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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.**
"

Key Audit Concerns in 2024

Cybersecurity	Diversity, Equity and Inclusion
Climate Risk & ESG Governance	Artificial Intelligence

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"

Audit planning and risk assessments	Audit fieldwork	Drafting of reports
Apply **continuous monitoring of KRIs** to improve audit planning and scoping, using automated tools for planning	Apply data analytics for **full population testing**, tools, and scripts can be repeatable for continuous auditing	Integrate data into findings, **dynamic reporting with powerful narratives shared through visuals** to derive insights

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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.

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.
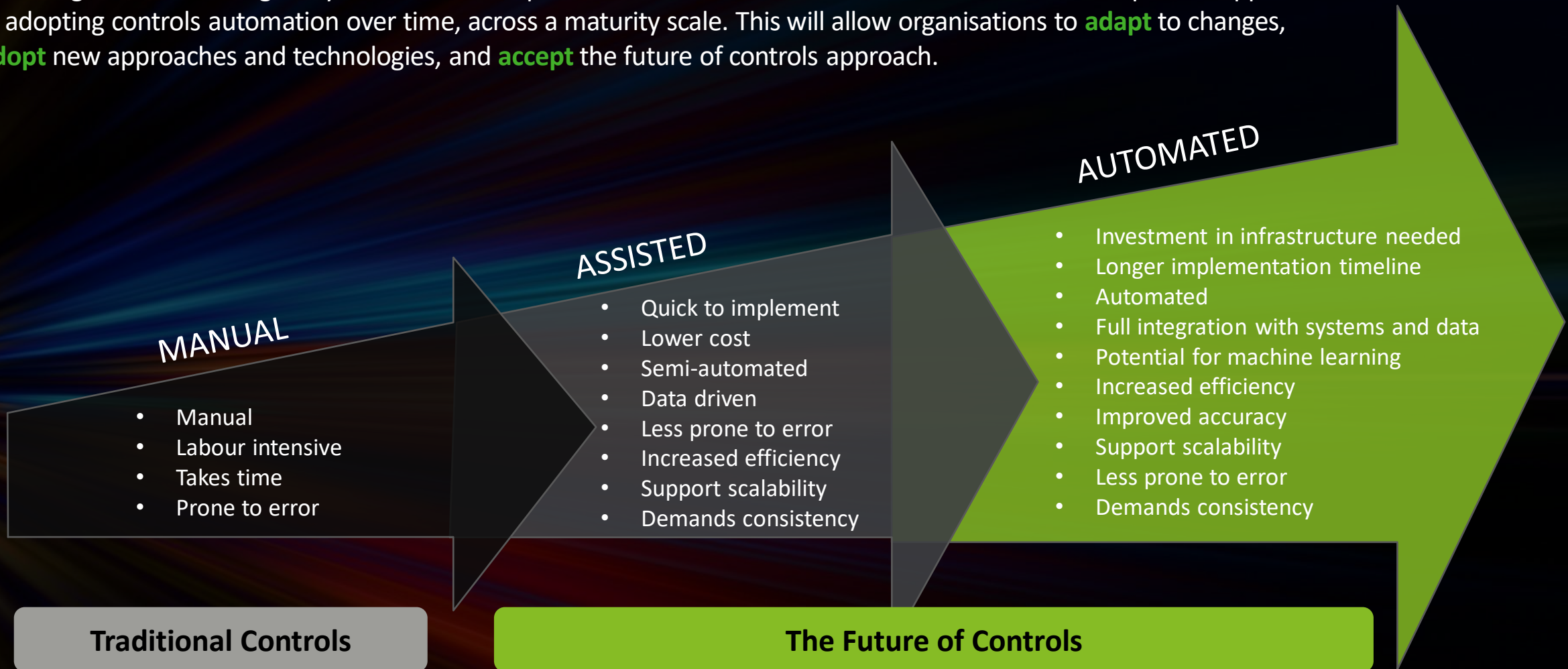
INCREASE STAKEHOLDER CONFIDENCE

