

NIAC

Models, Directions and Thoughts

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Other University-Laboratory Partnerships

- **University of California, Berkeley & Lawrence Berkeley National Laboratory**
 - LBNL founded by UCB
 - Strong integration of LBNL and UCB activities
 - Close physical proximity
- **University of Chicago & Argonne National Laboratory**
 - Computation Institute established in 2000
 - Separated by ~45 minutes of heavy traffic
 - Has substantially increased collaboration between UC & ANL
- **University of Tennessee & Oak Ridge National Laboratory**
 - Joint Institute for Computational Sciences established in 2002
 - Separated by ~ 45 minutes
 - Spotty collaboration between UTK and ORNL

Computation Institute

Established because both UC and ANL realized that:

“advancement in the sciences, arts, and medicine depends increasingly on collection and analysis of large quantities of data and detailed numerical simulations of complex phenomena”

and neither institution had all of the expertise needed to exploit these opportunities

Basic Facts about CI

- **Composition**
 - Approximately 60 researchers from each institution
 - Approximately 50 FTEs / 90 staff supported by CI funding
 - Approximately 30 graduate students in CI
- **Projects**
 - Few large projects (TeraGrid, Beagle, Urban Systems)
 - Many small projects
- **Selection Process**
 - Formal selection process for CI Fellows, but execution seems somewhat haphazard

Successes and Failures of CI

- **Successes**

- Enables UC researchers to obtain funding from DOE
- Enables ANL researchers to obtain funding from non-DOE
- \$150 million in past 5 years (\$20-50 million/year)

- **Failures**

- Little strategic focus—let 1,000 flowers bloom
- Many projects don't involve strong participation from both UC & ANL
- Has not led to substantial UC faculty involvement in ANL's major DOE programs

Directions and Thoughts

- **Major Directions**
 - Advanced and future computing systems
 - Scalable modeling, simulation and design
 - Data-driven science and discovery
- **Guidelines**
 - Need to have strategic projects as well as foster individual collaborations
 - Need to have participation from both UW & PNNL in all projects
 - Need UW faculty involvement in PNNL's major DOE programs

Next Steps



- **Workshops**
 - To identify promising candidates for major initiatives (e.g., urban science and engineering, science of computing, ...)
- **Open Houses**
 - To better understand research underway or planned at each institution and to identify collaborations in specific science and engineering projects
- **Education**
 - Determine how to work together to educate the next generation of scientists and engineers, especially in simulation science