Designing and Using Cyberinfrastructure: Challenges and Opportunities for History

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Topics today

1. Cyber-infrastructure?
2. NSF's FastLane [1994-2000--]
3. Collecting/validating data
4. Dimensions for analysis: designers + users
5. Challenges for history

HCC:07-47445 + HCC:08-11988

Cyber-infrastructure

- Dan Atkins* 'Revolutionizing S+E Through Cyberinfrastructure' [2003]
  - Office of CI [FY 2006 $127m]
  - OCI SI2 + CIF21 … [FY-12 $236m]
- Networks … distributed … transformative … big science
- "eScience" + "digital humanities"

FastLane (1)

- glory days of NSFNET [1985-95]
- CMU + Michigan* EXPRES [1986-]
- Connie McClindon "FastLane" [1994]
- 3x awards [1996] ... Transition 1998-
- All proposals in 2000

UCLA (6.2000)

FastLane Requirements - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Netsite: https://www.fastlane.nsf.gov/a0/submreq.htm What's Related

FastLane

Home News Comments nsf.gov

FastLane Requirement and Submission Deadlines

- Is FastLane Required to Submit Notifications and Requests?
- FastLane Contacts for Proposal Preparation
- FastLane Proposal Submission Deadlines By Date
- FastLane Proposal Submission Deadlines By Program

The National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230, USA
Tel: 703-306-1234
FIRS: 800-877-8339 ~ TDD: 703-306-009

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Mar 24, '99

Document: Done

Start Distiller A... PHSforms FastLa... Acrobat ... Inbox - M... Microsoft... 4:06 PM

www.research.ucla.edu/slides/Fast101IM.ppt

The Basics - *Or What is Needed to Start With...*

- Workstation Software requirements:
  - Browser
    - Netscape 3.0 or above
    - MSIE 4.01 or above
  - PDF file generator
    - Adobe Acrobat or Distiller 3.01 or above
    - Aladdin Ghostscript 5.10 or above
  - Adobe Reader

Without these elements, you will be unable to fully utilize FastLane

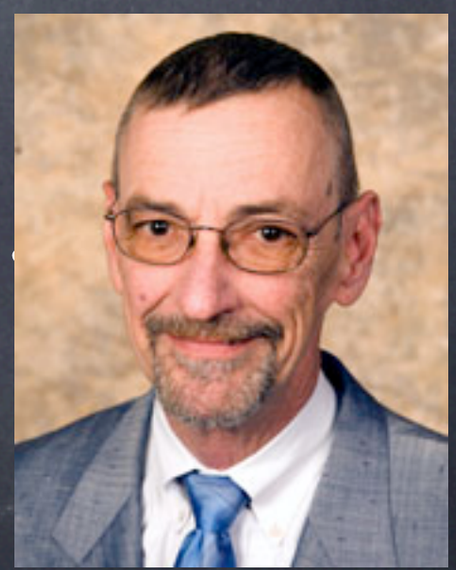
www.research.ucla.edu/slides/Fast101IM.ppt

