DELIVERABLE REPORT

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Project website:	www.sonar-redox.eu

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General remarks

This document summarizes all dissemination activities carried out during the project, in accordance with the dissemination plan (D8.2, Task 8.2 and 8.6). All activities were aiming at a) communicating our results and b) finetuning the direction of our research by obtaining experts' opinions. Therefore, user feedback was one important aspect, the other to make all results available to the audiences that may make use of it for their own work.

Dissemination strategy

To ensure a successful dissemination, a separate work package was dedicated to coordinate all activities (details given in deliverable D8.2). The main goal was to inform the scientific community and industry about the project's activities and to win them as potential users of the achievements made. Another objective was to inform the general public and raise awareness of FB as a possible contribution to energy transformation.

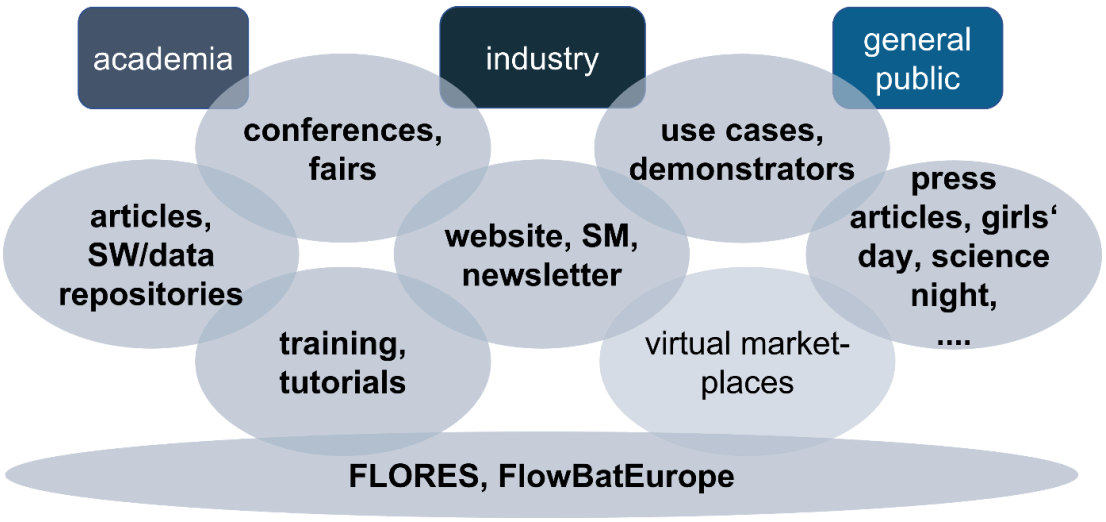

Figure 1: Overview of the means of communication to reach the target groups.

For that purpose, several means of communication were identified and used. The website played a central role, as it collected all the links to the actual results and will continue to do so.

In the following, the details will be given about the individual activities. The data reported here is based on the information collected in regular intervals from the partners and the website/social media statistics.

Activities in detail

Website

Online since February 2020, the website bundles all relevant information about the project. It will continue to do so after the end of the active period. Fraunhofer SCAI will serve as a permanent point of contact for any party interested in further cooperations with the consortium. Until December 2023, **more than 4000 unique visitors** from all over the world had viewed the SONAR webpages (see Figure 2Figure 1).

