

Work package number	6	Start and End Date	M8 – M48
Work package title²	Transnational Access - Pilot		
Participant number	1		
Short name of participant	ILL		
Person/months per participant³:	0		

Objectives

Provision of access to the following infrastructure: Institut Laue Langevin (ILL)

Location: Grenoble, France

Web site address: www.ill.eu

Annual operating costs: 100M EUR

The aim of this work package is to evaluate the new service package for new users. *FILL2030* will attract users from new communities, either in existing Associate and member states or in non-member countries. The former will be eligible for access to beam time under existing agreements. This work package, therefore with a smaller number of days, will be used only in the context of new users from non-member countries.

Description of the infrastructure

Brief general description of the infrastructure to which access is offered.

ILL is an international research centre at the leading edge of neutron science and technology, where neutrons are used to probe the microscopic structure and dynamics of a broad range of materials. The ILL is owned and operated by three founding countries – France, Germany and the UK – whose grants to the institute’s budget of about 90 M€ per year are enhanced by scientific membership contributions from Austria, Belgium, the Czech Republic, Denmark, Hungary, Italy, Spain, Slovakia, Switzerland and Sweden.

The institute operates a high flux reactor, with a thermal power of 58.3 MW, which normally functions round-the-clock during four 50-day cycles per year. The ILL was founded in 1967 to provide scientific communities in its member countries with a powerful neutron source, a matching suite of experimental facilities and unique expertise. Every year, about 2000 researchers from close to 40 countries visit the ILL to perform over 800 experiments.

State-of-the-art equipment and services offered to users that make it rare or unique in Europe.

The ILL reactor is the most intense neutron source in the world and feeds neutrons to a suite of 40 high-performance instruments. The ILL instrument suite is continuously renewed and upgraded, ensuring that in future the institute continuous to play its dominant role in neutron research worldwide. Each instrument is designed to probe the properties of matter in the finest detail.

The ILL is firmly committed not only to building high-performance instruments but also to offering the best scientific environment to the user community. The institute has established successful collaborations with neighbouring institutes over the years, and launched many successful scientific and support partnerships.

Areas of research normally supported by the infrastructure, as well as new areas opening to users, if any.

The scope of the research carried out at the ILL is very broad, embracing condensed matter physics, chemistry, biology, materials and earth sciences, engineering, and nuclear and particle physics. Much of it impacts on many of the challenges facing society today, from sustainable sources of energy, better healthcare and a cleaner environment to new materials for information and computer technology. For example, neutron-scattering experiments have given us new insights into the structure and behaviour of biological and soft condensed matter,

² The title of work packages for access provision must be preceded by the indication of the type of activity (TA: Trans-national Access or VA: Virtual Access);

³ Except human effort already included in the calculation of the unit costs.

important in designing better drug delivery systems and for improving polymer processing. They also provide a unique probe into the phenomena that underpin high-temperature superconductivity as well as the molecular magnetism that may provide the technology on which the computers of the future are based.

Services currently offered by the infrastructure

Services offered by the infrastructure and its research environment, how it enables scientists to carry out high-quality research.

The ILL operates a suite of 40 high-performance instruments. Each instrument is designed to probe the properties of matter in the finest detail. Experiments requiring extensive support with sample preparation and the processing of experimental data are particularly challenging. The ILL is making concerted efforts to provide the necessary resources via partnerships with other research centres and universities, including: the Partnership for Structural Biology, a specialised deuteration facility, the Materials Science Support Laboratory, the Partnership for Soft Condensed Matter and a Computing facility.

Some of the most interesting scientific achievements already obtained by users.

Much of the research carried out at the ILL impacts on many of the challenges facing society today, from sustainable sources of energy, better healthcare and a cleaner environment to new materials for information and computer technology. For example, neutron-scattering experiments have given us new insights into the structure and behaviour of biological and soft condensed matter, important in designing better drug delivery systems and for improving polymer processing. They also provide a unique probe into the phenomena that underpin high-temperature superconductivity as well as the molecular magnetism that may provide the technology on which the computers of the future are based.

