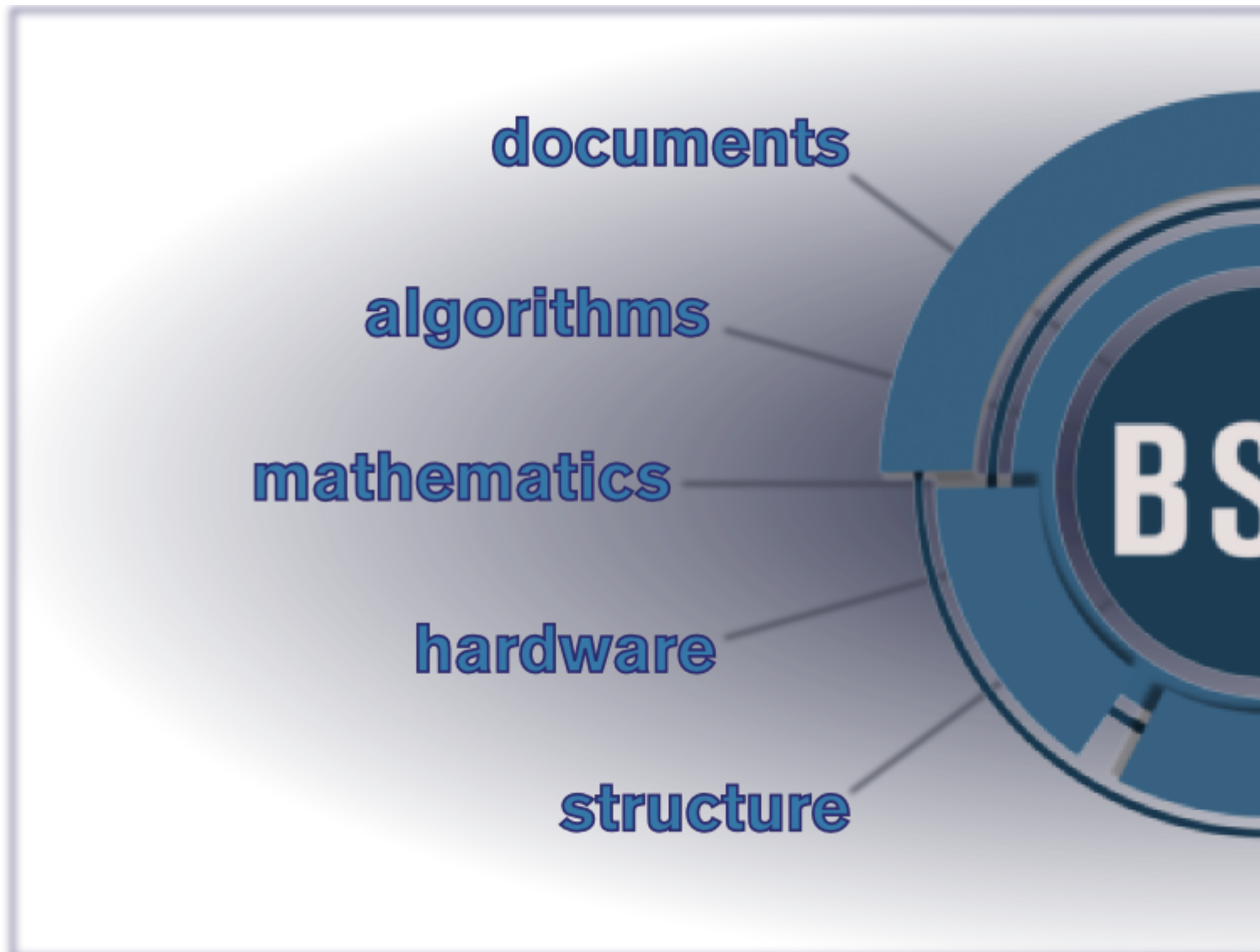


## **BSIT: Barcelona Subsurface Imaging Tools**



Barcelona Subsurface Imaging Tools (BSIT) is a software platform designed and developed to fulfil the geophysical exploration needs for HPC applications. It provides different HPC imaging systems such as modelling, migration and inversion of seismic and electromagnetic data for industry.

### **Summary**

Geophysical exploration is a field with huge amount of computational resources needs. Typically, processing a geophysical survey takes from days to months using HPC resources in the range of PFlops. In

addition, not one but many different HPC applications need to be in place to fulfil the range of processing needs in geophysical exploration activity. Finally, as HPC resources evolve so fast, a constant development cycle must be implemented so as to guarantee that the developed applications are able to extract the full power of the underlying hardware while giving accurate results.

## Objectives

The main goals of the current research line are:

- To develop and evaluate the proper algorithms for dealing with current geophysical exploration needs.
- To provide a development platform (framework) that shortens the time-to-delivery.
- To guarantee that both the development and optimisation process undertake a proper methodology for HPC applications.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

---

**Source URL (retrieved on 16 Mar 2025 - 00:54):** <https://www.bsc.es/es/research-development/research-areas/hpc-software-engineering/bsit-barcelona-subsurface-imaging-tools>