

Technology Development Programme

Magnets Technology Mapping Workshop

2025



What can I expect from the in-person session?

Content

- Objectives of the in-person session
- Process
- How can you prepare?
- FAQs

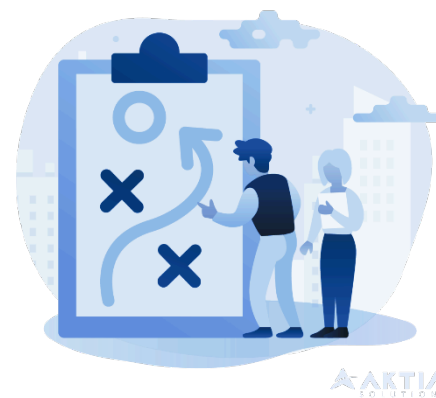
Workshop objectives

Landscape
overview

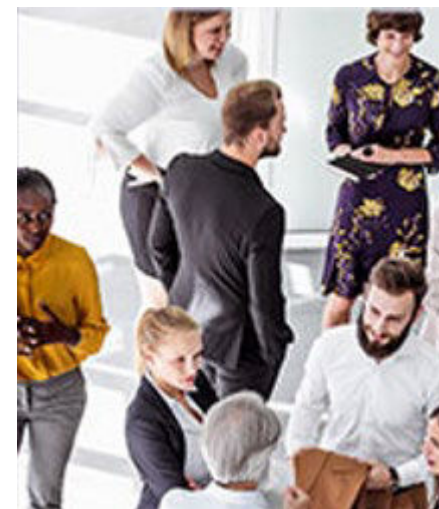


Online session

Road-mapping



Networking



In-person session



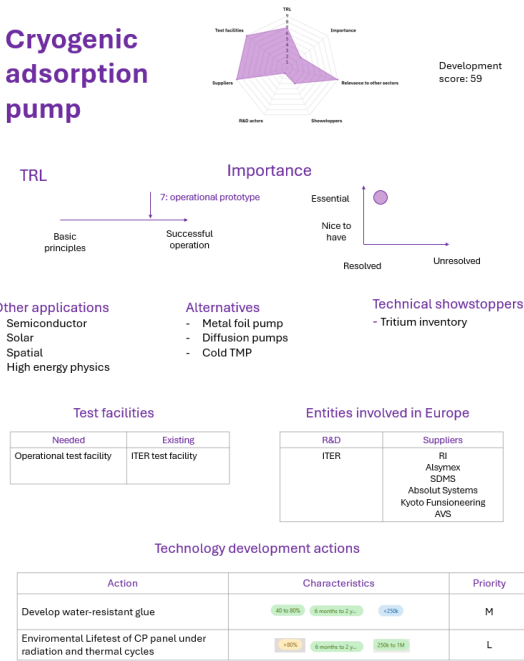
Outcome

Technology Development Programme
Technology Mapping
2025 Series

Magnets

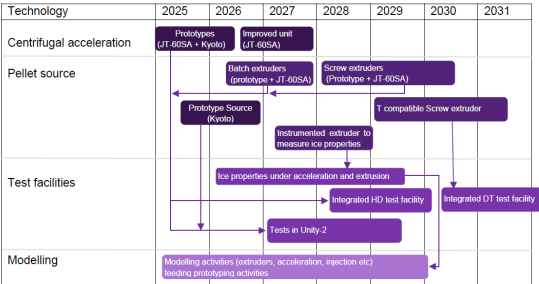


Catalogue of technologies



- ## Landscape overview
- SWOT analysis
 - List of actors and gaps in the ecosystem

Roadmaps



Road-mapping process



Note: the workshop is designed to gather data fast, not to provide perfect answers to the questions. **Data will be post-processed and shared for review by participants**

Agenda

26/11

13:15-14:00: Registration

14:00-14:30: Introduction

14:30-15:40: Table session 1:
Characterisation of technologies step 1

15:40-16:00: Coffee

16:00-17:30: Table session 2:
Characterisation of technologies step 2

17:30-17:45: Wrap up of the day

18:00-19:00: Networking session 1

19:00-21:00: Dinner

27/11

08:30-08:45: Welcome

08:45-10:00: Table session 3: Identification of
technology development actions

10:00-10:20: Coffee

10:20-11:20: Table session 4: Characterization
of technology development actions

11:20-12:20: Networking session 2

12:20-13:15: Lunch

13:15-13:30: Wrap up of morning session

13:30-14:30: Table session 5: Prioritization of
technology development actions

14:30-15:40: Presentation of outcome

15:40-16:00: Conclusion

Which technologies ?