By providing timely, accurate, and reliable information, CA enhances stakeholder confidence in the organisation's operations, financial reporting, and governance practices.
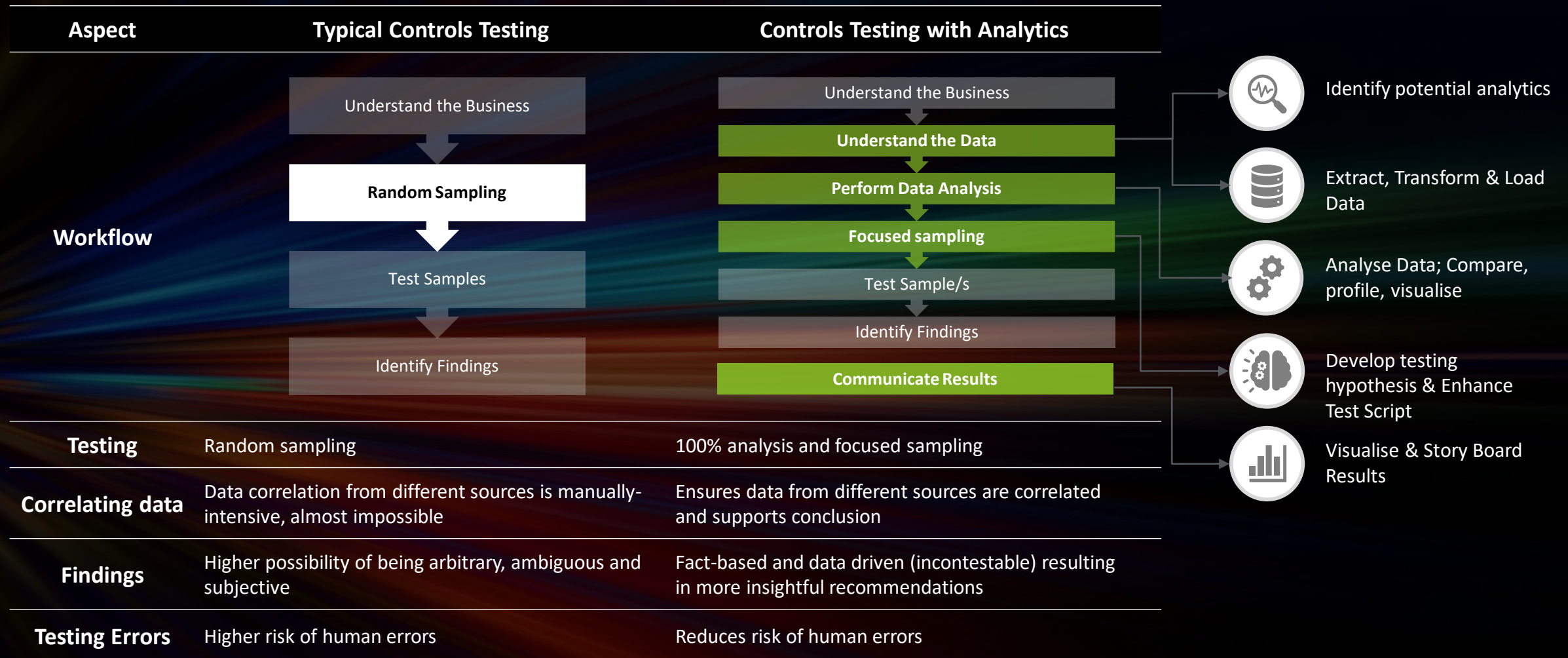
Efficient: Moving Up The Controls Automation Maturity Scale

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.

AUTOMATED

ASSISTED

MANUAL

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

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

MANUAL
- Manual
- Labour intensive
- Takes time
- Prone to error

Traditional Controls

The Future of Controls

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.

Aspect	Typical Controls Testing	Controls Testing with Analytics	
Workflow	Understand the Business → **Random Sampling** → Test Samples → Identify Findings	Understand the Business → **Understand the Data** → **Perform Data Analysis** → **Focused sampling** → Test Sample/s → Identify Findings → **Communicate Results**	Identify potential analytics; Extract, Transform & Load Data; Analyse Data; Compare, profile, visualise; Develop testing hypothesis & Enhance Test Script; Visualise & Story Board Results
Testing	Random sampling	100% analysis and focused sampling	
Correlating data	Data correlation from different sources is manually-intensive, almost impossible	Ensures data from different sources are correlated and supports conclusion	
Findings	Higher possibility of being arbitrary, ambiguous and subjective	Fact-based and data driven (incontestable) resulting in more insightful recommendations	
Testing Errors	Higher risk of human errors	Reduces risk of human errors	

