A Framework for Identifying Potential Synergistic Combinations of Continuous Auditing and XBRL

Glen L. Gray, PhD, CPA
California State University, Northridge

Rick S. Hayes, PhD, CPA
California State University, Los Angeles
**Question:** Where can synergy best be achieved between XBRL and continuous auditing?

**Answer:** Complex $m \times n$ problem space, where $m$ is the alternative dimensions of continuous auditing implementations and $n$ is the alternative characteristics of XBRL implementations.

*Continuous auditing* can be $m_1 \times m_2$, where $m_1$ is many definitions of *continuous* and $m_2$ is many definitions of *auditing*.

“...‘continuous’ is a malapropism.” McCann (2009)
The missing word: *population*

Continuous auditing is almost always 100% population sample

Hidden cost: What about massive false positives?

Hidden risk: What about missed smoking gun?

2-step process: (1) CA, then (2) sample CA results
Client-side XBRL Data Hub

Mainframe

Servers

XBRL data hub

Management

Server

Internal Audit

Internet

Clients

Servers

Standardized data analysis/mining tools

Auditors
Populating the XBRL Data Hub

- Centralized Conversions
  - Conversion at data hub
  - Data hub holds legacy and XBRL data

- Distributed Local Conversions
  - Conversion at/near source
  - Data hub holds XBRL data

- Native XBRL
  - No conversion
  - Data hub holds XBRL data
Benefits/Costs Dimensions

- Implement any CA: Benefits > Costs

- Benefits
  - Tangibles
    - Increase revenue
    - Reduce costs (efficiency)
      - XBRL = economy of scale
      - Shifting skill level of auditors [Reduce specialists]
  - Intangibles
    - Audit *through* vs. *around* the computer
    - Internal audit effectiveness [Direct data access]
    - External audit effectiveness [Indirect data access]
Benefits/Costs Dimensions

- SOX Paradigm Shift
  - Both companies and auditors
  - Impacts cost-benefit equations
  - Section 302
    - Cascade approach
  - Section 404
    - Fees drive search for productivity
Benefits Who?

Company

Internal Auditors

External Auditors
Time Dimension

Real-time (RTCA) | Very Frequent (VFCA) | Periodic (PCA)

Timeline
Immediate | Preventive Controls | Detective Controls | Annual

Resources leave company control
Other Dimensions

- Integration Dimension
  - Bolt-on, after-the-fact
    - XBRL-FR & XBRL-GL
  - Native
    - XBRL-GL

- Push vs. Pull
  - Push = information automatically sent
  - Pull = information sent on-demand
Other Dimensions

- Ownership dimension
  - The client
    - Built into current IT architecture
  - The external auditor
    - Built into CAAT toolbox

- Process vs. data dimension
  - XBRL = data representation
  - However: Bolt-on is a process
Other Dimensions

- **Which time interval?**
  - Time between event and CA transmits information
    - Embedded audit modules vs. periodic CA
  - Time between CA transmits information and someone reviews the information
    - Immediate vs. periodic

- **System demands**
  - One-table lookup vs. multiple-table lookups vs. calculations (e.g., average purchase)
Auditor-side XBRL Implementation

Mainframe

Collect raw data in data mart

Server

Convert to XBRL

Server

Internet

Client

Auditor

Servers

Standardized data analysis/mining tools
Preliminary Conclusions

- \( CA_i = f(ET_i, RT_i, AA_i, AS_i, TD_i, SI_i, RU_i, PP_i, XI_i, XT_i, CB_i) \)
  - \( ET_i = \) Extraction Timing interval
  - \( RT_i = \) Review Timing interval
  - \( AA_i = \) Audit Audience
  - \( AS_i = \) Audit Subject matter
  - \( TD_i = \) Test Demand on CPU
  - \( SI_i = \) System Integration
  - \( RU_i = \) Repeatable Utilization
Preliminary Conclusions

- \( CA_i = f(ET_i, RT_i, AA_i, AS_i, TD_i, SI_i, RU_i, PP_i, XI_i, XT_i, CB_i) \)
  - \( PP_i \) = Push or Pull approach
  - \( XI_i \) = XBRL Integration (bolt-on vs. native)
  - \( XT_i \) = XBRL Taxonomy
  - \( CB_i \) = the resulting Cost/Benefit analysis
Preliminary Conclusions

- XBRL Cherry Picking (Easy Hits)
  - SIi is low (many islands of technology)
  - AAi is wide (many CA users)
  - RUUi is high (not ad hoc, one-time apps)
  - If XBRL is bolt-on: RTi is not real time (even if ETi is real time)

- Need real-world measures (cases/simulations)
Some Issues

- Getting XBRL on the radar (client buy-in) vs. SOX, HIPPA, PCI, Basel, etc.
- XBRL staffing and training -- client & auditors
- Identifying and ameliorating any new security and data integrity issues
- Who pays front-end costs?
- Reaction plans for more-frequent red flags
  - Who pushes the STOP button?
  - When can the STOP button be pushed?
Questions?

Thank You

glen.gray@csun.edu