EUROPEAN
PLASMA RESEARCH
ACCELERATOR WITH
EXCELLENCE IN
APPLICATIONS

EuPRAXIA's Future User Community

Maria Weikum

EuPRAXIA 3rd Collaboration Week, Liverpool

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653782.

What does EuPRAXIA offer?

- Multiple types of beams:
  - Electrons
  - X-rays
  - High-power laser pulses
  - Positrons and other secondary sources

+ combinations of these?

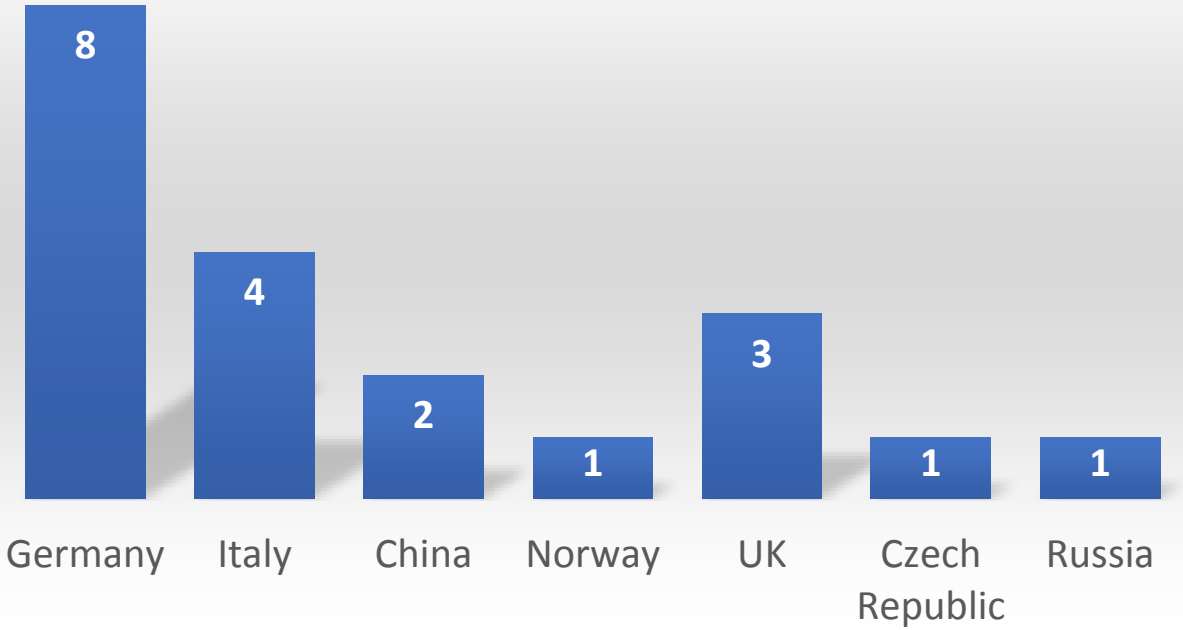
- Multiple beamlines → *how many?*
- Multiple experimental user areas → *how many?*

