AICPA's ASEC (Assurance Services Executive Committee)

- Aiming to modernize CPA services and to bring to the table additional services to be performed by accountants
- Past products
  - WebTrust
  - SysTrust
  - WebTrust for Service Providers
- Current projects
  - Common data cube
  - Continuous assurance
  - Future audit
Schemata of ASEC efforts

The future of audit

Corporate Data Cube

The traditional audit

Continuous Assurance

Audit Methods

Principles & criteria

New Assurance Products

Public domain audit apps

XBRL and XBRL assurance

Red Book revisited

- Red Book was issued in 1999 by the CICA and AICPA
- Since that date both the IIA (GTAG # 3) and ISACA (2010) issued guidance for continuous assurance
Continuous Assurance

- The time dimension
- The location dimension
- The human component
- Technology
- The advanced analytics evolution

Time - Prolonged intense deterrence
Latency reduction

Location - remote audit

- The remote audit couples information and communication technology and data analytics to assess controls, gather evidence, and interact with clients.
The remote audit

• Information and communication technologies
  - Web conferencing and telework (Ellis et al., 1991; Hunton & Harmon, 2004; Campbell & McDonald, 2009)
  - Electronic working papers (DeYoung, 1989; Bierstaker et al., 2001; Jans et al, 2010)
  - Cloud computing

• Continuous evidence and analytics
  - Documentation
  - CAATs (Debreceny et al., 2005; Zhao et al, 2004; Javrin et al, 2008)

Human component -> Virtual teams

• Virtual teams are "a collection of geographically distributed, functionally and/or culturally diverse entities that are linked by electronic forms of communication and rely on lateral, dynamic relationships for coordination.” (Desanctis and Monge, 1999)

• Internal auditors collaborate and coordinate with team members
Technology
Information and communication

- The audit team already uses some ICT to enhance the audit
  - Spreadsheets, macros, e-mail, laptop for storing data
- For remote audit, additional technology is needed
  - Web conferencing & telework, electronic working papers, cloud computing

Web conferencing & telework

Ellis et al. 1991: Groupware: some issues and experiences - Overview of web conferencing,

Hunton & Harmon 2004: A model for investigating telework in accounting - Model for addressing antecedents and outcomes of telecommuting,

Campbell and McDonald (2009): Defining a conceptual framework for telework - Overview of and issues with telework application in accounting

Information and communication

- EWPs include evidence collected on demand by the auditor along with transaction-relevant data from automated systems
- Process mining can aid automatic development of EWP
- Dynamic dashboard

Electronic working papers

DeYoung 1989: Hypertext challenges in the auditing domain - Workpapers mimicking the Web

Bierstaker et al. 2001: The impact of information technology on the audit process - Adoption of EWP by audit firms

Jans et al 2010: Process mining of event logs in auditing: opportunities and challenges - Discussion of process mining for auditing
Continuous evidence and analytics

- Documentation
  - Can be a set of audit procedures, a spreadsheet of extracted information, a transcript from an interview, or a combination of these and other elements
  - Ensures parties know their tasks
  - Helps train new employees
  - Creates a “paper” trail

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Onsite Methodology</th>
<th>Remote Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection of Records or Documents</td>
<td>Pull a sample of purchase orders and verify authorized signature exists and matches authority list</td>
<td>Evaluate entire purchase order population in ERP and verify POs passed through approval workflow and possess authorized user stamp</td>
</tr>
<tr>
<td>(e.g. authorization)</td>
<td></td>
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<tr>
<td>Inspection of Tangible Assets</td>
<td>Print a list of inventory, walk through warehouse, open boxes, etc.</td>
<td>Closed circuit television, scales, other metrics</td>
</tr>
<tr>
<td>(e.g. physical inventory count)</td>
<td></td>
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<tr>
<td>Observation</td>
<td>Sit with a worker and observe procedure</td>
<td>Use process mining to determine transactions that deviate from standard</td>
</tr>
<tr>
<td>(e.g. watching someone complete a process)</td>
<td></td>
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<tr>
<td>Inquiry</td>
<td>Communicate electronically or in loco as part of traditional audit</td>
<td>Monitor processes/controls. Automatically identify process owner when exceptions occur</td>
</tr>
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<td>(e.g. written or oral interviews)</td>
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<tr>
<td>Analytical Procedures</td>
<td>Extract data, scan for anomalies based on auditor judgment</td>
<td>Filter real-time data through continuity equations, ratio analysis,</td>
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<tr>
<td>(e.g. scanning and statistics)</td>
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</tbody>
</table>
Continuous evidence and analytics

