

A large, stylized letter 'B' graphic on the left side of the slide. It is composed of two shades of blue: a darker blue for the vertical stem and a lighter blue for the two horizontal bars. The 'B' is positioned on the left side of the slide, with its right edge facing the main text area.

Photonics industry survey for research centers and universities in Finland 2025

Survey results

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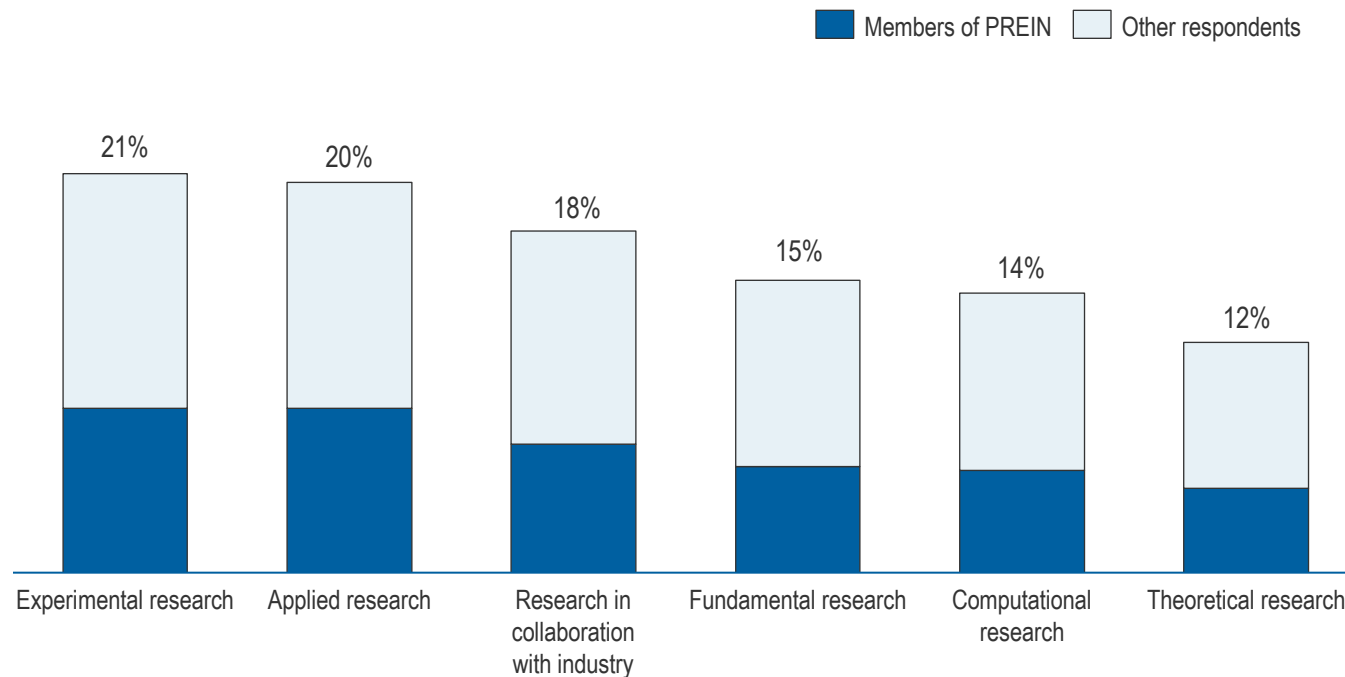
Introduction: *Photonics industry survey for research centers and universities in Finland 2025* received a good number of responses

Background	<ul style="list-style-type: none">• Business Finland, Photonics Finland, PREIN co-operated to investigate Finnish photonics research activities through similar survey that was aimed at Finnish research centers and universities operating in the field of photonics in 2020 and 2023• As Boost Brothers Oy conducted the two previous surveys and was selected to conduct 2025 year's survey as well
Goal	<ul style="list-style-type: none">• The aim of the survey was to map the activities in the Finnish research community• The survey also aims to explore the involvement of photonics related activities in semiconductor and quantum technology• The goal is to support research, product development, as well as the emergence of new partnerships and business opportunities within the Finnish research and business landscape• The goal of the results is to support development of current and new research (and business) opportunities in the Finnish photonics field by gaining a deep knowledge of needs and perspectives
Results	<ul style="list-style-type: none">• The survey was conducted as a follow-up survey for the <i>Photonics industry survey for research centers and universities in Finland 2023</i> - survey in 2020 and 2023<ul style="list-style-type: none">• The survey follows a similar structure to that of the 2023 survey, which enables direct comparisons between the results to gain a deeper understanding of the photonics market development• Additionally, this year the survey examined the involvement of photonics related semiconductor and quantum technology activities• The survey enabled to build a tool for communication nationally and internationally related to photonics industry• The survey for photonics companies received 124 responses and the response rate was approximately 25%



