



Science & Technology Facilities Council

ISIS

The European Neutron Landscape



Two key concepts

- Capacity – the number of experiments and size of user community that can be supported
- Capability – the ability to do particular experiments




Richter-Springer report - 1998

Technical Report

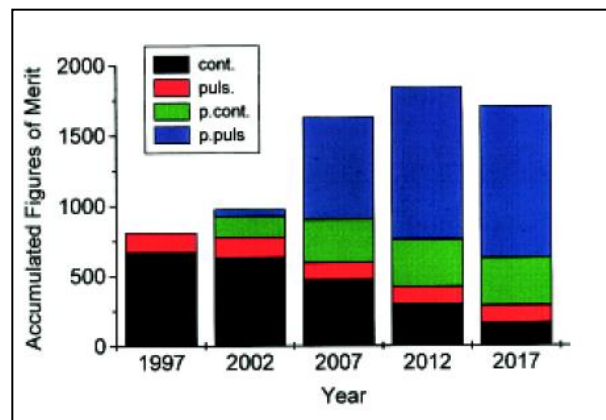
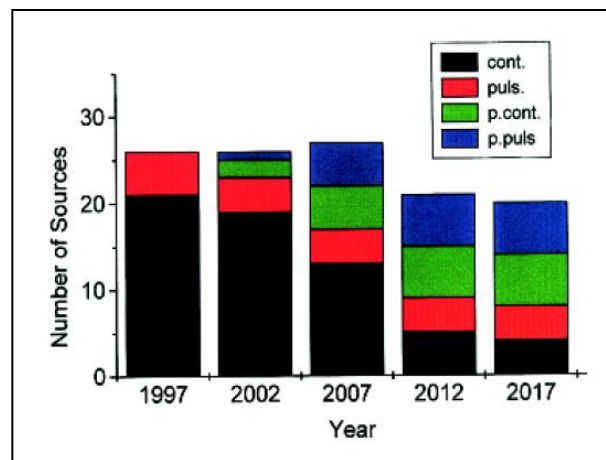
**A twenty years forward look at
neutron scattering facilities
in the OECD countries and Russia**

Authors:
D. Richter
T. Springer



OECD
OCDE

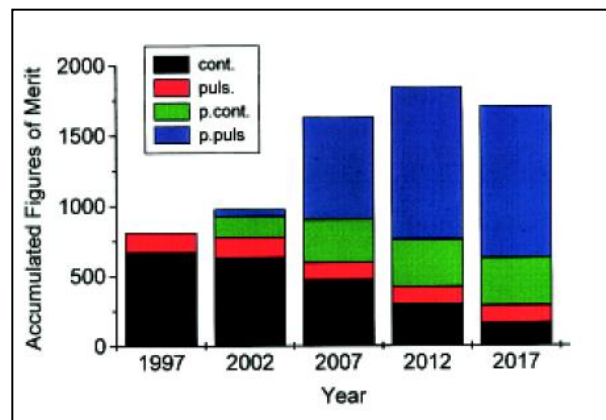
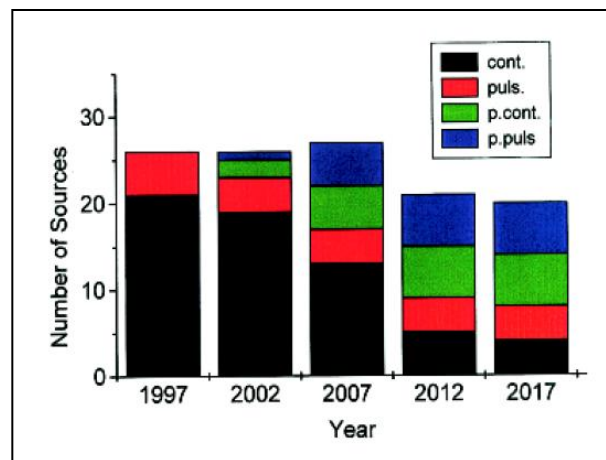
European Science Foundation
Organisation for Economic Co-operation and Development
Megascience Forum