- Computer assisted auditing techniques (CAATs) facilitate evidence collection
  - Data analysis software
  - Network security evaluation software
  - OS and DBMS security evaluation software and utilities
  - Software and code testing tools
- Auditors see tools necessary only for fraud and special investigations
- Need for specialized training

### CAATs

<table>
<thead>
<tr>
<th>Study</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Debreceny et al. 2005: CAAT acceptance</td>
<td>Low, varied in highly-technical bank setting</td>
</tr>
<tr>
<td>Zhao et al. 2004: Identify CAATs as a</td>
<td>Necessary step for continuous auditing</td>
</tr>
<tr>
<td>Javrin et al. 2008: Auditor use of CAAT</td>
<td>Requires training and accessibility</td>
</tr>
</tbody>
</table>

Continuous evidence and analytics

- Continuous auditing is a formalization of audit procedures and automation of CAATs
- Continuous Data Audit + Continuous Controls Monitoring

### Controls monitoring

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<tr>
<td>Brown et al. 2007: Survey of continuous</td>
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<td>auditing and continuous monitoring research</td>
<td>monitoring research</td>
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<tr>
<td>Alles et al. 2006: CCM pilot at Siemens</td>
<td>CCM pilot at Siemens Corporation</td>
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<td>Murthy 2004: Implementation for CCM in</td>
<td>Implementation for CCM in e-commerce</td>
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<tr>
<td>Nelson 2004: CCM at Hospital Corporation of America</td>
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<td>Rose and Hirte 1996: Carolina Power and</td>
<td>Carolina Power and Light</td>
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<td>Vasarhelyi &amp; Halper 1991: Continuous online auditing</td>
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<td>Hunton et al. 2008: Managers’ perception</td>
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Overall: Needs to Occur in the Future

1. Move from a traditional audit to an audit of the business process, incorporating technology
   - Changing the audit model and using assurance for people to advise on business issues
2. Use continuous auditing to drive risk assessment and to prioritize to better audit by exceptions
3. Shift in how auditors spend their time as a result of audit automation
   - Using more quantitative assessment, probability, and historical data
4. Use available techniques to better stream analytics
   - The resources available for use will be able to reduce error and act as sensors for humans

SPECIFICALLY...
Top Five Technologies to be Used in the Future

- Internet-based reporting
  - Digital signatures and data integrity
  - Continuous monitoring and auditing (real-time)
  - Meta-database
  - Forward looking information, not just historical
- XBRL
  - Tagging all data, not just quantitative
  - Report on components of financial statements

Technologies (cont.)
Relationship Between Internal and External Audit in the Future

Internal audit
- More reliance placed on the work of internal audit as automation of control monitoring becomes more prevalent
- Make risk based assertions about the company
- More responsibility regarding assurance of quality data

External audit
- Identified high risk areas remain responsibility of external audit
- Perform audit procedures on a real-time basis, so that data can be used concurrently by internal and external
Education Modifications to be Implemented in the Future

Education (cont.)

- IFRS
  - Convergence with GAAP
  - Principles-based standards introduced
- Non-financial information
  - Framework for assurance
  - Risk management
- Skills
  - More analytical, IT, and overall business
IMPLICATIONS....

- Internal audit is currently behind external audit, but will probably surpass external audit
- External audit is unlikely to delegate decision making to a model due to liability reasons
- Cycling through audit over the year, instead of only at year end
- Need to look at a global point of view
- Experiencing a technology pull, not a push
- Social issues remain that need to be overcome (i.e. HIPPA) regardless of technology
- Need to assure security and privacy
- Judgment comes with experience and knowledge, if more automation is used for tedious tasks then judgment can be used in more pressing issues
Conclusion

Virtual Teams
- Onsite and remote
- Communication
- Trust
- Motivation
- Training

Auditing Activities
- Onsite vs. Remote
- Reengineering
- Reassignment of tasks

Audit Interface
- Collect evidence
- Coordinate activities

Continuous Auditing
- Data assurance (CAK)
- Controls monitoring (ECM)
- Alert auditors
- On-demand audit

CAATS
- Interrogative databases
- Extract data
- Perform analytics

Documentation
- Electronic document management systems
- Process mining
- Cloud

Communication (ICT)  Extraction & Analytics

1. Introduction
2. Remote Audit
3. ICT
5. Conclusion

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