Implementing Analytics in Internal Audit
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What does Success Look Like

To deliver successful analytical insight as an everyday part of the audit process means IA must focus more broadly than on data and technology. The goal is to develop cost effective solutions that are targeted and underpin the audit process to achieve a more efficient and effective audit delivery model.

Becoming analytics-enabled relies on the fundamental building blocks of People, Process, Data and Technology being informed by an Analytics Strategy. This enables the embedding of analytics into the audit lifecycle, the focusing on the right risks at the right time, while aligning analytics to the IA strategy and value drivers of the business.
Benefits of Analytics

- Perform the same audit faster
- Perform the same audit cheaper
- Perform more targeted audits
- Make innovation a centerpiece
Maturity of internal audit analytics

- **Initial**
  - No or limited capabilities
  - Ad-hoc activities resulting in unpredictable performance
  - Success is based on individual competence and not on repeatable processes

- **Developing**
  - The organisation that exhibited a basic set of capabilities
  - Used processes that are rudimentary and loosely woven
  - Success is repeatable with similar application and scope, but not consistent across organisation

- **Define**
  - Capabilities are developed and adopted consistently
  - Capabilities are used to drive some audit activities
  - Management defines goals and objectives for standardised processes and confirms they are communicated

- **Advanced**
  - Capabilities are well developed and practised with appropriate governance
  - Processes are used to drive audit activities
  - Processes and practices are routinely analysed for effectiveness and efficiency

- **Leading**
  - Capabilities are well defined and institutionalised
  - The department has differentiated itself based on its capabilities
  - Continuous improvement methodologies are used to adopt to future changes
Planning the journey

Building Blocks

Strategy
- Analytics vision for audit services
- Identifies key projects/programs, stakeholders and metrics
- Aligned with corporate and information technology strategies

People
- Organizational structure and program sponsor/manager
- Capability / competency acquisition or development
- Collaboration and communication planning

Process
- Operating model for developing and consuming insights
- Analytics prioritization and project management
- Methodologies and approaches for analytics

Technology
- Solution requirements, evaluation, selection and set-up
- Technology vendor / license management
- Technology architecture and solution optimization

Data
- Data acquisition and enrichment
- Data model architecture
- Data governance and security

Key Questions to Consider

Building a sustainable analytics function requires a foundation of the fundamental building blocks of People, Process, Data and Technology, informed by an Analytics Strategy.

Who is the accountable IA owner? What organisational structure do we need to put in place to support our analytical strategy? Who do we need to engage in other departments and what are their roles? What other talents do we need and what is the plan for getting them?

How do we identify the right projects on which to focus our efforts? What are the steps we need to take to ensure that these projects are a success? How will we comply with relevant regulations? What are the risks and how do we mitigate them? How will we measure our progress and test the validity of the insight?

What data do we need to answer the important questions? From where is it sourced – internal, external, licensed, open? How do we bring it together and what are the challenges in transforming, linking and publishing it? What about quality and accuracy?

What tools do we need to process the data? How do we scale up the technology when we need to roll out to the rest of the function? Do we use a self-service or bespoke solution model?
Operating Models
Organizing for Success

IDENTIFYING THE RIGHT ANALYTICS FUNCTION
There are various operating models an IA function can adopt when establishing an Analytics function - a ‘one size fits all’ approach does not apply.

The scope and capabilities of the Analytics function need to be determined, based on both the functions current and potential future needs. The size, scale and level of influence of the Analytics function will evolve over time as the auditors view of Analytics and thirst for insight matures.

BENEFITS OF THE RIGHT ANALYTICS FUNCTION INCLUDE:

- Make better decisions, by joining the dots across business siloes
- Improve the speed and reliability and reduce the cost of decision making
- Drive innovation in type, nature, extent of audit services
- Make learning & development and knowledge sharing easier
- Govern the use of analytics in a non pervasive way

Interaction Models

Dispersed model
Function driven with minimal overlap of analytics requirements, planning, and training across functional areas

CoE model
Functional driven with overlap of analytics requirements across functions and the need to drive standardisation

Centralised model
A group of analysts, acting as a core unit, serve the entire Audit Group, crossing functional boundaries.

= Analytics capability
Multi-dimensional team

**TECHNICAL & ANALYTICAL**

- **Testing & Validation**
  Defining, developing, and implementing quality assurance practices and procedures for technical solutions and validating hypotheses.

- **SQL querying**
  Querying and manipulating data to facilitate the solving of more complex problems.

- **Data Modelling**
  Structuring data to enable the analysis of information, both internal and external to the business.

- **Data Analysis**
  Valuing data using analytical and logical reasoning for the discovery of insight, e.g. predictive modelling.

- **Reporting Software**
  Understanding of the underlying theory and application of key reporting software.

**BUSINESS & COMMUNICATION**

- **Technology Alignment**
  Understanding how technology can be leveraged to solve business problems.

- **Macro-Perspective**
  Understanding of the company’s business strategy, current business issues and priorities and current industry trends.

- **Business knowledge**
  Understanding of business measurement of key performance indicators and business frameworks.

- **Business Commentary**
  Articulation of insight to explain current and forecasted trends, their impact and opportunities for the business.

- **Soft Skills**
  Communication and interpersonal skills are necessary to articulate insight gained from analysis.
Multi-Disciplinary Approach

- Subject Matter Specialists
- Core internal Audit
- Data Analytics

Integrated Approach
Audit Interaction Model

The data analytics team supports the overall IA mission through the successful deployment of team resources at the engagement level. For engagements that require analytic support, there are numerous instances where data specialists and analysts can influence processes to yield successful audits. The following graphic demonstrates the high-level timeline and key interactions for audit analytics.
CRISP – DM: The Model Development Framework

1. Business Understanding
   - What is the operating culture? Where have controls failed in the past?
   - What are the key business processes in the operation? What are the vulnerabilities?

2. Data Understanding
   - When is data captured in the system?
   - Where is data stored and in what format?

3. Data Preparation
   - How can data be merged and cleansed in order to establish records to analyze?

4. Modeling
   - What analytic techniques can be used to identify known high risk scenarios in the data? Are there other scenarios that look similar?
   - What analytic techniques can be used to identify potential unknown scenarios of control failures in the data?

5. Evaluation
   - Which analytic techniques implemented are most reliable in identifying potential risks in the data?

6. Deployment
   - How can analytic techniques be leveraged to identify potential risks on an ongoing basis? What does the end-state solution look like?
Reducing false positives with advanced Analytics

A noticeable ROI from advanced analytic techniques is the reduction in cost, time and effort, to review transactions and assess if they are truly of concern.
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