European Spallation Source

ESS Partner and Industry Day
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www.europeanspallationsource.se

Dimensions of ESS

A Next Generation Materials Research Infrastructure

EUROPEAN SPALLATION SOURCE

PROJECT/FACILITY

A partnership of 17 European nations committed to the goal of collectively building and operating the world's leading facility for research using neutrons by the second quarter of the 21st century.

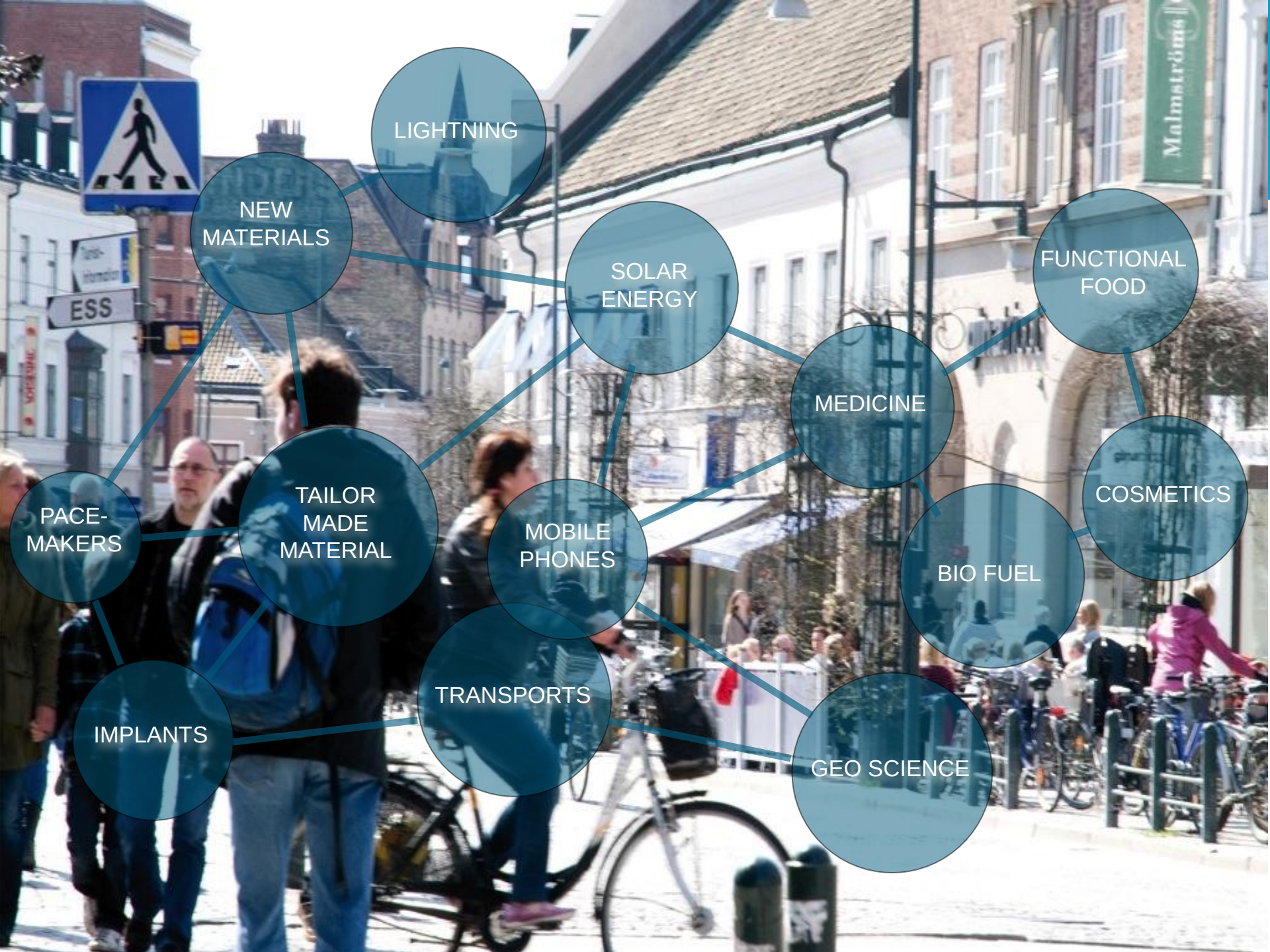
SCIENCE

The most powerful spallation source with the highest flux and realtime data acquisition