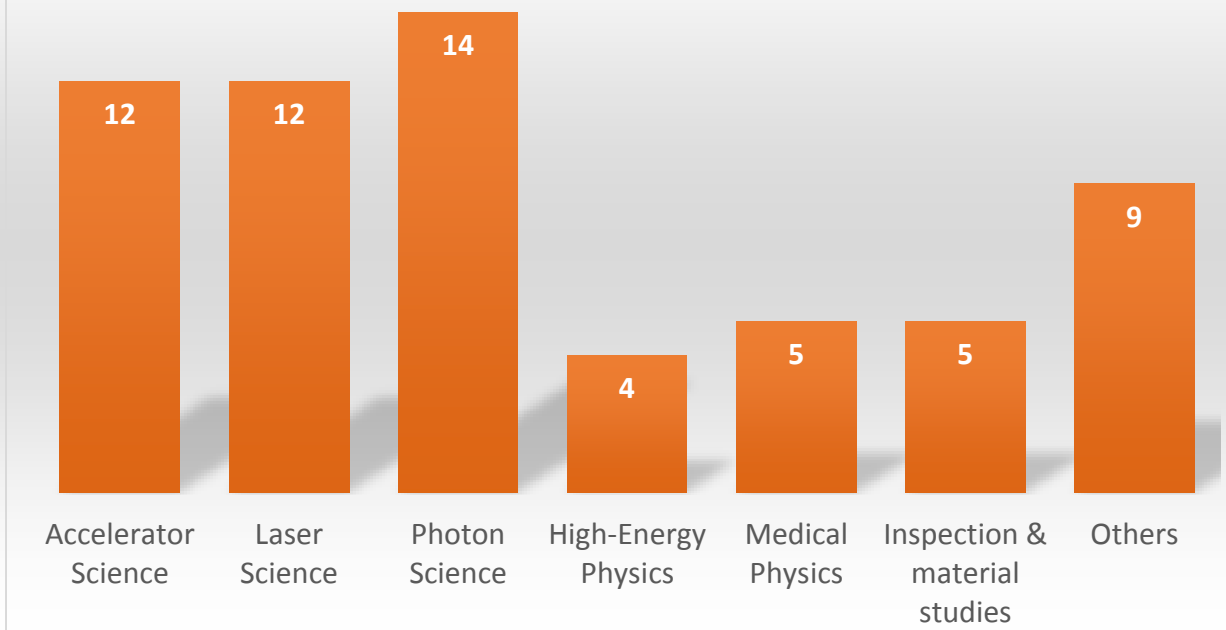
How would this look with two different sites?

What kind of users do we have?
Does what we offer fit with what they need?

Use discussions, user workshops, user survey, ...

