

Implementing community-led research software development and maintenance: An emerging initiative in the archaeological sciences

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In contrast to Microsoft Excel and similar programmes, scripting languages such as Python and R allow to fully reconstruct, e.g., data treatment processes. For this reason, they are a key element for the full implementation of open research principles throughout the entire research cycle. However, their wide uptake is hindered by the steep learning curve and the required time investment for their implementation in everyday research workflows. Another main challenge for research software is to ensure its longevity and sustainability. Especially if developed by a single developer or a small team, there is a high risk that software becomes abandoned once its maintainer(s) ceases activity.

An approach to overcome these two major challenges is the development and maintenance of well documented and easy-to-use functions tailor-cut to the needs of a specific community by representatives from this community. In archaeometry, such a process towards a community-driven and community-owned software library was just initiated. Using the lead isotope community as nucleus, community representatives from the archaeological sciences develop an R package based on existing scripts. They already have at least basic knowledge in programming and currently receive training by scientifically-related R experts to enable them developing and maintaining the R package and to build a group that coordinates the package's future development.