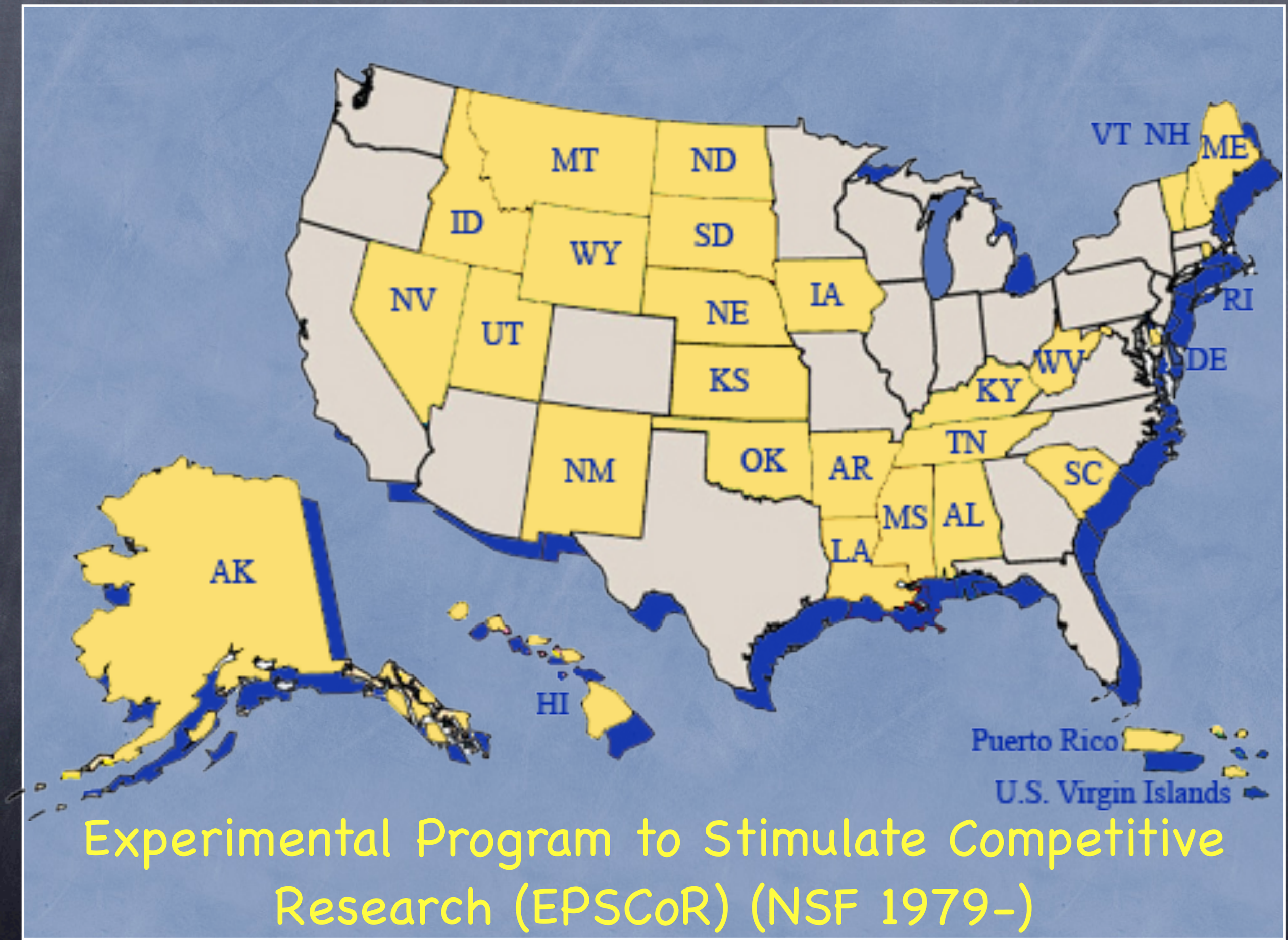
FastLane (2)

- NSF's infrastructure for grant-making (proposal submits, reviews, panels, money, annual+final reports)
- internal NSF: e-Jacket: `replicate paper jacket in electrons'
- obligatory point-of-passage
- any skewing effect?

How to do research . . . ?