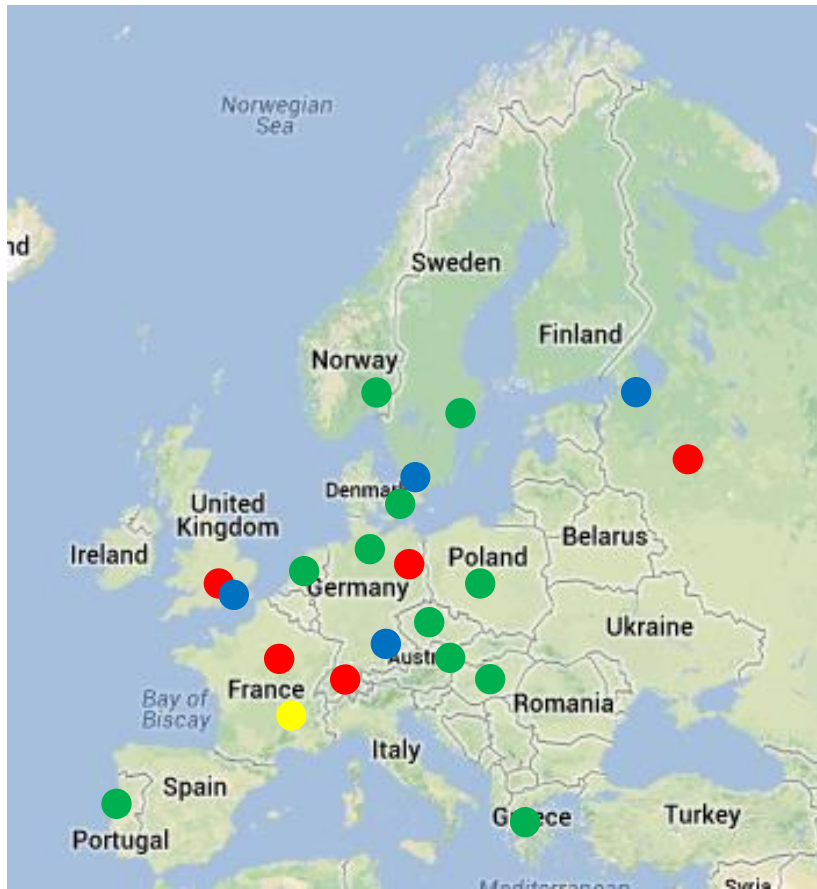
The 'neutron drought'

“This study predicts a very significant decline of neutron scattering capabilities in the OECD countries within the next 15 - 20 years, if no major effort towards new sources and upgrades of existing sources is pursued. This presents a serious threat to the highly developed field of neutron scattering for the study of condensed matter, including new growth areas in engineering, materials science, earth sciences, and biology.”





