

BUYING CYCLOPS BY THE YARD

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A large, expensive scientific project like the Green Bank Telescope or a new particle accelerator is scientifically useless until it is completed, commissioned and turned over to an operations team.

A new initiative in Radio Astronomy and SETI, the Square Kilometer Array, is also a large, expensive scientific project, but it differs from these others in a fundamental way. As an array of small elements, system-engineered for the purpose, the SKA can ‘grow’ into existence, with useful interim stages along the way. Linear growth is not very interesting, but exponential growth with a reasonable doubling time certainly is.

This suggests consideration of an exponential funding approach. Assume you could find a government, donor, or international consortium willing to commit US\$250M, on believable assurances that this would be adequate to ‘grow’ the billion-dollar SKA and operate it indefinitely, through judicious investment of these funds. Can it work?

Yes, with patience. It does take time, and those graybeards among us wanting to use the instrument before our retirement should continue to look for international commitment at the billion-dollar level. But the investment alternative solves three key issues that are almost never fully addressed when funding such proposals: operating costs, ongoing improvement, and infrastructure aging.

Needless to say, this is not the way governments normally fund such projects, but for a long-lived, general-purpose instrument, it can be an effective mechanism.