

# Education, Training and Mobility, Knowledge Management: Towards a Common Effort to Ensure a Future Workforce in Europe and Abroad

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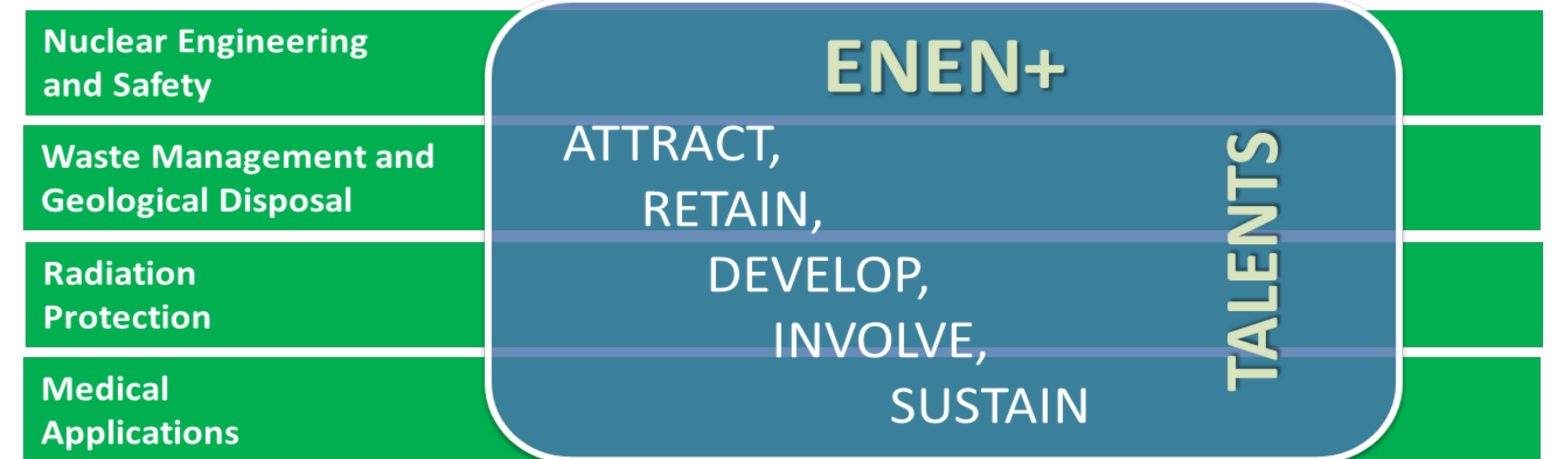
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## Abstract

