How do Analytics and Automation Transform Audit Practices

Continuous Control Monitoring and Data Analytics
The Future Of Controls And Internal Audit

The internal auditor of the future will be fully data-enabled. AI and machine learning are being used to detect risks and automate process outcomes testing, strengthening the third line. But computers cannot give a nuanced control design opinion. Internal audit will always require a human touch.

Internal Audit Function of Today

“Most activities across the Audit Life Cycle are performed manually or with little data analysis and automation”

| Audit planning and risk assessments performed on desktop applications | Assign audits to audit teams who perform the work manually with little automation | Manual drafting of reports, with multiple rounds of reviews and reworks |

The ‘Future’ Internal Audit Function

“Internal Audit teams are challenged to find the right talent to deploy strategic and integrated use of data analytics and data automation techniques so that we can improve the way we do our audits”

<table>
<thead>
<tr>
<th>Audit planning and risk assessments</th>
<th>Audit fieldwork</th>
<th>Drafting of reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply continuous monitoring of KRI to improve audit planning and scoping, using automated tools for planning</td>
<td>Apply data analytics for full population testing, tools, and scripts can be repeatable for continuous auditing</td>
<td>Integrate data into findings, dynamic reporting with powerful narratives shared through visuals to derive insights</td>
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</table>
The Future Of Controls And Internal Audit

Continuous Auditing

Continuous auditing (CA) refers to the set of automated processes that an organisation uses to confirm the organisation's compliance with the security policies and assure the effectiveness of security controls.

This practice goes beyond traditional periodic internal audit by integrating real-time monitoring and analysis into the audit process.

Continuous auditing aims to provide timely insights into the accuracy, completeness, and compliance of financial information, thereby enhancing the effectiveness and efficiency of internal controls and risk management within an organisation. This approach allows for early detection of anomalies, errors, or irregularities, enabling prompt corrective actions to be taken.

Key Values of CA

- **Enhanced Risk Management**: Proactively identify risks by monitoring transactions and activities continuously, enabling better risk assessment and management.
- **Regulatory Compliance**: Maintaining compliance by providing ongoing monitoring of the organisation activities.
- **Cost Efficiency**: CA can ultimately lead to cost savings by reducing the need for manual efforts and streamlining audit processes.
- **Increase Stakeholder Confidence**: By providing timely, accurate, and reliable information, CA enhances stakeholder confidence in the organisation's operations, financial reporting, and governance practices.

- **100% Testing Population**: Enable internal audit to move from sampling accounts and transaction to cover 100 percent testing.
- **Real Time Issues Detection**: CA provides real-time insights into data, allowing issues to be identified and addressed promptly, rather than waiting for periodic audits.
We recognise that moving away from traditional processes will take time and effort. We recommend a phased approach in adopting controls automation over time, across a maturity scale. This will allow organisations to adapt to changes, adopt new approaches and technologies, and accept the future of controls approach.

Traditional Controls
- Manual
- Labour intensive
- Takes time
- Prone to error

ASSISTED
- Quick to implement
- Lower cost
- Semi-automated
- Data driven
- Less prone to error
- Increased efficiency
- Support scalability
- Demands consistency

AUTOMATED
- Investment in infrastructure needed
- Longer implementation timeline
- Automated
- Full integration with systems and data
- Potential for machine learning
- Increased efficiency
- Improved accuracy
- Support scalability
- Less prone to error
- Demands consistency

Efficient: Moving Up The Controls Automation Maturity Scale

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Internal Audit 4.0
Leveraging on Analytics for 100% testing of the population

With quality, an analytic-driven approach supports 100% population testing to assess the pervasiveness of any issues.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Typical Controls Testing</th>
<th>Controls Testing with Analytics</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Understand the Business</td>
<td>Understand the Business</td>
</tr>
<tr>
<td></td>
<td>Random Sampling</td>
<td>Understand the Data</td>
</tr>
<tr>
<td></td>
<td>Test Samples</td>
<td>Perform Data Analysis</td>
</tr>
<tr>
<td></td>
<td>Identify Findings</td>
<td>Focused sampling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Test Sample/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify Findings</td>
</tr>
<tr>
<td>Testing</td>
<td>Random sampling</td>
<td>100% analysis and focused sampling</td>
</tr>
<tr>
<td>Correlating data</td>
<td>Data correlation from different sources is manually-intensive, almost impossible</td>
<td>Ensures data from different sources are correlated and supports conclusion</td>
</tr>
<tr>
<td>Findings</td>
<td>Higher possibility of being arbitrary, ambiguous and subjective</td>
<td>Fact-based and data driven (incontestable) resulting in more insightful recommendations</td>
</tr>
<tr>
<td>Testing Errors</td>
<td>Higher risk of human errors</td>
<td>Reduces risk of human errors</td>
</tr>
</tbody>
</table>
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Analytics Use Cases for Internal Audit

