*Exceptional service in the national interest*

SAND2015-11125C

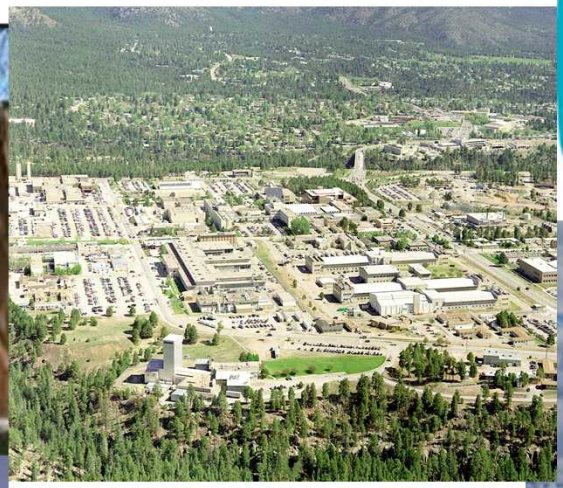
# Lessons in Tech Usability from a National Laboratory Anthropologist; or, *"Why UX Fails."*

Laura A. McNamara
Sandia National Laboratories
Albuquerque, NM 87185

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

**ACKNOWLEDGEMENT**. This research was funded under the PANTHER Laboratory Directed Research and Development Project through Sandia National Laboratories' Laboratory Research and Development Program.

UNM Anthropology



Sandia National Laboratories

Los Alamos
NATIONAL LABORATORY
EST. 1943

Pathfinder Airborne ISR and Synthetic Aperture Radar (SAR) Systems

# When UX Works

- There's demand for the affordances the technology brings
- The problems are well-defined and colelctively understood as problems for which there's a technology solution.
- The proposed technology fits into the existing organizational ecology, including the computing systems used by the people doing work
- The proposed technology *enhances existing analytic capability*

# Real World Work Environments are Complicated

- Focusing on the users and their tasks is like focusing on a few trees in a complex forest ecology.
- *User Studies will help you appreciate the trees. It will not help you with the forest.*

# UX fails when…

- The goals of tech proponents and the analytic workers aren't aligned.
- Analytic workflows are governed by external pressures that analysts can't control.
- There's no planning for technology transition, adoption reviews, nor sustainment over time.
- The proposed technology is solving a problem that the analytic community does not have
- The proposed technology *undermines capability because it is a poor fit for the existing workplace*

# Back to the Eighties!

# The Fundamental Attribution Error

**Beware of the *fundamental attribution error:***

"Analysts are stubborn! Senior analysts are teaching newcomers to do things the way they've always been done! Analysts are stuck using Excel because they're all political science majors who are afraid of math!"

**This is almost NEVER the case.**

When people seem skeptical about your fabulous idea, listen. Consider the structural forces that are shaping how people approach their work, and consider how you can engage these forces to positively effect good design outcomes.