Finnish research centers and universities are pursuing photonics research in various ways - Experimental research and Applied research being the most prominent research types

Types of research pursued in organizations



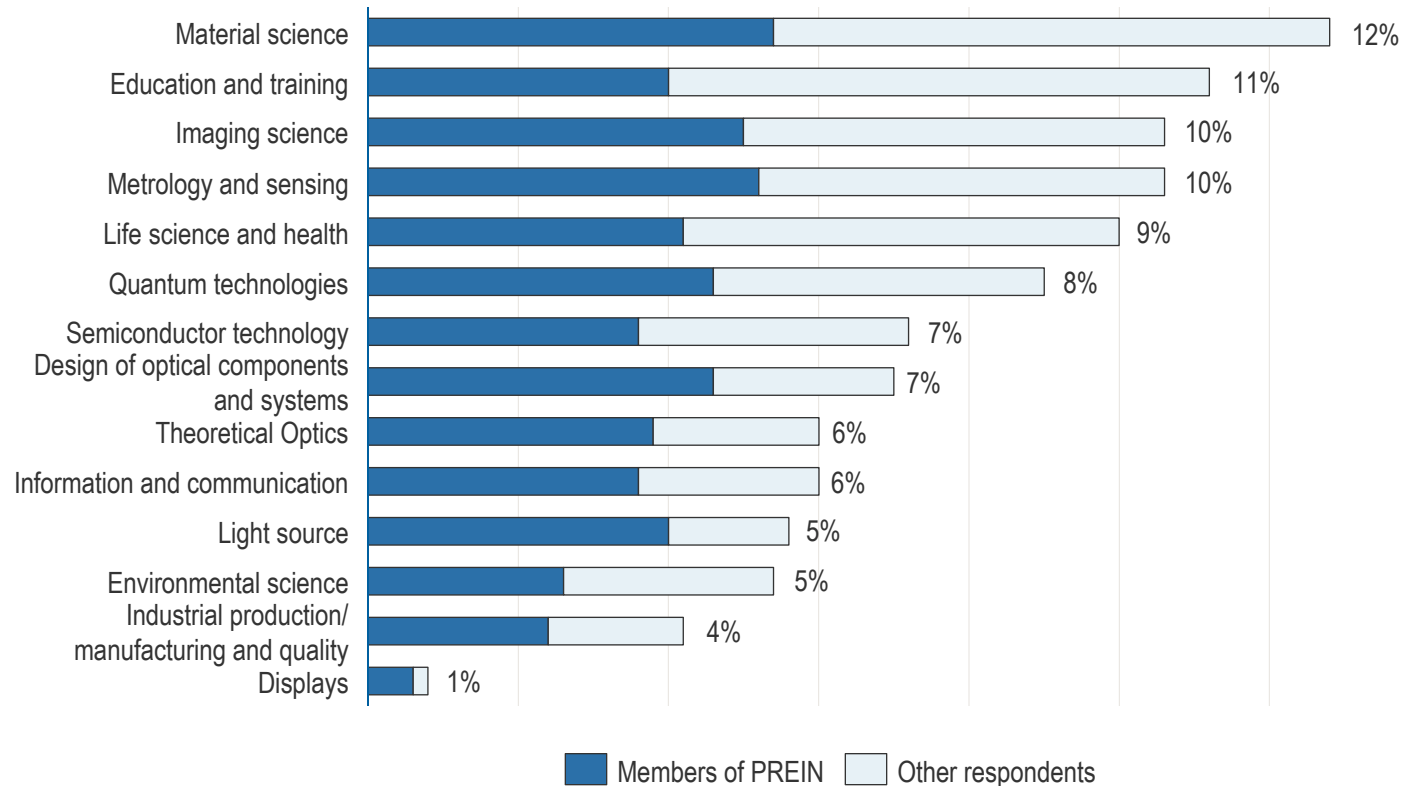
- **41% respondents are members of PREIN**
- Experimental research (21%) and applied research (20%) are the most prominent types of research among both PREIN members and other respondents
- Collaborative research also plays a significant role, highlighted by 18% of all responses
- 15% conduct fundamental research, and 14% are engaged in computational research
- The rest 12% includes utilization of theoretical research
- The distribution of research types remained roughly the same compared to 2020 and 2023