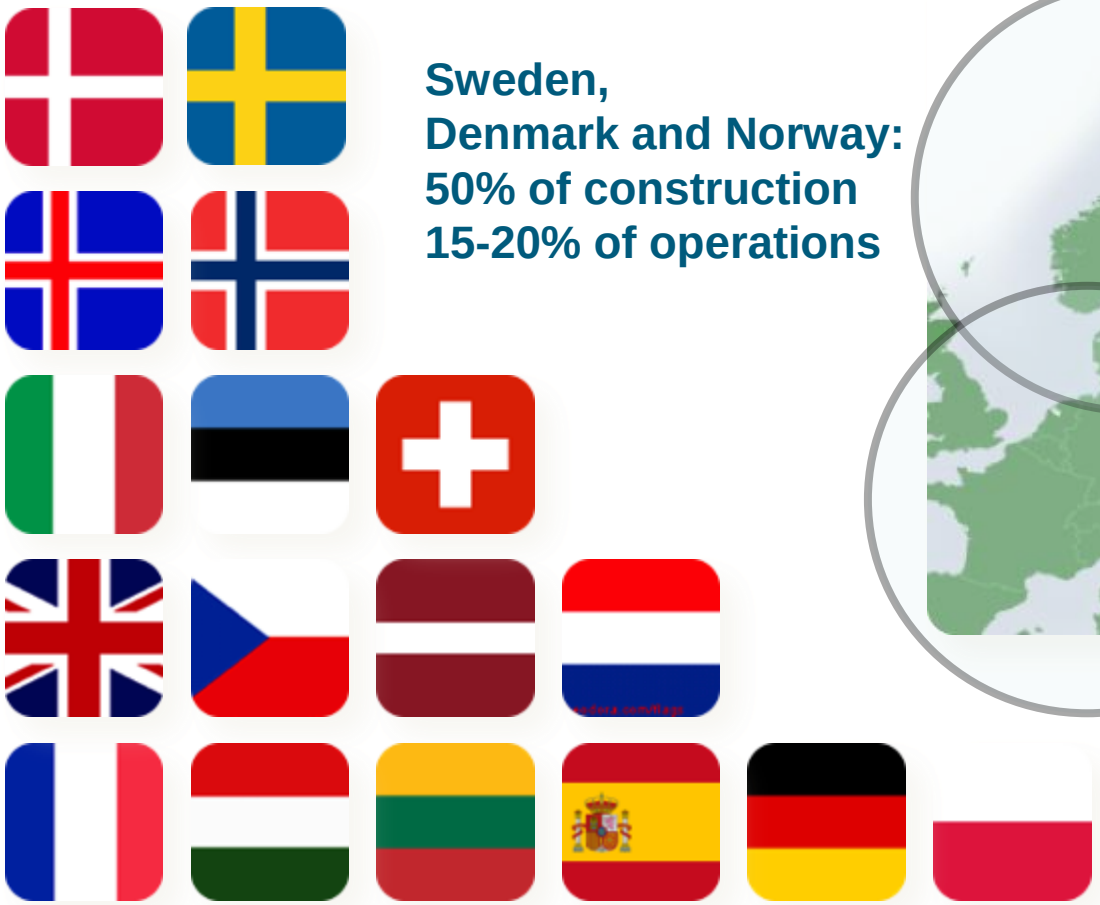
- Life science
- Soft condensed matter
- Chemistry of materials
- Energy research
- Magnetism and superconductivity
- Engineering materials and geosciences
- Archaeology and heritage conservation
- Fundamental and particle physics

SOCIETY

Research directly related to societal values
Opportunity to benefit from the innovation capacity of industry.
Driver for job creation


LIGHTNING
NEW MATERIALS
SOLAR ENERGY
FUNCTIONAL FOOD
MEDICINE
COSMETICS
PACE-MAKERS
TAILOR MADE MATERIAL
MOBILE PHONES
BIO FUEL
TRANSPORTS
IMPLANTS
GEO SCIENCE
ESS
Malmstrøms

