

NSF's FastLane (1950-2012): Lessons in Human-Centered Computing?

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Topics today

1. NSF's FastLane [1994-2000--]
2. Collecting/validating data
3. 4 dimensions for analysis
4. Lessons from history
(book chapters)

HCC:07-47445 + HCC:08-11988



NSF HCC program [2007]

- social + institutional factors ...
influence design, development,
testing, use of IT
- emergence + use of software
systems in business/government
- government agencies respond to +
shape introduction of IT
- institution goals \Leftrightarrow hardware,
software, systems, practices

FastLane (1)

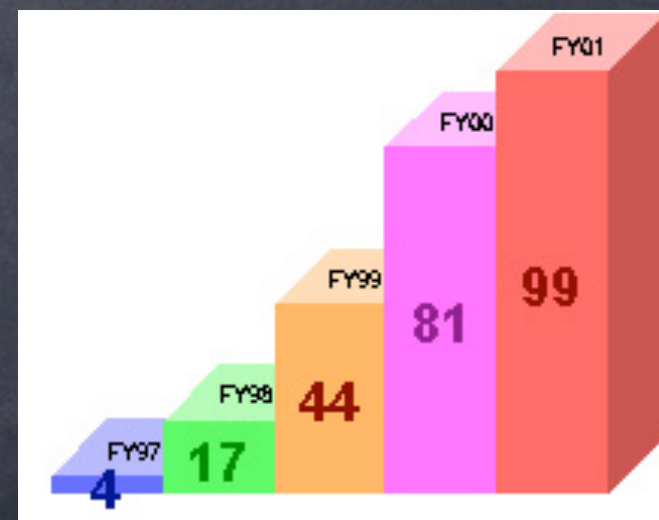
- NSF's infrastructure for grant-making (proposal submits, reviews, panels, money, annual+final reports)
- internal NSF: e-Jacket: 'replicate paper jacket in electrons'
- obligatory point-of-passage
- any skewing effects?





FastLane (2)

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



UCLA (6.2000)

The screenshot shows a Netscape browser window titled "FastLane Requirements - Netscape". The address bar displays "https://www.fastlane.nsf.gov/a0/submreq.htm". The page features the NSF logo and a green header with the text "FastLane". Below the header is a navigation bar with links: "Home", "News", "Comments", and "nsf.gov". The main content area is titled "FastLane Requirement and Submission Deadlines" and contains four red circular bullet points, each followed by a blue underlined link:

- ▶ [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](#)

At the bottom of the page, there is contact information for The National Science Foundation and a "Last Modified" date.

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

Last Modified:
Mar 24, '99

The browser's status bar at the bottom shows "Document: Done" and a taskbar with several open applications: Start, Distiller A..., PHSforms, FastLa..., Acrobat ..., Inbox - M..., and Microsoft... The system clock in the bottom right corner indicates 4:06 PM.

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

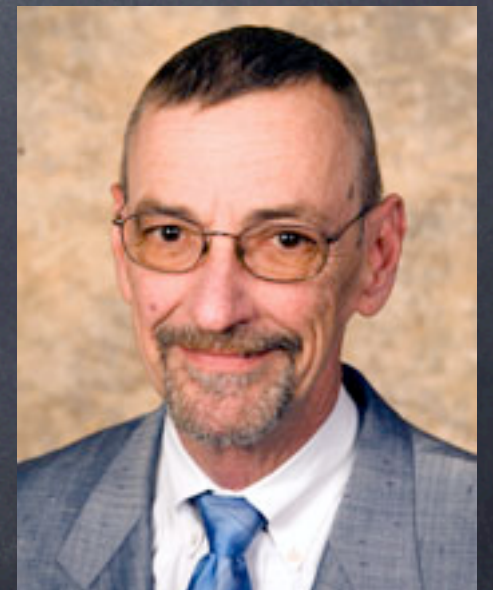
- ✦ Adobe Acrobat or Distiller 3.01 or above
- ✦ Aladdin Ghostscript 5.10 or above

