

A proposed quantitative index to understand and evaluate the health of open source projects

What distinguishes a strong software project from a weak one? How do we distinguish flourishing Open Source Software (OSS) projects from those that flounder? In an academic or research setting, which software does the best job at encouraging excellent research? Which provides the best opportunities for scientific networks and connections? In short, what makes up the health of an academic open source project and how do we measure it? This pilot project seeks to begin answering this by identifying a preliminary set of best measures of OSS project health in the academic and research communities, and summarizing these in an index. This index will lead to two important long-term impacts. First, it will implicitly encourage teams to develop software in ways that are most useful for academic and open-source communities. Second, it will provide a metric that can be used by stakeholders to evaluate projects when considering adoption, use, funding, or support.

The growth in usage of open source projects in academic institutions makes the timing of this project critical. In the current data and technology centric times, research and teaching in academia cannot exist or are much less efficient without a myriad of software tools. Furthermore, transparency and constrained budgets often require the use of open source solutions, and universities need a practical and reliable tool to quickly evaluate the health of an open source project and make validated decisions. Universities also play a role in creating open source software projects - in this case our proposed tool can be used for self-evaluating and validating the utility and sustainability of a university or research group's own projects. Thus, whether universities use or build open source software, a quantitative index that caters to academic institutions' needs will be useful to them. In addition, the proposed index can be of great utility to funding organizations that support open source software projects and must also evaluate their outputs, engagement, and sustainability.

This project complements our current project titled "Understanding What Constitutes a Vibrant Open-Source Community" funded by the Institute of Museum and Library Services. Specifically, we are funded to do similar work for library OSS projects, and we are requesting a supplement for non-library research academic software cases.