User Survey Ongoing



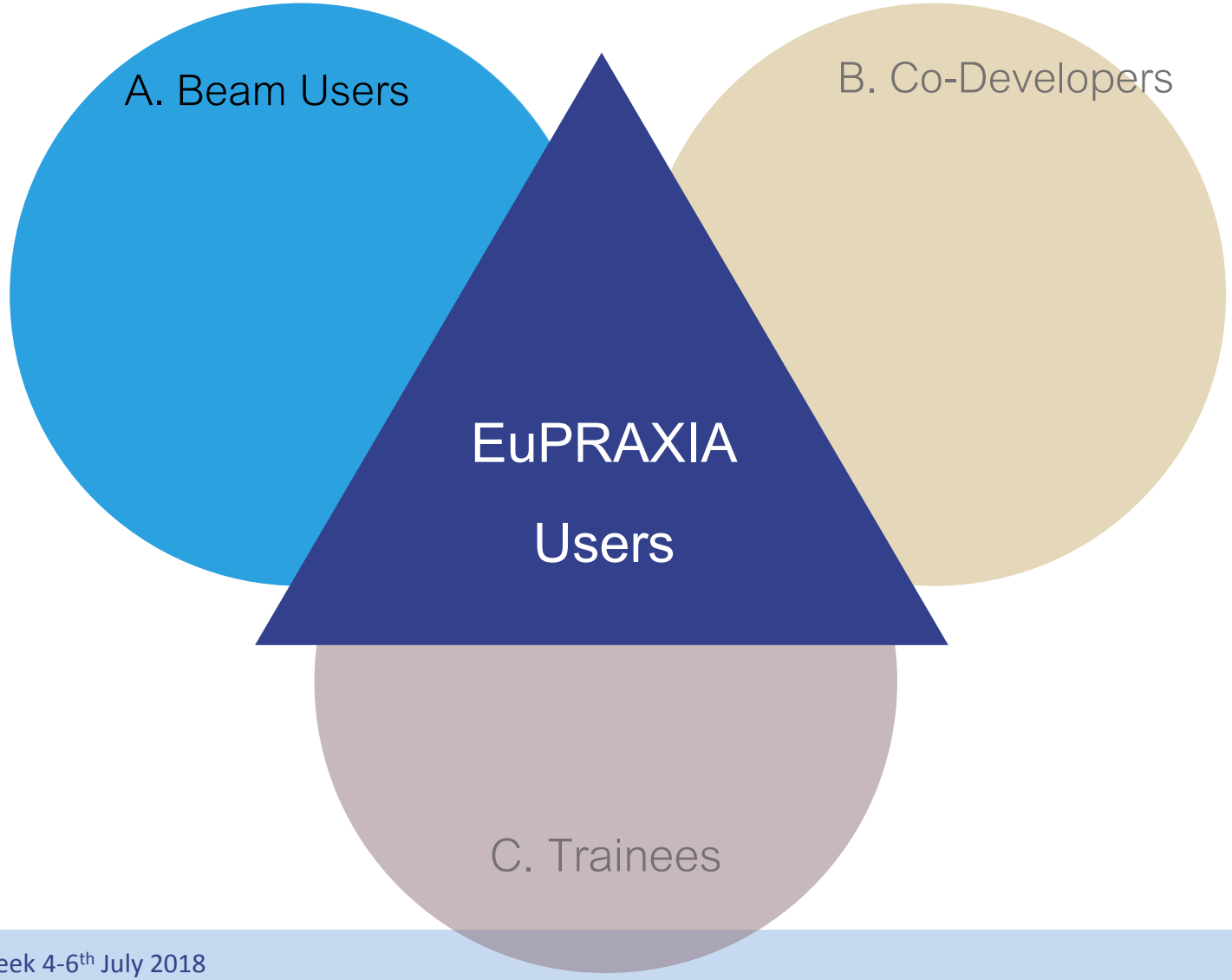


Responses from 20 groups/departments, >850 researchers

100% interest in further contact, 95% interest in workshop participation

BUT: We need more statistics, especially from countries not yet represented in survey

Three EuPRAXIA User Categories



A. Beam Users

- Interested in beam properties, not necessarily underlying novel technology
- Focus on fundamental and applied research, no need to involve in machine itself
- Mostly existing FEL and synchrotron users, both from companies and academic organisations
- Coming from several disciplines:
  - Biology
  - Medicine
  - Physics
  - Chemistry
  - Material Science
  - Archaeology & history

EuPRAXIA is interesting for this user category because of....

- ✓ **Beam properties competitive to conventional facilities (e.g. longitudinal and transverse beam sizes)**
- ✓ **Lower beamtime cost due to more compact design**
- ✓ **Longer beam access time compared to conventional facilities**

