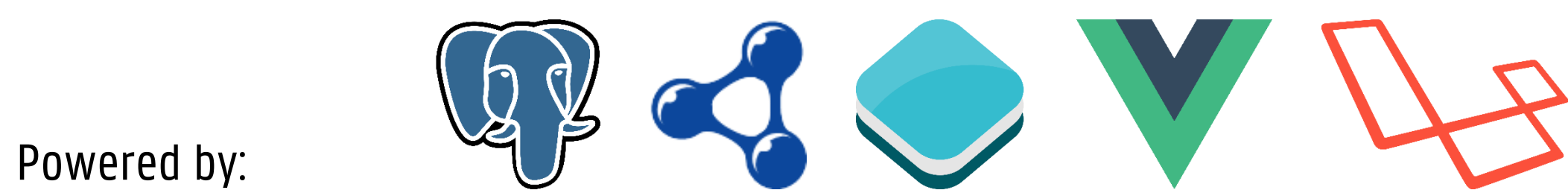


## Spacialist : A Virtual Research Environment for the Spatial Humanities

*Dirk Seidensticker<sup>2</sup>, Vinzenz Rosenkranz<sup>2</sup>, Michael Derntl<sup>1</sup>, Philippe Kluge<sup>1</sup>, Benjamin Glissmann<sup>1</sup>, Koen Bostoen<sup>2</sup> & Matthias Lang<sup>1</sup>*

Many archaeological research projects generate data and tools that are unusable or abandoned after the funding period ends. To counter this unsustainable practice, the Spacialist project was tasked to create a **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. Spacialist is developed as an **open-source software platform** composed of modules providing the required functionality to end-users. It builds on **controlled multi-language vocabularies** and an **abstract, extensible data model** to facilitate data recording and analysis, as well as interoperability with other projects and infrastructures. Development of Spacialist is driven by an interdisciplinary team in collaboration with various pilot projects in different areas of archaeology. To support the complete research lifecycle, the platform is being integrated with the research-data archive of Eberhard Karls University Tübingen, guaranteeing long-term availability of project data.



## Web-based, open-source tools

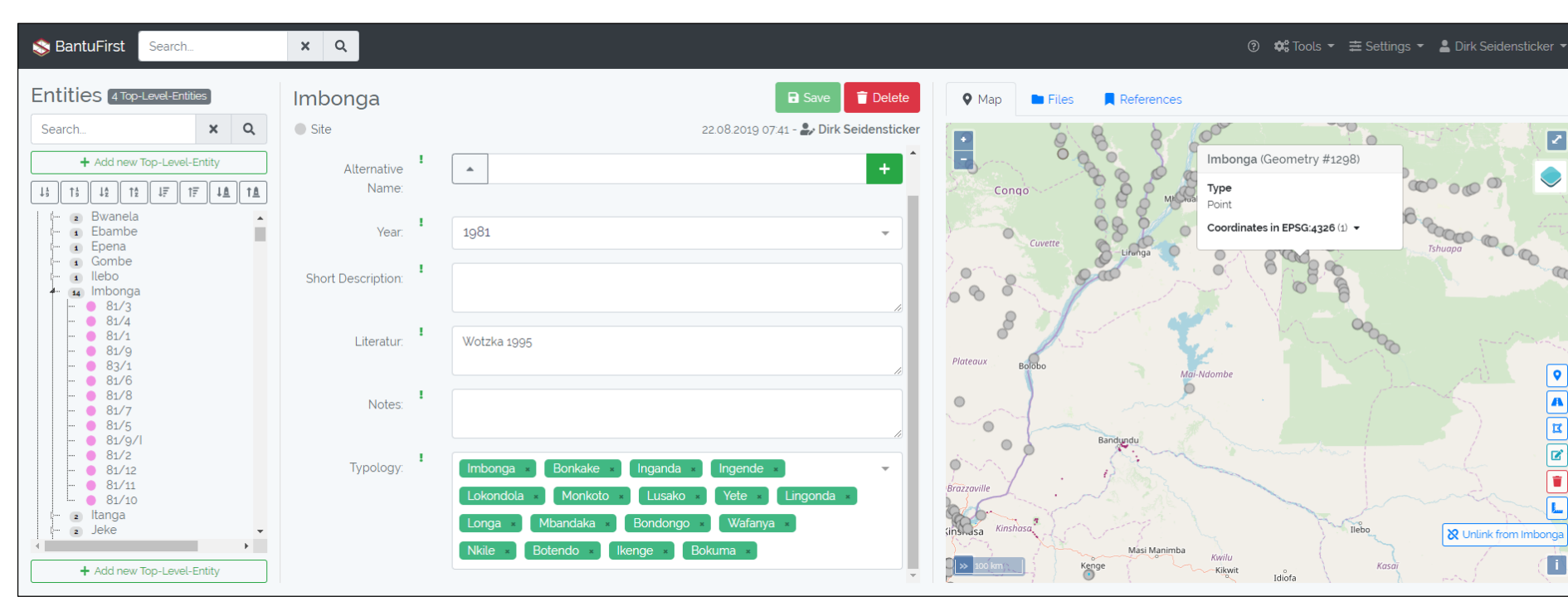
**Structured Data Organization**  
User-definable data model

