The European Spallation Source

Overview presentation

www.europeanspallationsource.se

9 December, 2019

Vision

Build and operate the world's most powerful neutron source,

enabling scientific breakthroughs

in research related to materials, energy, health and the environment,

addressing some of the most important societal challenges of our time.

Organisation and People

EUROPEAN SPALLATION SOURCE

503

Employees

56

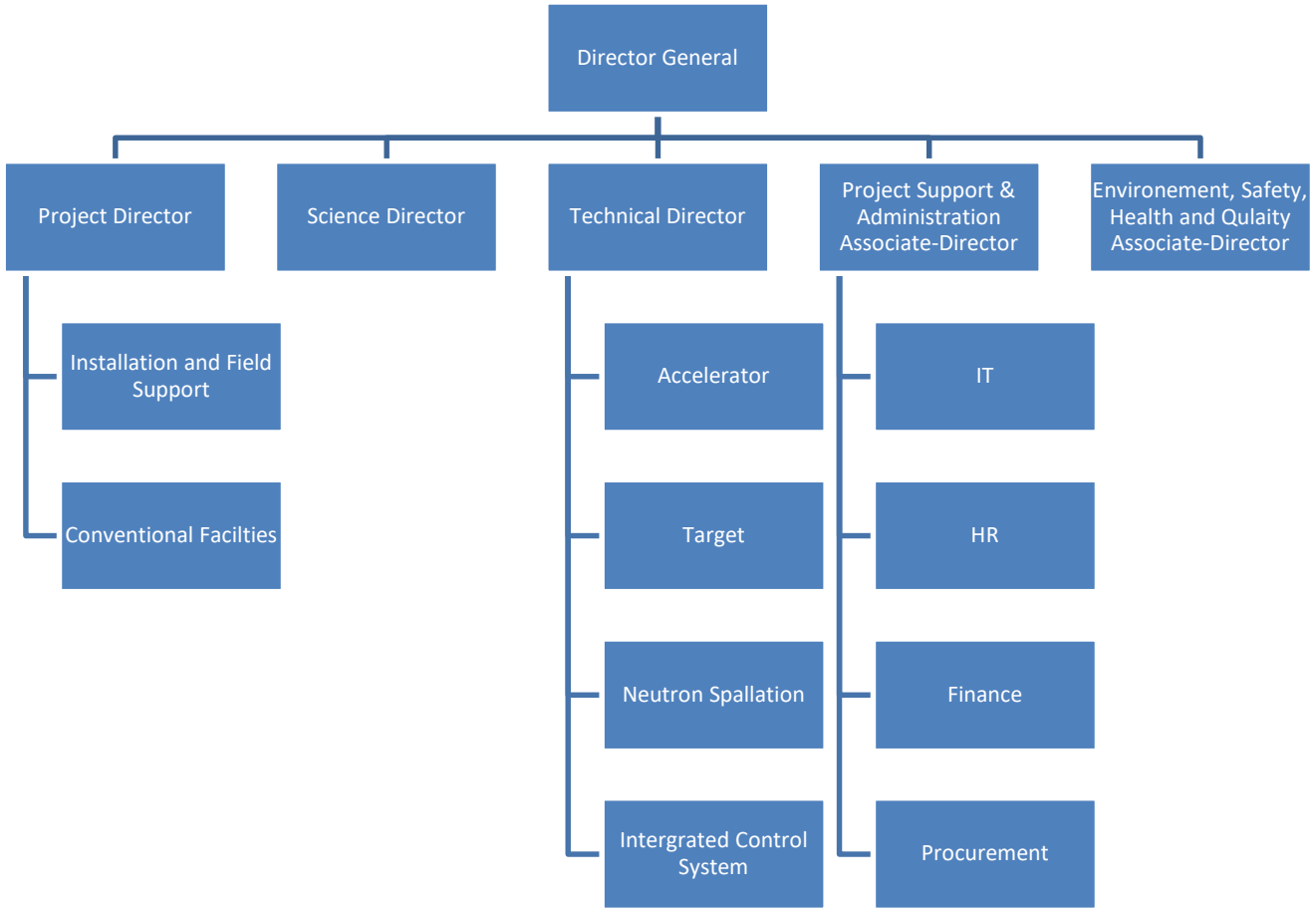
Nationalities

> 100

Collaborating Institutions

Organisation chart

Updated 17 Sep 2019



Data Management and Software Centre

COBIS, Copenhagen University North Campus

EUROPEAN SPALLATION SOURCE

Provide world leading scientific software and scientific computing support for neutron scattering at ESS