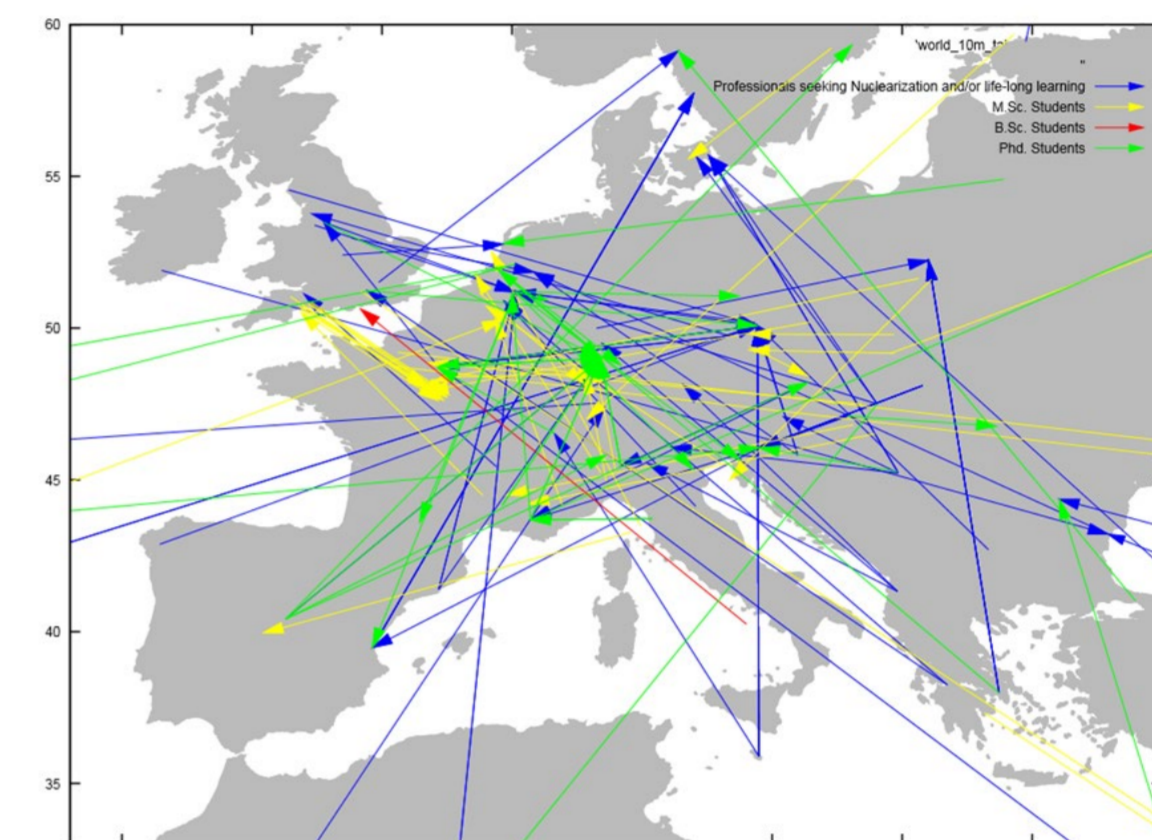
Continuous and future-oriented education and training as well as knowledge management for young talents are required for the safe and reliable operation of nuclear reactors and nuclear facilities in Europe. A dedicated line of collaborative projects addresses the specific needs, such as lack of personnel (project **ENEN+**: "Attract, Retain and Develop New Nuclear Talents Beyond Academic Curricula"). State-of-the-art approaches and in-depth knowledge are provided when it comes to reactor physics (project **GRE@T-PIONEER**: "Graduate Education Alliance for Teaching the Physics and Safety of Nuclear Reactors") or nuclear radiochemistry (project **A-CINCH**: "Augmented Cooperation in Education and Training in Nuclear and Radiochemistry"). A highly skilled nuclear engineer must undergo experimental work to better observe theoretical principles at work. Following the **ENEPP** (European Nuclear Experimental Educational Platform) initiative, a network of research reactors and special laboratories is made available for performing such activities. The **PIKNUS** project aims to define a concept of a knowledge management method and tool to improve the sharing and availability of Euratom research results. All projects successfully demonstrate that European collaboration could address certain needs to attract, develop and retain young talents in future-oriented nuclear fields.

## ENEN+

To support the revival of the interest of young generations in careers in nuclear sector we used five objectives on four educational topics:



The project had an important impact on the nuclear community and beyond. Figure below contains data about more than 600 "mobilities" that have been granted, demonstrating the European dimension for nuclear E&T of the project.