Largest European science project

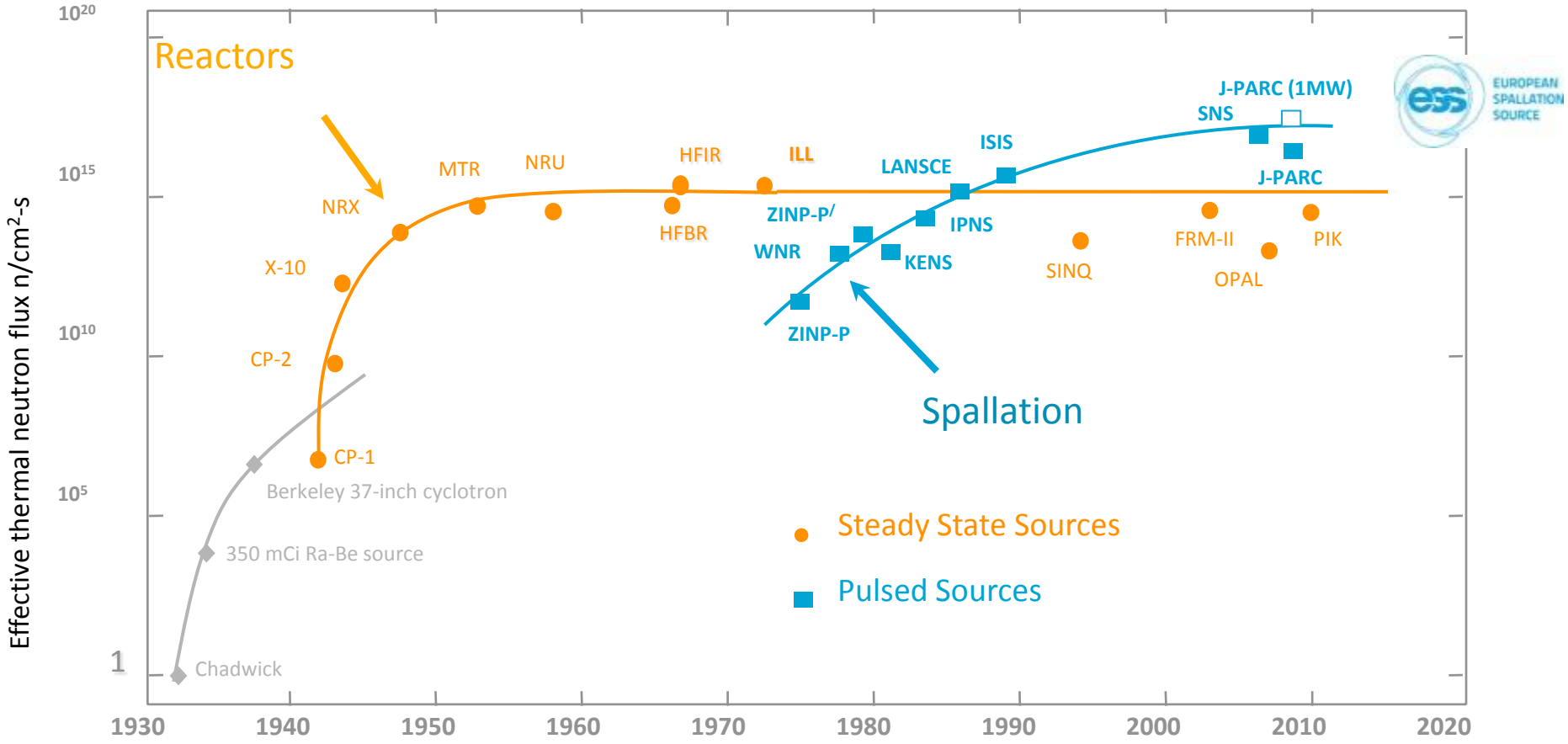


Sweden,
Denmark and Norway:
50% of construction
15-20% of operations

European partners:
50% of construction

ESS - Bridging the Neutron Gap

- ESS will be more powerful and several times brighter than existing facilities
- Compliments existing neutron scattering facilities



