

PVT NEXUS – RESEARCH NETWORK ON PHOTOVOLTAIC-THERMAL TECHNOLOGIES AND SYSTEMS

Summary

PVT Nexus – the Research Network on PVT Technologies and Systems – was established as part of the PVT4EU project. Through its mentorship programme, this initiative aims to nurture a new generation of early-stage researchers equipped to drive innovation, accelerate deployment, and deepen the understanding of PVT systems. The network seeks to complement and support ongoing efforts such as the IEA SHC Task 73 “PVT Heating Systems” by creating a Research and Infrastructure Radar aimed at mapping categorized PVT-related research and available infrastructure worldwide, while promoting interdisciplinary collaboration, knowledge exchange, and visibility of early-stage research.

Keywords: photovoltaic thermal, research network, mentorship program, research and infrastructure.

Field of application for the findings: General audience working in PVT technologies and systems.

Addressed audience: academia within the PVT research field, industry stakeholders, policy/decision makers, and stakeholders involved in renewable energy integration.

1. Introduction

Photovoltaic-thermal (PVT) systems offer a unique opportunity to simultaneously generate renewable electricity and thermal energy from a single collector. Despite their high potential, PVT technologies remain underutilized and relatively unknown in many regions worldwide. Bridging this knowledge and awareness gap is crucial to unlocking the role of PVT in the global energy transition. For this reason, within the EU project PVT4EU, PVT Nexus – Research Network on Photovoltaic Thermal (PVT) Technologies and Systems was established in August 2025, which is an initiative designed to strengthen collaboration and knowledge exchange across the PVT community. The network brings together early-stage researchers (ESRs) working on PVT technologies and connects them with experienced mentors from both academia and industry, fostering a supportive environment for scientific growth, skills development, and long-term career pathways. Beyond mentorship, PVT Nexus aims to serve as a central hub for mapping and understanding the evolving PVT research landscape. To conclude, the initiative complements the work of IEA SHC Task 73, particularly Subtask C on Awareness and Policy, by developing comprehensive Research and Infrastructure Radar. This radar identifies and visualizes PVT related research groups, laboratories, infrastructures, and ongoing activities worldwide, helping to highlight emerging trends, reveal collaboration opportunities, and support evidence-based decision-making for policymakers, industry stakeholders, and the wider research community. Together, these efforts position PVT Nexus as a catalyst for strengthening the PVT innovation ecosystem, accelerating knowledge transfer, and supporting the broader deployment of PVT technologies across Europe and beyond.

2. Methodology

PVT Nexus seeks to unite early-stage researchers and experienced mentors in a collaborative effort to advance PVT technology. By fostering a culture of knowledge-sharing and mutual support, the network aims to accelerate innovation and create meaningful impact across the field. For this purpose, a mentorship program has been established. To participate in the mentorship program as either a Mentor or a Mentee (early-stage researcher), applicants are required to submit an application. Mentors provide information about their field of expertise, availability, and preferred time for collaboration. The Mentee profile is defined as an early-stage researcher (ESR) who is an MSc or PhD student, or a researcher within two years of completing their degree. Applicants to the PVT Nexus program must submit a CV and a motivation letter, along with relevant information about their

research topic and approach related to PVT technologies. Following the matchmaking of Mentors and Mentees, individual meetings are scheduled to discuss research topics and initiate collaboration.

PVT Nexus offers membership to anyone interested in staying updated on the network’s activities and advancements. Members are invited to attend our bimonthly meetings to review progress, exchange insights, and plan upcoming actions.

The PVT Nexus platform, hosted on MS Teams, functions as a dedicated space for communication, collaboration, and information exchange among members. Each Mentor and Mentee has an individual profile containing relevant professional and research information. The integrated calendar is used to schedule meetings between Mentors and Mentees, enabling organizers to monitor progress throughout the mentorship cycle.

A dedicated channel has been established for the Research and Infrastructure Radar, an initiative that complements the IEA SHC Task 73 PVT Heating Systems, subtask C: PVT Awareness and Policy. This space collects and maps information from PVT Nexus members on ongoing and completed research related to PVT technologies, as well as available research infrastructures across participating institutions. The channel is currently managed and supported by MG Sustainable Engineering (the Coordinator of the PVT4EU project). Nevertheless, efforts are being made to maintain the network after the project concludes, likely based on other ongoing projects or on IEA Task 73 itself.

3. Results

PVT Nexus was officially launched on 27th August 2025. The first application period closed on 1st October 2025 and resulted in a strong initial group of members, including 22 Mentors and 15 ESRs (7 MSc students and 8 PhD candidates). Within the PVT Nexus mentorship program, a total of 13 meetings have been completed by early March 2026.

Information on research on PVT technologies has been gathered from members and compiled into the PVT Nexus Research Radar dashboard (Figure 1), which highlights the types of research, specific research categories, and the countries where these activities have been carried out.

