THE AUDIT ECOSYSTEM: INTEGRATING ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS IN THE AUDIT DOMAIN

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Pioneers such as Amazon have built cloud-based “ecosystems” that make content such as its electronic books widely available. Even though the firm has its own e-reader, the Kindle, and has hatched a tablet computer too, it has also created apps and other software that let people get at their digital stuff on all sorts of devices, including PCs.

Other companies are developing their own ecosystems in a bid to make people’s mobile-computing experience even more seamless. Google’s recent $12.5 billion acquisition of Motorola Mobility, which makes smartphones, tablets and other gadgets, will enable it to produce a new crop of devices to show off its cloud services, such as Gmail and Google Docs, to best effect.

Apple is stepping up its integration efforts, rolling out an “iCloud” in which people can store up to 5GB of content for nothing, and more if they pay.
Companies are based on “big data” and respond often on a close to real-time basis.

The financial cycles are now bipolar:
- Internal ERP based management data respond close to real-time, accounts like cash, A/R, A/P, and manufacturing are close to real-time.
- Statutory financial reporting is quarterly:
  - while internal financial management is close to real-time to decrease occupation of capital.
The continuous audit will need to be a highly formalized system independent in the first and second harmonic of human reaction interference.

These systems will be conceptually analogous to meta-controls and will force redefinition of audit independence, materiality and audit roles.

They will be constructed in a hybrid mode with progressive automation of key elements.
Embedded into corporate ERPs?
Producing audit evidence and evaluating on a frequent basis?
Cloud-based tapping information at all locations?
Implementing audit heuristics at process levels?
  - Issues with knowledge capture
  - Issues with knowledge creation (how will experience be obtained / developed?)
Delivering evidence on an alert basis with scores and frequent indicators
Depending on much higher standardization than just ADS
How will the profession (external) integrate into this scenario?
A Progressive Automation Scenario

Audit plan

Assertions:
• Existence
• Completeness
• Valuation & allocation
• Classification & understandability

Audit evidence

• Exception
• Benchmark
• Confirmation
• Tracing
• Relationship
The Audit Data Standard Architecture
CONCLUSIONS

- AI has had slow evolution and is still a science in early stages
- Expert systems were the leading AI application area but have lost its “independence”
- Case-based reasoning and neural networks are appropriate for specific domain problems
- Intelligent Agents will have an important role on the Internet
- They will fit into the audit ecosystem
- Some major quandaries exist in the evolving paradigm