**Data Manipulation**  
User-definable form sheets with multiple data types

**Geographical Information System**  
Linked Geometries

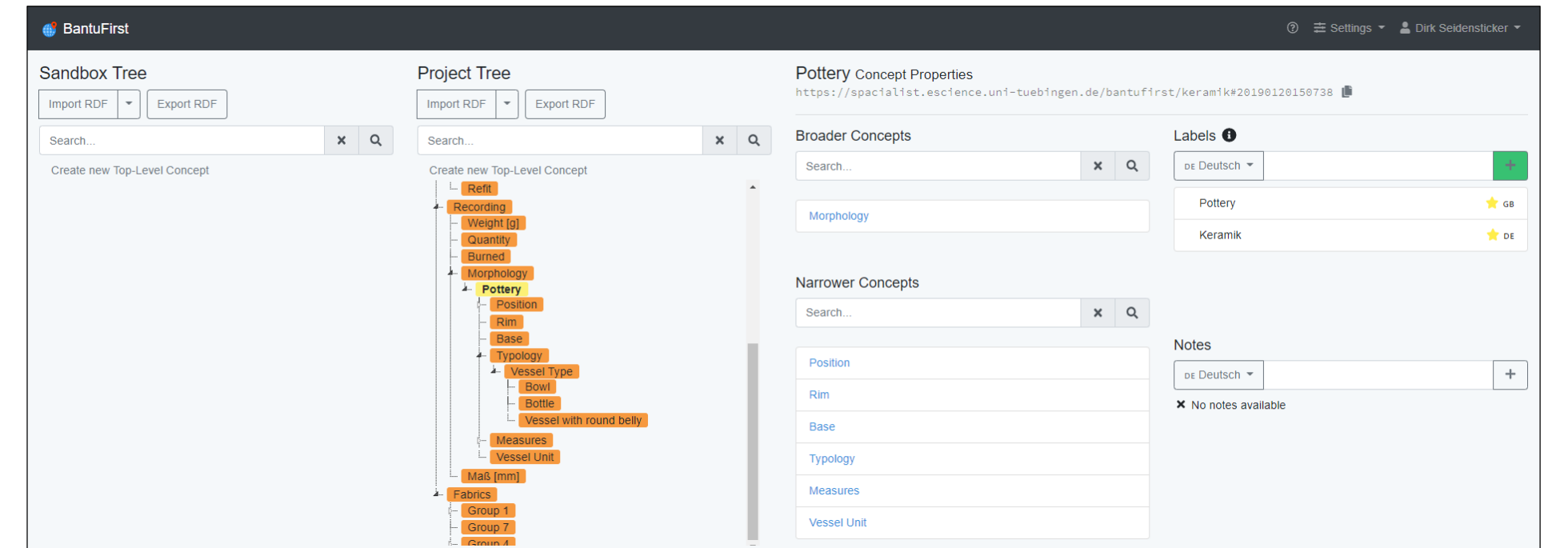
**Extensions (Plug-Ins)**

- Data Analysis**
  - Filtering, aggregating and browsing of project data
  - Generating tables and maps
  - Export to Excel, GeoJSON, etc.
- File Manager**
  - Upload files
  - Link to entities
  - Integrated viewer for images, text, PDF, 3D-models, etc.
- Geographic Information System**
  - Additional overlays and basemaps
  - Styling based on attribute values
  - Export & import of geodata



**Ontology based Knowledge graph**

- Multilingual poly-hierarchical ontology according to W3C-standard SKOS
- Editing via special tool **ThesauRex**



