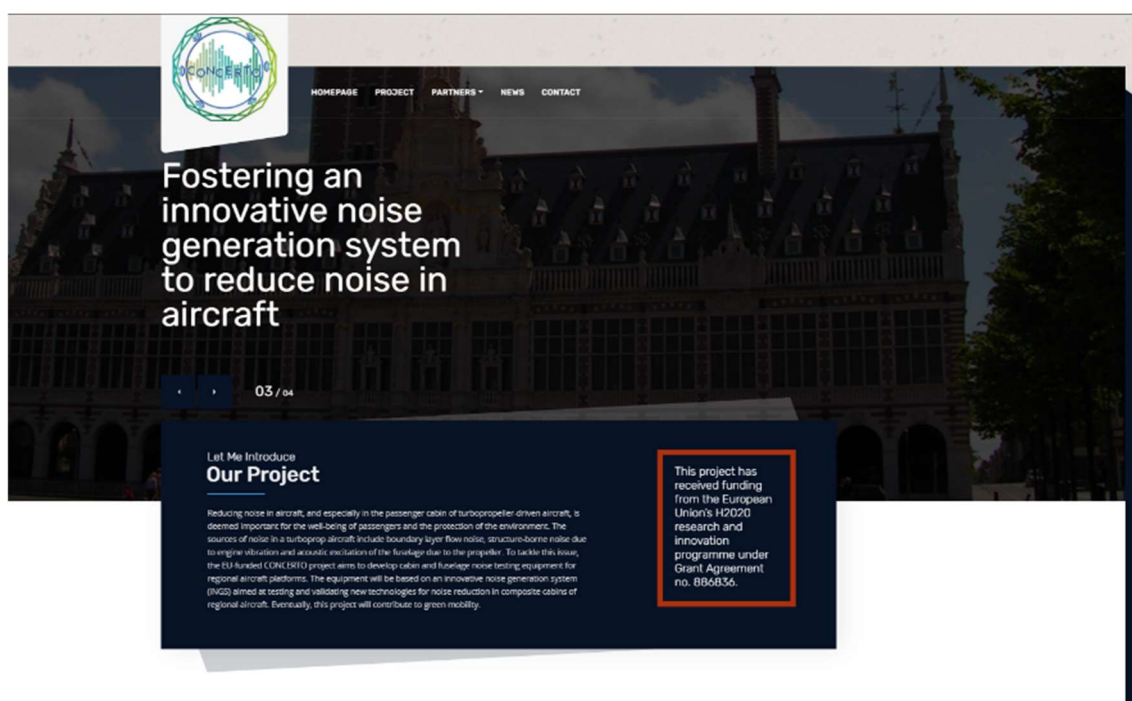


Figure 5 - Project website introduction

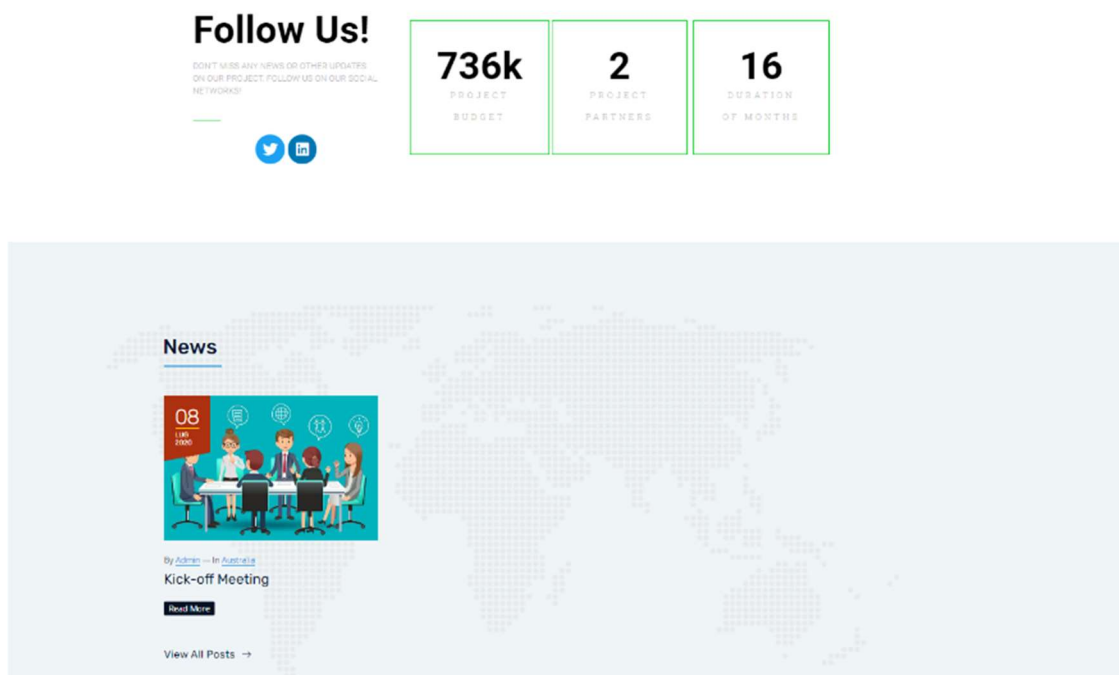


Figure 6 - Project website social and news sections


The project website is structured giving to public a wide and complete overview of the project target, its status and of the consortium involved.

These information are contained in specific pages as follows:




Project

In this section are described the project final result, its impact in H2020 program and in green mobility development.



HOME PAGE PROJECT PARTNERS NEWS CONTACT

[Home](#) > [Project](#)




Cabin noise reduction ground Checked by new loudspeaker excitation

Fostering an innovative noise generation system to reduce noise in aircraft

Reducing noise in aircraft, and especially in the passenger cabin of turbopropeller-driven aircraft, is deemed important for the well-being of passengers and the protection of the environment. The sources of noise in a turbopropeller aircraft include boundary layer flow noise, structure-borne noise due to engine vibration and acoustic excitation of the fuselage due to the propeller.

To tackle this issue, the EU-funded CONCERTO project aims to develop cabin and fuselage noise testing equipment for regional aircraft platforms. The equipment will be based on an innovative noise generation system (NIGS) aimed at testing and validating new technologies for noise reduction in composite cabins of regional aircraft. Eventually, this project will contribute to green mobility.



Objective

The current race for green mobility is changing the design philosophy in all engineering disciplines; this is tangible especially in aeronautical segment, where optimization and innovation are the key for a sustainable future mobility.