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

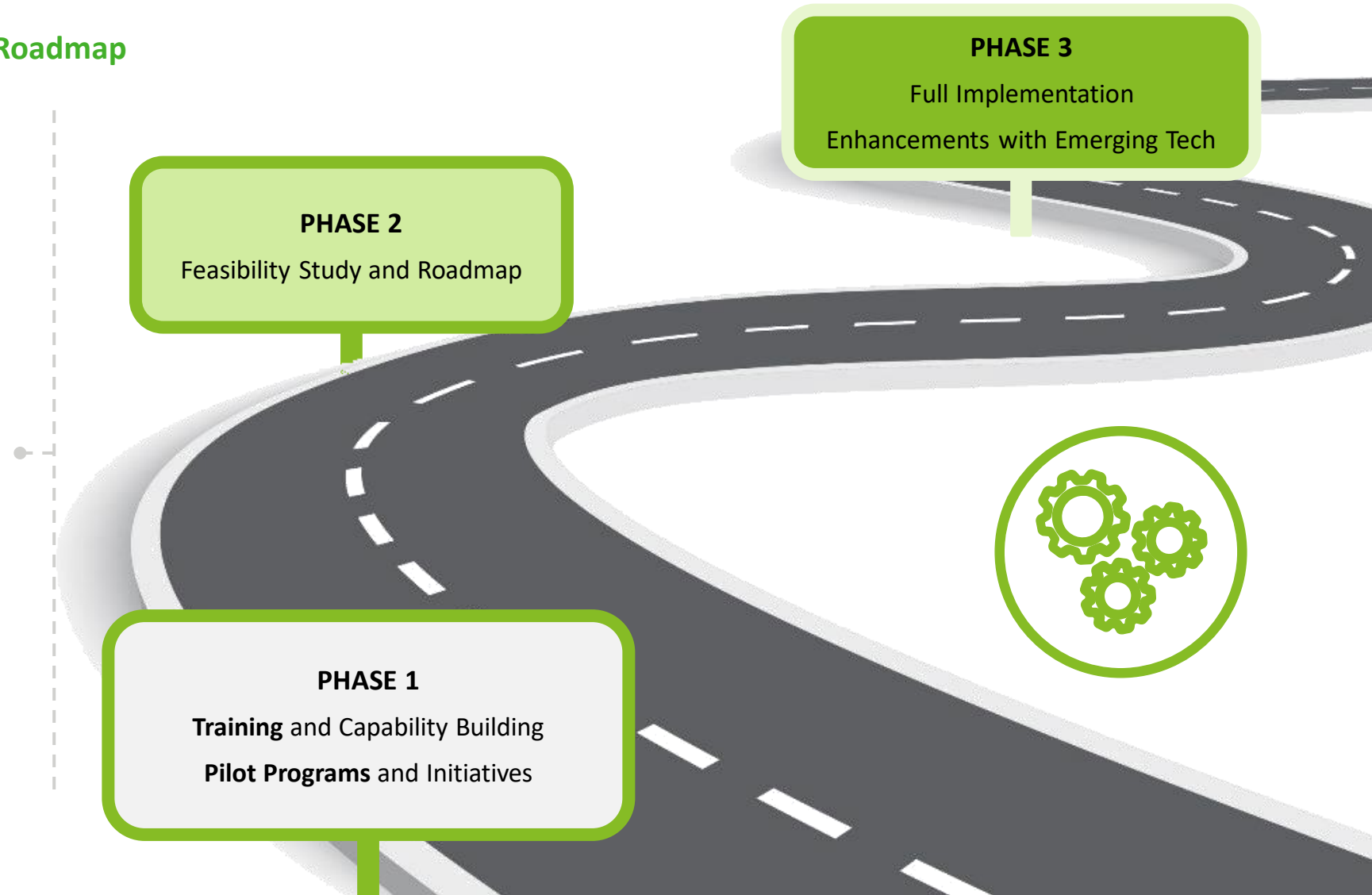Integrated dashboard with insights across various functions and 3 lines of defense.

