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

Thomas J. Misa*
Charles Babbage Institute
University of Minnesota
www.cbi.umn.edu
FB: BabbageInstitute
Topics today

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

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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 ⇔ 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
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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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]
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% = \(~650\) public*
Web vs. in-person?

- Baer ea. ‘Obtaining Sensitive Data Through the Web: Design and Methods’ Epidemiology (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)
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
Moore's law?

2x server load each deadline

server + network stability

(PC access ~small problem)
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
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
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)