In addition, the comfort of passengers is a critical issue for both, manufacturer and airlines, and the noise levels in the passenger cabin of turbopropeller-driven aircraft are typically higher than the levels in comparable turbofan-powered aircraft. The sources of noise in a turboprop aircraft include boundary layer flow noise, structure-borne noise due to engine vibration, and acoustic excitation of the fuselage due to the propeller, with the latter being dominant for most turboprop aircraft.

According to Clean Sky program, this proposal aims to develop innovative technologies that will be used in the next-gen aeronautical transports.

The activities related to the CONCERTO project are focused on the development of an innovative cabin/fuselage noise testing equipment for regional aircraft platforms.

The equipment will be based on an innovative Noise Generation System (NIGS) aimed to test and validate new technologies for noise reduction in composite cabin of regional aircraft.

The current systems effectiveness is limited by the following aspects:

- fixed fuselage diameter and fixed position;
- absence of a control closed loop for real-time noise control;
- manual input for each loudspeaker and third-octave band.

Developing a smarter and modular system, removing at least such limitations, makes simpler and faster the noise testing phase, that can be difficult due to the complex system setup procedures.

Figure 7 - Project description



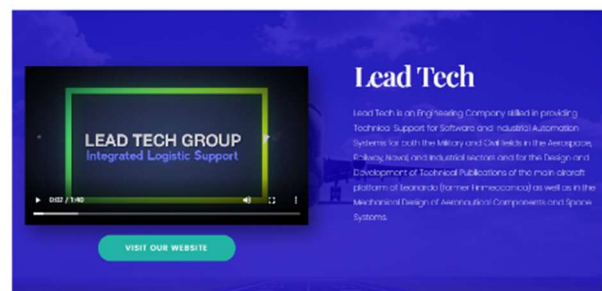
Partners

In this section are described the consortium members, providing a brief description of their expertise, links and contacts.