3 Digital and Analytics solutions

**One-time Analysis**

**Value Proposition:**
“Quick-win” approach to demonstrate the value of audit analytics. “Starter Kit” for building future analytics capabilities

**Key Differentiators:**
- Standalone report/section on Results of Analytics – including insights from data analysis and profiling
- One time effort, low incremental budget based on “top-up” man-day effort to audit engagement

**Estimated timeline:** Within 2 months for 5 ready analytics cases (minimum customisation)

**Use Cases:** Payroll analysis report

**Analytics Deployment**

**Value Proposition:**
Continuous auditing and insights with low maintenance costs. Reduce recurring auditing efforts for run-of-the-mill controls that can be automated

**Key Differentiators:**
- For clients who want regular insights but do not have their own data analysts
- Dashboards and report generation for periodic updates to management

**Estimated timeline:** 2 to 6 months for the designed analytics can be roll-out regularly per the frequency that business intended

**Use Case:** IT Controls Dashboard

**Cross-function Integration**

**Value Proposition:**
Embed Analytics as part of BAU controls monitoring. Streamlining approach across 3 lines to achieve integrated assurance with the use of technology and data

**Key Differentiators:**
- For more mature clients with basic analytics set up and capacity to build up data infrastructure
- Integrated dashboard with insights across various functions and 3 lines of defense.

**Estimated timeline:** 6 months and above, subject to selection of the analytics tools and platform

**Use Cases:** Branch Risk Analytics, Governance and Control Dashboard
How do Analytics and Automation Transform Audit Practices

Continuous Auditing Journey

A Typical IA Transformation Journey and Roadmap

**PHASE 1**
Training and Capability Building
Pilot Programs and Initiatives

**PHASE 2**
Feasibility Study and Roadmap

**PHASE 3**
Full Implementation
Enhancements with Emerging Tech

Strategic vision and roadmap
Skillsets and mindset
Digital assets – Technology
Availability of data

How do Analytics and Automation Transform Audit Practices

Internal Audit 4.0
Case Study #1 – AI Driven Audit Analytics: Bringing the 3 Lines of Defense on a Page, Catalysing the Journey of an Integrated Assurance

### Benefits
- Greater efficiency by reducing manual procedures higher frequency of reporting due to automated monitoring mechanism
- Trend analysis enables targeted review by 2LOD and 3LOD, strategically assessing coverage of key risk areas
- Provide stakeholders with timely insights into the effectiveness of controls and emerging risk and enables timely risk mitigation

### Target Users
- Risk, Compliance, and Internal Audit Function
- Business Functions

### Solution
- Leveraging on AI driven tool and Large Language Model (LLM) to generate insights from Audit Reports, to strategies in-depth audit areas focusing on high-risk areas


Case Study #2 – Branch Risk Analytics: Focusing on What Matters Most

Branch Risk Analytics Dashboard

Branch Risk Profile Indicators

**Primary**
Low risk branches with relatively satisfactory performance

- Audit
- Operations
- Regulatory
- Staff
- Credit
- Customer
- Profit

**Secondary**
Medium risk branches with several areas requiring further improvement

- Audit
- Operations
- Regulatory
- Training
- Security
- Credit
- Customer
- Profit

**Tertiary**
High risk branches requiring immediate attention

- Audit
- Operations
- Regulatory
- Training
- Security
- Credit
- Customer
- Profit

**Target Users**
- Internal Audit, Risk, Compliance
- Business Function

**Solution**
- Analytics-driven approach to systematically manage branch performance and risk (e.g. KPI, systemic risk, localised risk)

**Benefits**
- Systematically identifies both systemic and localised risks across the branch network, enhancing overall risk management
- Enables control functions to swiftly manage issues, improving branch operations
- Enhances operational satisfaction by addressing specific criteria, such as governance, operations, internal controls, security, training, and customer experiences
How do Analytics and Automation Transform Audit Practices

Case Study #3 – Key Risk Indicator Monitoring: Directing Focus to High Risk Events