- ~20 NSF managers, designers, coders, trainers + policy (+support)
- 1,000 "legacy users" at NSF
- 50,000 PI users + 300x sponsored projects staff
- effects on HBCU + EPSCoR*
- no paper trail

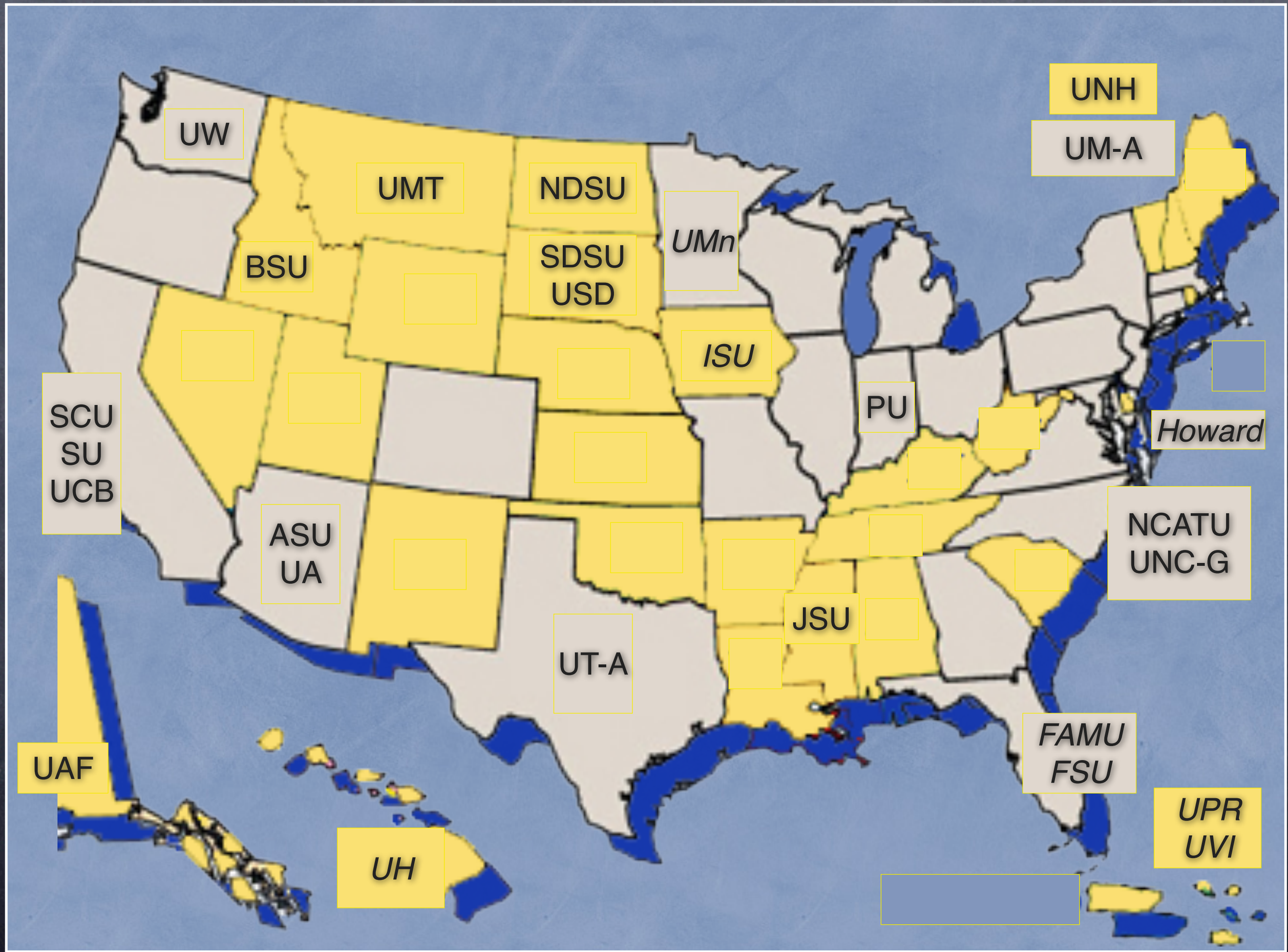




Experimental Program to Stimulate Competitive Research (EPSCoR) (NSF 1979-)

Collecting data

- CBI oral history interviews (N=286)
- designers + users (NSF=44) + research univs + HBCU + EPSCoR
- web-based interviews [SHOT 2008] <tinyurl.com/3ogotvw>
- fastlanehistoryproject.org (N=315)
- v. large dataset … how to analyze?


