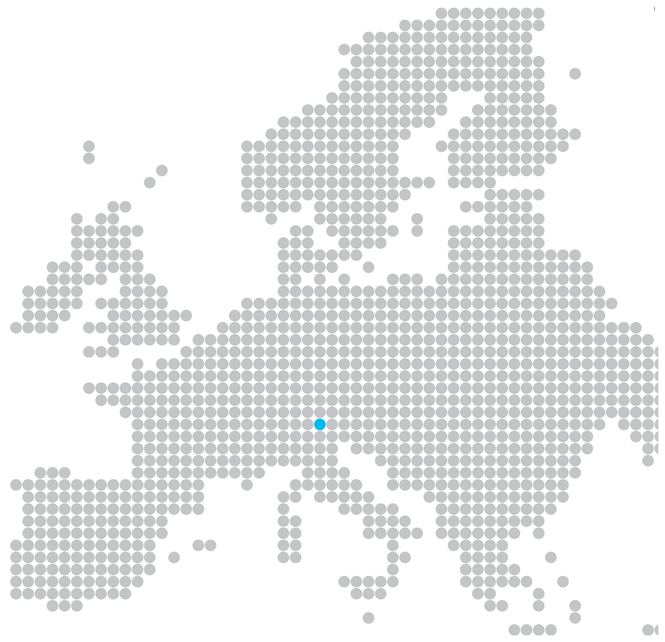
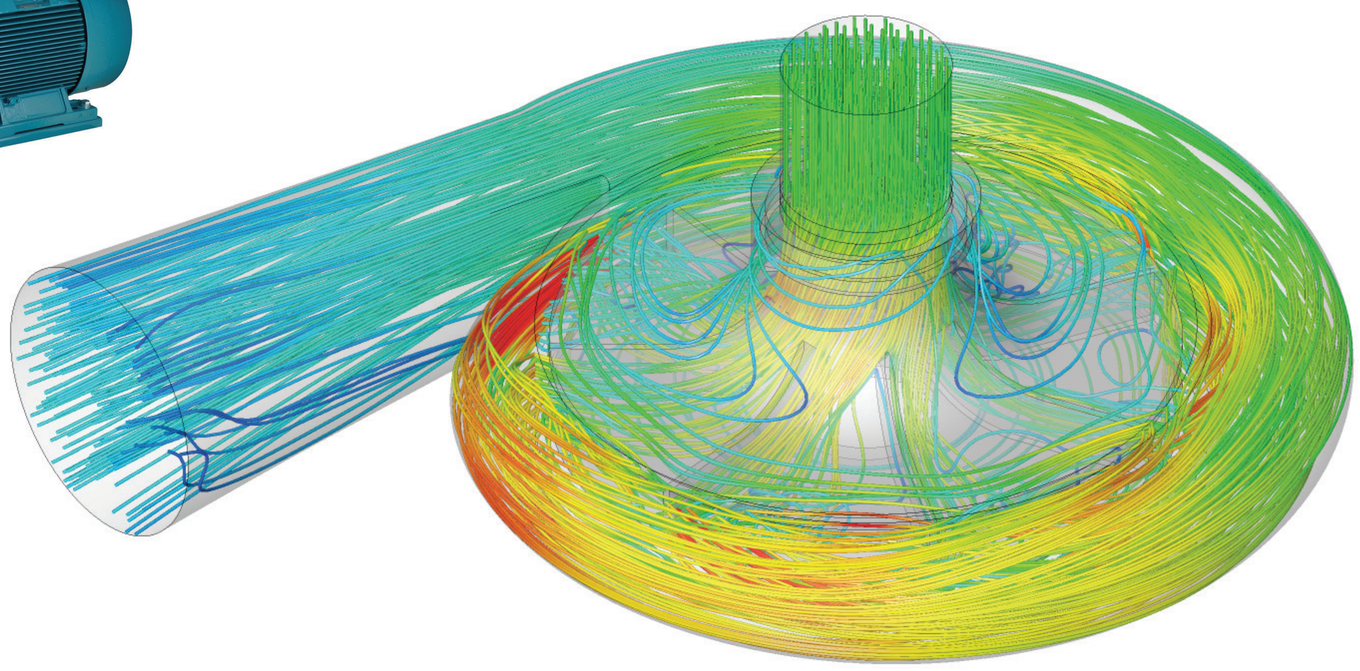
HPC-Cloud-based design of centrifugal pumps



The Challenge

The numerical simulation of centrifugal pumps is not easy, it requires a **high-fidelity Computational Fluid Dynamics model**, very fine computational grids and the analysis of transient flows. The challenge is to **demonstrate an attractive solution** in terms of cost, effectiveness and relevance for those SMEs which do not have the resources to perform the necessary simulations on their own.



Organisations Involved

End User:

ENGINSOFT

HPC Centre and HPC Expert:

CINECA

The Solution

- A **simulation model** has been implemented for a centrifugal pump using a commercially available software package, the model has been developed to run on a Cloud-based HPC system.
- Through a **series of experimental runs** the benefits of simulation using Cloud-based HPC system have been demonstrated.

The Benefits

- The test runs have shown that the use of HPC-based simulation using a Cloud and external expertise results in a **return on investment** in less than six months.
- The design and optimisation of a single pump can be completed in shorter time, using simulations can give Enginsoft a significant commercial advantage.
- Due to this **improvement in the design process**, Enginsoft expects to increase its market share.

FORTISSIMO

European Commission

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SEVENTH FRAMEWORK PROGRAMME