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Material science is the most prevalent photonics-related research field in Finland

Key photonics related fields in organizations

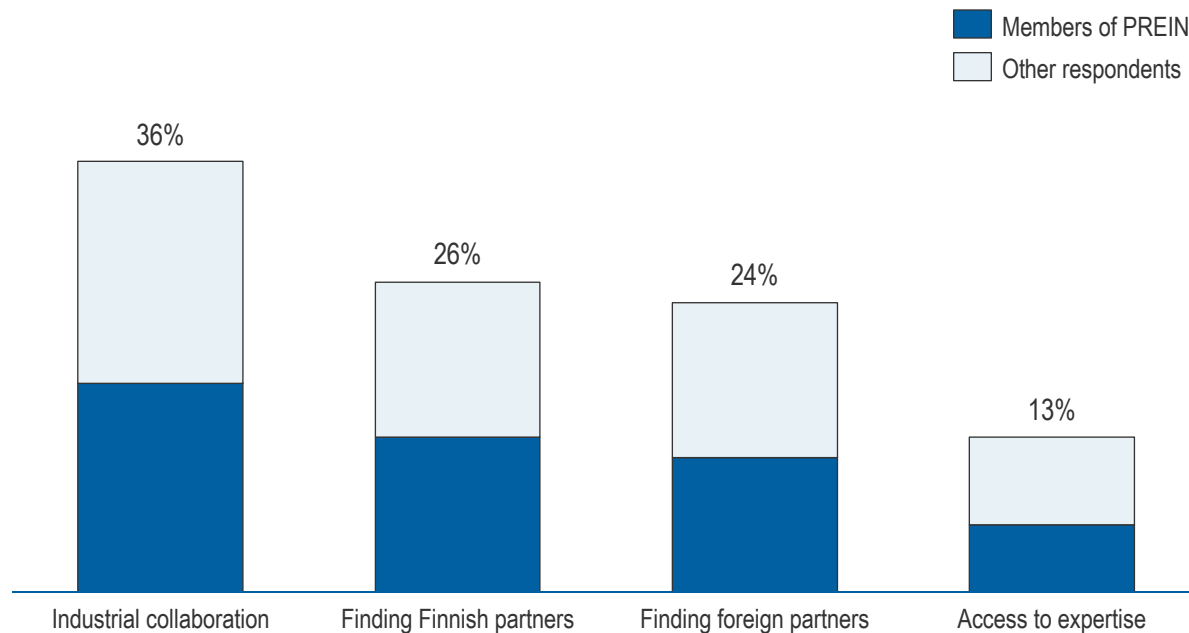


- **Material science continues to be the most prevalent photonics-related research field in Finland**
- Education and training, imaging science, metrology and sensing as well as life science and health are the top 4-5 fields as in the previous survey in 2023
- Displays continues to be the rarest field as well in the previous survey
- Other category included answers such as biobased optics, photovoltaics, spectroscopy and nanotechnology
- For members of PREIN material science, metrology and sensing and imaging science are the most prevalent fields
- The distribution of research types remained roughly the same compared to 2020 and 2023, but some of the fields were added as new answer options (semiconductor technology)



Industrial collaboration continues to be the most important facilitator of further photonics research