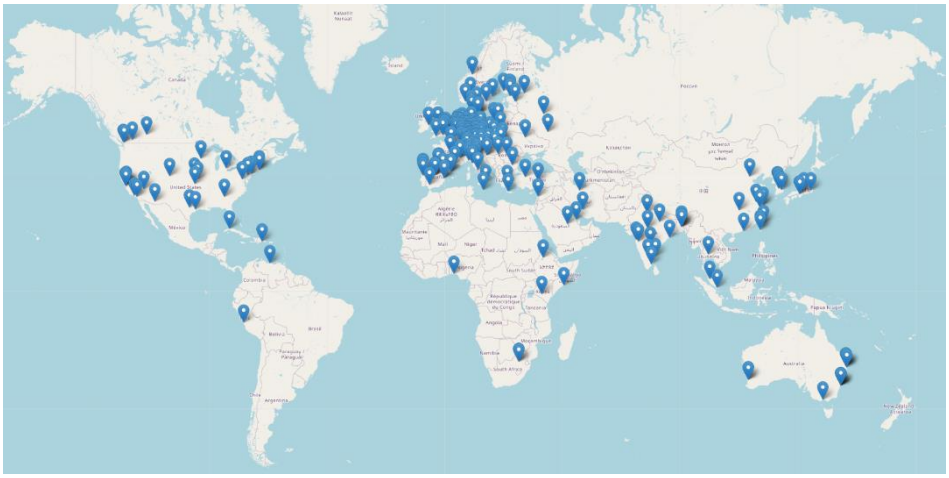

Figure 2: Locations SONAR webpages were viewed from**.**

Social media

Online since February 2020, SONAR posted messages on **LinkedIn** and **Twitter/X** on a regular basis. The social media channels were fed with announcements of conference talks or publications. Over the duration of the project, approximately**. 600 individual visitors** from different locations were registered at least once (roughly from the same areas as the website visits). Statistics for Twitter/X were not available.

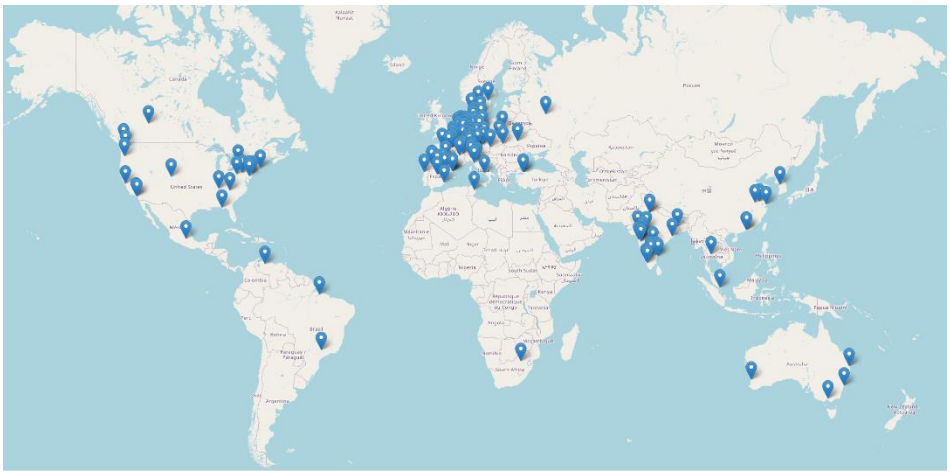

Figure 3: Locations the LinkedIn page was viewed from.

Press services

Ten **press releases** in German and/or English language have been published via several information services in order to announce the start of the project and/or inform about the technology in detail. A video recording of an **interview** with Maria Skyllas-Kazacos was published, too.

Newsletter

The consortium, members of the industrial exploitation board and 8 subscribers from outside the project were occasionally informed in **4 editions** about activities and achievements of the project. The storage Considering the effort for compiling a newsletter, this channel appears dispensable.

Conferences

SONAR members attended to about 26 international **scientific conferences**, giving **poster** (7) and/or **oral presentations** (25, including several invited talks), reaching about 4800 people all in all.

Scientific articles

At the time of press, 8 peer reviewed **scientific papers** have already been published in scientific journals; at present, at least six more are in preparation or in the process of submission. Although not available in Open Access, but nevertheless a significant contribution to promoting the technology of flow batteries, SONAR members contributed 9 articles to an entire **book chapter** for a 3-volume textbook “Flow Batteries: From Fundamentals to Applications”, Roth, Christina, Jens Noack, Maria Skyllas-Kazacos, eds.).