Road to realising the world's leading facility for research using neutrons

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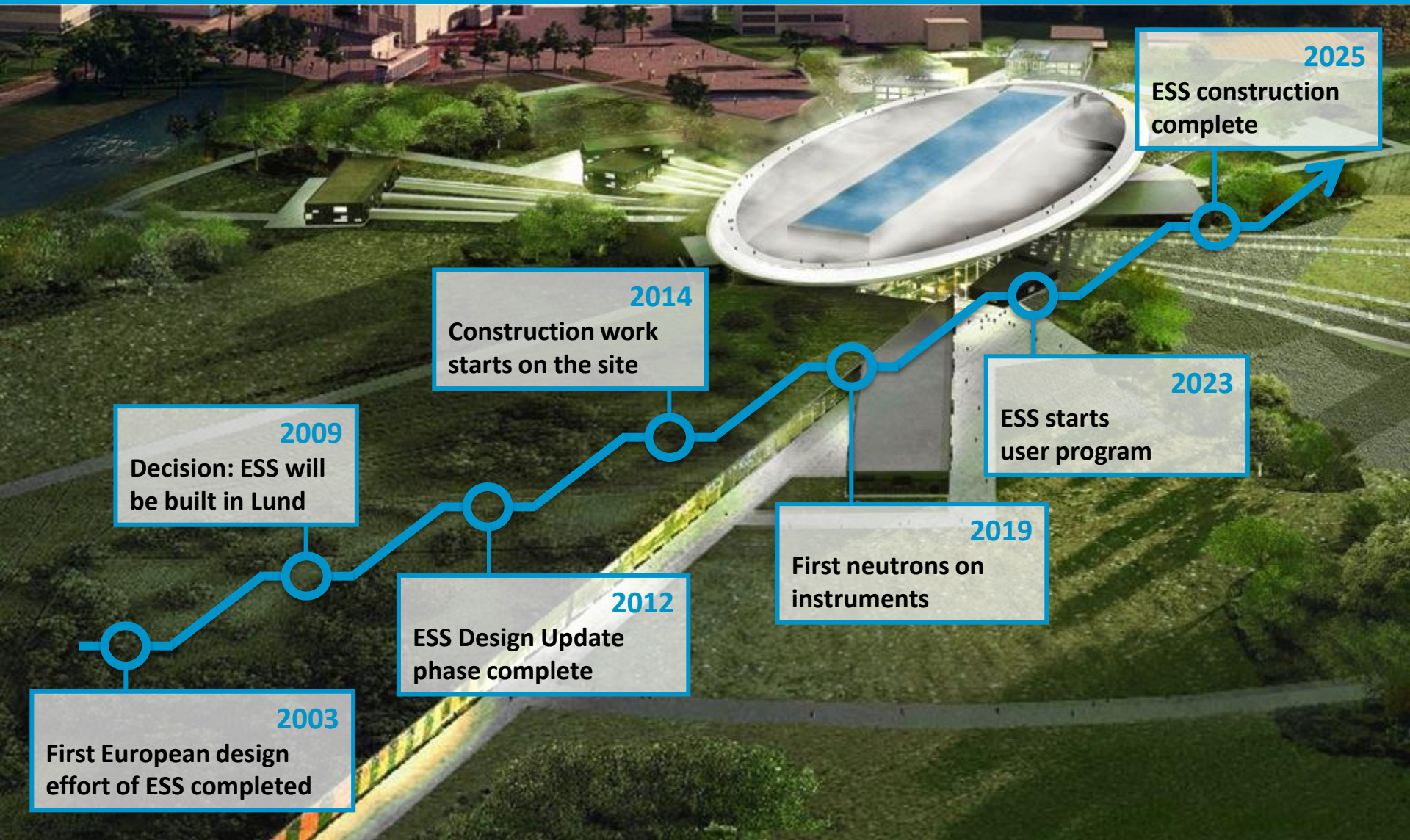
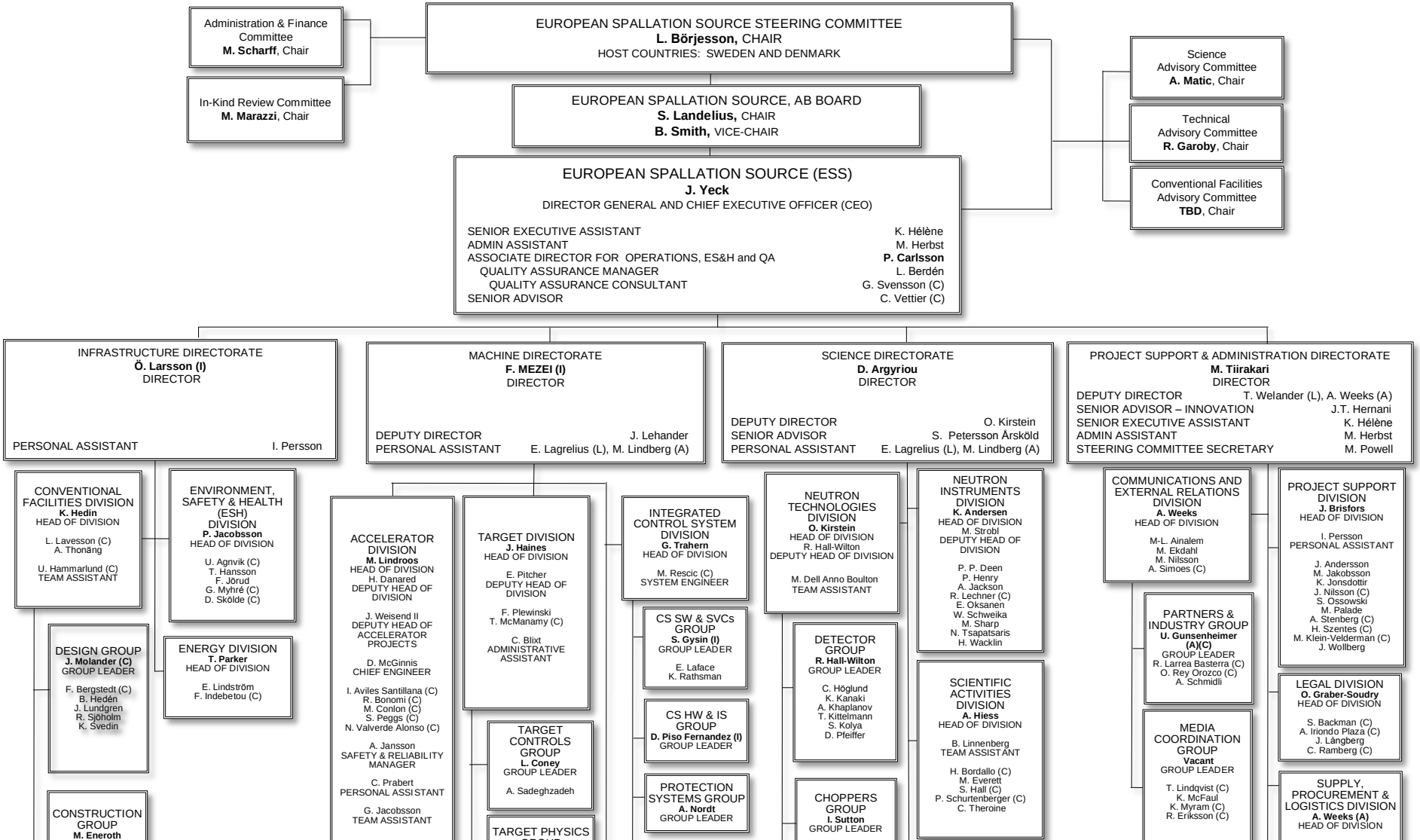
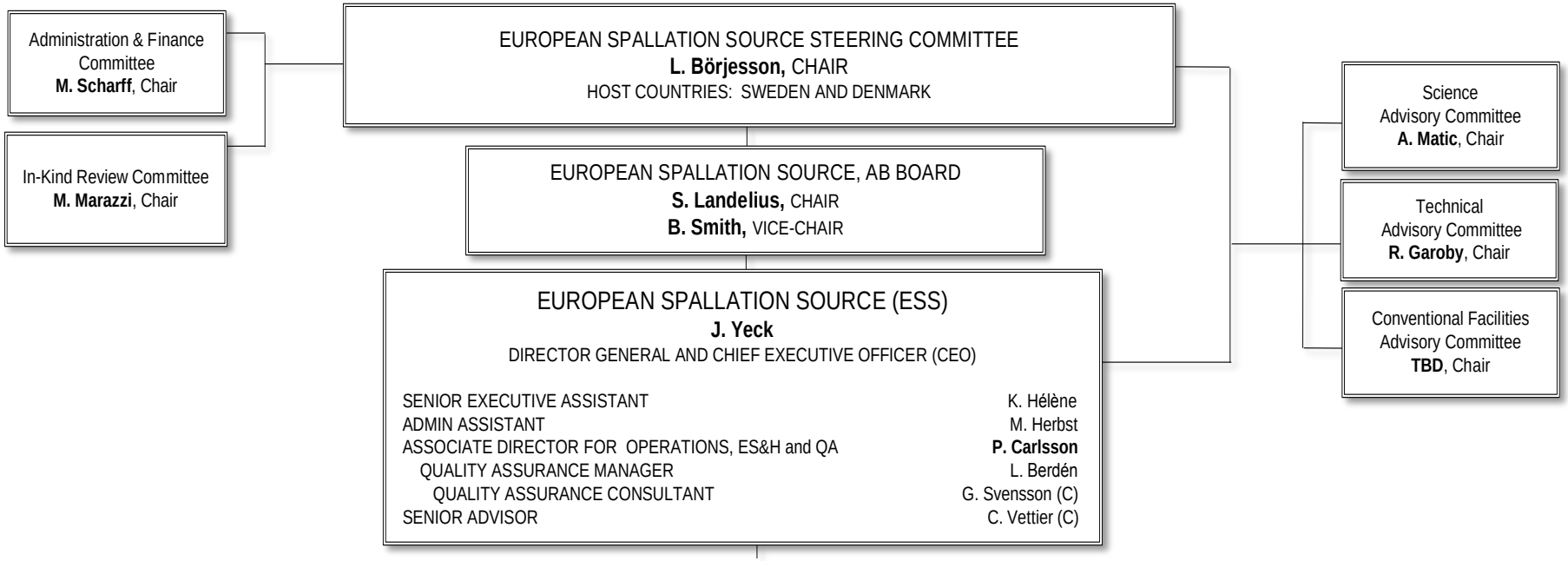