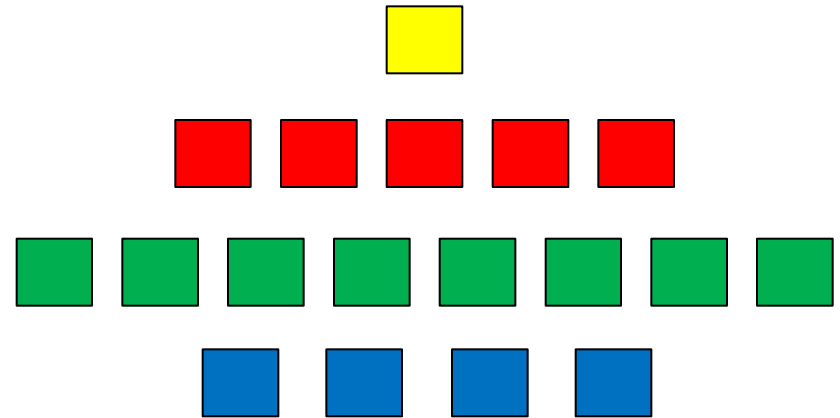
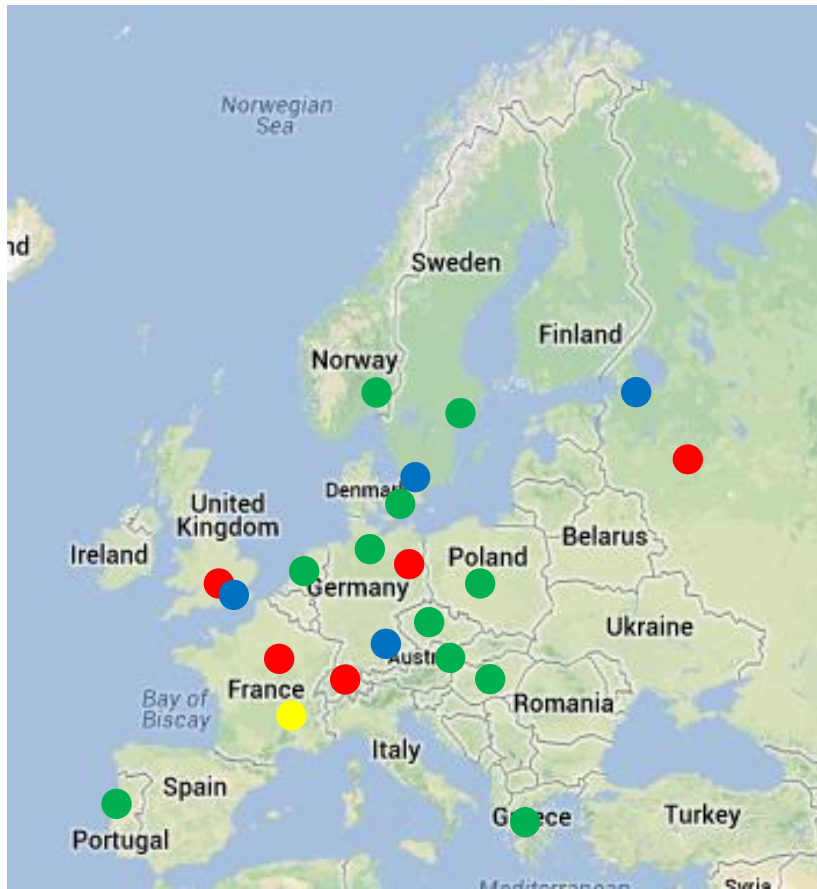
Neutrons in Europe 1998



