One of the benefits of doing research inside the EU is the ability to collaborate across borders to maximize the use of scientific resources. In 2002, the EU Council established the European Strategy Forum on Research Infrastructures (ESFRI) to improve how this happens. Research infrastructure includes the facilities and services used by scientists, ranging from research vessels, telescopes, and synchrotrons to biological archives, libraries, and clean rooms. Inspired by the enormous success of one such infrastructure—the CERN particle collider in Switzerland—ESFRI’s aim is to solidify Europe as a leader in science and its management.

With an annual budget in the region of €10 billion for research infrastructures across Europe, according to 2008 data from European Research Infrastructures Development Watch, the potential is enormous. But the process of getting scientists to work together across different international facilities is also slow and laborious. It took four years for ESFRI to publish a roadmap for the development of the next generation of pan-European research infrastructures. By 2010, it contained 48 different projects across a range of scientific fields, of which 60% were implemented by the end of 2015.

In their latest roadmap, published in March 2016, ESFRI has added six new infrastructures to “fill in important gaps in the European science landscape,” according to the introduction to the roadmap written by outgoing ESFRI Chair John Womersley, Chief Executive of the Science and Technology Facilities Council, the United Kingdom’s funding agency for large-scale science facilities and national laboratories. Womersley was replaced by Giorgio Rossi, a professor of physics at the University of Milan, in July 2016.

Materials research is well represented in parts of the roadmap. “ESFRI has a strong portfolio of research infrastructures of direct relevance to materials science and engineering,” said Rossi. He added that “the most advanced sources of radiation for the study of the fundamental properties of materials at the nanoscale” is one research goal that has already been implemented with the support of the ESFRI framework.

Environmental science projects constitute a hefty 16% of the
The US and Indian private sectors will commit $1.5 million per year for five years to launch three initial research consortia, focusing on solar energy, energy efficiency in buildings, and next-generation biofuels.

The current expansion provides resources for a fourth consortium under PACE-R that will focus on smart grid and energy storage for grid applications. The new consortium will enable counterparts in the United States and India to leverage the technological research capabilities of both countries. The new consortium will be officially established when an award selection is made—anticipated in 2017.