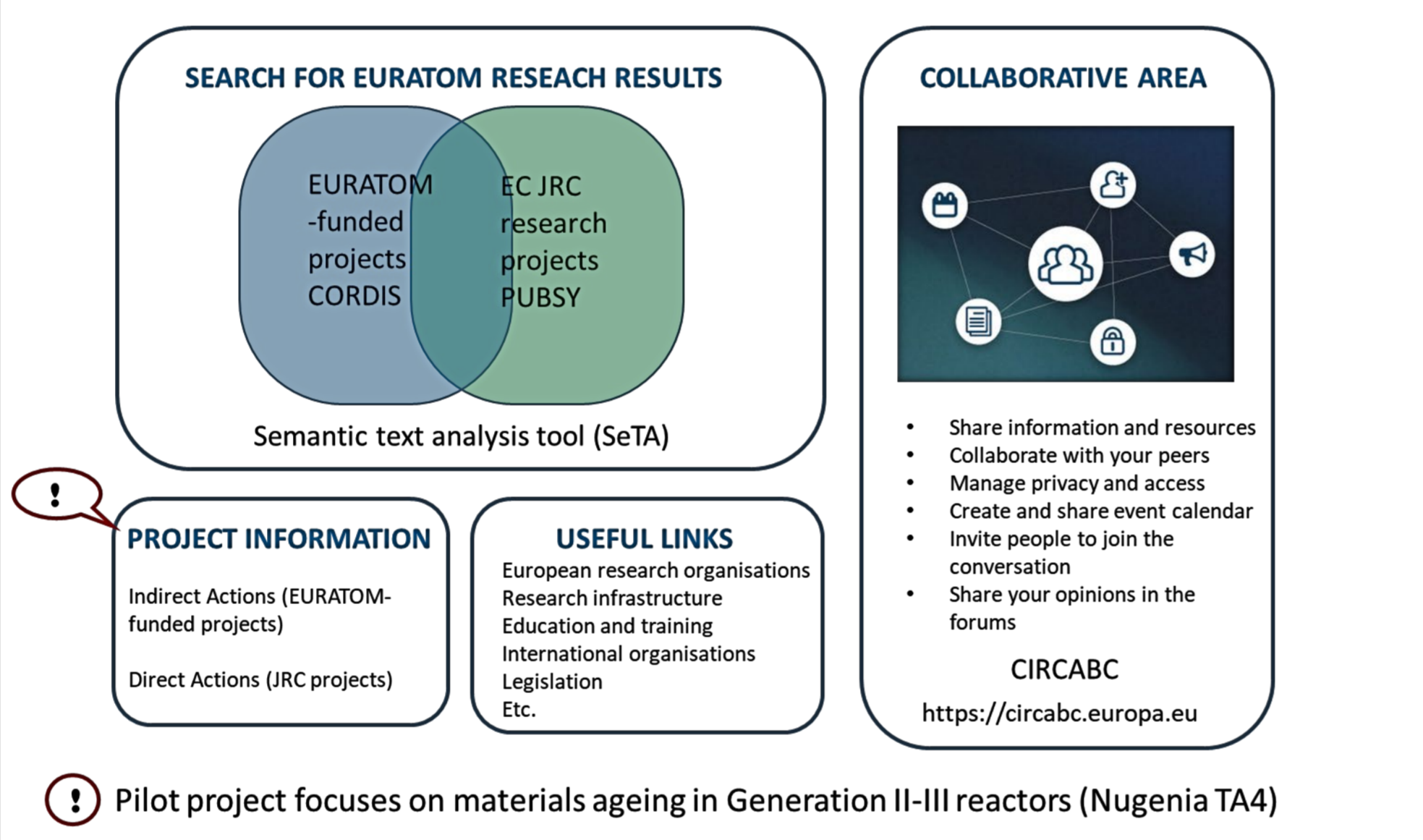


Although the ENEN+ project ended, the consortium decided to continue the initiative and we are providing a more complex support program for the whole nuclear community.