Three EuPRAXIA User Categories

Biology

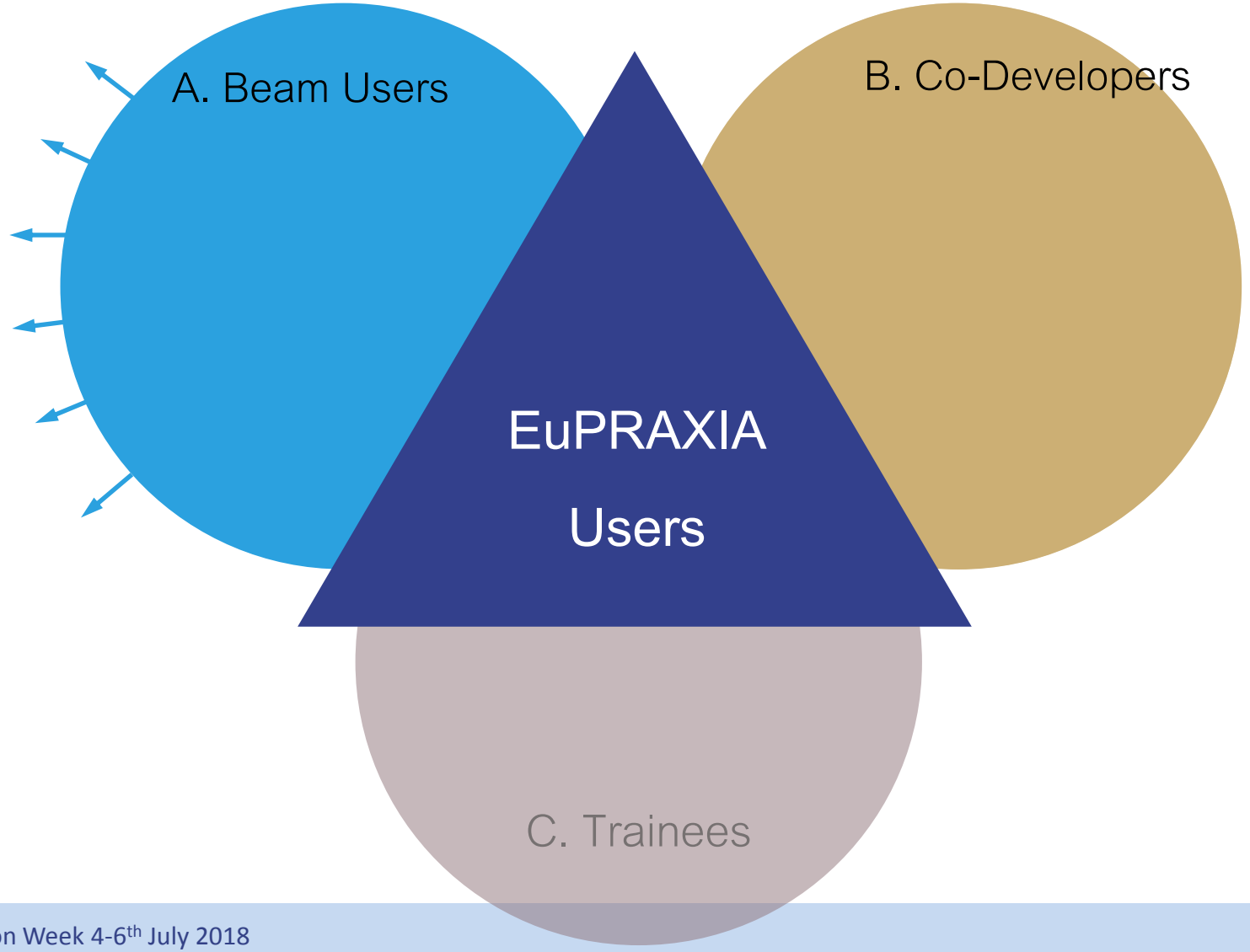
Chemistry

Medicine

Material Science

Physics

Archaeology & history



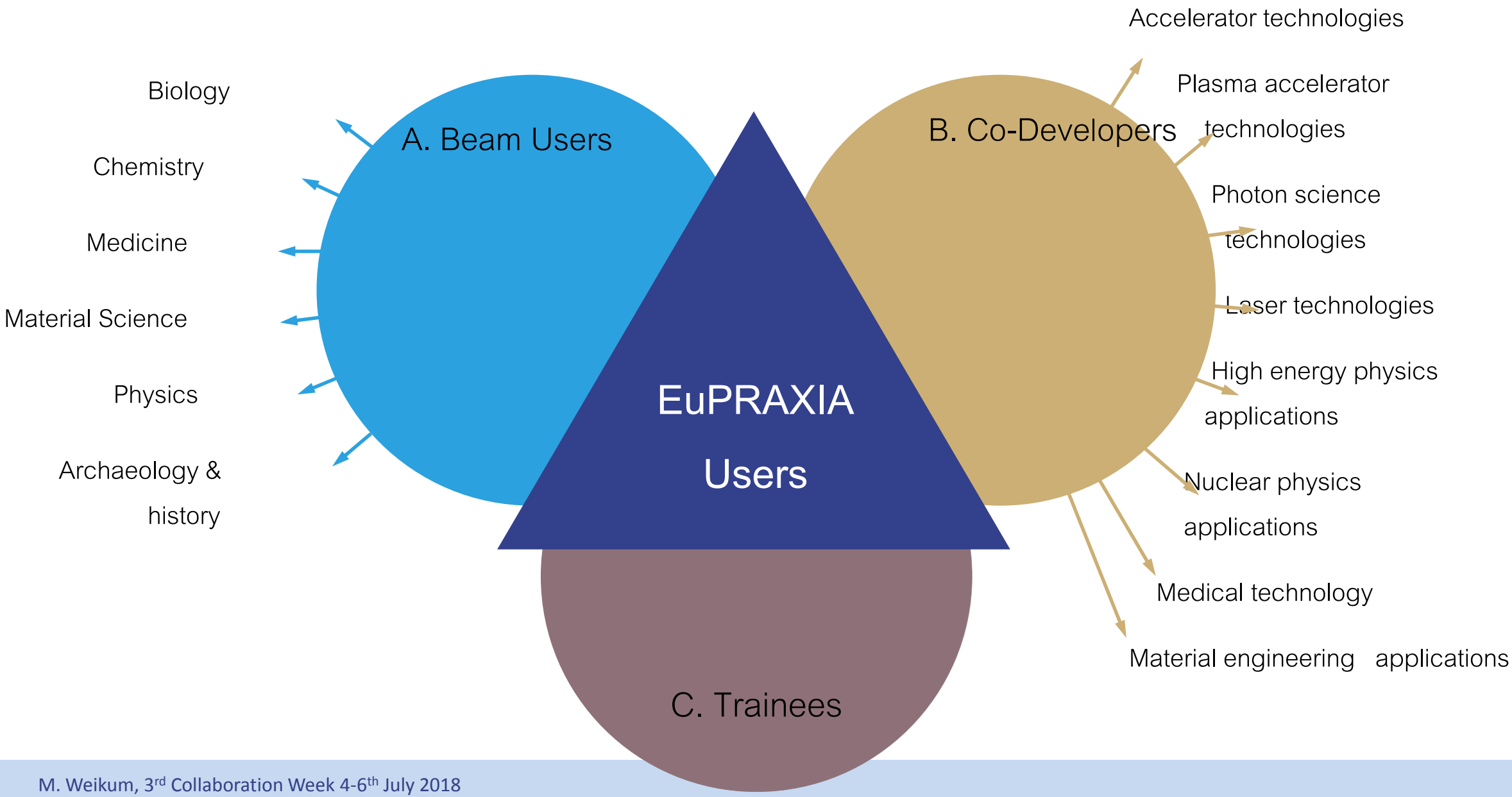
B. Co-Developers

- Interested in developing and testing novel technologies related to plasma accelerator technology
- Focus on R&D and new developments, may require more direct interactions with the machine
- Both from companies and academic organisations
- Interested in activities on:
  - Accelerator technologies
  - Plasma acceleration technologies
  - Photon science technologies
  - Laser technologies
  - High-energy physics applications
  - Medical applications
  - Nuclear physics applications
  - Material engineering applications

EuPRAXIA is interesting for this user category because of....

- ✓ **EuPRAXIA being the only suitable facility**
- ✓ **Longer beam access time compared to other facilities**
- ✓ **The possibility for testing directly on a beamline**