Superconducting materials

- REBCO
- BSCCO
- Iron-base superconductors
- MgB₂
- LTS

Cables and conductors

- Rutherford cable
- Roebel cable
- Stacked tape cables
- CORC cable
- Internally cooled conductors
- Dry conductors

Modelling

- Digital twins
- Tape mechanical failure modes
- Multiphysics
- Electro-mechanical analysis
- Thermo-hydraulic analysis
- AC losses

Joining and insulation

- LTS joints
- HTS joints
- Demountable joints
- Terminations and current leads
- Radiation tolerant insulation systems
- Non insulated HTS coils

Manufacturing

- High precision coil winding
- Vacuum Pressure Impregnation
- Modular coil winding
- HTS production by additive manufacturing
- 3D printed formers

Magnet protection

- Quench propagation models
- Quench detection techniques
- Integrated quench detection systems
- Quench propagation systems
- Energy extraction systems

Instrumentation and auxiliaries

- Fiber optic sensing
- Voltage taps extraction
- Cooling systems
- Persistent current switches
- Feedthroughs
- Field mapping
- Hydraulic monitoring
- Power supplies
- Shimming coils

A short description of each technology is available in the draft report v1 on

[Swapcard](#) and [Indico](#)

Networking opportunities

- Informally: during breaks (coffee, dinner, lunch) and during the networking sessions
- Formally: you can pre-book a 15-minute slot with the person(s) of your choice on Swapcard during the 2 networking sessions (see FAQs for details).
- If you wish to facilitate contacts, you can bring a poster that may be displayed on the ground floor of the Globe for the duration of the workshop.

FAQs - Logistics

- **Where will the workshop take place?**

At the [Globe of Science and Innovation](#), opposite the main entrance of CERN.

- **What is included?**

CERN will provide catering for coffee breaks and a cocktail dinner on the evening of the 26th. Entrance to CERN will be granted in order to access the canteen for lunch on the 27th should you wish to do so (at your own cost).

- **How can I book a room at the CERN hotels?**

Follow [this link](#) (also on the INIDCO page), and use Luigi Scibile as Guarantor, status= CONF, reason=Workshop/Seminar/Conference

FAQs - technologies

- **Where can I find more information on each technology?**

There is a brief description of each technology in the draft report available on [Swapcard](#) and [Indico](#).

- **How do I chose where to contribute? Do I have to stay on the same topic all workshop?**

For each group of technologies (eg Superconducting materials) there will be one table. You can sit wherever you want. If there are too many participants at one table, we may ask you to move to balance the groups.

Regardless, you can move table and change topic at any time during the workshop.

FAQs - process

- **Which questions will be asked? How will the data be gathered?**

For each technology, a number of characteristics will be established:

- TRL
- Importance
- relevance to other fields
- need for test facilities
- list of actors
- actions to increase its maturity

Then further questions will be asked for each technology development action (risk, cost, schedule, availability of expertise in Europe etc).

Depending on the sessions, data will be gathered via SLIDO or through discussions at the tables.

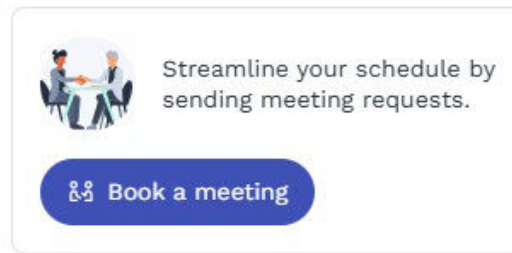
FAQs - preparation

- **How to I pre-book networking slots?**

You can pre-book slots by going to the [Attendees](#) page on Swapcard. The click on Book a meeting and follow the process.

15-minute slots are available on both days.

You can repeat the process with every meeting you wish to pre-book.



- **Do I need to prepare anything for the workshop?**

You may familiarise yourself with the technologies and be ready to answer the questions outlined above. You can also bring a relevant poster if you wish.