Lead Tech

Home > Lead Tech



Lead Tech's engineering staff is composed of employees with aerospace, automotive, informatics and electronics background and a wide experience. In addition, Lead Tech has an experience in vibroacoustic and non-linear structural analysis. Their engineering problem has to be faced by using simple models and/or looking at the state-of-art, since it is agreed that any innovation can be based only on a solid background experience. A list of the main and routine activities, as follows, that could be developed/performed in the past with theoretical, numerical and experimental tools:



Katholieke Universiteit Leuven (KUL)

Home > Katholieke Universiteit Leuven (KUL)

The Katholieke Universiteit Leuven is a charter member of UERU and conducts fundamental and applied research in all academic disciplines with a clear international orientation. In the Times Higher Education ranking KU Leuven is ranked as the 17th European university, while in the Reuters Top 100 of the World's most innovative institutions KU Leuven is listed as the 2nd European university.



KU Leuven participates in over 540 highly competitive European research projects (FP7, 2007-2013), ranking 8th in the league of HEI institutions participating in FP7. In Horizon 2020, KU Leuven currently has been approved 101 projects. KU Leuven takes up the 9th place of European institutions hosting ERC grants. KU Leuven has 53,284 (June 2015) students, employs 5,769 people (excluding the University Hospitals) and totals up operating revenues to 833 million euros in 2014. KU Leuven Research & Development (IRO) is the technology transfer office (TTO) of the KU Leuven. Since 1972 a multidisciplinary team of expert global researchers in their interaction with industry and society, and the valorisation of their research results (e.g. KU spin-offs).

Figure 8 - Concerto partners' description



Contact

A contact form permits to send questions about the project to the consortium

CONCERTO

HOME PAGE PROJECT PARTNERS NEWS CONTACT

Contact

HOME > CONTACT

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LEAD TECH SRL

Lead Tech is an engineering Company skilled in providing Technical Support for Software and Industrial Automation Systems for both the Military and Civil fields in the Aerospace, Railway, Naval and Industrial sectors.

The Katholieke Universiteit Leuven is a charter member of CONCERTO and conducts fundamental and applied research in all academic disciplines with a clear international orientation.

Get In Touch With Us

Your Name *

Your Email *

Subject *

Your Message *

SEND MESSAGE

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Website: www.kuleuven.be



4.2. Project Social Profiles

To maximize the exploitation strategy results has been created a Twitter and a LinkedIn profile for the project to share news and information about the project development and results (<https://twitter.com/ProjectConcerto> and <https://www.linkedin.com/company/project-concerto/>).

