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Good Read: Revolutionizing Science and Engineering through Cyberinfrastructure

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The Atkins Report represents one in a series of milestones marking NSF supported computer science and technology digital development initiatives. It builds from earlier National Research Council reports focusing on e-Government (2002) and the environmental science grand challenges (2003) as well as the NSF report on supercomputer centers (1995); it emerges alongside reports on digital libraries (2003) and environmental cyberinfrastructure (2003). Bringing forward a recognition of the need for broad interdisciplinary coordination, it highlights the term 'cyberinfrastructure'. Revolution refers to doing things differently, in this case, with new types of scientific and engineering knowledge environments and organizations. We find new names emerging for such work arrangements, from collaboratory and grid to eScience communities. The report discusses not only new environments but also new roles: "The research community needs more broadly trained personnel with blended expertise in disciplinary science or engineering, mathematical and computational modeling, numerical methods, visualization, and sociotechnical understanding of grid or collaboratory organizations." Timely reading, as we consider the next decade of LTER science, the Atkins report opens the door on critical contemporary issues by articulating the need to define as well as to build cyberinfrastructure. It is initially disconcerting to find the notion of cyberinfrastructure remains fuzzy, but perhaps we are fortunate to be afforded some conceptual space. Rather than adopting a strictly technical approach, we may consider the opportunity, in addition to building cyberinfrastructure, of defining and designing cyberinfrastructure, as a part of a multi-dimensional research process rather than apart from it.