The pyramid of capacity and capability

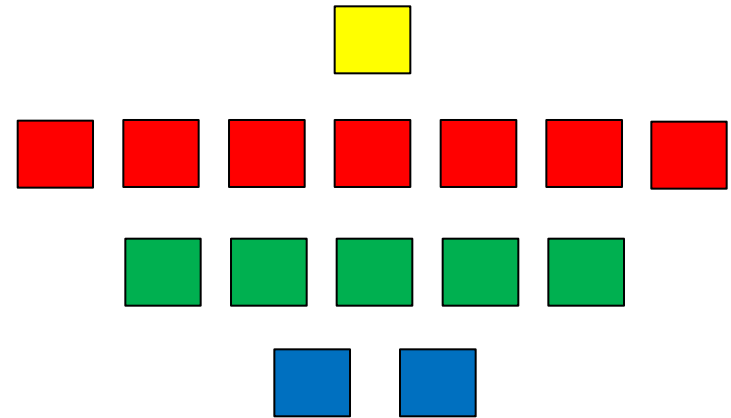


Neutrons in Europe 1998



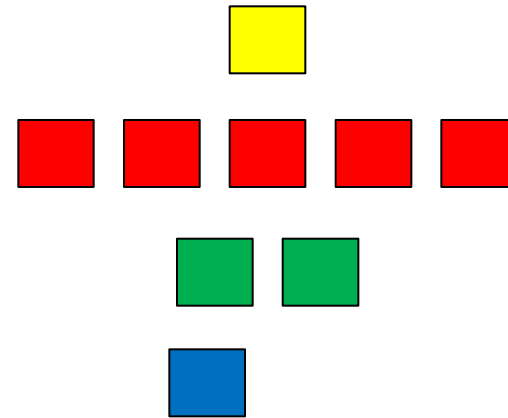


Neutrons in Europe 2014



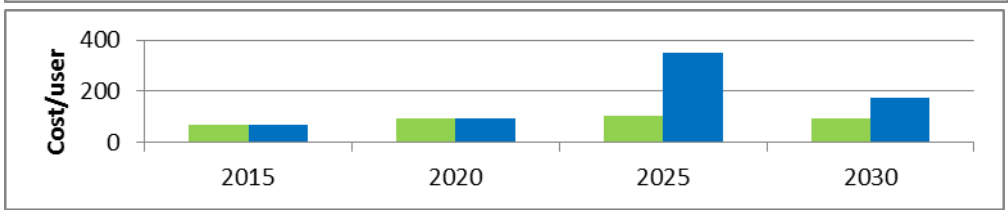
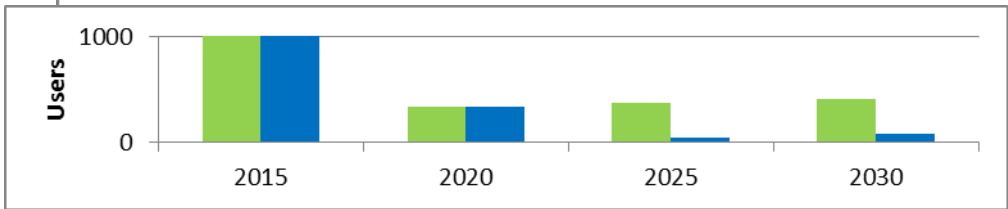
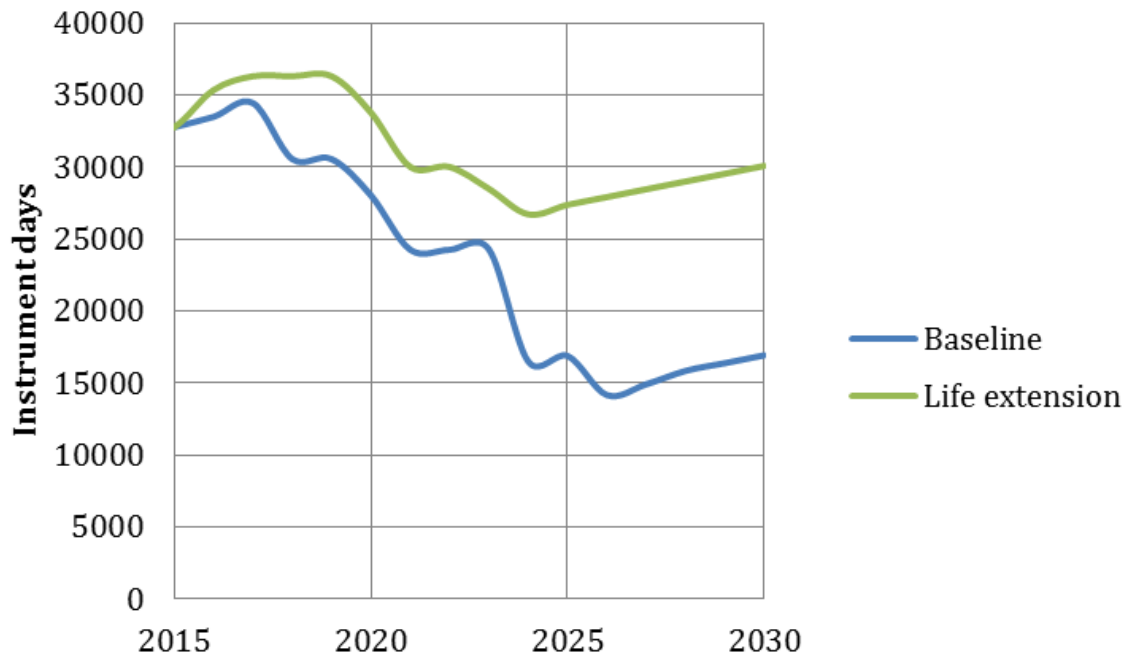


Neutrons in Europe 2024?





Landscape Analysis Neutrons Europe





Does it matter?

(a) Is there a science case for neutrons?

(b) Is there a business case?

(a) Yes.

(b) Yes.



Can we rebuild the pyramid?





Can we rebuild the pyramid?

- Very unlikely to be any new research reactors built in Europe
- ⇒ New sources will be accelerator based
- Sources need to cost <€300M to be affordable by individual countries
- Energy costs need to be minimised
- Science production needs to be maximised
- ⇒ Not high power spallation sources
- ⇒ Optimised target/moderators