ESS organisation



ESS transition from ESS AB to an ERIC

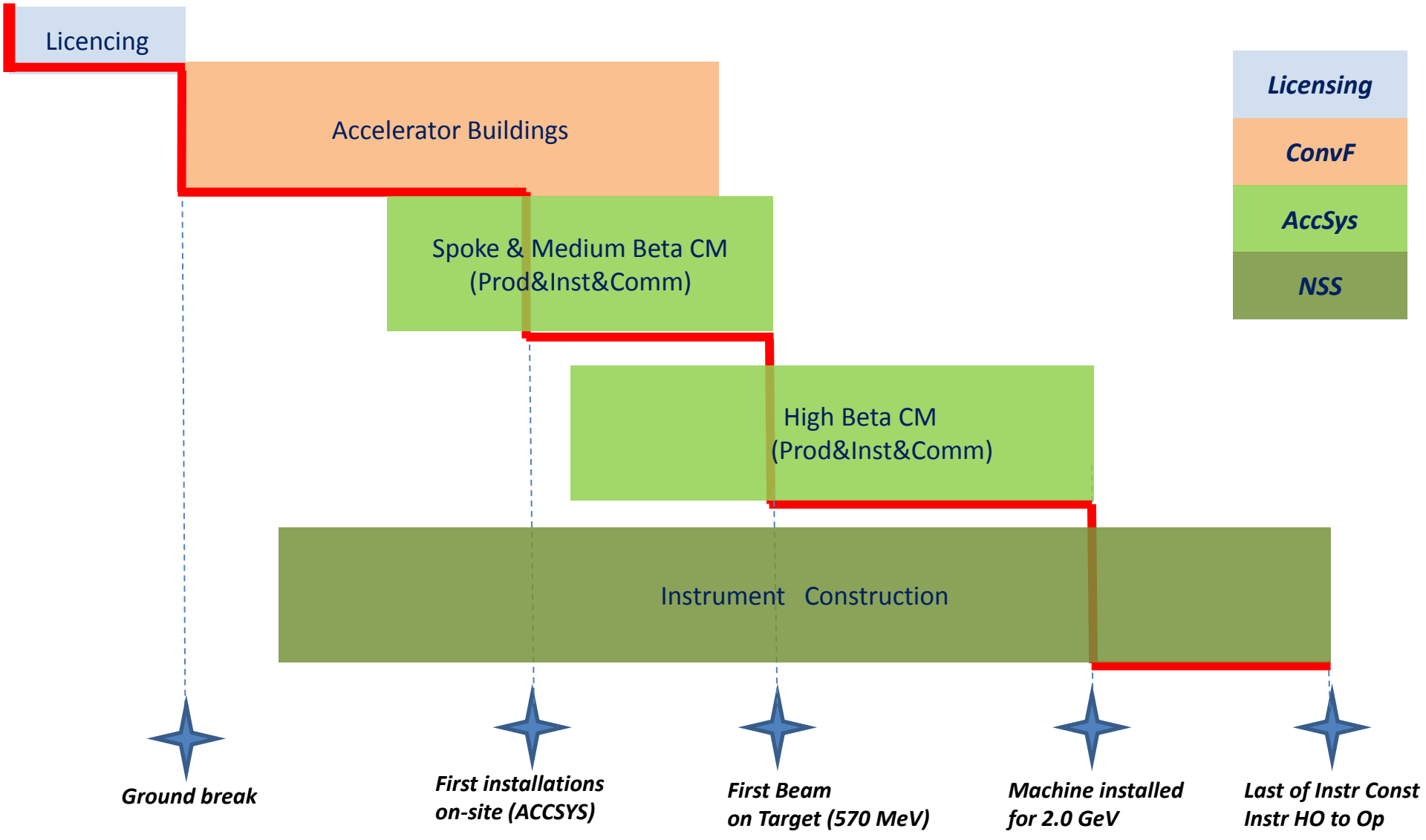


Member countries will submit a formal application to establish a European Research Infrastructure Consortium (ERIC) for ESS. The ESS ERIC will be in place in early 2015.

Preparing the project

- Deliver on the Technical Design Report performance and Steering Committee commitments
  - **5 MW accelerator capability**
  - **Construction cost of 1,843 B€**
  - **Operations cost target of 140 M€**
  - **22 “public” instruments**
- Start with unconstrained resources (technically limited schedule) and develop credible project execution plans
- Comprehensive review of project baseline and execution plans
- Secure funding and resources and align schedules with the available resources