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

**Use Cases:** Branch Risk Analytics, Governance and Control Dashboard

Continuous Auditing Journey

A Typical IA Transformation Journey and Roadmap

Strategic vision and roadmap

Skillsets and mindset

Digital assets – Technology

Availability of data

PHASE 3

Full Implementation

Enhancements with Emerging Tech

PHASE 2

Feasibility Study and Roadmap

PHASE 1

Training and Capability Building

Pilot Programs and Initiatives

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

AI curated events feed & Key trends discovery

Governance and Control Dashboard – Risk, Compliance, and IA
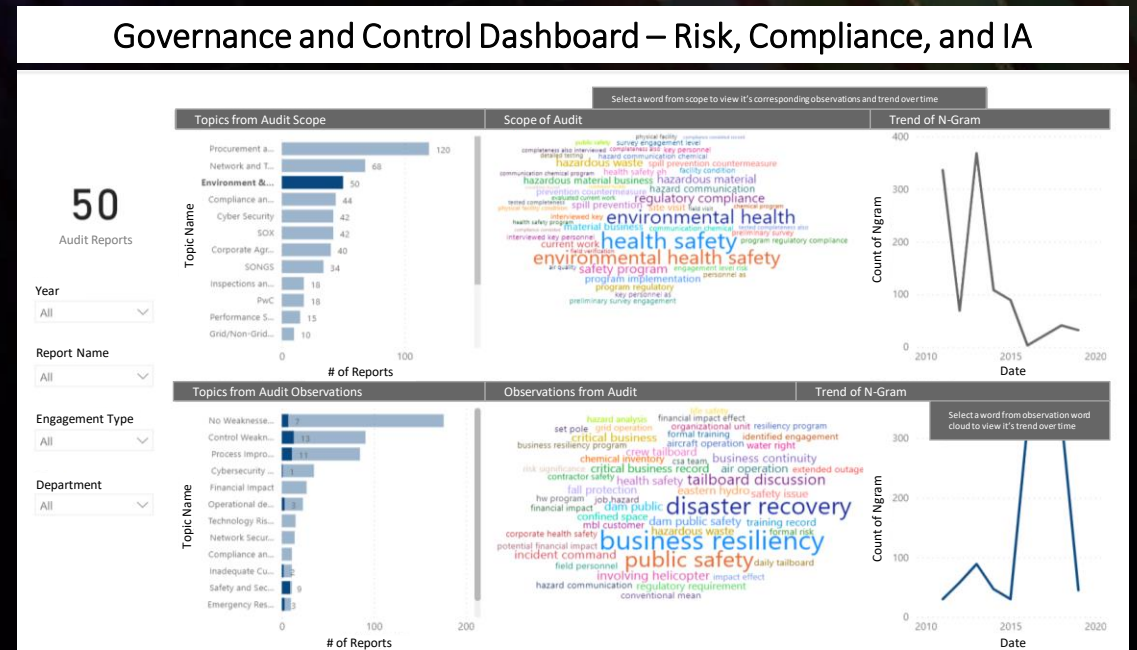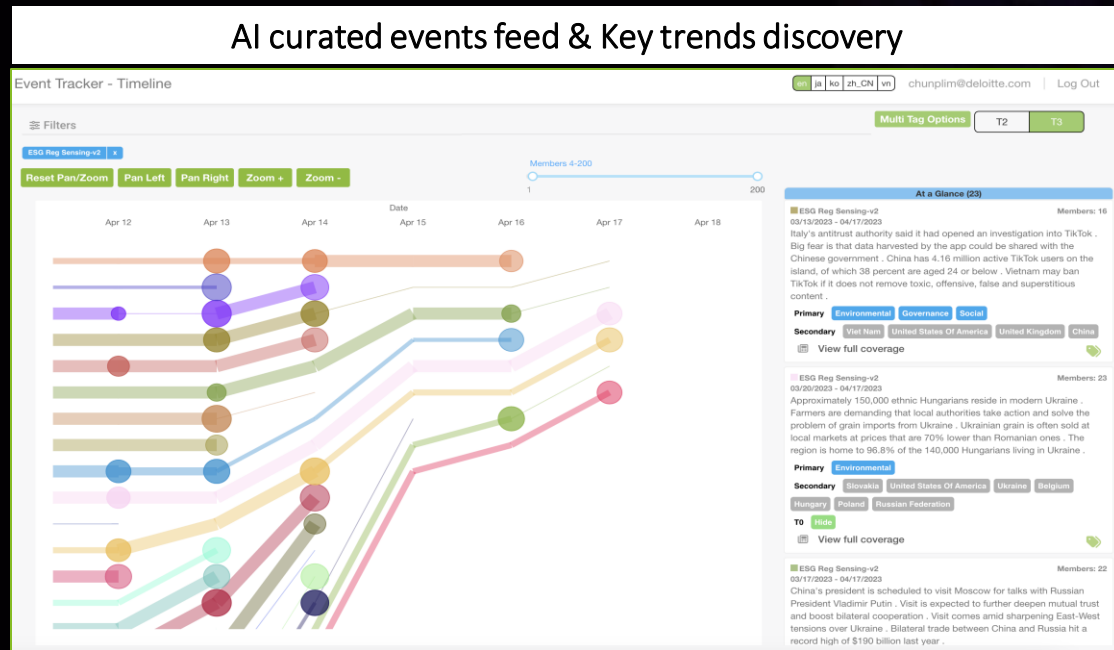
Target Users
- Risk, Compliance, and Internal Audit Function
- Business Functions