Scientific Software

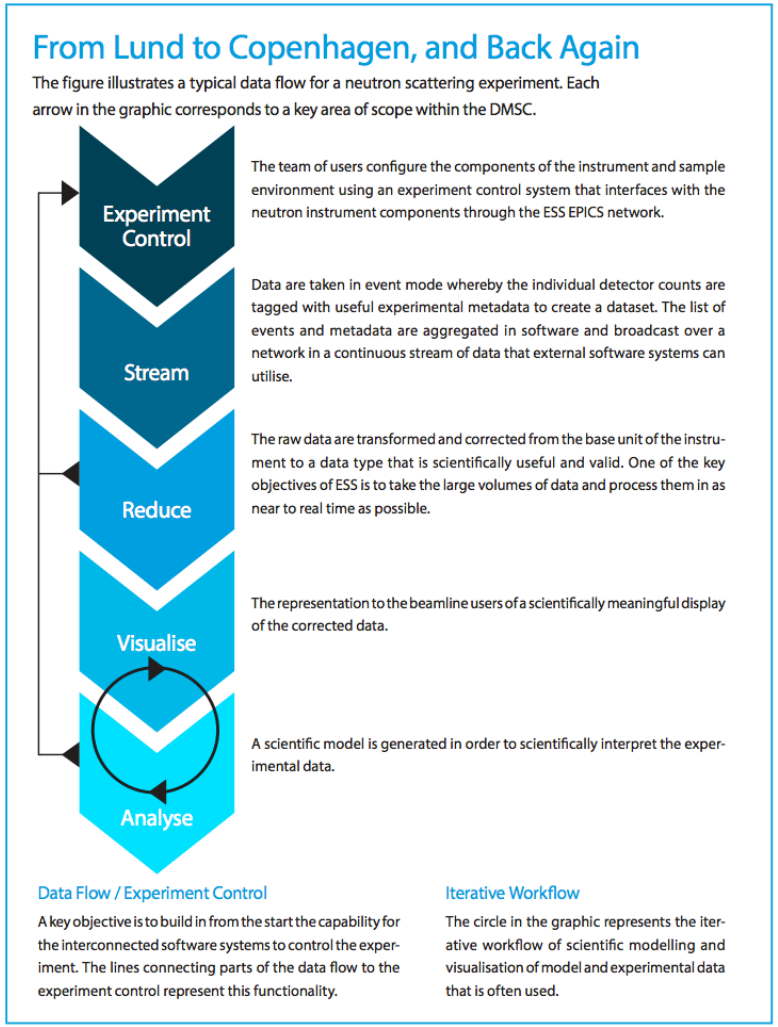
ESS experiment control system, Data acquisition, Data correction software, visualization, and software to model and analyze experimental data sets.

Data center operations

Store and catalogue ESS datasets, provide ESS users remote access to their data, computing for live data correction, and analysis software during and after experiments.

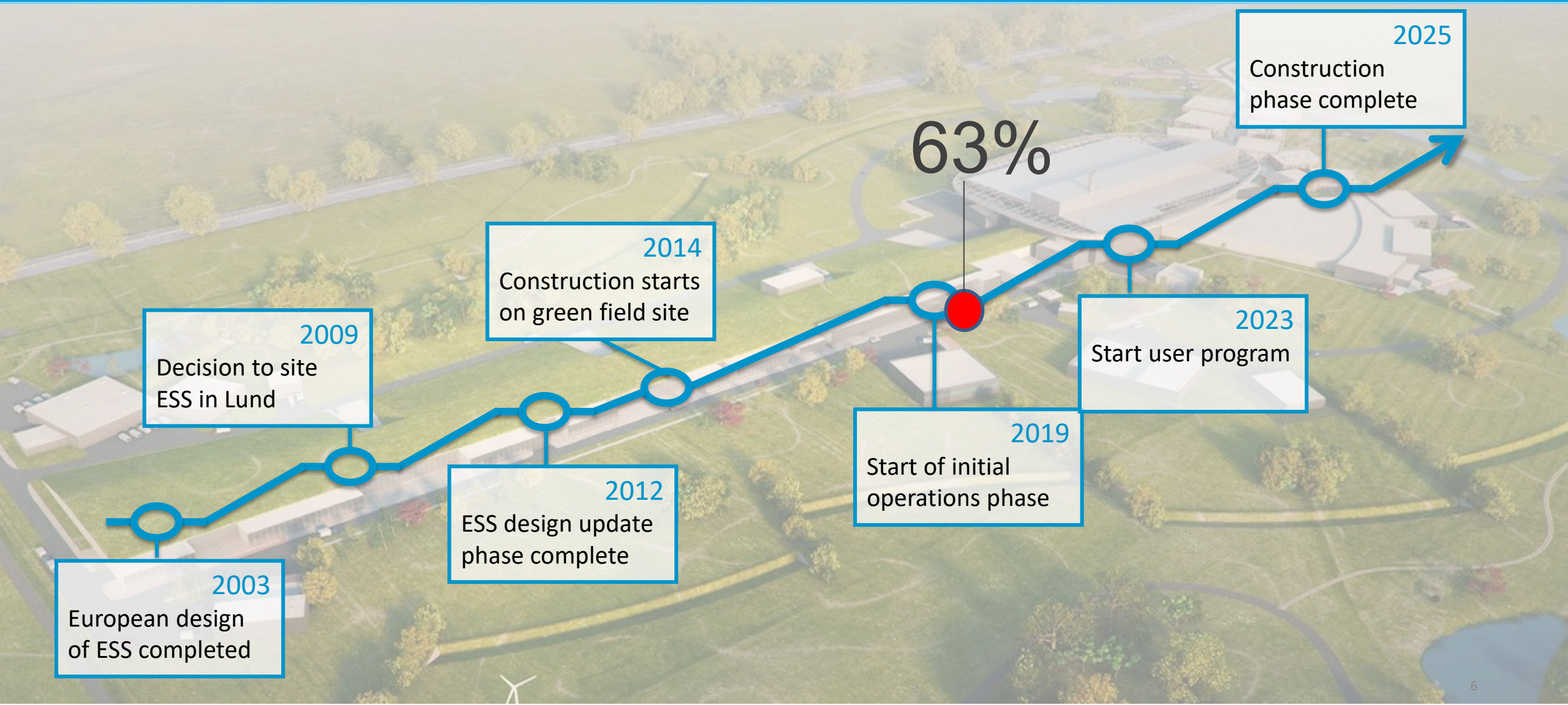
User support

Support ESS users with data treatment and analysis.