Three EuPRAXIA User Categories



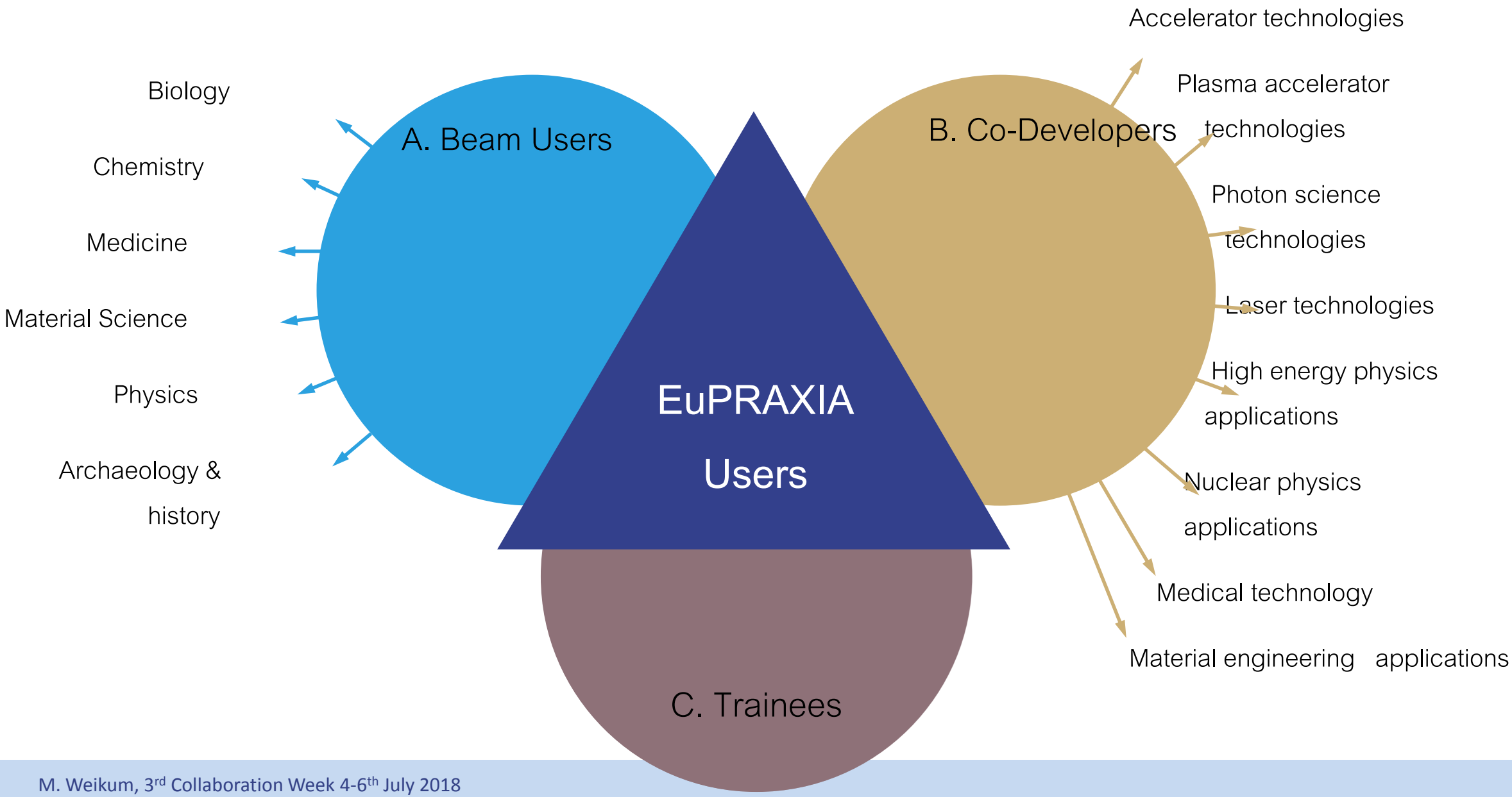
C. Trainees

- Interested in training for plasma accelerator operation
- Both from companies and academic organisations
- Main goals of such training programs:
  - ➢ Possibility to build and run own plasma accelerator facility in the future (esp. large companies)
  - ➢ Possibility to understand principles and challenges of investing in plasma technology in the future (e.g. emerging countries)

EuPRAXIA is interesting for this user category because of....

- ✓ **EuPRAXIA being the only large-scale plasma accelerator facility (for a time)**
- ✓ **Comprehensive expertise from EuPRAXIA Consortium (esp. when collaborating with universities)**

Three EuPRAXIA User Categories



Next steps

User Presentations: 11:30 am – 11:40 am

Prof. Samar Hasnai (5 min.)