<https://plus.enen.eu/>  
<https://enen.eu/>

## PIKNUS

Pilot action on Knowledge management in the area of Nuclear Safety

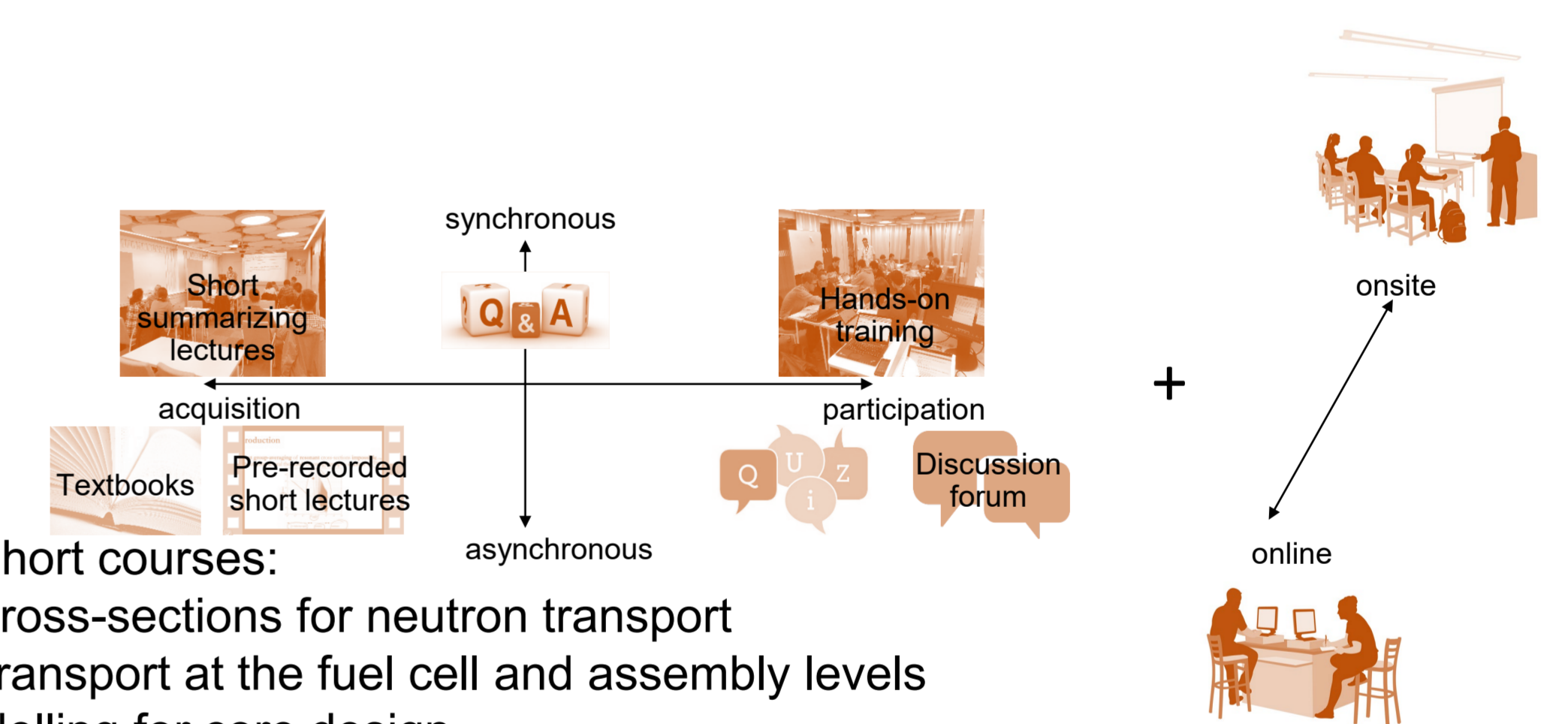


Pilot project focuses on materials ageing in Generation II-III reactors (Nugenia TA4)

## GRE@T-PIONEER

Developing and offering specialized education and training resources for nuclear engineers, graduate and post-graduate students, and researchers in nuclear reactor physics, modelling, and safety.

Use of innovative pedagogical methods promoting learning and relying on flipped classrooms, with the interactive sessions proposed onsite and online.



6 thematic short courses:

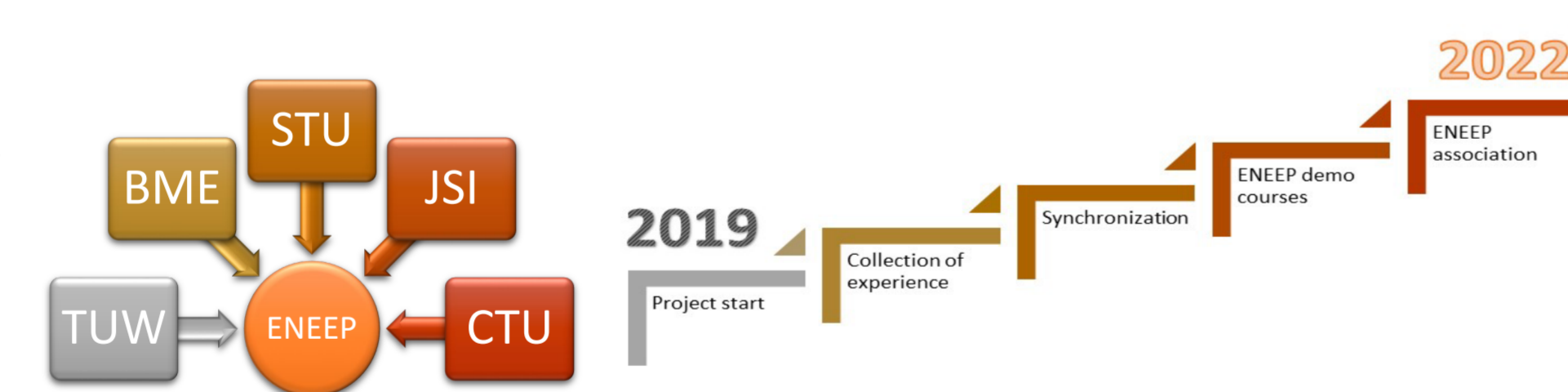
- Nuclear cross-sections for neutron transport
- Neutron transport at the fuel cell and assembly levels
- Core modelling for core design
- Core modelling for transients
- Reactor transients, nuclear safety and uncertainty and sensitivity analysis
- Radiation protection in nuclear environment

Interactive sessions heavily relying on computer-based modelling and simulations, and on hands-on exercises at training reactors.