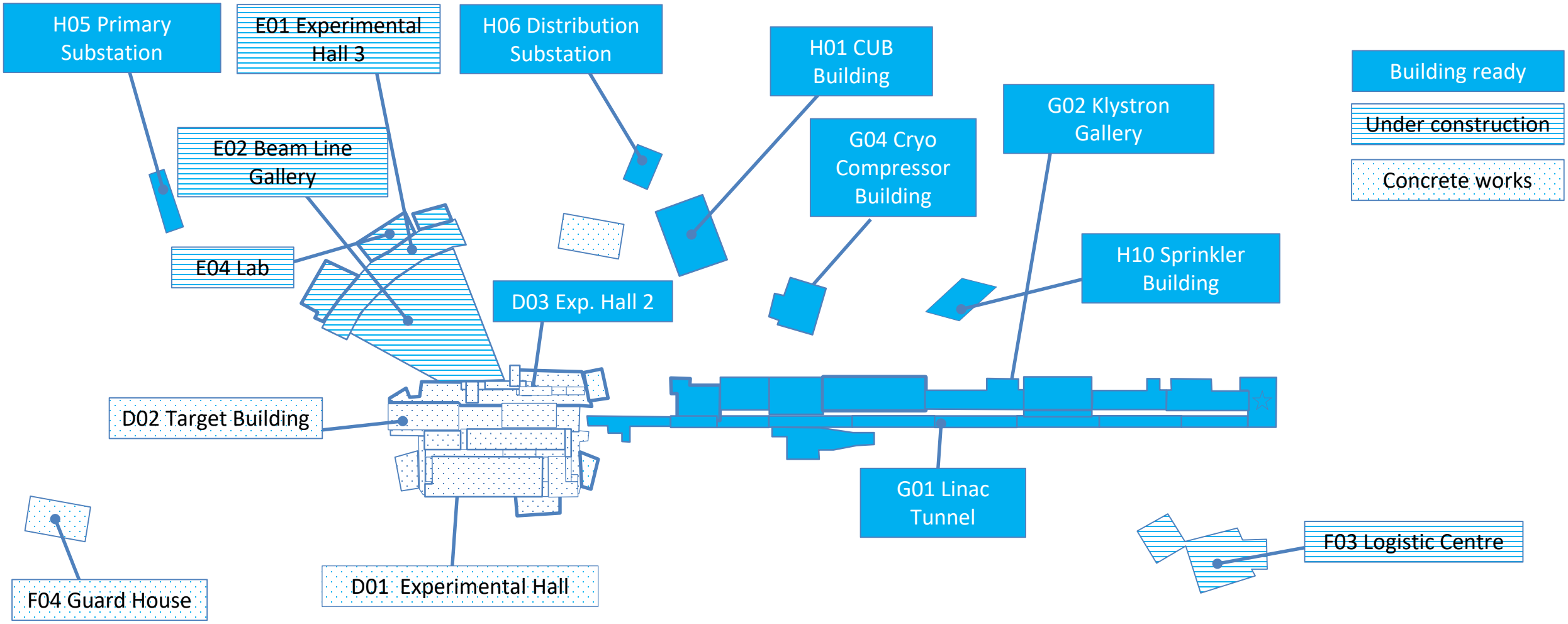
The ESS journey

Delivering the world's leading facility for research using neutrons



Facility outline

Proceeding according to plan



Financing includes cash and deliverables

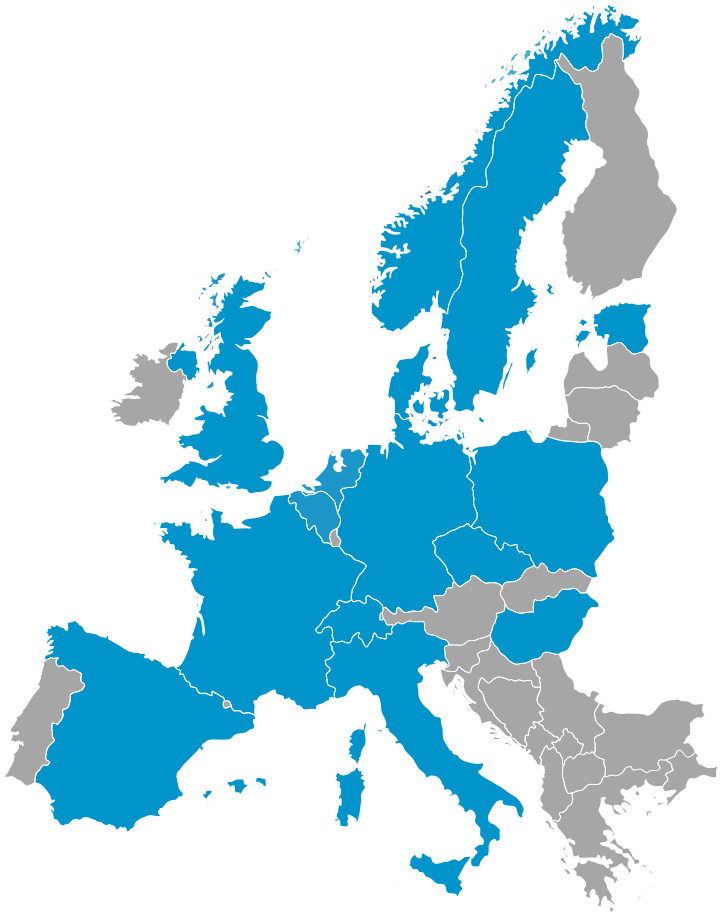
Host Countries Sweden and Denmark

Construction 47.5% Cash Investment ~ 97%
Operations 15%

Non Host Member Countries

Construction 52.5% In-kind Deliverables ~ 70%
Operations 85%

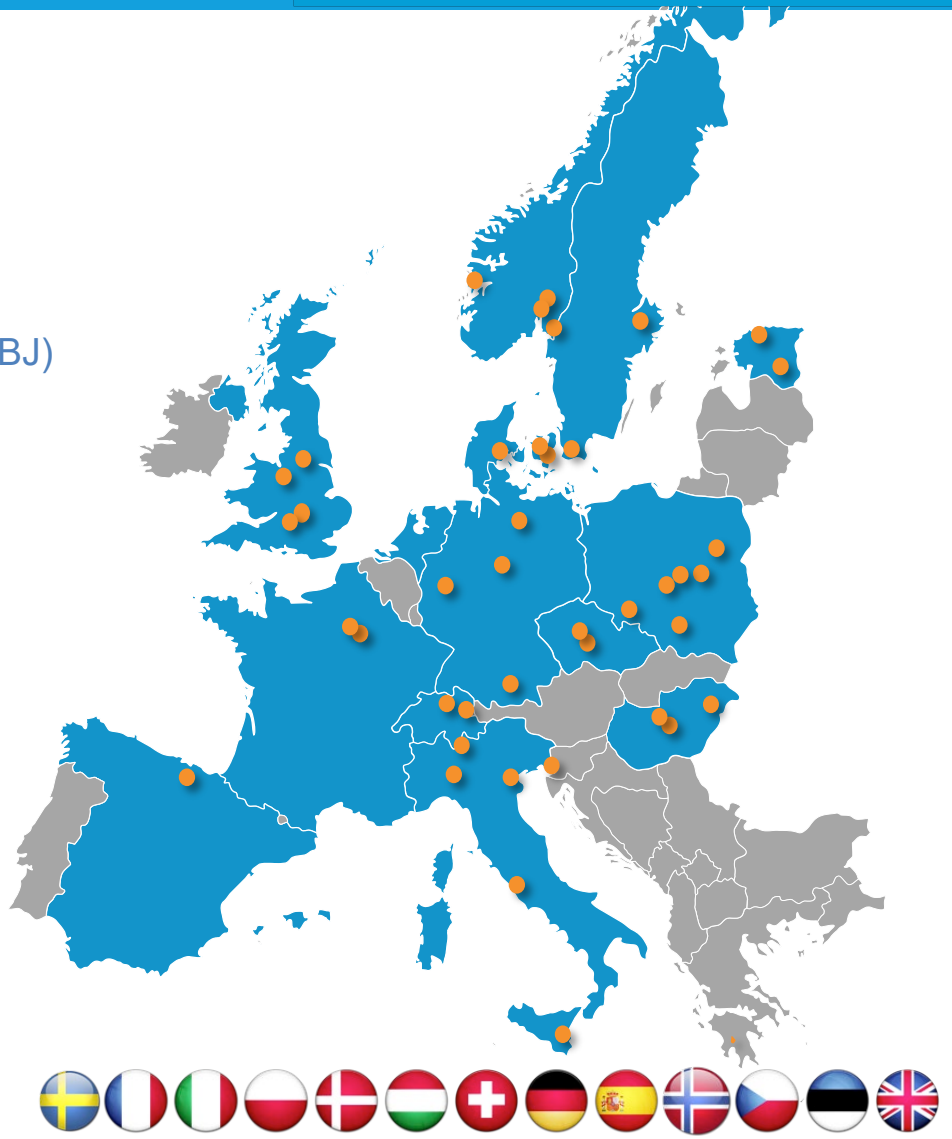
<u>13 European Member Countries</u>



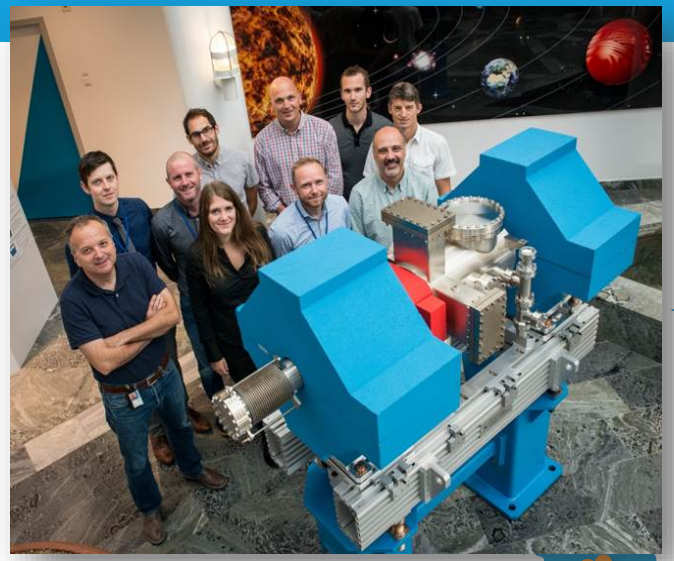
Unique international project

With unique cooperation among nations and leading research insitutes

Aarhus University
Atomki - Institute for Nuclear Research
Bergen University
CEA Saclay, Paris