Type of assistance that would facilitate the research in organizations

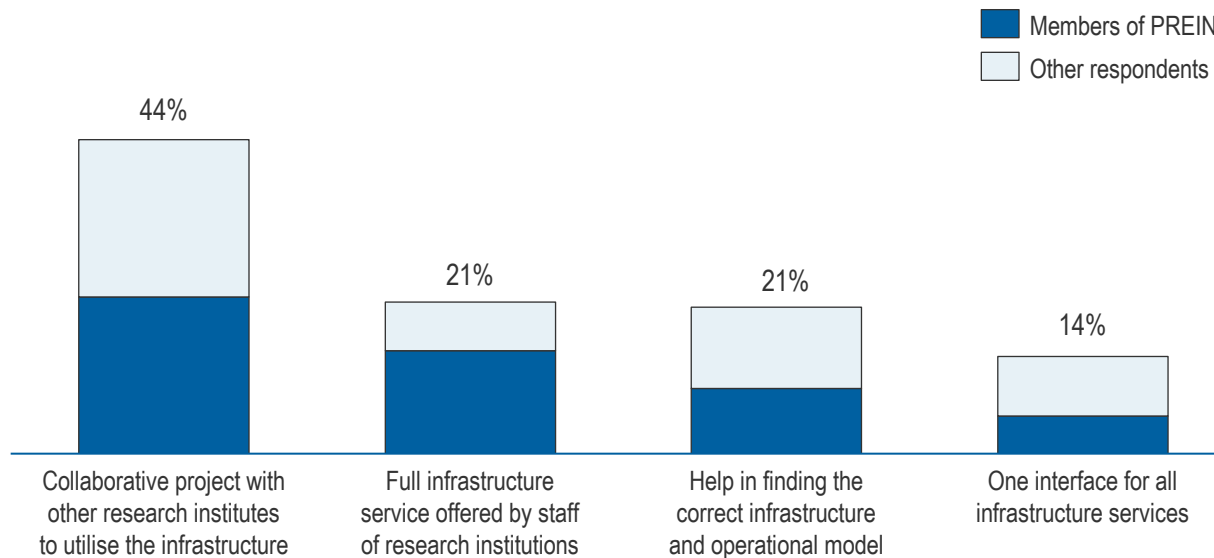


- **Industrial collaboration is seen as the most impactful way to support research**, highlighting the importance of industry-academia cooperation (A total of 36% of respondents)
- **26% of respondents indicated a need for help in finding Finnish partners and 24% identified finding foreign partners**
- While access to expertise is valued, it is considered a secondary need compared to collaboration and partnership-building
- In the open-ended responses, it was noted that investments, funding and other resources would facilitate the research organizations



Respondents were mainly hoping for further collaborative projects with other research institutes to utilize the full potential of Finnish photonics research infrastructure

The most desirable level of service in potential utilisation of the research infrastructure of universities and research institutes