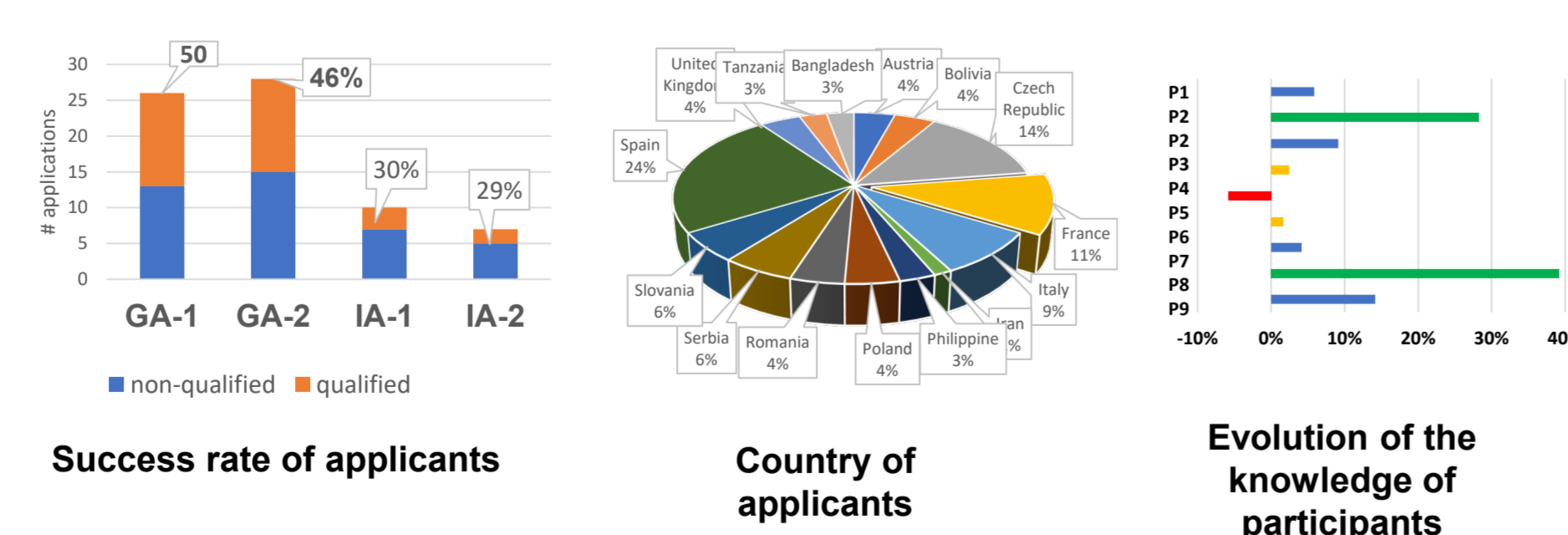
More info at: <https://great-pioneer.eu>

## ENEPP

An essential element in the implementation and safe operation of nuclear facilities is a knowledgeable and skilled workforce. The nuclear specific skills and experience of workforce cannot be built without an experimental hands-on nuclear E&T. To address these challenges the European Nuclear Experimental Educational Platform is established.



ENEPP brings experimental E&T closer to everyone. ENEPP E&T activities are based on experiments utilizing research reactors and laboratories of nuclear physics, material science and radiation protection. So far 4 demonstration courses were carried out (2 group, 2 individual) with 71 applications received.