Centre for Energy Research, Budapest
Centre for Nuclear Research, Poland, (NCBJ)
CNR, Rome
CNRS Orsay, Paris
Cockcroft Institute, Daresbury
Elettra – Sincrotrone Trieste
ESS Bilbao
Forschungszentrum Jülich
Helmholtz-Zentrum Geesthacht
Huddersfield University
IFJ PAN, Krakow
INFN, Catania
INFN, Legnaro
INFN, Milan
Institute for Energy Research (IFE)
Rutherford-Appleton Laboratory, Oxford(ISIS)
Kopenhagen University
Laboratoire Léon Brilouin (CEA/CNRS/LLB)
Lund University
Nuclear Physics Institute of the ASCR
Oslo University
Paul Scherrer Institute (PSI)
Polish Electronic Group (PEG)
Roskilde University
Tallinn Technical University
Technical University of Denmark
Technical University Munich
Science and Technology Facilities Council
UKAEA Culham
University of Tartu
Uppsala University
WIGNER Research Centre for Physics
Wroclaw University of Technology
Warsaw University of Technology
Zurich University of Applied Sciences (ZHAW)



Collaboration project



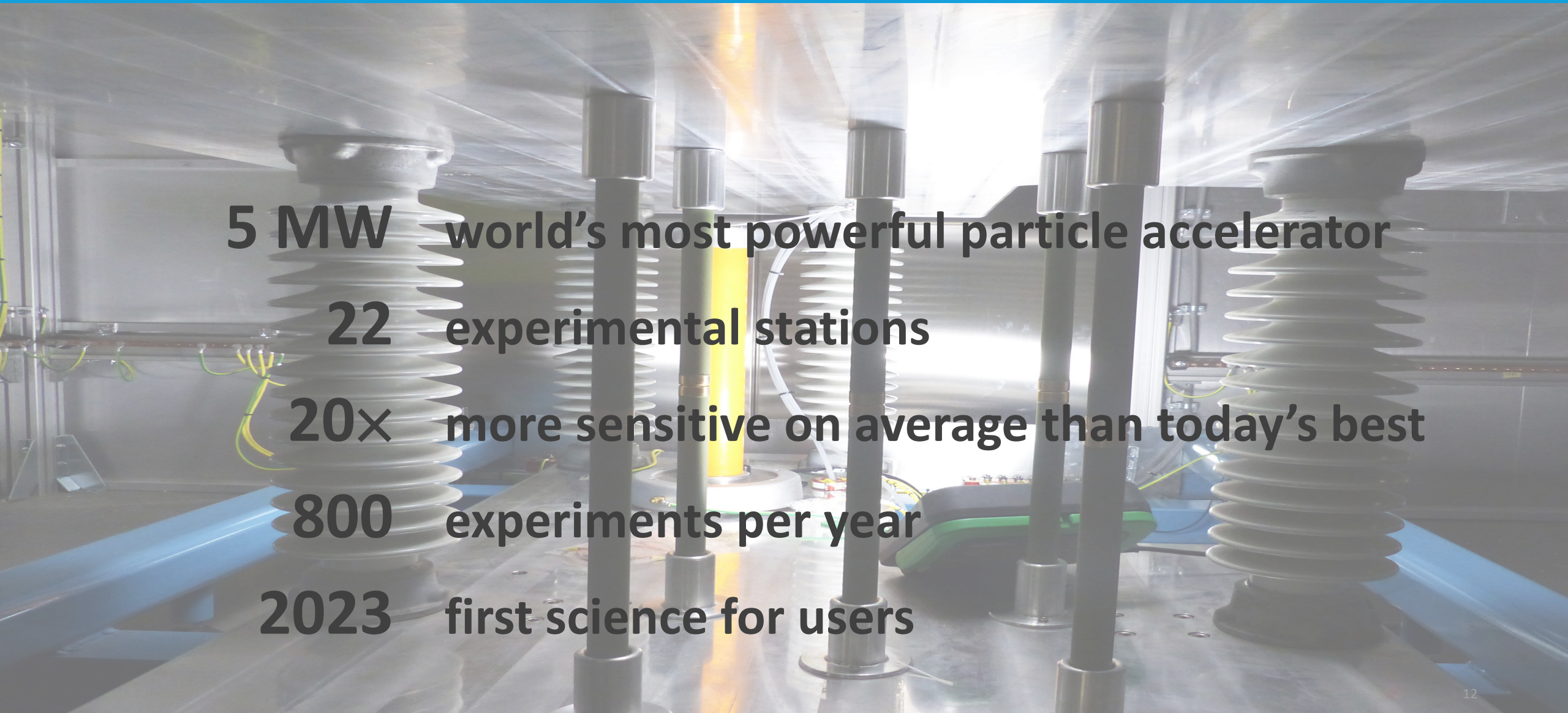
Forschungszentrum Jülich
Helmholtz-Zentrum Geesthacht
Huddersfield University
IFJ PAN, Krakow
INFN, Catania
INFN, Legnaro
INFN, Milan
Institute for Energy Research (IFE)

ISIS - Rutherford-Appleton Laboratory, Oxford
Laboratoire Léon Brilouin (LLB)
Lund University
Nuclear Physics Institute of the ASCR
Oslo University
Paul Scherrer Institute (PSI)
Polish Electronic Group (PEG)
Roskilde University
Tallinn Technical University
Technical University of Denmark (DTU)
Technical University Munich (TUM)

