

# HUBzero platform as a brick for Open Science construction

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HUBzero is an open source software platform for building powerful websites that host analytical and collaboration tools, data and digital infrastructure resources to build communities in a single web-based ecosystem. The platform originates from the 1990s, being developed by researchers at Purdue University in conjunction with the Network for Computational Nanotechnology to support nanoHUB.org. HUBzero is now used across a large variety of disciplines, including Earth and Environmental Sciences, Engineering, and Healthcare. Today the platform is the basis for 40+ hubs worldwide with more than 1,5 million unique visitors in the past 12 months.

The HUBzero platform includes a powerful content management system built to support scientific activities and link through digital infrastructure services. Users on a hub can write blog entries, participate in discussion groups, work together in projects, publish datasets and computational tools with Digital Object Identifiers (DOIs), and make these publications available for others to use as live, interactive digital resources. Simulation, modeling, and data analysis tools published on a hub can be accessed with the click of a button, running transparently on cloud computing resources, campus clusters, and other national and international high-performance computing (federated) facilities. The platform also provides support for legacy applications in various environments (Windows, Jupyter, R and Linux), as well as appropriate security and control for large collaborations. HUBzero can be fully customized to the particular needs of a community hub.

For all these features, HUBzero can provide an important brick for the construction of community-targeted virtual research environments or science gateways that facilitate the exploitation and combination of (existing) digital infrastructure services. More importantly, the collaboration and publication facilities offered by the HUBzero platform can promote and foster the engagement of researchers and society for the construction of an Open Science culture and ecosystem. Finally, the HUBzero foundation currently has 16 members, serving as a vehicle to provide support for the development and hosting of hubs through various services. After several years supporting hubs all over the globe with millions of visitors, HUBzero has become a sustainable part of the ecosystem of solutions for modern science.

The presentation will highlight relevant HUBzero features for Open Science through a couple of examples of successful hubs. A discussion will be conducted with the audience about the role that this platform could take in the construction of the European Open Science Cloud and the European Data Infrastructure.

The target audience for this presentation and discussion are professionals interested in the construction or utilization of virtual research environments and science gateways, including research and higher education digital infrastructure innovators.

## Topic Area

The EOSC & EDI building blocks

## Type of abstract

Presentation (15 minutes)

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