Critical Path



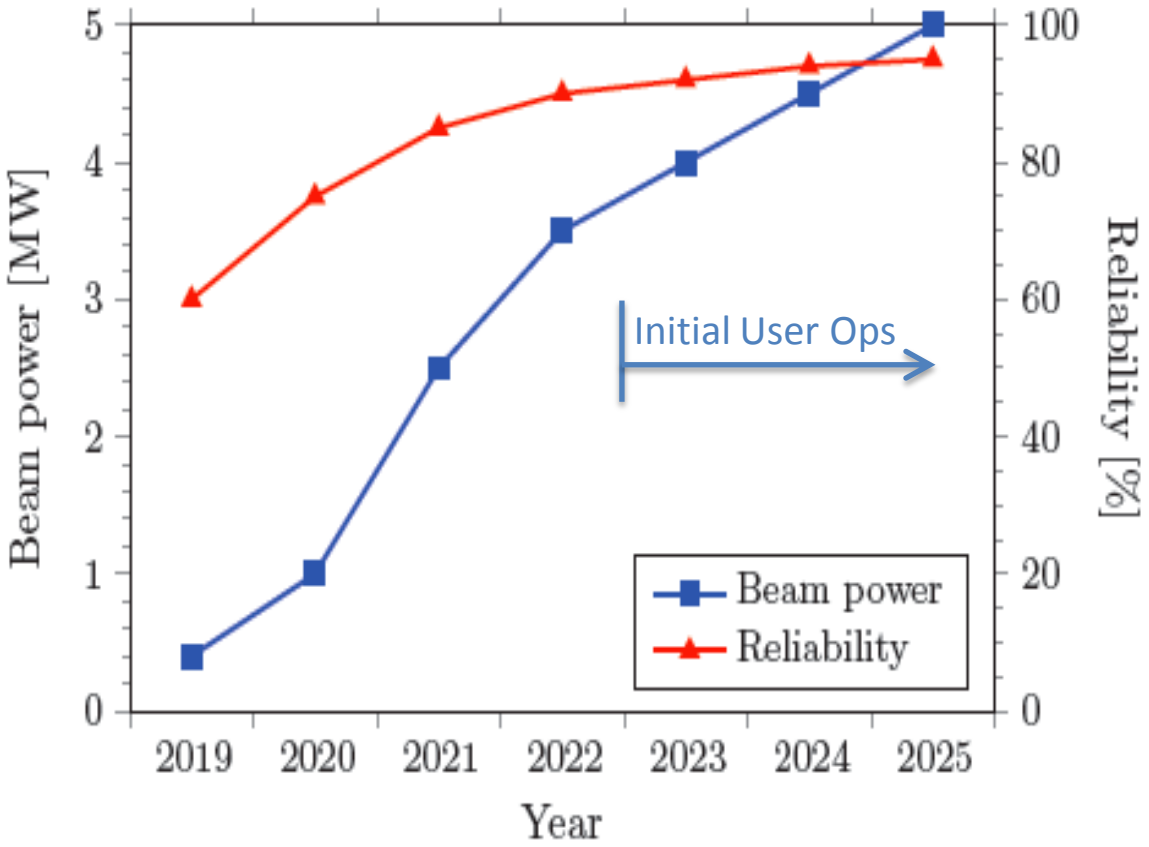
Commissioning and operations

Criteria for start of Initial Operations:
Deliver a measurable number of moderated neutrons to an instrument.