# The modular, virtual research environment

# Spacialist

## the central hub for data storage and analysis

## within y/our project.

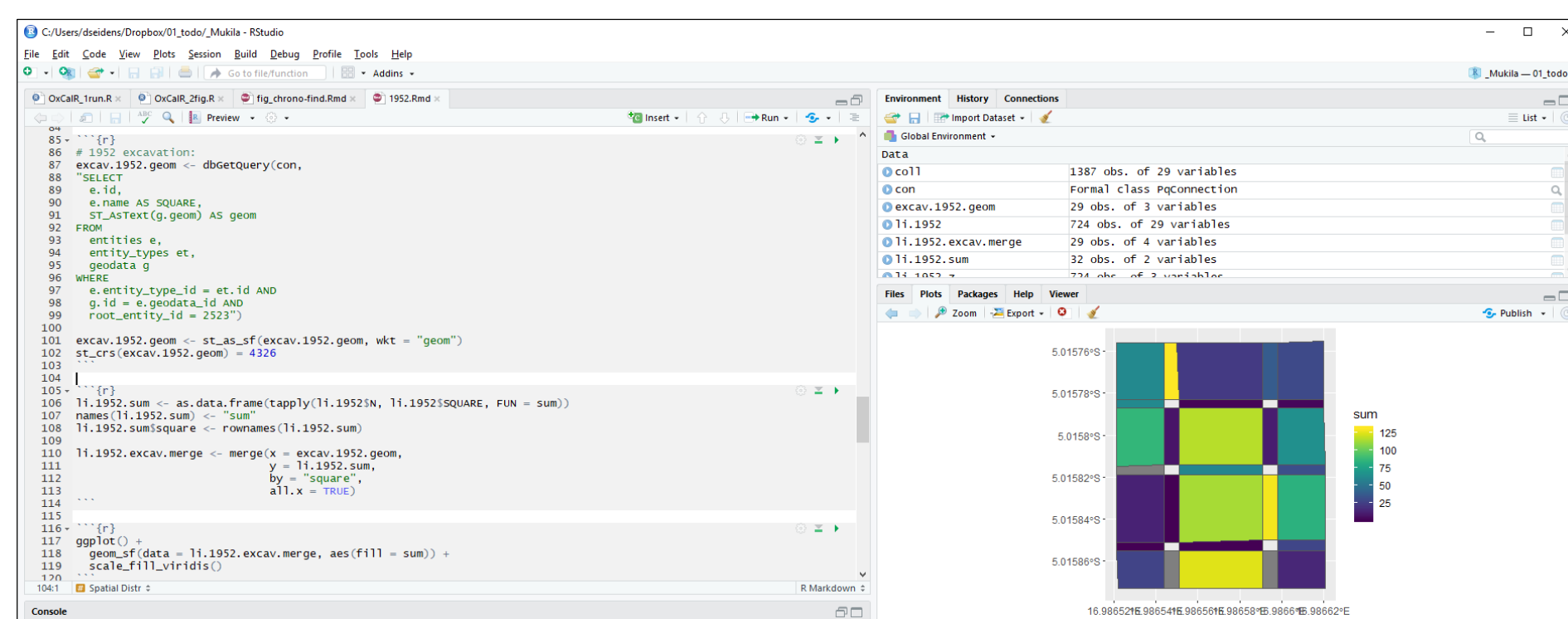
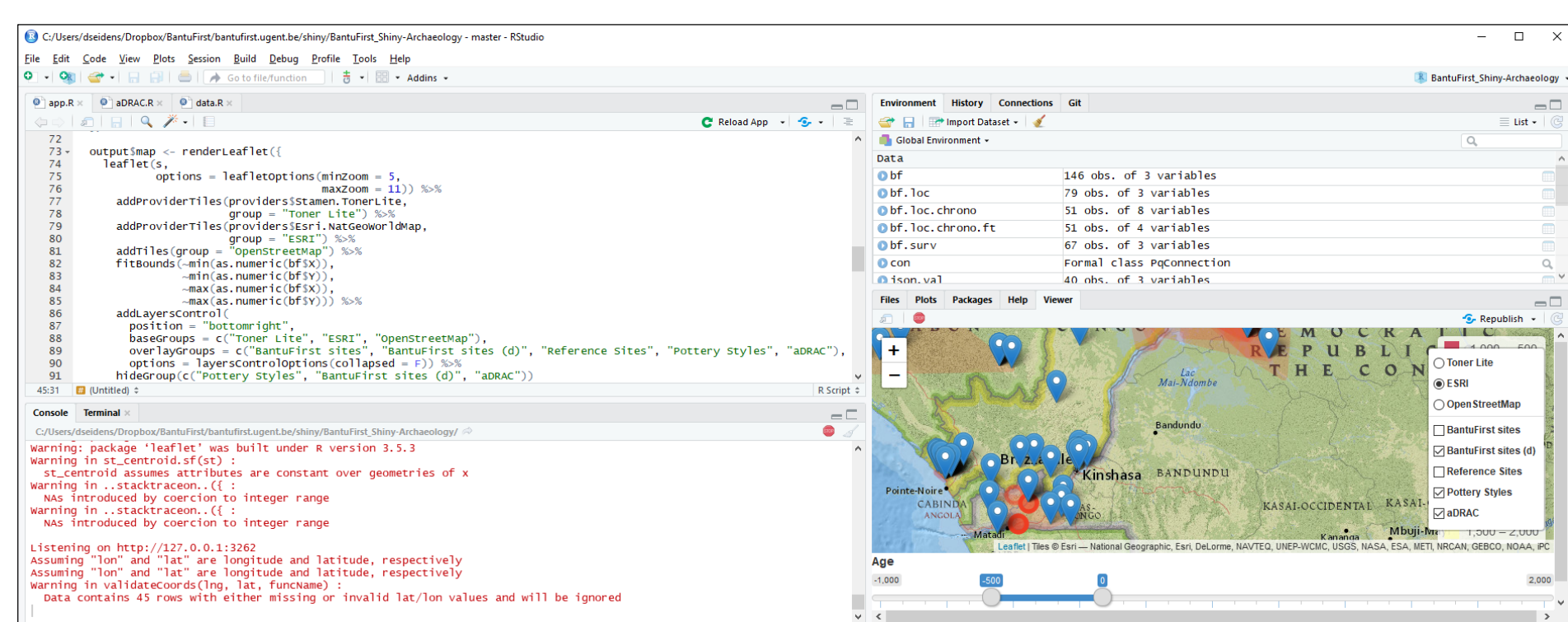