Widespread interest from users in other countries to conduct research at the infrastructure, e.g. by indicating the number of international users currently using the facility per year.

As a service institute, the ILL makes its facilities and expertise available to visiting scientists. The ILL user community is world-wide: every year, about 2 000 researchers from close to 40 countries visit the ILL to perform over 800 experiments selected by a scientific review committee. The ILL monitors the papers published as a result of the use of our facilities, of which there are more than 600 per year. We pay particular attention to papers published in high-impact journals. About 140 such papers are published per year from data taken on ILL instruments. This is a factor of two higher than the second most productive neutron source in the world.

Description of Work

Task 6.1: Transnational Access

Modality of access under this proposal:

Excellence is the basis for having access to neutron beams at ILL and beam time will be allocated after a peer-review process which takes place every 6 months (typically in April and October). Competing with expert users on this basis is a major challenge for new users. The Centre of Excellence (WP5) will play an important role in ensuring that proposals from new users meet the necessary standards of excellence.

Support offered under this proposal:

FILL2030 will only cover the beam fee for new users from non-member countries in this work package. The Centre of Excellence (WP5) will provide support during and after the experiment to ensure that successful experiments result in impact in the form of scientific publications and further neutron scattering experiments.

ILL will cover travel and subsistence costs for scientists coming to perform experiments.

A key component of this work package will be to offer remote access so that, for short experiments (one day or less), users do not have to travel to the ILL. This makes most sense when the home lab is a long way from ILL. Remote access in this case means operating the instrument just as if the user would be at ILL with an instrument scientist and technician. The technician will put the samples in the beam and the user will have remote access via

the internet to the instrument control and data treatment software. The instrument scientist and technician will be manning the instrument, on-line and continuously available to assist the user.

Outreach to new users:

Beam time access through this work package is part of the outreach to new users – it will serve exclusively new users from non-member countries at ILL as part of the evaluation of the new user service package.

Review procedure under this proposal:The use of this beam time will be reviewed on an annual basis and fed in to the overall review of *FILL2030*, in particular the outreach to new user communities and the performance of the centre of excellence.

Work package number	7	Start and End Date	M1 – M48
Work package title	Dissemination of project results		
Participant number	1		
Short name of participant	ILL		
Person/months per participant	19,2		

Objectives

The objective of the Dissemination WP is to ensure the broadest possible communication of the project results (presentation of the project, web site, social media, publications). We identify seven different target publics:

- Funding organisations and policy-makers;
- Future (potential) neutron users;
- Current neutron research communities;
- Other scientific communities – potential future neutron users;
- Industry;
- Other large research infrastructures (on ESFRI roadmap or national facilities involved in imported cluster projects (e.g. SINE2020);
- The general public.

Description of Work

Task 7.1: Website + Publicity & Dissemination Plan

The project web site will be integrated in the ILL web site but have a separate URL in order to increase search results in the internet. The design and structure will be set-up during the first 6 months of the project. Many pages linked to project results will be integrated in the ILL websites anyhow. So in this way pages can be interlinked and easily searchable. The dedicated project web site will go live straight from the start of the project, as development can continue in parallel. All standard survey tools will be used for this web site, just as for the ILL homepage. The web pages will be fed in a sort of ‘blog’ for progress on the different WPs.

The Publicity & Dissemination Plan (PDP) will: (1) show the project website & regular scientific results; (2) define the project dissemination campaign. Participation in events (e.g. in conferences and targeted scientific meetings as well as through publications) will be at European/international level (to academic and industrial users) and national level (publications, presentations Member country ministerial level); (3) provide an indicative timetable of the promotion and dissemination activities.

Task 7.2: Dissemination of project linked articles

The dissemination activities will be carried out as described in sections 2.1 above. Dissemination will focus on specific end-user communities (see above in the Objectives) with targeted messages using appropriate media for communication.

Task 7.3: Exploitation Plan