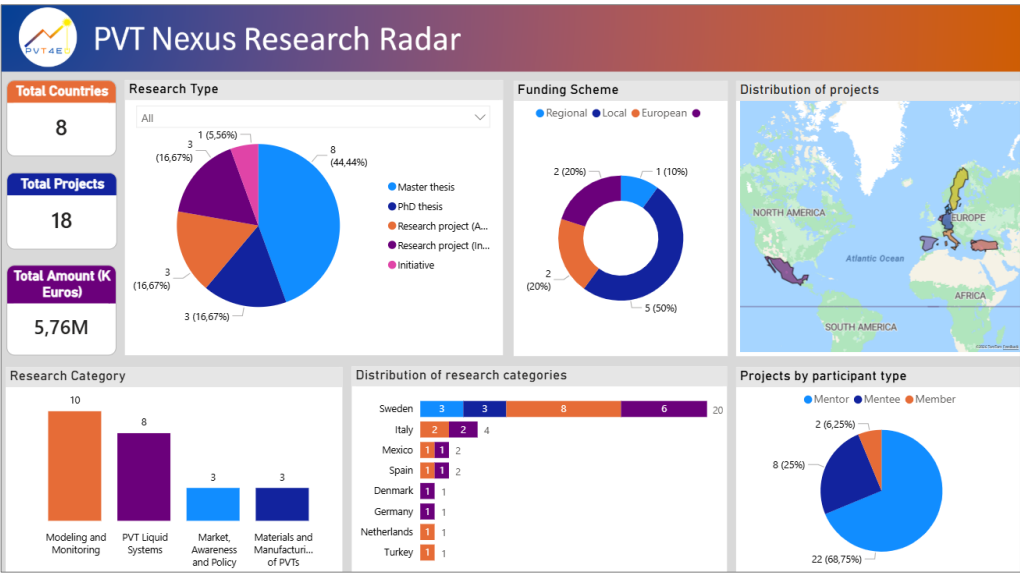


Fig. 1: PVT Nexus Research Radar

PVT Nexus members have provided information about available infrastructure at their institutions which are exposed to PVT Nexus Infrastructure Radar (Figure 2) specifying location, type of infrastructure, and type of institution.

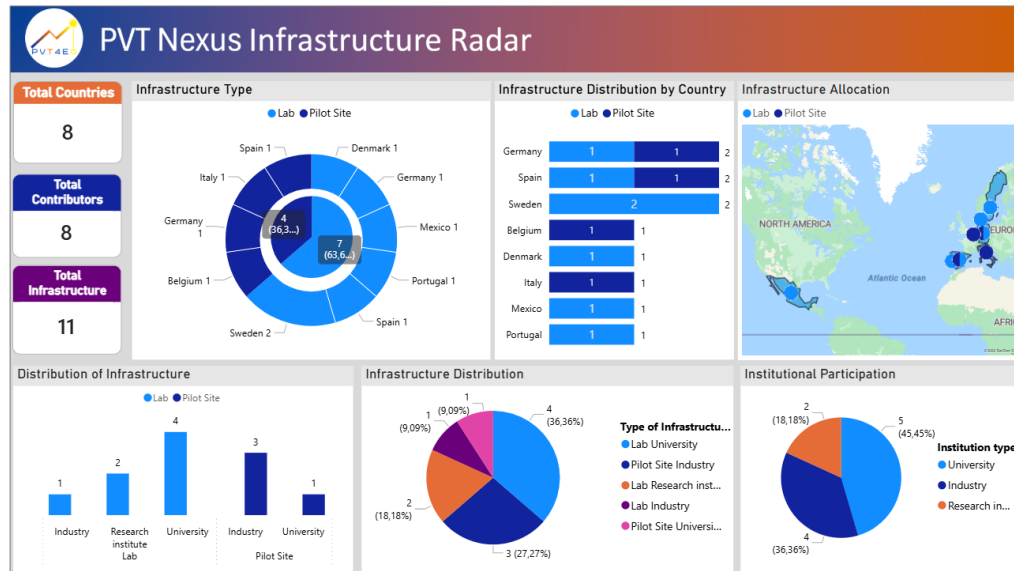


Fig. 2: PVT Nexus Research Radar

4. Conclusions

Within the first six months of PVT Nexus' existence, the mentorship programme has progressed steadily, with mentees providing positive feedback on the insightful guidance offered by the Mentors. A notable achievement of the network is the agreement for a mentee's research stay at one of the member institutions, enabling direct observation of ongoing testing of PVT prototypes developed within the PVT4EU project. The initial contribution to IEA SHC Task 73 has also begun and is being mapped in the Research and Infrastructure Radar Dashboard.

Considering the relevant presence of PVT research in past conferences, PVT Nexus would like to have a side event during Eurosun 2026 for presenting the research network, aiming to increase its outreach and invite new members to be part of the initiative and provide information for the R&I Radar. This presentation could be done in collaboration with other related initiatives.