UW
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FAMU
FSU
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Validating data

- in-person (N=286 to date)
  - fields: +chemists / -engineers
  - positive views on FL … F2F*?
- web-based (N=315) [scale to >> 10]
  - same univs as in-person
  - + balanced fields/gender
  - some negative views*
- dataset >600 * 80% ~500 public

Web* vs. in-person?

time, work, PIs, 'FastPain'

www.wordle.net

Web vs. in-person?

Think, people … (smaller PIs, work + no -load)

Web vs. in-person?

- Baer ea. 'Obtaining Sensitive Data Through the Web: Design and Methods' Epidemiology (2002)
- Newman ea. 'Differential Effects of Face-to-Face and Computer Interviews' Am J Public Health (2002)
- Davis ea. 'Interviewing online: Internet + HIV study in London' AIDS Care (2004)
- Seale ea. 'Interviews and Internet Forums: Two Sources of Qualitative Data' Qual Health Res (2010)
- Josh Welsh ea. 'Evaluating Online and Oral Histories: Comparing Oral and Written Discourse in a Cyberinfrastructure History Project' CCCC (3.2012)

Collecting data

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- NSF-NCSA-Mosaic 'front end' of FL
- software fork: Perl/Java vs. C+PS
  - 'Rich Schneider track ... writing in Perl as fast as I could' 'competitive' [input]
  - rival C for PostScript forms [output]
  - "prohibitively expensive to pull the train off the track of PS forms" GPG:2 teams
- Adobe for PDF creation: proprietary, controversial, barrier

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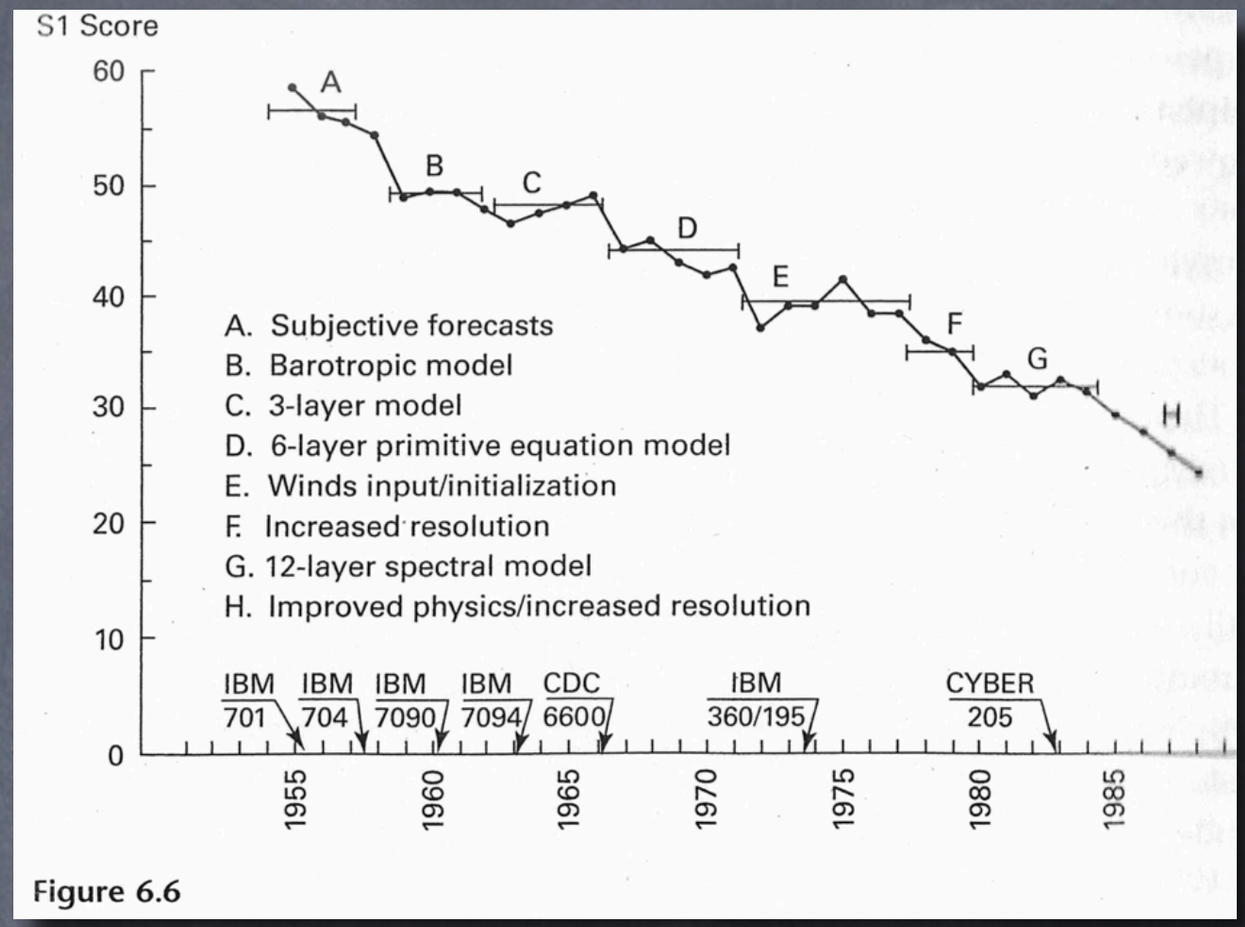