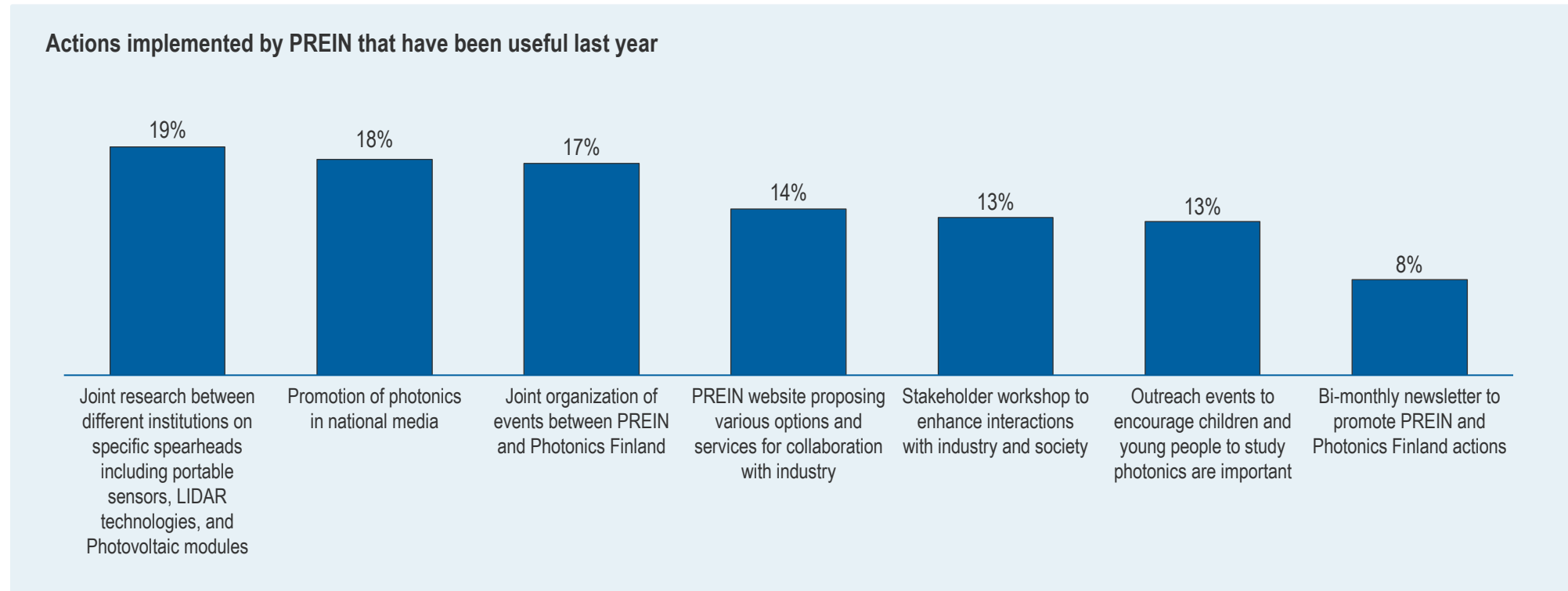


- The most preferred service is collaboration with other research institutes to access infrastructure by 44% like in the survey 2023, reflecting strong interest in joint use and cooperation
- 21% of respondents prefer full infrastructure services provided by research staff
- 21% want help in finding the right infrastructure and model, specially by respondents that are not part of PREIN
- 14% would benefit from a single access point showing also that clarity and coordination are important in infrastructure utilisation
- In the open-ended responses, respondents were interested in better connections and evaluating collaboration possibilities

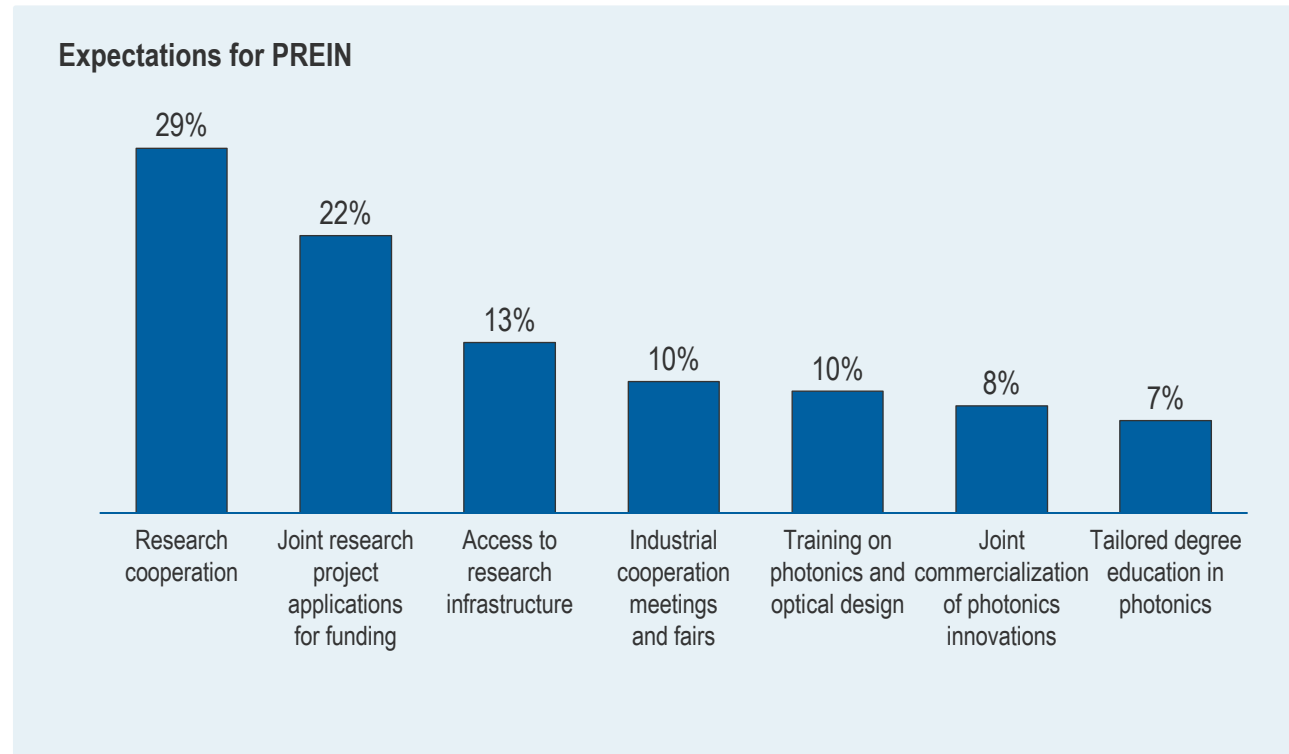


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Joint research on specific spearheads, promotion of photonics in national media as well as joint industry events were generally seen as the most beneficial actions of PREIN in research



