Software Design and Productivity Coordinating Group

Workshop
April 18-19, 2001

SDP Goals

1. **Advance the science of software and system design.**

2. **Automate the engineering process based on the scientific foundations and empirical understanding.**

3. **Empirical testing and validation of results in selected application domains critical for the Nation.**

SDP and HCSS

- **SDP research focuses on software development methods that are efficient and cost-effective.**

- **HCSS should assure that the end products behave predictably and reliably.**

- **SDP and HCSS are complementary. Achieving progress in both areas is critical national goal.**

Agency Interest in SDP

Research Area	Lead	Support
Science of Software/System Design		
1. Integrated software/system modeling methods	**NSF**	**DARPA**
2. Effective software/system composition methods	**NASA**	**NSF, DARPA, NIH**
3. Foundation for advanced frameworks and middleware	**DARPA**	**NSF,**
Automation of the engineering process		
1. Integrated software/system development processes	**NSF**	
2. Integrated, configurable tool environments	**DARPA**	
3. Methods for artifact generation and management	**NSF**	
Applications and empirical evaluations		
1. Technology for embedded software development	**DARPA**	**NASA, NSF,**
2. Empirical studies of development projects	**NSF**	
3. Experimental studies in distributed applications	**NIST**	**NSF, DARPA,**

*Preliminary, not complete

Expectations from the Workshop (DARPA)

PITAC recommendation:
"Make fundamental software research an absolute priority."

…but what is "fundamental software research" after the Big Bang of IT in the 80's and 90's?

- What is the structure and what are the fundamentals in SW research?
- What are the unique challenges in embedded software?
- What are the foundations of software for distributed systems?
- How to do research in large scale systems?