Dr. Christophe Simo min.)

Brainstorming Sess

10 groups à 8-9 me

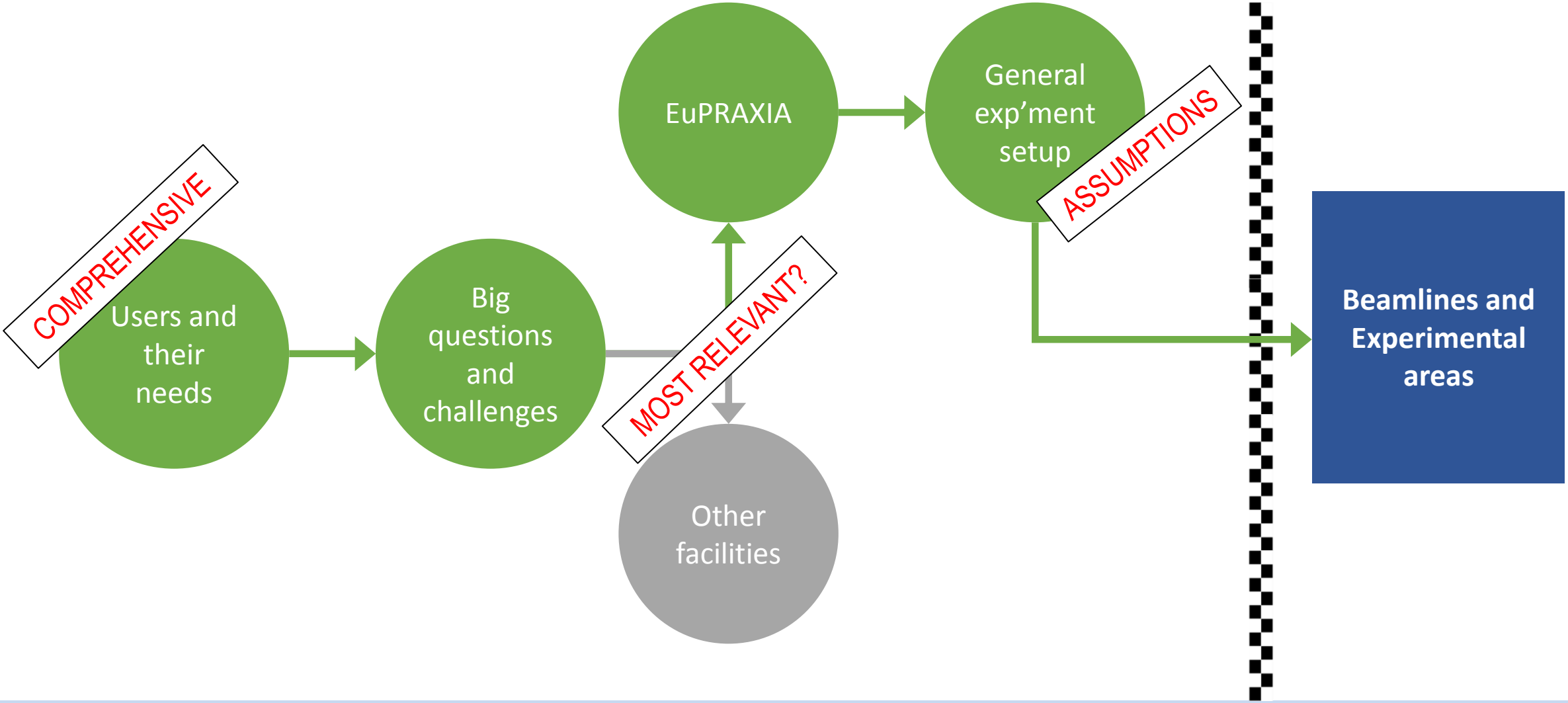
Conclusions: 12:15

Summary of group discussions in plenary

Is this description comprehensive? Are our assumptions correct?