A global science hub

ESS, MAX IV, Science Village Scandinavia

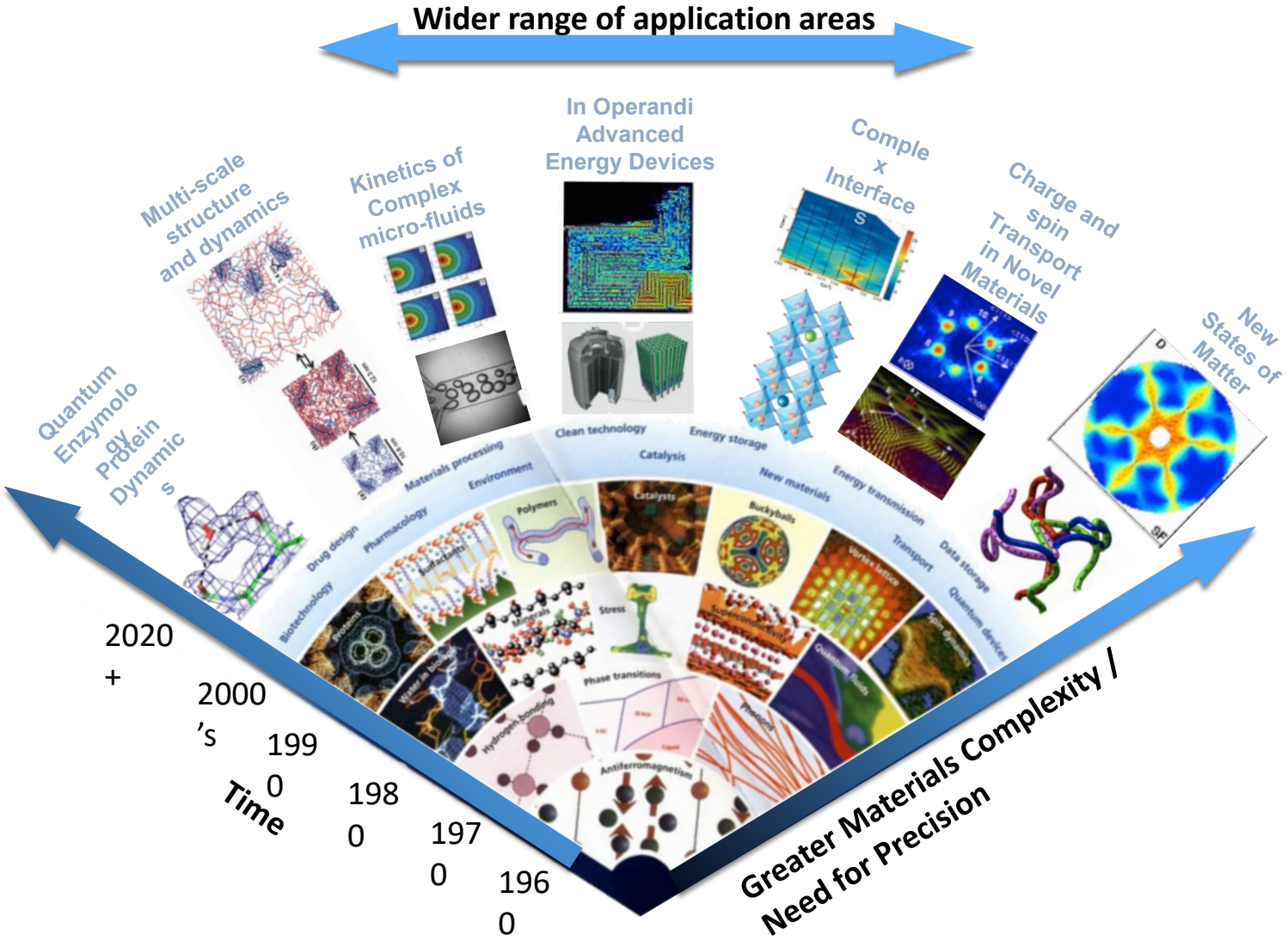
Capabilities



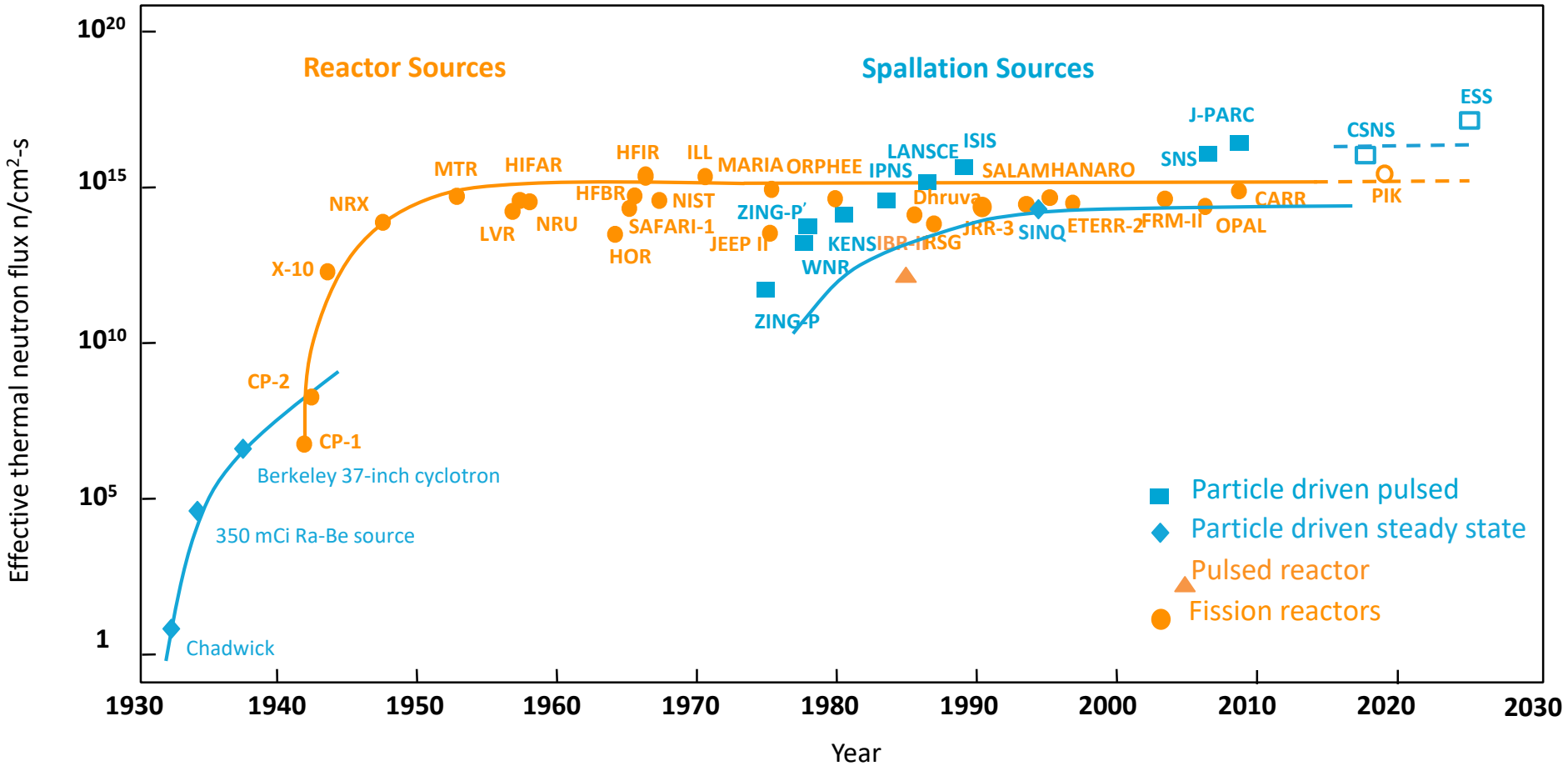
5 MW	world's most powerful particle accelerator
22	experimental stations
20×	more sensitive on average than today's best
800	experiments per year
2023	first science for users

