NSF OIG @ USC
Higher Education R&D Expenditures (2015)

- 37.8B from Federal Agencies
  - 24.9B Basic Research
  - 9.9B Applied Research
  - 3.0B Developmental Research
- 640 Institutions reported to survey
NSF Data Analytics

• NSF Risk Assessment
  • Phase I – Identify High Risk Institutions
    • Ongoing monitoring (we never see this and where we were initially selected)
  • Phase II – Identify Questionable Expenditures
    • Agency Data and Institution Data is married (you will know when you’re in this category)
End to End Process for Grant Oversight

**PRE-AWARD RISKS**
- Funding Over Time
- Conflict of Interest
- False Statements
- False Certifications
- Duplicate Funding
- Inflated Budgets
- Candidate Suspended/Debarred

**ACTIVE AWARD RISKS**
- Unallowable, Unallocable, Unreasonable Costs
- Inadequate Documentation
- General Ledger Differs from Draw Amount
- Burn Rate
- No /Late/Inadequate Reports
- Sub-awards, Consultants, Contracts
- Duplicate Payments
- Excess Cash on Hand/Cost transfers
- Unreported Program Income

**AWARD END RISKS**
- No /Late Final Reports
- Cost Transfers
- Spend-out
- Financial Adjustments
- Unmet Cost Share

**DATA ANALYSIS**

Dr. Brett M. Baker, 2010
Anomalous Drawdown Patterns

- \$\$
- Start up costs
- Drawdown Spike
- Normal drawdown pattern
- Extinguishing Remaining Grant funds (before expiration)
- Extinguishing Remaining Grant funds (after expiration)

Dr. Brett Baker
AIGA. NSF-OIG
Expenditures FY14 $431.4M

- NIH: 61%
- NSF: 9%
- DOD: 19%
- DOE: 3%
- NASA: 2%
- IARPA: 2%
- OTHERS: 3%
- HOMELAND: 1%
What did they look at?

- Specified time period (USC – Oct 2011 to Sep 2014)
- Amount in question (USC - $120M+)
- System Information
  - Core Systems
    - EFS & Kuali
  - Subsystems
    - PPBS, Workday, DVQE, PO, Reqs, Equipment
- University Policies and Procedures
- Data dictionary for all systems
- Data models, system architecture, data flowcharts (see figure 1)
Systems Reviewed

(Figure 1)

- General Ledger
  - Accounting
  - Transactions
  - Costs Claimed

- Subsidiary Ledgers
  - Accounts Payable
  - Payroll
  - Equipment
  - Organization Specific

- Other Data
  - Effort Certification Reports
  - Defined Policies and Procedures
How long does it last?
- USC – 3+ years and counting
- Others 4-6+ years

Who is involved? (@USC)
- Office of Financial Analysis (my office)
- Office of Compliance
- Ernst & Young (Internal Audit)
- Outside Counsel
- School Administrators/Department Administrators/Faculty
- Information Technology
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USC Figures

• 3 years of data (Oct 11 - Sep 14)
• Lowest possible level of information
  • 91,948 transactions
    • Actual transactions
    • Corrections
    • Payroll
    • M&S
• 600+ awards
• 120 Million + in total expenditures
• 7 Rounds of data exchange & responses
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USC Challenges

• Major System implementation during timeframe
• Prior system was primarily manual document driven
• New system had plenty of bugs (remember Workday’s first few months)
• Few subject matter experts related to system change
• Changing policies as a result of system change
• Managing auditors interpretations and expectations
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NSF OIG Data Analytics Audit Timeframe @ USC

PHASE I: 6
PHASE II: 27
PHASE III: 1
PHASE IV: 1
PHASE V: 1
PHASE VI: 12
PHASE VII: 6
PHASE VIII: 1
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• Phase I – Data Collection
  • Trial run of data dump
  • GL data dump (see illustration)
  • Feeder system data dump

• Phase II – Selection of High Risk Items for Review
  • First request 250 items
    • Payroll
    • M&S
    • Equipment
    • Travel
    • Cost Transfers
Phase II - Selection of High Risk Items for Review (Continued)
   • Second request 55 Items
     • Payroll
     • Travel
     • Participant Support
     • 5 Additional non-transactional questions

Phase III – Pre-Draft Final (Draft)
   • Review of initial pre-draft report
   • Identify factual inaccuracies

Phase IV – Draft Final Report
   • Provide university’s official response to audit findings on an award by award basis
   • Careful consideration is made as this will make it to final published report
NSF OIG @ USC

- Phase V – Final Report Published
- Phase VI – Audit Resolution (Currently at this stage)
  - Make final case to agency to validate transactions
  - Corrective Action Plan
- Phase VII - Post Audit Review
  - Ensure Corrective Action Plan has been implemented as agreed upon.
- Phase VIII – Post Audit Report and Close-out
• What actually happened behind the scenes
  • Short turnaround timeframes
  • A site visit from auditors
    • Interviews with faculty and administrators
  • Auditors took their time but did not give us enough time to respond
  • Auditors looked at everything (explains why they take their time)
    • Very tedious work
      • Read proposals and amendments
      • Cross referenced all transactions against USC Policies, Agency Policies, Uniform Guidance, others
Can we replicate the process in-house?
- Internal Audit
- External Audit
- Consulting Firms
- In-House development
- We’re good enough already?
Data Analytics

Any Questions?