Brainstorming Session

What is the goal of this exercise?



Please join with your groups!

Group 1	Group 2	Group 3	Group 4	Group 5
Audet, Thomas	Assmann, Ralph	Burkart, Florian	Alexandrova, Alexandra	Cros, Brigitte
Carver, Lee Robert	Couprie, Marie-Emmanuelle	Ferrario, Massimo	Biarrotte, Jean-Luc	Ferran Pousa, Ángel
Chiadroni, Enrica	Galante, Bruno	Filippi, Francesco	Brüngermann, Erik	Helm, Anton
Hasnain, Samar	Marocchino, Alberto	Hoummi, Lina	Cianchi, Alessandro	Hooker, Simon
Hunt, James	Oumbarek-Espinos, Driss	Juarez-Lopez, Pavel	Dattoli, Giuseppe	Karsch, Stefan
Nguyen, Federico	Streeter, Matthew	Nghiem, Phu Anh Phi	Dorda, Ulrich	Martinez de la Ossa, Alberto
Niknejadi, Pardis	Svystun, Elena	Rodin, Volodymyr	Heinemann, Thomas	Perera, Aravinda
Skordis, Eleftherios	Villa, Fabio	Rossi, Andrea Renato	Marx, Daniel	Pocsai, Mihály András
Zigler, Arie	Vujanovic, Milena	Walker, Paul Andreas	Wolfenden, Joseph	Tomassini, Paolo
Group 6	**Group 7**	**Group 8**	**Group 9**	**Group 10**
Alejo, Aaron	Chancé, Antoine	Beaton, Andrew	Cheriaux, Gilles	Clarke, Jim
Büscher, Markus	Colosimo, Samantha Jean	Fiore, Gaetano	Gizzi, Leonida	Crump, Paul
Campana, Pierluigi	Hidding, Bernhard	Hawke, Joshua	Hübner, Marco	Edmonds, Chris
Kolbinger, Bernadette	Ibison, Mark	Hounsell, Benjamin	Huijer, Thomas	Mostacci, Andrea
Mazzotta, Zeudi	Labate, Luca	Pattathil, Rajeev	Kostyukov, Igor	Sheng, Zhengming
Resta López, Javier	Lemery, Francois	Salehilashkajani, Amir	Mason, Paul	Silva, Thales
Schnuerer, Roland	Ullmann, Daniel	Sarri, Gianluca	Siders, Craig	Torres, Ricardo
Specka, Arnd	Welsch, Carsten	Toci, Guido	Simon-Boisson, Christophe	Veglia, Bianca
Zhang, Hao	Walczak, Roman	Xia, Guoxing		

Appendix: Useful definitions (1)

- **Research Infrastructure (RI):** RI are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They include: major scientific equipment (or sets of instruments), knowledge-based resources such as collections, archives and scientific data, e-infrastructures, such as data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation (Source: ESFRI Roadmap 2018).
- **Facility:** Combination of equipment, expertise, and data available in a given location. A research infrastructure may be composed of one (single-site) or several (distributed) facilities.
- **Users:** "Users" of RIs can be individuals, teams and institutions from academia, business, industry and public services. They are engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of projects. Teams can include researchers, doctoral candidates, technical staff and students participating in research in the framework of their studies (Source: European Charter for Access to Research Infrastructures).

Appendix: Useful definitions (2)

- **Access mode:** Access to RIs may be provided according to three different access modes, i.e. “excellence-driven”, “market-driven” and “wide”. Acknowledging the different purposes of Access, and in function of possible contractual and legal obligations, access to any RI may be regulated according to one Access mode, or any combination of them.
- **Conditions for Access:** Criteria upon which access is granted to the RI, in a given access mode.
- **Access unit:** The unit chosen to measure access, e.g. researcher workhours, beam hours (for a laser facility), days-at-sea (for a ship).
- **Access capacity:** The total amount of access units available at a RI.

Consortium

Horizon 2020

16 Participants

24 Associated Partners

(as of December 2017)