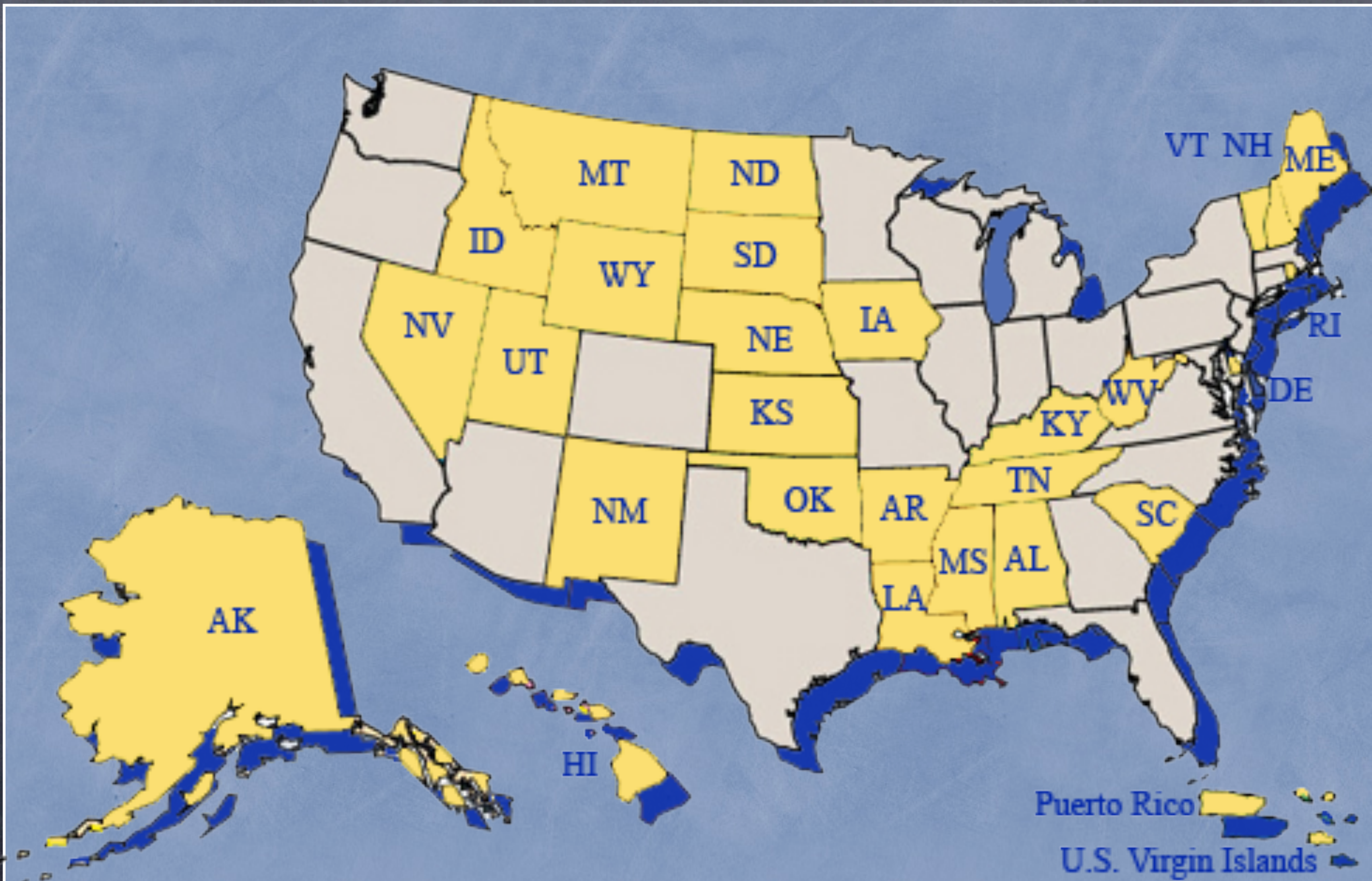
- ◆ Adobe Reader

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

Conducting research on . . .