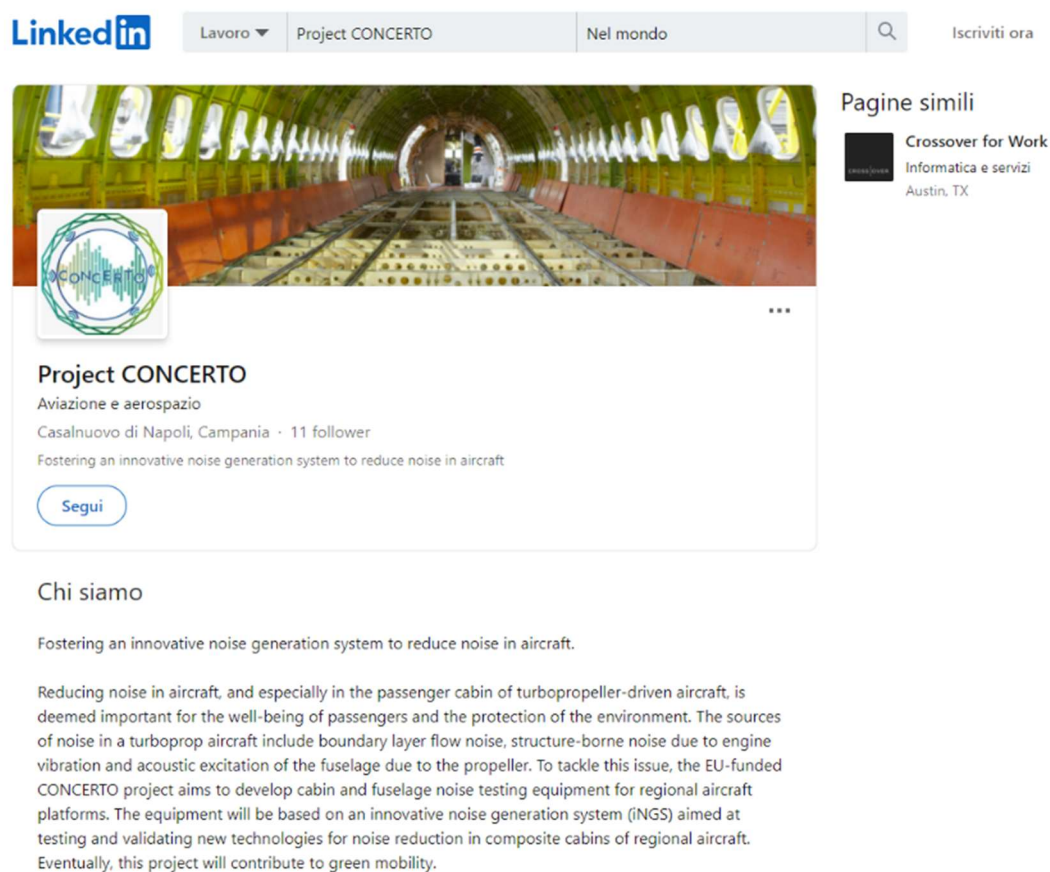


Figure 9 - Project LinkedIn profile



Figure 10 - CONCERTO Twitter profile

5. Dissemination Measures

CONCERTO has defined a consistent set of dissemination measures that are well coordinated between each other so that the impacts of the project are not only realized through the project consortium but also spill over to other European actors outside the consortium. Each of these measures has a clear line of activities for each identified target group and has been made measurable by defining some quantified performance indicators. In the following, the different dissemination measures are described comprehensively.



Newsletter and News on Website

The news section of the website will be updated whenever relevant news about the project is available. The news story will be developed by the relevant partners, and uploaded on the website by Lead Tech.

Apart from the website's news section, "Tweet" and LinkedIn posts will be published, summarising the most important actions carried out, and most important milestones reached. The social profiles of the project will include input from all partners, and will be updated by Lead Tech.

Scientific and Trade Media Publications

Publications in the specialized and general press will increase the potential of the project to reach out target groups in Europe and beyond. CONCERTO foresees the publication of 4 articles in renowned magazines and journals and presence in main industry-specific conferences and fairs. However, only information will be provided that does not negatively affect European competitiveness in the topic.

KUL university in CONCERTO will take the lead in drafting the scientific contributions to publications such as listed in Table 1.

Table 1 – List of possible publications

#	Name	Due Date
1	"Design of iNGS for turboprop aircraft", Open Research Europe	01-08-2021
2	"MIMO acoustic testing of fuselages", CEAS Aeronautical Journal	01-10-2021
3	"MIMO acoustic control algorithms for turboprop iNGS", MSSP/JSV	31-12-2021
4	"Integration and validation of iNGS", AIAA Journal	31-12-2021

Workshops, Exhibitions and Conferences

Considering the international limitations due to COVID-19 pandemic, in Table 2 are listed the possible events.

Table 2 - List of possible workshops, exhibitions and conferences

#	Name	Due Date
1	Aircraft Interior Expo	31-08-2021
2	27 th International Congress on Sound and Vibration, Prague, CZE	11-07-2021
3	50 th INTER-NOISE conference, Washington, DC, USA	01-08-2021
4	7 th Noise and Vibration Emerging Methods, Auckland, NZL	13-12-2021
5	40 th IMAC conference, Orlando, FL, USA	07-02-2022
6	28 th International Congress on Sound and Vibration, Singapore	24-07-2022
7	ISMA2022 conference, Leuven, BEL	xx-09-2022



Public Deliverables

Beside the confidential results (restricted deliverables) a number of public deliverables are planned in the CONCERTO consortium. Such deliverables will be made available through the project website, physical meetings and other events.

The list of public deliverables is summarised in Table 3.

Table 3 - List of public deliverables

#	Deliverable	Date
D1.1	Analysis phase: Requirement matrix and support documentation	30-09-2020
D2.1	CAD drawings: Drawings of mechanical system	31-12-2020
D5.1	Data management plan	31-12-2020
D5.2	PEDR: Plan for the communication, Dissemination and Exploitation of Results	31-12-2020

Facilitating interaction and synergies within the CONCERTO consortium

Another important part of the dissemination strategy of the CONCERTO project is internal dissemination to members of CONCERTO organisations not directly involved in the CONCERTO project. Between all the organisations involved in CONCERTO, the consortium accounts for more than 2,000 employees worldwide, including, 10 research & development departments. If the new technologies and ideas arising from the CONCERTO project are communicated effectively within the consortium members, it will increase dramatically the reach of those advances and the capacity of the consortium partners to spread them outside the consortium.