Data Driven Auditing

Data and Analytics in Assurance

Jon Spivey
Lorenz Schmid

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**Megatrends: The Changing Business World**

**Demographic shifts**
Explosive population growth occurring in some areas against declines in others contributes. Between 2010 and 2050, the global number of people who are 100 years or older will have increased tenfold.

**Shift in global economic power**
Realignment of global economic and business activity is transitioning BRIC and other growth countries from centers of labor and production to consumption-oriented economies.

**Accelerating urbanisation**
The movement of populations out of suburbs and rural areas and into cities is changing how people live and work. By 2050, the urban population of the world is expected to increase by 72%.

**Climate change and resource scarcity**
Scarcity of resources and the impact of climate change are of growing economic concern. Demand for energy is forecasted to increase by as much as 50% by 2030, and water withdrawals by 40%.

**Technological breakthroughs**
The amount of information we have to manage is rapidly expanding. Data is generated from every action taken on every Internet-enabled device.
**Implications**

- The combination of the internet, mobile devices, data analytics and cloud computing will continue to transform our world.
- New competitors will emerge as technology and innovation create new competitive advantages and increase productivity across sectors and geographies.
- The ability to gather and analyze data in real time may become a requirement for doing business, rather than a competitive advantage.
Evolving to a Data Driven Audit

Better experience for clients
Save time through reduced effort to pull supporting documentation due to easy accessible data

Better experience for auditors
Shift substantive testing and controls testing towards automated data discovery and validation

More valuable insights
Increase value of the audit by providing information that can help companies refine processes, improve efficiency and anticipate future problems
The Audit Analytics Opportunity

- Enterprise risk management
- Annual risk assessment
- Risk monitoring
- Business unit or site level profiling

- Project level risk assessment
- Audit scoping and planning
- Risk attribute sampling

- Multi-unit auditing
- Data-driven testing
- 100% coverage
- Process / control validation (end to end testing)
- Root cause identification

- Audit reports
- Executive and AC reports
- Issue quantifications
- Compliance metrics

Embedded and sustainable analytics

Deliver insight.. not just information
Data Analytics Example – Utility Industry

Live Demo
Maturity Scale for Audit Analytics

Level 0: Developing
- Capability limited to few individuals
- Inconsistent effectiveness
- Limited audit or business value

Level 1: Relevant
- Limited but growing abilities
- Ad hoc activities
- Success dependent on individual competence and skills

Level 2: Consistent
- Capabilities developed and used consistently
- Analytics used to plan and scope audits
- Defined goals linked to standardized processes and tools

Level 3: Embedded
- Scale is achieved across organizations or business units
- Improvement methodologies are implemented
- Activities begin to be repeatable
- Key metrics are developed

Level 4: Integrated
- Structures around the usage of analytics
- Data sources are readily available
- Monitoring is occurring for risk, metrics and controls

Level 5: Transformed
- Analytics risk models are adopted by the auditors
- Analytics are changing behaviors
- New value propositions are emerging
- Alignment to consistent platform that can be leveraged across the industry

Audit and Business Impact

Common Current State Activities
- Developing analytics capabilities in house or through partnering with a third party
- Starting with a pilot audit area to serve as a proof of concept and gain momentum
- Leveraging analytics during fieldwork
- Using analytics on an ad hoc basis, largely focused on financial audit objectives
### Barriers to Success

**Avoid common pitfalls by implementing a strategy**

- Failure to modify the audit methodology such that analytics are seen as just a bolt on to the existing audit procedures
- Incorporating analytics in fieldwork only and not using data to inform audit areas
- Structuring the analytics team in a silo, separate from the core audit team
- Lack of consideration given to the softer side of an analytics strategy, including people management and organizational change management
- Embarking on a strategy that does not leverage connection points within the organization (IT, compliance, operations, etc.)
## Recommendations for Evolving Skill Sets in Auditing

<table>
<thead>
<tr>
<th>Current core skills</th>
<th>New skills likely to be needed</th>
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<tbody>
<tr>
<td>Understanding of:</td>
<td>Knowledge on how to:</td>
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<tr>
<td>• Fundamentals of accounting, including financial accounting, managerial accounting, taxation, and financial reporting systems</td>
<td>• Research and identify anomalies and risk factors in underlying data</td>
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<tr>
<td>• Generally accepted accounting principles, policies, procedures, and auditing standards</td>
<td>• Mine new sources of data and use insights to bring new value to the business</td>
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<td>• How to tie accounting needs back to regulatory needs</td>
<td>• Use exploratory multivariate statistics, inferential statistics, visualization tools, optimization methods, machine learning, and predictive analysis tools</td>
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<td>• Process-mine using new data analysis techniques and algorithms, to isolate and investigate specific processes that might have led to changes to the data/accounting ledgers</td>
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Questions and Contacts

Jon Spivey
Office: (212) 805-6533
Email: jon.d.spivey@pwc.com

Lorenz Schmid
Office: (646) 335-4866
Email: lorenz.m.schmid@pwc.com

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