

# CloudFlow

The motivating idea behind CloudFlow is to open up the power of Cloud Computing for engineering WorkFlows (CloudFlow). The aim of CloudFlow is to enable engineers to access services on the Cloud spanning domains such as CAD, CAM, CAE (CFD), Systems and PLM, and combining them to integrated workflows leveraging HPC resources. Workflows are of key importance in today's product/production development processes where product show ever increasing complexity integrating geometry, mechanics, electronics and software aspects. Such complex products require multi-domain simulation, simulation-in-the-loop and synchronized workflows based on interoperability of data, services and workflows.

## Project: CloudFlow

### Projects coordinator

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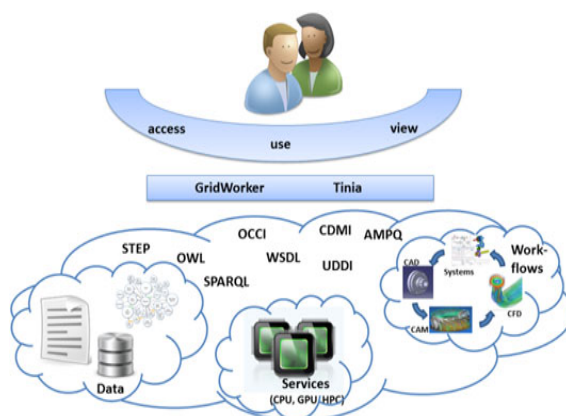
tbd

consortium: DFKI, SINTEF, University of Nottingham and Fraunhofer.

CloudFlow will build on existing standards and components to facilitate an as-vendor-independent-as-possible Cloud engineering workflows platform. Open Cloud Computing Interface (OCCI), STEP (for CAD and CAE data) and WSDL (for service description and orchestration) are amongst the core standards that will be leveraged. The key aspects (from a technical and a business perspective) are: Data, Services, Workflows, Users and Business models including Security aspects

Traditionally, the European manufacturing industry is characterized by innovative technology, quality processes and robust products which have leveraged Europe's industrialization. However, globalization has exposed Europe's industry to new emerging and industrialized manufacturing markets and the current economic challenges have decelerated the internal boost and investment, respectively. Hence, new ICT infrastructures across Europe need to be established to re-enforce global competitiveness.

CloudFlow is an SME-driven IP incorporating seven SMEs: Missler (CAD/CAM), JOTNE (PLM), Numeca (CAE/CFD), ITI (Systems), Arctur (HPC), StellbaHydro (turbine MRO for water energy plants) and CARSA (business models and security). Four renowned research institutions complement the



CloudFlow will conduct two Open Calls for external experiments investigating the use of the CloudFlow infrastructure in new and innovative ways, outreaching into the engineering and manufacturing community and engaging external partners. Each of these two Open Calls will look for seven additional experiments to gather experience with engineering Cloud uses and gaining insights from these experiments.

CloudFlow is striving for the following impacts: a) increasing industrial competitiveness by contributing to improve performance (front-loading, early error detection, time-to-market, ...) and innovation (co-use of models, early virtual testing) and b) improving in innovation capabilities by enabling more engineers to gain insights and to create innovation by accessing 'new' tools and easing the use of Cloud Infrastructures.

All in all, CloudFlow wants to contribute to a wider adaption of Cloud infrastructures and making them a practical option for manufacturing companies.