



## Building a European Research Community through Interoperable Workflows and Data

### What is the ER-flow project?

The ER-flow project helps to build a collaborative European Research Community. It promotes and provides services with which scientific workflows can be developed, shared, executed, integrated and flexibly reused within research collaborations. ER-flow also performs research concerning interoperability of scientific workflows. ER-flow started in September 2012 and runs for two years, coordinated by the University of Westminster, London, United Kingdom.

### What are scientific workflows?

The sequence of computational and data manipulation steps required to perform a specific scientific analysis is called a workflow. Workflows encapsulate and facilitate reuse of data, software, applications and simulations among experiments or researchers. Workflows can be designed in graphical or text environments, then handed over to a workflow engine that understands and executes them, using data and compute services from community-specific or generic e-infrastructures, such as the European Grid Infrastructure.

### What can ER-flow do for you?

ER-flow provides various tools, online services, training and consultancy for scientific communities. Research teams from astrophysics, computation chemistry, heliophysics and life sciences are already benefiting from ER-flow's support in the following ways:

- ◆ Capture scientific calculations into workflows that can be reused by other members of the community.
- ◆ Run each other's scientific calculations for example, to repeat or demonstrate experiments for training purposes.
- ◆ Integrate multiple scientific models into a single workflow computation, including models using different workflow languages and different execution systems.
- ◆ Enrich community-specific web portals with online services that support the development, sharing and execution of workflows.
- ◆ Translate and restructure workflows written or designed in different environments for the simple reuse in other environments.
- ◆ Collect, analyse and address requirements on the interoperability of scientific data when used and processed by workflows.

### Why ER-flow?

ER-flow helps YOU to improve the repeatability and the reusability of YOUR applications within and beyond scientific collaborations. Its open platform enables the interoperability and integration of workflow systems, workflow engines and workflow languages. ER-flow provides services and support for the development, sharing, execution, integration and flexible reuse of scientific workflows. The training events, community workshops and one-to-one consultations organised by ER-flow help YOU and YOUR community to become adept workflow users.

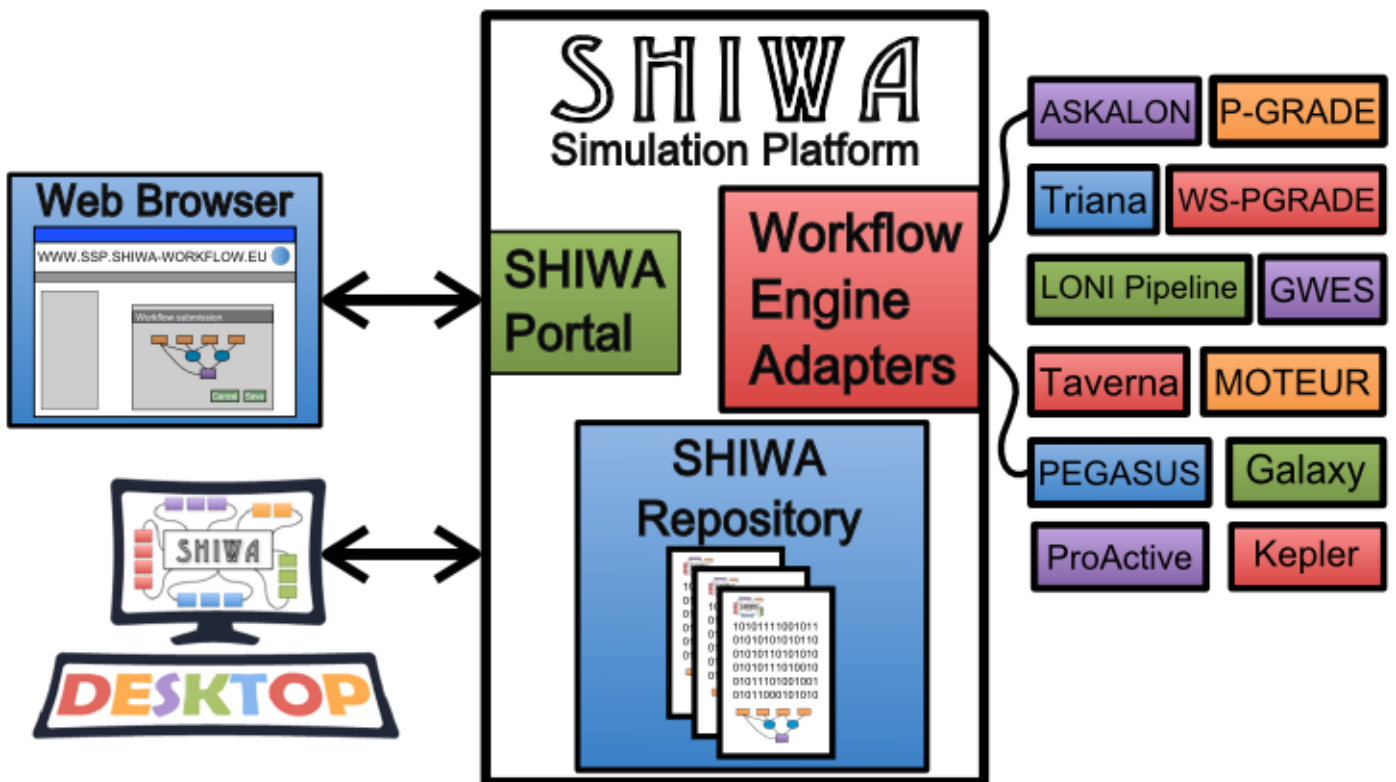
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**What technologies do we use?**

## What technologies do we use?

The ER-flow project uses and integrates technologies from various projects and scientific collaborations. These technologies are brought together by the **SHIWA Simulation Platform** (a service package designed for workflow-oriented scientific collaborations), maintained by an open collaboration. The Platform includes:

- ◆ **SHIWA Repository:** a database of workflows and related meta-data, used to search and share workflows within and among scientific communities.
- ◆ **SHIWA Portal:** a web portal integrated with the SHIWA Repository and with various workflow engines that orchestrate workflows from the Repository on different e-infrastructures.
- ◆ **SHIWA Desktop:** provides access similar to the SHIWA Portal, via the user's computer instead of a portal server.
- ◆ **Workflow engines:** the ASKALON, Galaxy, GWES, Kepler, MOTEUR, P-GRADE, PEGASUS, ProActive, Taverna and Triana workflow engines are already integrated with the SHIWA Simulation Platform. Other engines can be added when required.



## Do you need more information?

ER-flow project website: [www.erflow.eu](http://www.erflow.eu)

SHIWA User Forum: [www.shiwa-workflow.eu/shiwa-user-forum](http://www.shiwa-workflow.eu/shiwa-user-forum)