Strategy

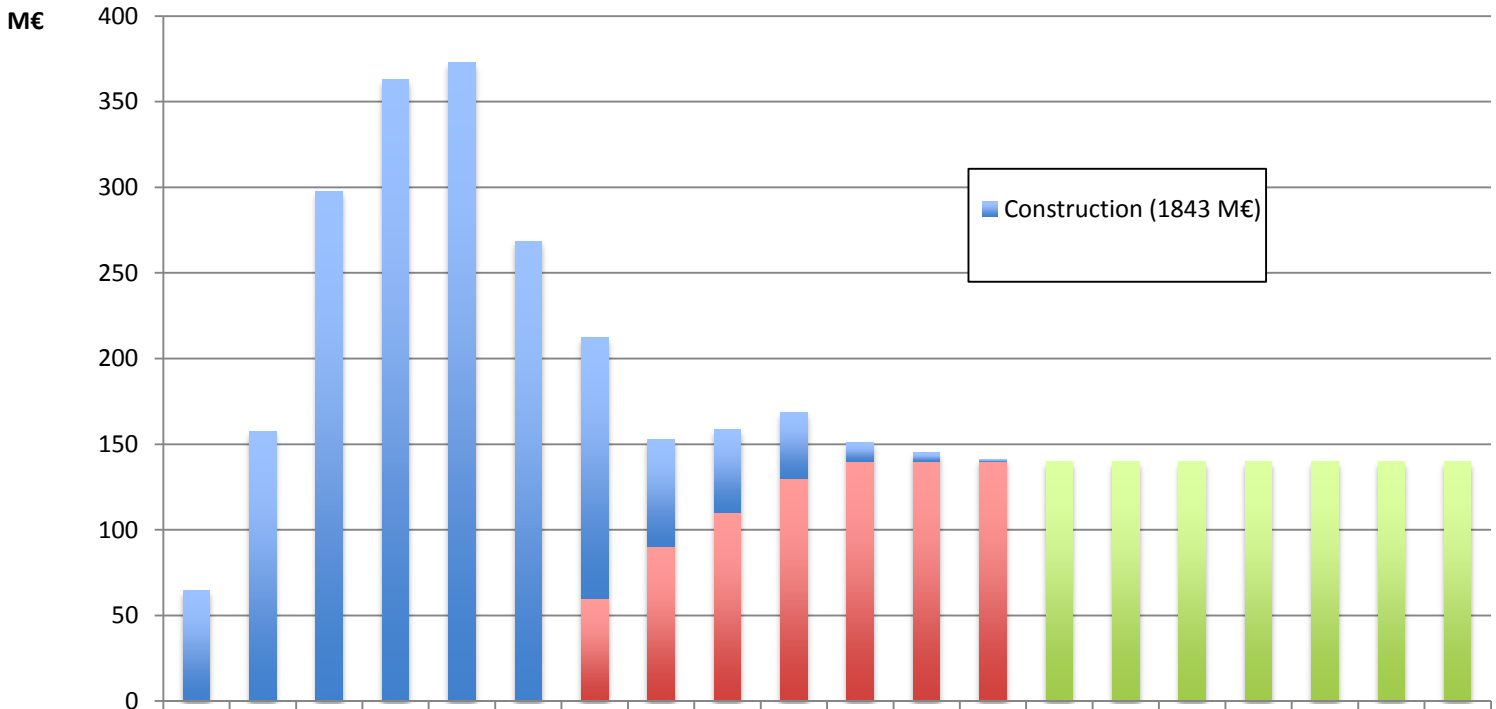
- Initially keep radioactivity and doses low to allow hands on maintenance.
- Ramp up power quickly to find limitations and increase reliability before user operations start.

TDR Performance Goals



Initial Operations planning & budget

Status of activity and resource planning for transition to operations



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	…	…	2064	2065
Construction (1843 M€)	65	157	298	363	373	269	152	62	48	39	11	5	1							
Initial Operations + ramp-up							60	90	110	130	140	140	140							
Steady State Operations														140	140	140	140	140	140	140

Next 6 months

- **1st Annual Review action plans**
- Letters of Intent or Agreements with Member countries
- Demonstrate Accelerator and Target station technology readiness
  – key interfaces resolved for a civil construction start
- Continue engagement of the scientific user community and
  select initial instruments for engineering development
  – first three instruments in 2013, additional instruments in 2014
- Selection of conventional facilities partner company/start final design in Feb 2014
- Secure license and permits for facility construction and establish Project Performance Measurement Baseline by May 2014
- **Start facility construction!**

Review Charge

1. Is the technical design sound and likely to meet the performance expectations identified in the ESS Technical Design Report?
2. Are the technical specifications sufficiently advanced and under adequate configuration control to support the project baseline?
3. Are the cost, schedule, and risk estimates complete, reasonable, and adequately understood to serve as the performance baseline for the construction project? Does the project baseline provide flexibility to address typical project risks, e.g., schedule float, budgetary contingency, technical performance margin, etc.?
4. Are the Safety, Health and Environment and Quality Assurance aspects being properly addressed given the project's current stage of development?
5. Are the plans for managing the regulatory permitting adequate for this stage of the project?
6. Are all the prerequisite activities and documents necessary to support a project performance baseline complete?
7. Are the plans for host laboratory support functions (HR, IT, Legal, Finance, etc.) adequate to support the construction project?
8. Are the plans for managing procurements, including staffing the procurement function, appropriate?
9. Are the plans for managing In-Kind contributions appropriate?
10. Is the management team organized and adequately staffed to successfully execute the project?
11. Will ESS be ready to establish the project performance baseline[!] in early 2014 and start conventional construction in mid-2014?

[*] A Performance Measurement Baseline (PMB) is an integrated work plan made up of a sequence of activities which cover the complete scope, cost and schedule of a project. Once the PMB established and approved, the PMB can be used to evaluate actual cost and schedule performance to determine whether the project is meeting its planned scope, cost and schedule objectives.

Polish participation in ESS

- Participation in the construction phase is essential
- Partner and Industry Day communicates strong interest in ESS
- High IKC potential (Collaboration is focused on Accelerator)
- Possibility for Polish IKC in the form of personnel (trained engineers and technicians working on the facility site with testing and installation)
- 4 EOI submissions from Poland

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Thank you very much for your attention!