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

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

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

Secondary
Medium risk branches with several areas requiring further improvement

Tertiary
High risk branches requiring immediate attention

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

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

Overall Risk Analytics Performance Dashboard

Risk Performance

Control Function Filter

All

Risk Incidents by Risk Type

Risk Type	Count of Risk Type
Access Risk (System)	20
Authority Risk	218
Business Continuity Risk	20
Client's Service Risk	40
Compliance Risk (External)	20
Compliance Risk (Internal)	100
Total Count of Risk Incidents	618

Inherent Risk Level by Control Functions

Control Functions ● Audit ● Branch ● Compliance ● Risk Management

Key Risk Indicators (KRI)

KRI Threshold Level

9 (21.95%)
17 (41.46%)
15 (36.59%)

KRI Level ● Level 3 ● Level 2 ● Level 1

Level 3: KRI Breach
Level 2: KRI Close to Breach
Level 1: No KRI Breach

KRI Overview

KRI Group

⊟ Account Balance Error
Escrow Accounts (Acct Type Code "61") & HDA Accounts (230) With Overdraft Limit / Debit balance

⊟ Client Holding Error
Unreconciled Clients Holdings for Bond
Unreconciled Clients Holdings for Equity
Unreconciled Clients Holdings for FD
Unreconciled Clients Holdings for UT

⊟ Compliance Risk
Delay / Failure in sending loan documents/agreements for stamping

Loss Event Data

Estimated Loss (MYR) by Control Function

100%
Branch — 2.04M
Risk Management — 1.51M
Audit — 0.72M
Compliance
8.7%

Control Issue Management

Control Issues based on Status

344 (17.92%)

Status
● Medium
● Low
● High

595 (30.99%)
981 (51.09%)

Key Risk Indicator Dashboard

KRI Tracking

Control Function Filter

All

KRI Threshold Level

9 (21.95%)
17 (41.46%)
15 (36.59%)

KRI Level ● Level 3 ● Level 2 ● Level 1

KRI Exception Count

KRI/CommBank/002
KRI/CommBank/007
KRI/CommBank/016
KRI/CommBank/020

0   1,000   2,000
Count of KRI Exception Count

KRI Overview

KRI Group

⊟ Compliance Risk
Delay / Failure in sending loan documents/agreements for stamping
Delay / Failure to send PB Account Opening documents/agreements for stamping
Manual cheques issued without 1AML screening

⊟ Data Integrity Risk
Number of incoming error from Credit Admin and Front Office on PB Financing
Number of incoming error from Front Office on PB data maintenance

⊟ Delay in Renewal
Delay in Renewal of Cash Line facility
Total

KRI Exception Detais

KRI Number	KRI Level	KRI Group	Risk Category	KRI Description
KRI/CommBank/001	Level 2	Incorrect Tagging	Operational Lapses	OD accounts with commitment fee wai
KRI/CommBank/002	Level 3	Incorrect Tagging	Operational Lapses	Customer Name tag as HDA but Produc
KRI/CommBank/003	Level 3	Incorrect Tagging	Operational Lapses	HDA Product Code but Customer Name
KRI/CommBank/004	Level 3	Incorrect Tagging	Operational Lapses	Customer Name tag as Escrow but Facil
KRI/CommBank/005	Level 3	Incorrect Tagging	Operational Lapses	Escrow Facility Code but Customer Nam
KRI/CommBank/006	Level 2	Account Balance Error	Operational Lapses	Escrow Accounts (Acct Type Code "61") (cannot be empty)
KRI/CommBank/007	Level 3	Delay in Renewal	Boundary Event	Flag exceptions when Cash Line facility

