Space Telescope Science Institute
Science Software Branch
Open Source Efforts:
what has worked, what hasn't

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Two kinds of sustainability
(in our context)

- Institutional
  - Our unfair advantage.
  - Long-running budgets and staff make it a lot easier.
- Community-based

Relevant Projects

Project	Type of sustainability	Barrier to contributions	Comments
STSDAS	Institutional	High (spp)	
PyRAF	Institutional	High (IRAF)	
numarray	Institutional	High (complex)	Highly successful (forced spawning of numpy)
pyfits	Institutional	High (complex)	
matplotlib	Community	Low-high	Wildly successful
astrolib	failed	Low-high	Community too small
astropy	Community	Low-high	

Institutional Issues

Are we atypical?

Yes, but not entirely.

Many Important Open Source projects started with or were supported by a company or institution.

Licensing

Didn't ask, but did tell.

Risk Adversity

Traditional avoidance on reliance of external entities

Currently schizophrenic

Want benefits but not costs

Factors for a Successful community-based OS Project

- Broad enough usefulness and interest
- Cannot be focused on needs of one project or mission
- Sponsoring institution (or individuals) must accommodate needs of others [this is often the main reason for failure]
  - There is a cost to this, not often recognized
- Not enough to hang a sign saying it is Open Source
- Complexity is a barrier (hard for newbies to get started)
  - Can be overcome if community is large and has sufficient number of experts
    - Typically not true in astronomy
- Need welcoming culture
  - Willing to look at other's contribution
  - If not good enough, willing to help make them good enough
  - Not requiring perfection
  - "Worse is better" (to a point)
  - Get things out there to spur use and improvement.

Strategies for success in an Institution to support Open Source

Disclaimer: I don't know what works for other Institutions

- To the extent possible, don't ask for permission.
  - But don't hide it either
- Use the project to further the goals of the institution (don't lose sight of that)
  - Then highlight the factors that the Open Source project made the goal easier when done
  - When possible, note the visibility it provides the institution due to its contributions.

Last Word

Scientific Software doesn't necessarily need to last forever: There are times it is good to redo it.