PREIN is expected to provide researchers with means for cooperation and collaboration, along with an improved access to necessary infrastructure



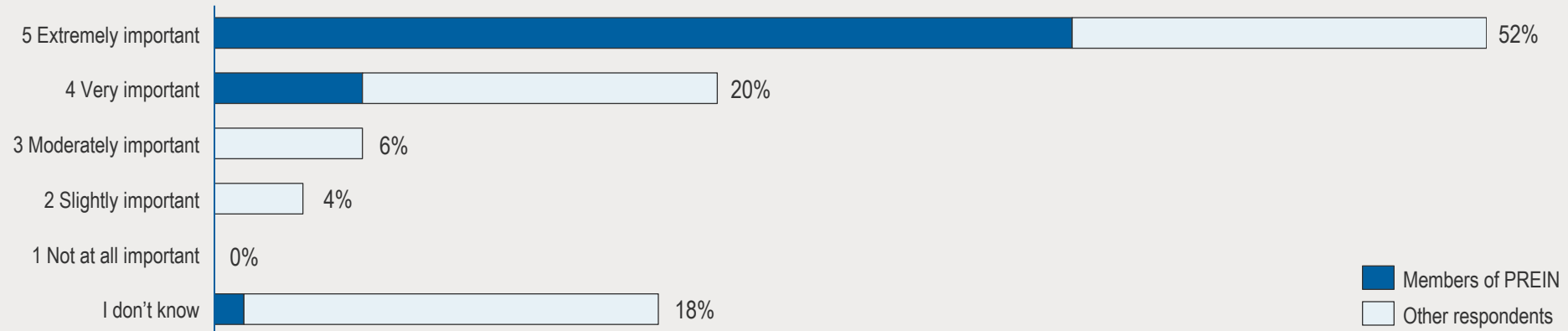
- **Nearly one-third (29%) of respondents expect PREIN to support research cooperation**, highlighting its central role in academic–industry interaction
- **22% of respondents see joint research project applications as a key area** where PREIN can provide tangible help in securing resources
- Expectations related to access to infrastructure industrial events, training, commercialization, and education are all present, but more evenly distributed — suggesting diverse but secondary needs across the field
- In the open-ended responses, promotion and collaboration in education and high-impact research proposals were noted as other type of expectations



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The PREIN Flagship Initiative is highly valued, particularly among its members, and 72% of respondents consider extending the programme to be very or extremely important

How important is it that the Research Council of Finland would extend the flagship programme beyond 2026?

