

Supercomputers, Science, and Society

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It is usually assumed that the only beneficiaries of Supercomputing, and more specifically Supercomputer Centers, are the scientists and engineers working on the frontiers of research. This may be true in one sense, i.e., the science produced as output from the use of the supercomputers at these sites certainly benefits the various disciplines of science, and advances the reputations of the individuals involved. However in many cases the results produced are not just science for science's sake; they can have societal impact as well, biochemical research feeds into drug treatments, weather and climate change predictions benefit us all, and the many interactions these centers have with industrial clients to improve products, or the processes leading to these products.

There is however, a much broader impact, unseen by most, associated with the way these centers have perceived their roles as facilitators for their users. In order for those who use the centers to be able to even have access to the capabilities the supercomputers possess, have access to the massive amounts of data that are produced by their simulations, or simply have access to other users/collaborators, the centers, over the past fifteen to twenty years have had to provide new means to allow their users to accomplish these activities in a variety of ways. Many of these measures have found their way into broader aspects of society; in one very notable case, totally changing the way we all conduct our lives.

This presentation will give a short survey of some of the sometimes interrelated means for benefiting scientists and engineers who were seeking to use the facilities offered by these supercomputer centers, and which then found significantly broader usage beyond science. Among the subjects to be covered are:

- Networking
- Visualization
- Public education
- World Wide Web
- Collaborative technology
- The Grid
- Non-scientific applications
- Data, data, data