**Overall Risk Analytics Performance Dashboard**

**Key Risk Indicators (KRI)**

**Risk Performance**

**Key Risk Indicator Monitoring:** Directing Focus to High Risk Events

**Solution**

- Integrate data across the organisation to provide insights, predict scenarios and monitor the impact of risk factors over time

**Benefits**

- Focused dashboard views on the key insight areas of Risk Analytics can be achieved for a comprehensive view on monitoring
- Enhance risk monitoring by facilitating the prioritisation of risk based on their significance and identifying emerging risks
- Monitor KRIs regularly to identify trends and patterns that could lead to potential risk events
- Provide foresights that allows effective mitigation of risks

**Target Users**

- Business Functions
- Risk, Compliance and Internal Audit Function
Case Study #4 – Climate Risk Analytics: Bringing Perspectives on Climate-related Risks and Opportunities

**Physical Risk Dashboard**

**Transition Risk Dashboard**

**Target Users**
- Risk Function
- Business Functions (e.g., Credit, Treasury & Sustainability)

**Solution**
- Consolidated assessment of material physical risk and transition risk on the organisation’s exposures

**Benefits**
- Climate scenario analysis providing insights on financial risk and operational risk exposure
- Effective identification, assessment, and mitigation of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning
- Enable users to make informed decisions regarding investment decisions and strategic planning
- Forecast GHG emission and business exposure to climate risk now and in the future
Case Study #5 – Transaction Analytics : A Proactive Detective Measure on ‘What Went Wrong’ (1/2)

Solution Functionality / Approach
1. Evaluates 100% of loans, for a period of 6 months, answering the following questions:
   - Was each loan approved in accordance with the organisation’s designated authorisation limits?
   - Were any approval controls circumvented to process new loans?
2. Loan origination data and transaction history data of active accounts were used for the analysis.
3. Developed AI/ML model, to identify clusters of loans that demonstrate patterns of fraudulent activity and/or assign a probability of being fraudulent.

Target Users
- Risk Function
- Business Functions – Retail Portfolio, Credit Risk, Operations (Collection)

Solution
- Detecting fraudulent activities from loan processes and ensuring compliance with internal SOPs

Benefits
- Rigorous evaluation ensures strict adherence to approval limits, preventing unauthorised actions within the loan processing system
- Advanced AI/ML analysis swiftly detects potential fraudulent patterns, enhancing overall risk management
- Streamlines financial control through identification of exceptions, ensuring prompt rectification of improper approvals and optimising the loan processing system
Case Study #5 – Transaction Analytics: A Proactive Detective Measure on ‘What Went Wrong’ (2/2)

Target Users
- Finance Function
- Business Functions

Solution
- Automates the process of identifying duplication activities and provides insights from large volumes of invoices

Benefits
- Automating of manual procedures can lead to significant improvement in quality and efficiency
- Maintain high accuracy of financial records, reducing the risk of compliance violations, and enhancing financing transparency in financial transactions
- Facilitates operational streamlining by identifying discrepancies and exceptions in real-time

Test logic – different classifications were used to identify potential duplicate invoices, some criteria are more strict than others. Detailed breakdown of the duplicate invoices – those transactions highlighted in red are “paid” invoices. Internal classification of duplicate group “Risk Status” – Those with a ‘High’ risk status are more likely to be a genuine duplicate line item.

Invoice Validation Dashboard

Filters to help refine the analysis

Number of duplicate line items vs total value of the duplicate ‘group’ – each circle represents one duplicate group
Where can we start? We believe that the journey towards Controls Resilience starts with identifying the right opportunities. It is important for us to identify opportunities, prioritise highly transactional, heavy volume, manually-intensive, rules-based processes with high associated value to the business and low complexity to implement.

**Example use case: IT security administration**

Error prone manual processes
**Action:** On a daily basis, automatically compare HR transfer and terminations feeds with network and application user listings to identify any changes in employees’ status with active access requiring action.

**Example use case: Treasury**

Area of organisational risk
**Action:** Use data analytics and visualisation to assess the population of disbursements to identify those with the greatest risk profile requiring further investigation.
Let’s Talk

How we can help

With increasing regulatory scrutiny and the need to meet evolving expectations of stakeholders, many organisations are facing challenges in having adequate resources to effectively manage compliance and adapt to the changing business landscape.

Our approach, which involves the **strategic use of data and advanced techniques**, can empower the 3 lines of defense to conduct more effective oversight and risk assessment by leveraging centralised data and analysis, which is key in achieving the journey towards integrated assurance. We offer comprehensive support that not only safeguards your operations, but also assist you in achieving your envisioned future state.