Software

The SONAR consortium released the code for several **tools** along the multiscale chain or provided access to an online-demo version. The links are available on the website.

- Redoxfox, online demonstrator
- github.com/Fraunhofer-SCAI/llamol, CC BY-NC-SA 4.0
- https://github.com/Jessy-YU-Aws/SONAR_Delieverable3.8 , public code
- github.com/Isomorph-Electrochemical-Cells/ORFB-0D-U-I-SoC, BSD 3-Clause License
- github.com/Isomorph-Electrochemical-Cells/RfbScFVM, MIT License
- configuration -Generator: code will be published after acceptance of the paper.
- FLOTE will be made available as soon as possible.

Data

The SONAR consortium released some **data sets**, the links are available on the website.

25 reference compounds https://zenodo.org/records/10200228	CC BY 4.0
NIST	to be published soon
QMPC9	to be published soon
WP7 data set	to be published soon

Networking

FLORES was founded as a network of 15 EU-funded projects working on next-generation flow batteries and coordinated by the Project SONAR (Peter Fischer). The main objective was and is to make sure that flow batteries do not fall beneath the radar of policy makers and end users. For that purpose, online meetings were held every 2 – 3 months to coordinate collaborations among the FLORES members and other national networks.

As a result, FLORES filed a **petition against the cancellation of call D2-1-14** at BEPA (Batteries European Partnership Association), wrote a **joint paper on "Life cycle assessment for flow batteries"** and organized **joint workshops and appearances** at prominent events of the FB and chemical community, such as:

- **Policy briefing workshop** at IFBF-online 2021, reaching 250 delegates and two EU policy officers on the status of the technology, potential markets, research needs, giving recommendations.
- **Compbat-Sonar workshop** @ IFBF 2022 reaching 50 participants from industry and academia,
- **shared booth** at IFBF in Brussels 2022, reaching about 200 participants.
- **shared booth** at IFBF in Prague 2023, reaching about 200 participants.
- **online workshop on digital twins: "**A roadmap toward redox flow battery passport"
- **session dedicated** to flow batteries at IUPAC+chains conference 2023, reaching 30 participants.

Furthermore, the FLORES network engages in the development of a **road mapping strategy** and a **COST action plan** to ensure a continuation of the networking activities.

Other events

SONAR members were active on trade fairs (**Smart energy expo** 2021, 2022, 2023, **E-world** 2023) and popular science events (**Tent City of Science/Bonn, Night of**

Technology/Bonn-Rhein-Sieg; Girls' Day/St. Augustin), reaching in total about 600 people.

On these occasions (and conferences), **professionally designed dissemination material** was handed out to the interested audience. This included:

- **generic flyers** with the project's objective & webpage URL
- **pencils** with logo & webpage URL
- **business cards** with logo & QR code linking to webpage.
- **beermats** with quiz & webpage URL
- **stickers** with logo & webpage URL
- **maps** with collection of WP specific flyers
- **map collecting separate flyers** (WP specific)
- **coffee mugs** with logo & webpage URL
- **bags** with logo and webpage UR

Education/Training

Over the course of the project, the research topics of SONAR have been subject of five **doctoral projects** (not yet completed) and a **bachelor thesis** ("Molecule Generation using a Transformer Model" by N. Dobberstein, 06/07/2023).

In a **university course** on "Verfahrenstechnik nanoskaliger Partikelsysteme" at KIT (https://www.mvm.kit.edu/lehre_vm_5324.php), aspects of SONAR were used for teaching, reaching about 30 students.

Furthermore, SONAR offered a **hands-on user workshop** with 12 participants from outside the project, as well as a preparatory training for FFT/SIPS 2024, reaching 35 people. On the Girls' Day 2023, 20 pupils attended in a hands-on training session.

Virtual Materials Market Place

It was planned to make the new software and its maintenance and support available via the existing and future Marketplaces like the Virtual Materials Market Place (VIMMP), and Materials Modelling Marketplace for Increased Industrial Innovation. However, all attempts to use these channels or at least to establish contact with the now completed project in 2021 and 2022 failed.