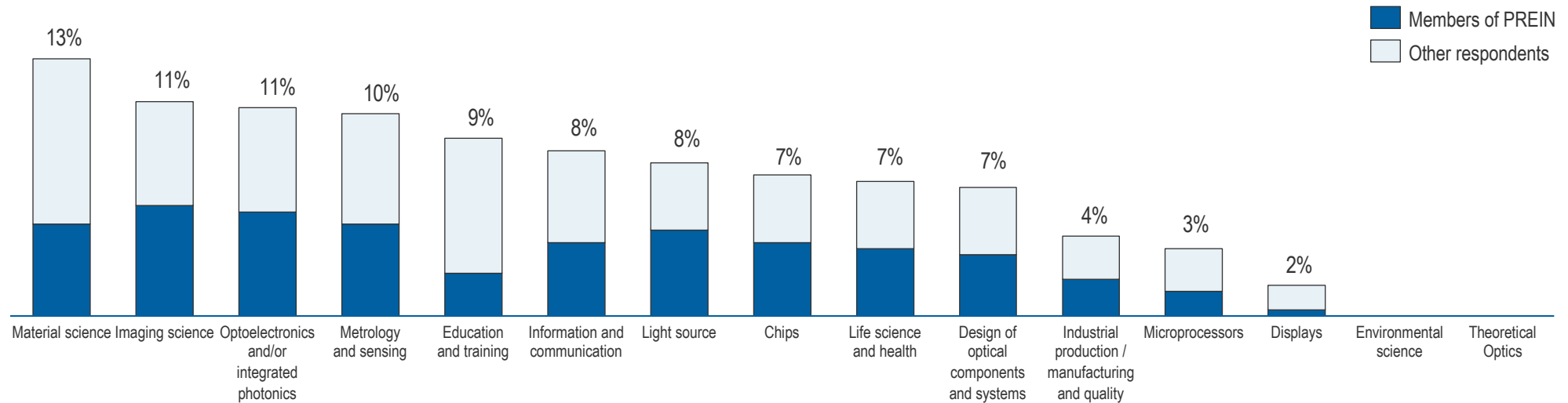


- Clear majority of respondents consider continued research funding to be important, with 72% rating it as very or extremely important
- Respondents do not view the continuation as unimportant, indicating broad support across the sector
- A considerable share of respondents (18%) were unsure, which may reflect limited awareness of the programme or indirect relevance to their operations



67% of the responded organizations utilize semiconductor technology

Key semiconductor related fields of application in your organization

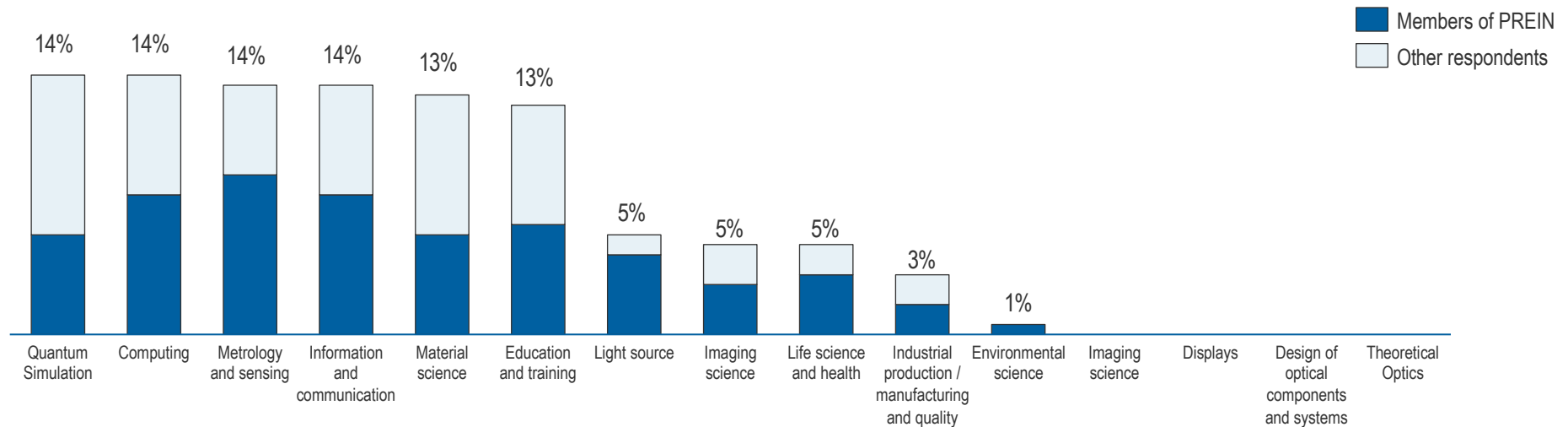


- **Among the responses, 67% organisations utilize semiconductor technologies**
- The top fields of application related to semiconductor technology include material science (13%), imaging science (11%), and optoelectronics/integrated photonics (11%)
- Rest responses spread across many smaller areas such as education, light sources, health, and chips — indicating broad but less concentrated interest in semiconductor applications



51% of the responded organizations utilize quantum technology

Key quantum related fields of application in your organization



- **Among the responses, 51% organisations utilize quantum technologies**
- Quantum technology applications are concentrated in computing, simulation, sensing, and communication
- Fields such as environmental science, industrial production, life sciences, and displays received significantly lower mentions (5% or less), suggesting that quantum adoption in these sectors is still emerging or niche



Summary

- **Industrial collaboration continues to be the most important facilitator of further photonics research**
 - In the open-ended responses, it was noted that investments, funding and other resources would facilitate the research organizations as well
- **PREIN Flagship Initiative is appreciated among researchers and extending the programme is considered very or extremely important by 72% of respondents**
- **PREIN is expected to provide researchers with means for cooperation and collaboration, along with an improved access to necessary infrastructure**
- **Respondents were mainly hoping for further collaborative projects with other research institutes to utilize the full potential of Finnish photonics research infrastructure**
- **Among the responses, 67% research organisations utilize semiconductor, and 51% research organisations utilize quantum technologies**





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