- ~30 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

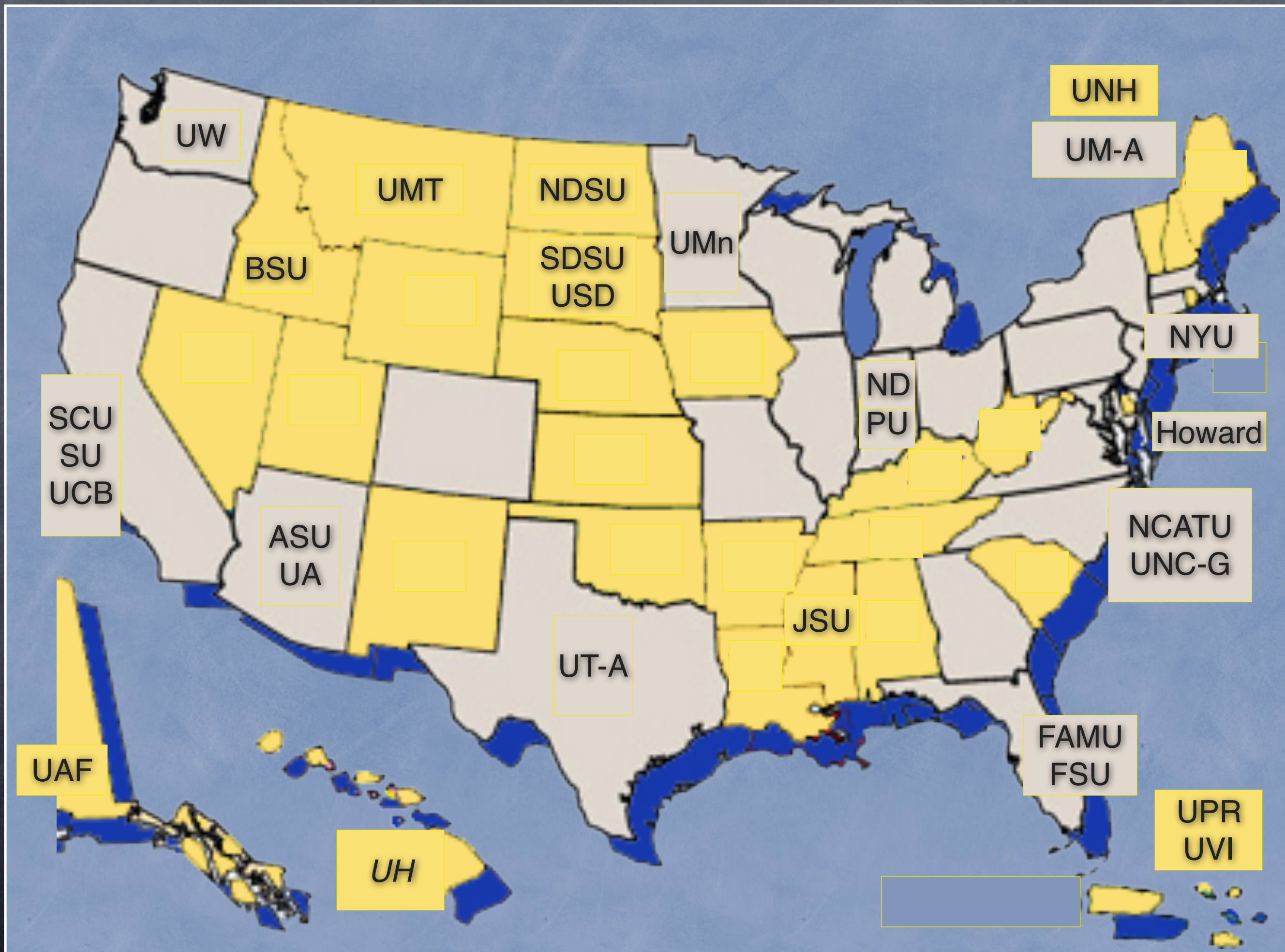




Experimental Program to Stimulate Competitive Research (EPSCoR) (NSF 1978-)

Collecting data

- 👁 CBI oral-history interviews (N=402)
- 👁 online interviews (N=400)
- 👁 total N = 812
- 👁 NSF designers + policy + users [70]
- 👁 research univs + HBCU + EPSCoR
[28 site visits ➡]



UW

UMT

NDSU

BSU

SDSU
USD

UMn

UNH

UM-A

NYU

SCU
SU
UCB

ND
PU

Howard

ASU
UA

NCATU
UNC-G

UT-A

JSU

FAMU
FSU

UAF

UPR
UVI

UH

Validating data

- in-person (N=412)
 - gender/geography/NSF fields
 - positive views on FL ... (F2F bias?)
- web-based (N=400) [scale to >> 10]
 - same univs as in-person
 - balanced fields/gender
 - some negative views
- dataset $800 * 80\% = \sim 650$ public

Web vs. in-person?

- Baer ea. 'Obtaining Sensitive Data Through the Web: Design and Methods' Epidemiology (2002)
- Newman ea. 'Differential Effects of F2F 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)
- Welsh ea. 'Evaluating Online and Oral Histories: Comparing Oral and Written Discourse in a Cyberinfrastructure History Project' CCCC (3.2012)

software | hardware | policy | institutions

- 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 Acrobat for PDF creation:

proprietary, controversial, barrier

software | hardware | policy | institutions

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

software | hardware | policy | institutions

• 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
- small 'skewing' effects
- NSF funding levels >> 'impact' of FL

Chapters of book

1. background + themes
2. NSF 1950–80s
3. FastLane development 1994–2000
4. **PIs** as lead users [2000–]
5. **SRO** staff as lead users
6. **NSF** as legacy users (eJacket)
7. 'best practices' + lessons for CI

Lessons from history (NSF)

- user feedback in design phase
- real users (1994 + FDP)
- modules (submit, reviews, panels, reports, \$\$) ... not 'everything'
- stable interface (1998–today)
- 'engagement' = 'influence'
- need internal funding (FL vs. eJ)

Best practices (universities)

- multiple 'models' (not one way)
- extra (local) support staff
- in-house experts > formal training
- inter-institution networks: NCURA, SRA, FDP, NSF's regional + EPSCoR
- system-to-system for grants.gov

NSF mailroom (Jan. 1996)

