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# Spacialist – Virtual Research Environment for the Spatial Humanities

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Research projects in the humanities generate data and tools that are often abandoned after the project funding ends. Moreover, research data handling and the deployed tools are often highly specific for single projects. This unsustainable practice leads to solutions that are incompatible with other tools, projects and infrastructures, and they often do not rely on accepted standards.

To close this gap the project Spacialist, which was funded by the Ministry of Science, Research and the Arts Baden-Württemberg in the “E-Science” program, set out to develop a modular virtual research environment that offers an integrated, web-based user interface to record, browse, analyze, and visualize all spatial, graphical, textual and statistical data from archaeological or cultural heritage research projects.

To address the highly heterogeneous requirements of such projects, Spacialist was developed as a software platform that is instantiated, customized and deployed separately for each project. The data model was designed as a meta model that defines entities with their properties and relationships. During the customization of the data model for a particular project, these abstract entities need to be instantiated for the project’s domain. For representing domain-specific concepts Spacialist uses controlled vocabularies (thesauri) based on the XML-based standard SKOS (Simple Knowledge Organization System), thus facilitating data analysis and interoperability.

Core functionality such as the thesaurus and the creation and editing of entities is available out of the box for each project. Additional functionality is implemented in plugin modules that can be added on demand. These include file management, data analysis, geographical maps, and others.

The development of Spacialist’s open-source software was driven by an interdisciplinary team of software developers, geographers, ethnologists, archaeologists and librarians in collaboration with pilot projects in various areas like mediterranean archaeology and cultural heritage preservation.

To address the challenge of creating a sustainable business model beyond the initial funding, Spacialist was integrated into the service offered by the eScience-Center Tübingen, which has the necessary infrastructure and staff to provide Spacialist instances initially free to projects. The initial deployment and custom data model are covered by permanent staff. If the client project decides to adopt Spacialist as their research environment,

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the project is charged with a fee that covers hosting and maintenance of their Specialist instance, and they have to enter a contractual agreement with eScience-Center defining usage and data privacy issues.

To support the full research project lifecycle even after the projects end, the platform is being integrated with our University's research-data archive, which guarantees the long-term availability and reusability of project data.