In 2022 new courses are planned:

- "Train the trainers" – 3days – 10 trainers
- "Train the lecturers" – 3x3 days – 10 lecturers
- "Train the students" – 3 days – 10 students

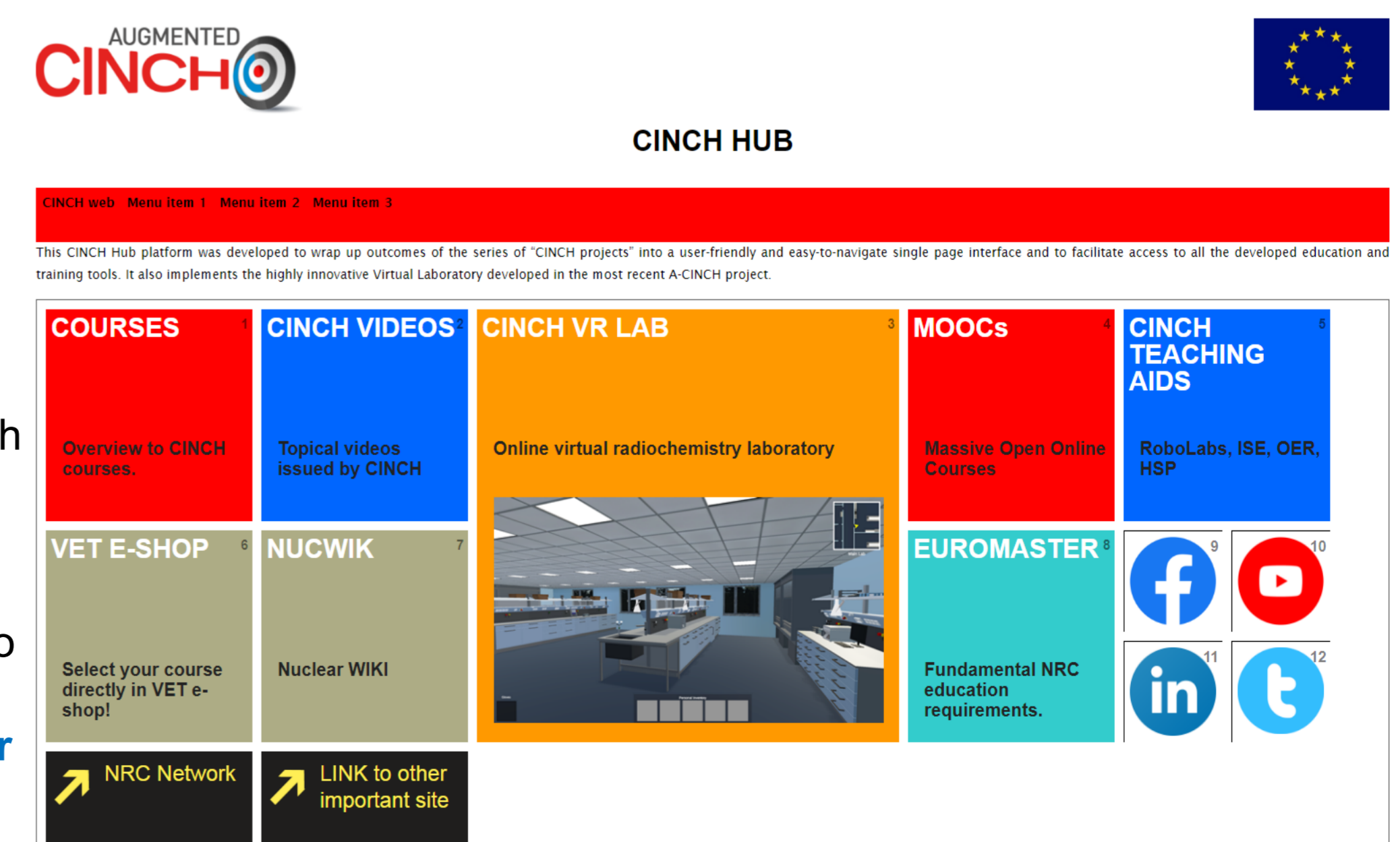
For more information about the courses, please follow us:



## A-CINCH

Augmented Cooperation in education and training In Nuclear and radioCHemistry

The **A-CINCH** project augments **CINCH teaching tools** developed in the three previous projects – CINCH, CINCH II and MEET-CINCH – with the state of the art three-dimensional (3D) virtual reality (VR) environment to complete the existing **toolbox for radiochemistry education**.



## Acknowledgements & references

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