Figure 6.6

- Moore's law ?
- 2x server load each deadline
- server + network stability
- (PC-browser access little problem)

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- value-laden design:
  - ✓ security, interoperability, sanctity of merit review, reliability
    - not: speed, flexibility, early review
- intentional user-designer feedback
- paper paradigm > re-engineering
- support for 'complex' proposals

software | hardware | policy | institutions

- 150% submits 5 yrs = 1x NSF staff
- cross-directorate review+funding
- user-designer feedback (++NSF)
- local support staff
- small 'differential' consequences
- NSF funding levels >> 'impact' of FL

infrastructure = IS

- 'early days ... lots of IS was fragile. Ours [NSF's] was.' routers-RS
- problem 'wasn't the technical IS ... people IS' small colleges-CR
- 'tendency to design cyber IS because you can, [not] useful ... end users' nsf
- 'they didn't have IS to be able to do it properly ... collaborative instead' spa

Challenges for history (1)

- 'Infrastructures ... widely shared understandings' (Edwards 2010:193)
- infra-structure: links 'between'
- .... long-term structures, momentum, irreversible

Challenges for history (2)

- is big history 'inevitable'?
- [simple approach … design portable]
- for smaller 'user history':
  - devise Qs with (pre)interviewees
  - user data using CBI-FL platform (custom tool ➧➧ product)
  - select in-person interviews

Challenges for history (3): lessons?

- user feedback in design phase
- real users (1994 + FDP)
- modules (submit, reviews, panels, reports, $$) … not 'everything'
- stable interface (1998-today)*
- 'simple' 'intuitive' 'easy-to-use'
- user-centric (X grants.gov) ➳

Challenges for history (3): lessons?

Chronicle Careers

chronicle.com/article/Why-Grantsgov-Should-Be/46654

From the issue dated January 12, 2007

FIRST PERSON

Why Grants.gov Should Be Abolished

The advent of a Web site means that small colleges can kiss their chances of getting federal money goodbye

By CAROL KOLMERTEN

Back in the 20th century, it took what seemed like quite a while — perhaps an hour or two — to stand by an old duplicating machine as it churned out pages that we then had to staple together to make the 11 or 14 or 16 copies of a grant proposal that government agencies wanted.

Monday, November 7, 2011