## Use case: The BantuFirst project (ERC Consolidator's Grant N° 724275))

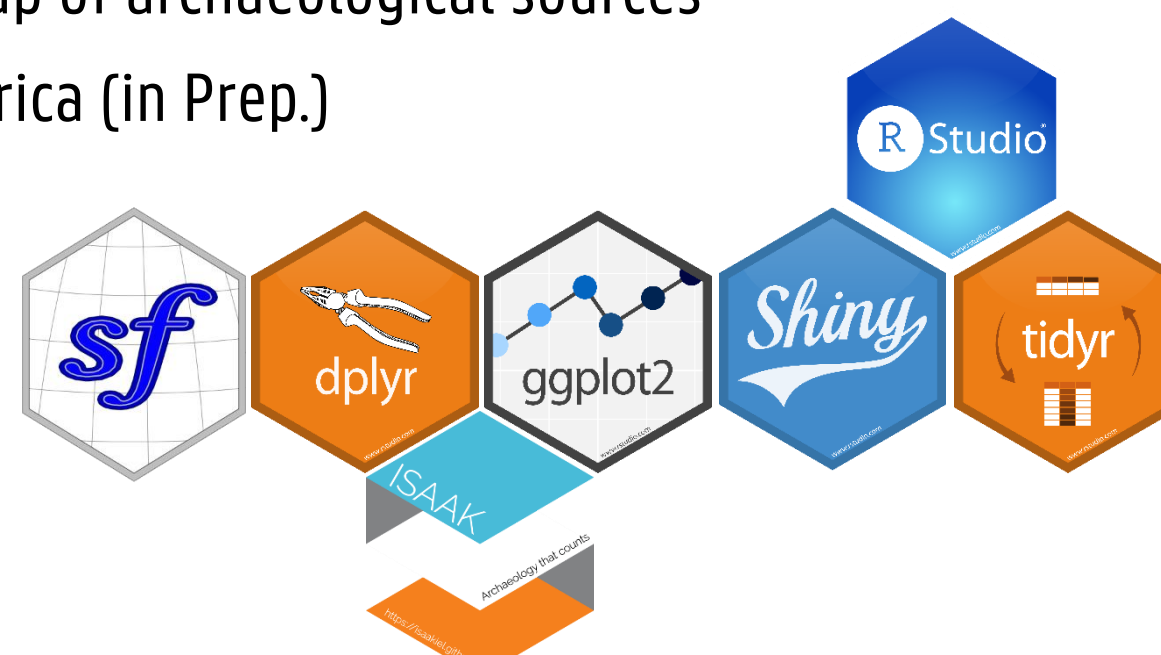
**BantuFirst** is a cross-disciplinary research project aiming at **transforming our thinking on the Bantu Expansion** by collecting new empirical evidence to gain a better understanding of the interconnections between **human migration, language spread, climate change and early farming in Late Holocene Central Africa**.

Spacialist is used as **central hub for data recording and analysis**. Use of the platform offers:

- Statistical analysis through direct access to project data using **statistical programming language R**
- Statistical analysis and mapping of all excavation data



- An interactive map of archaeological sources within Central Africa (in Prep.)



**Baden-Württemberg**

MINISTERIUM FÜR WISSENSCHAFT, FORSCHUNG UND KUNST

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