Neutron science

Neutron science needs to push the boundaries

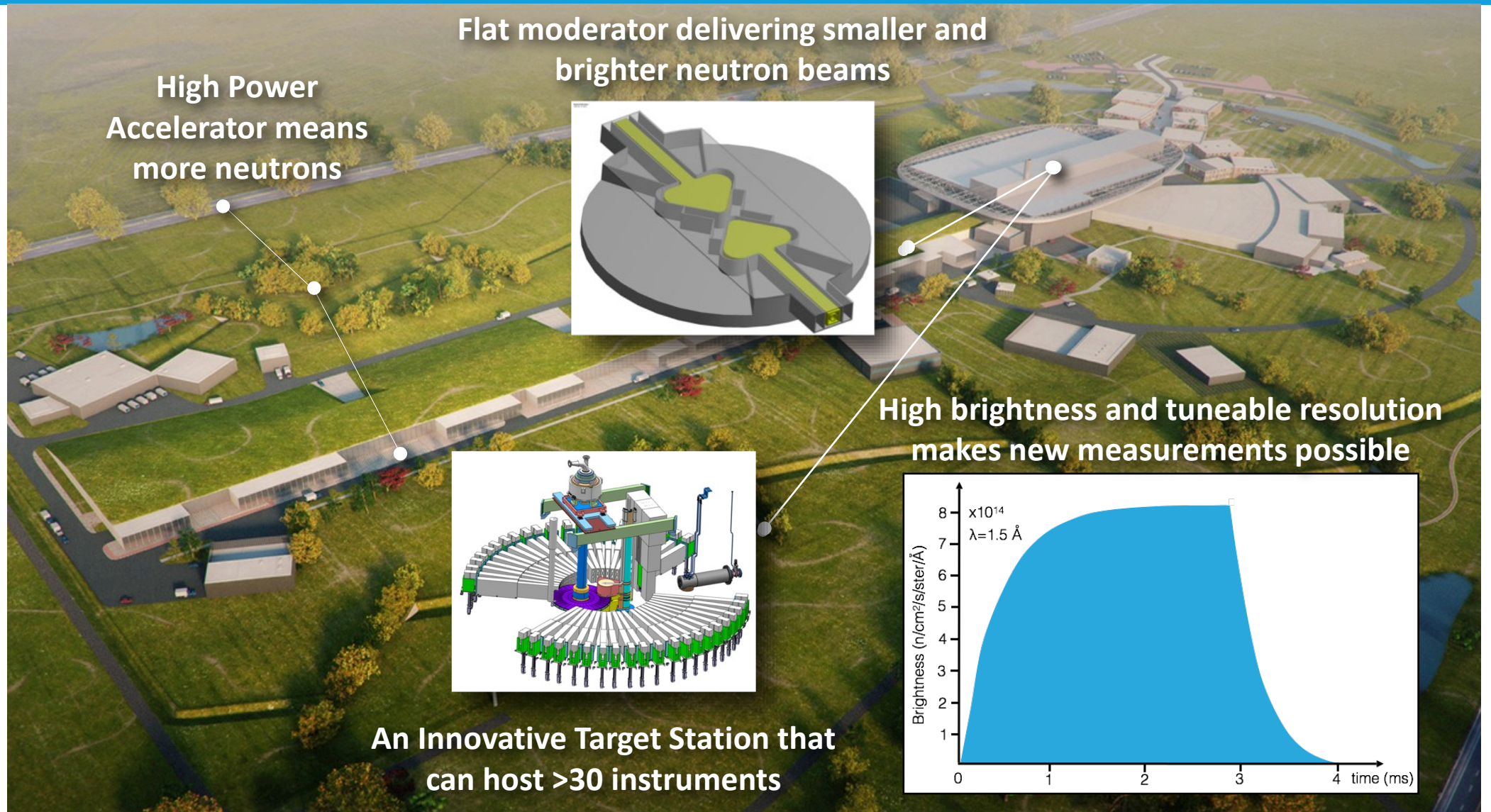


Neutron facilities – reactors and particle driven



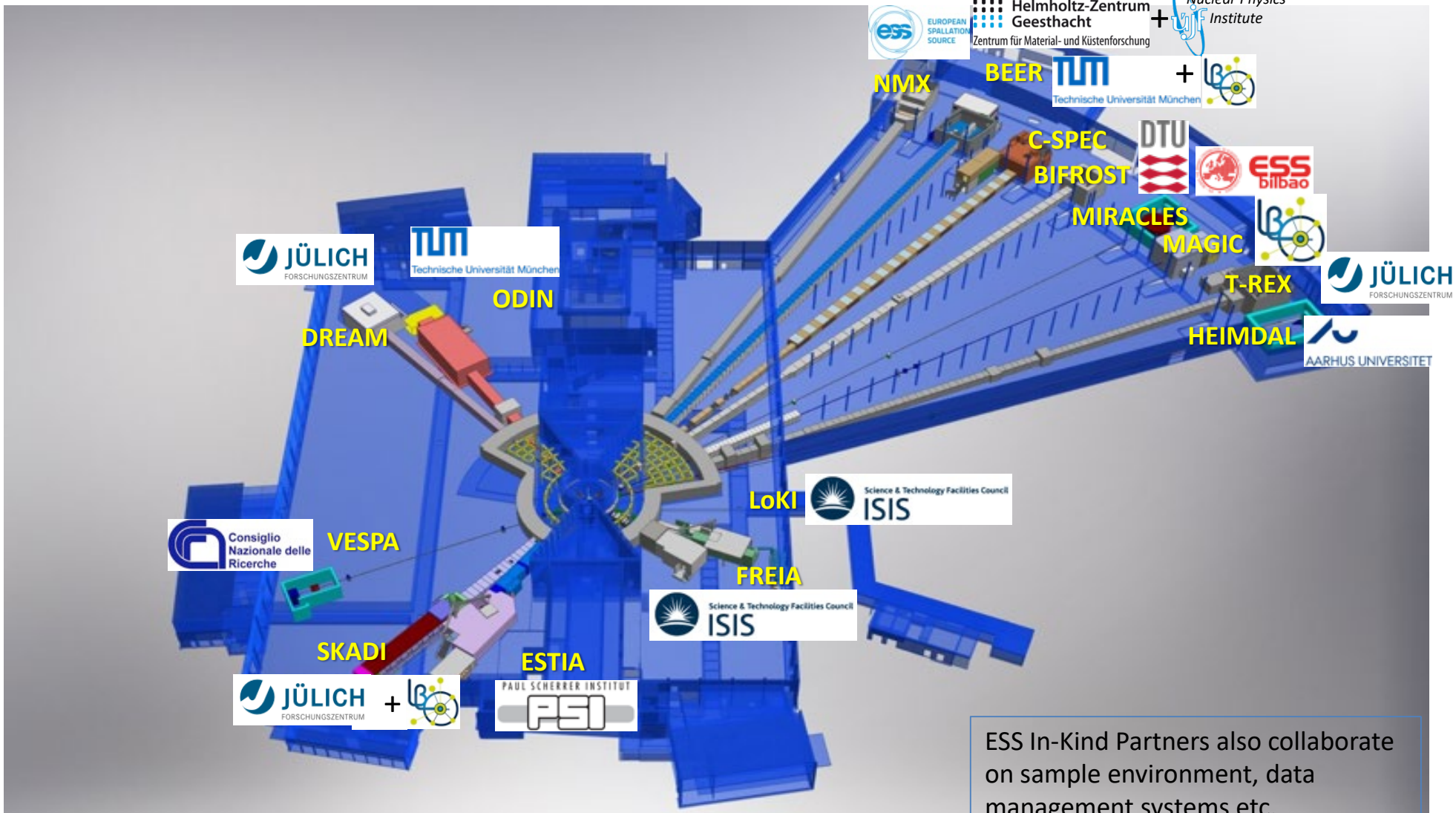
(Updated from *Neutron Scattering*, K. Skold and D. L. Price, eds., Academic Press, 1986)

ESS High level design



NSS Neutron Instrument positions

ESS Lead Partners for instrument construction



ESS Instrument Layout (December 2016)

ESS In-Kind Partners also collaborate on sample environment, data management systems etc.