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

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

Case Study #4 – Climate Risk Analytics: Bringing Perspectives on Climate-related Risks and Opportunities

Physical Risk Dashboard | Transition Risk Dashboard
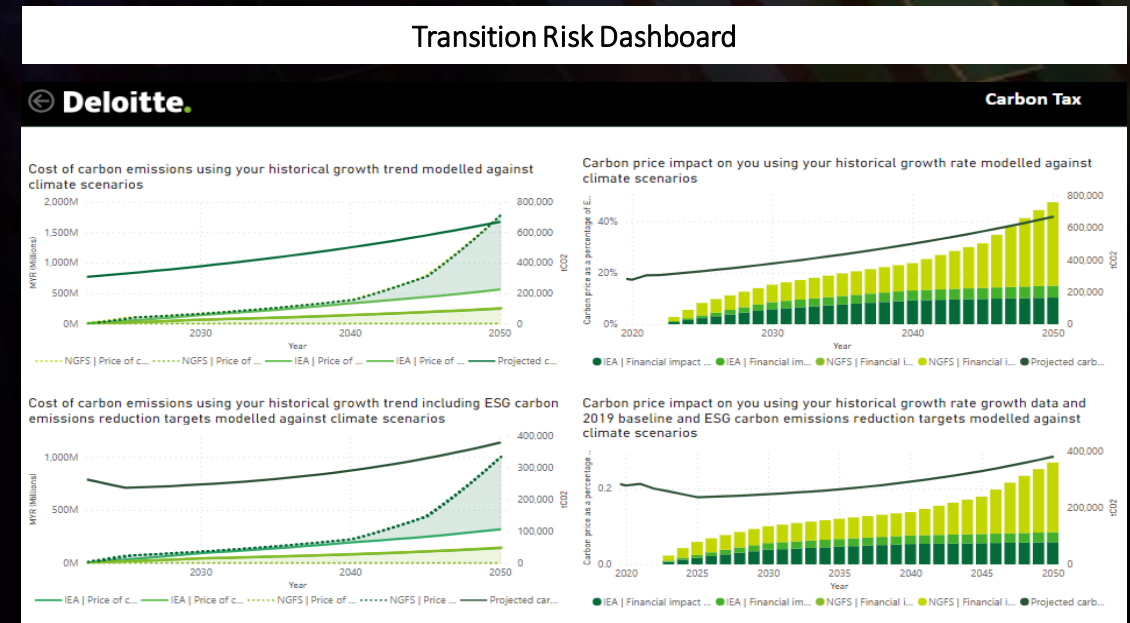
Target Users
- Risk Function
- Business Functions (e.g., Credit, Treasury & Sustainability)

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)

Overview of Loan Analytics Dashboard
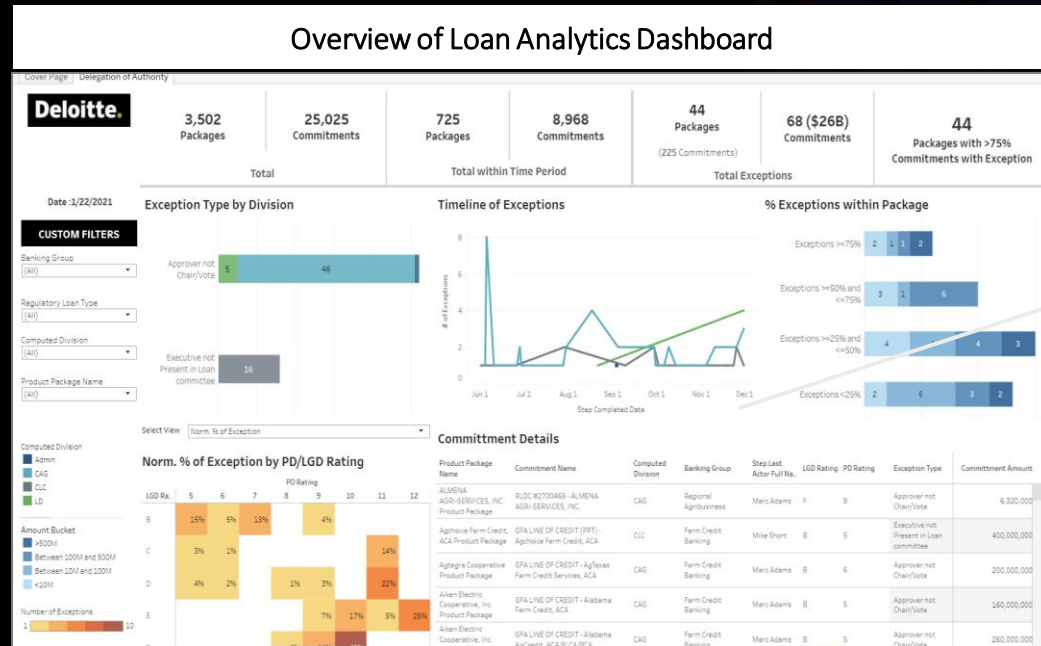
Solution Functionality / Approach
1. Evaluates **100% of loans, for a period of 6 months**, answering the following questions:
   - Was each loan approved in accordance with the organisation's designated authorisation limits?
   - Were any approval controls circumvented to process new loans?
2. Loan 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)

