

OSTP Convening: Pioneering the Future Advanced Computing Ecosystem

Robust Sustainable Software

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Robust, Trusted and Sustainable? Yes!

Now: Too much “Trust Me. QED.”

Next, need more:

- Set requirements (transparency, reproducibility, ...)
- Support teams to succeed
- Make meaningful: funding, publications outcomes
- Provide ecosystems to build upon: e.g., E4S

E4S

E4S: Curated, open source, HPC software stack. <https://e4s.io>

Key to success: We are scientists, problem solvers. Use science to address our challenges!

Now: Improved SW environments (Jupyter), integration of software specialists as team members, data mining of repos

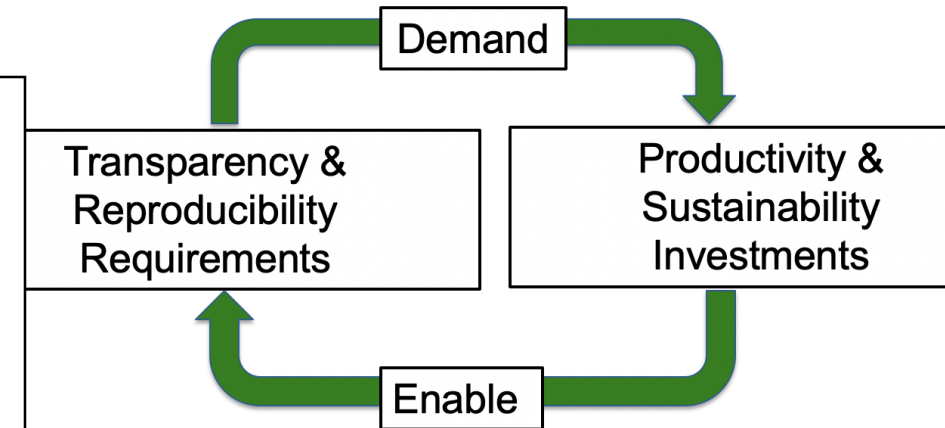
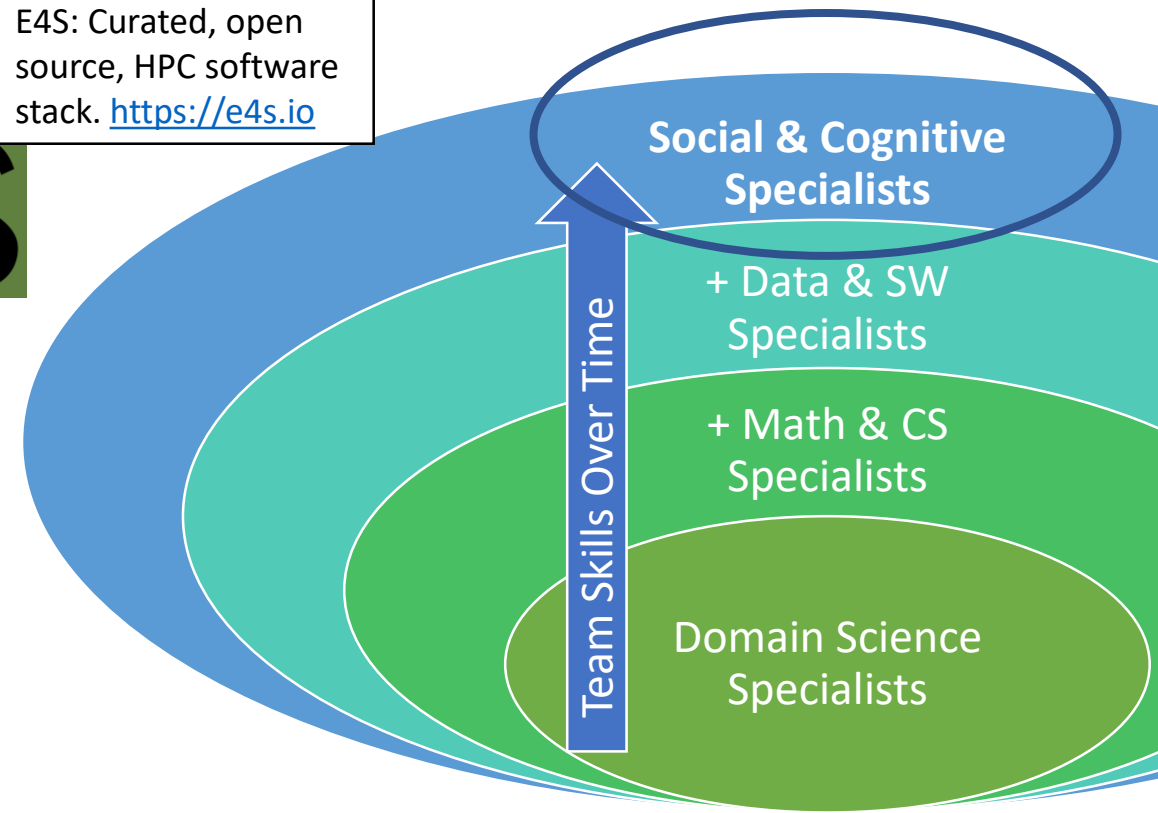
Next: **Research Software Science**

- Use scientific method to understand, improve development & use of software for research.
- **Incorporate cognitive & social sciences.**

Agile approaches are essential:

“Use iteration and incrementation only with projects you want to succeed.”

- Establish baselines
- Set next levels of rigor
- Plan for success
- Requires collaboration of funders, publishers, communities, employers
- Repeat



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