Summary

The project started just before/at the onset of the global corona virus pandemic, leading to conferences and events being held rather online or hybrid than in person. Accordingly, in the first phase of the project In-person events were very rare (see

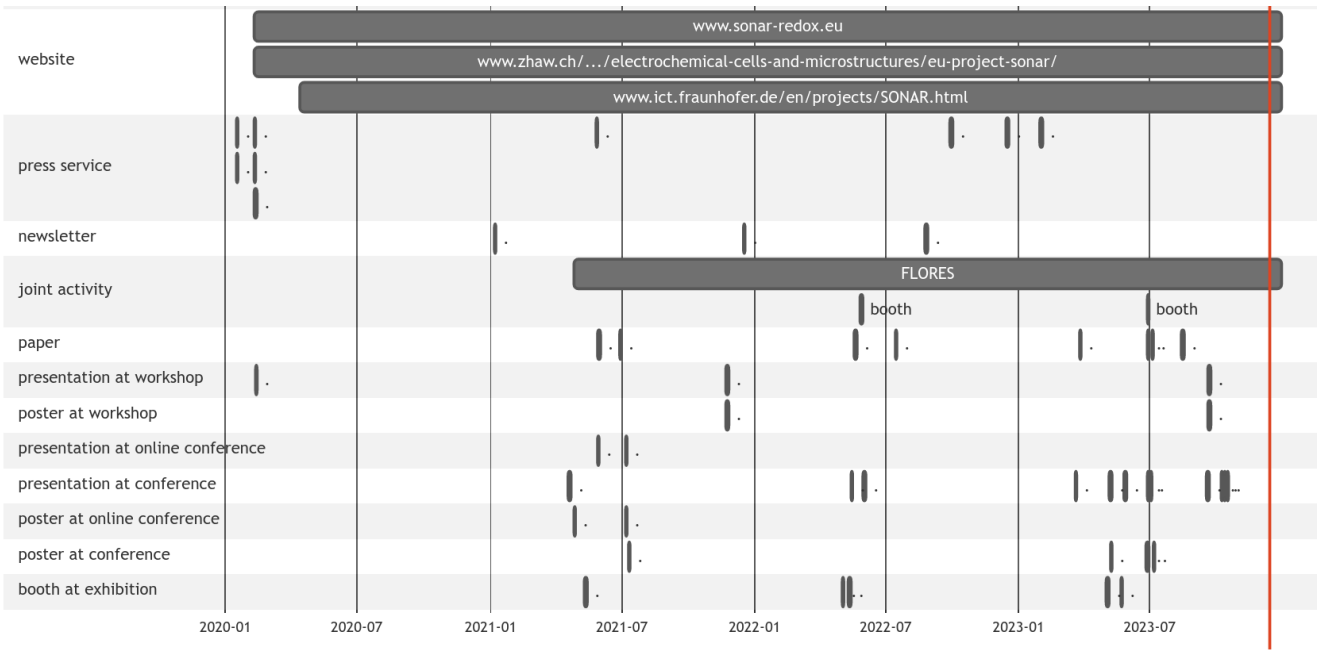

Figure 4: Timetable of dissemination activities
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As a consequence (and in any case necessary means of communication), the online presence was set up very early. When results became available later (and corona regulations were lifted), the achievements were primarily promoted in in-person events, such as conferences, workshops and trade fairs.

Taking all activities together, we may have reached up to 15000 people worldwide:

Webpage	~4000
LinkedIn	~600
Newsletters	~10
In events:	
scientific community	~5000
industry	~2000
general public	~2000
customers	~1500
policy makers	~400

other	~100
investors	~100

The numerous visits on website and LinkedIn page and their locations (see Figure 2 and **Fehler! Verweisquelle konnte nicht gefunden werden.**) suggest that by and large, the specialist community was reached and all relevant stakeholders were informed about the existence and the possible contributions the developments of SONAR can make.