Invoice Validation Dashboard

Internal classification of duplicate group "Risk Status" – Those with a 'High' risk status are more likely to be a genuine duplicate line item

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
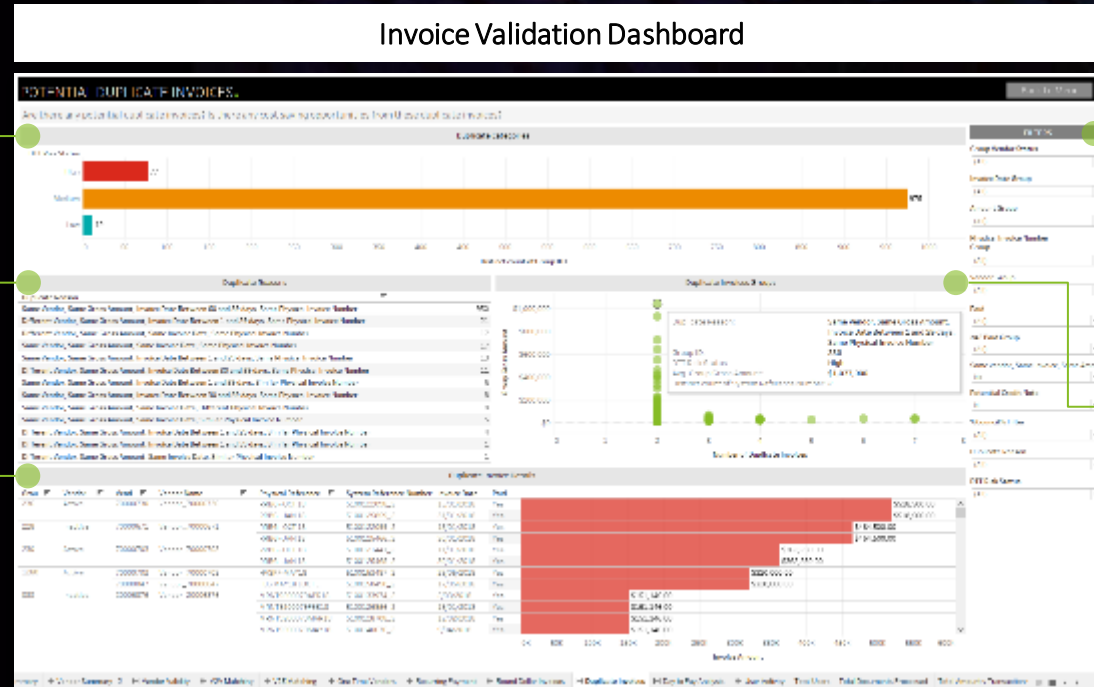
Filters to help refine the analysis

Number of duplicate line items vs total value of the duplicate 'group' – each circle represents one duplicate group

Target Users
- Finance Function
- Business Functions

Solution
Automates the process of identifying duplication activities and provide 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

Next Steps: Finding 'Quick-Wins'

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.

Significant

Level of value

Marginal

Strategic opportunity

Ideal candidate

Low value opportunity

Quick win opportunity

Higher   Digitisation complexity   **Lower**

Pick a use case.
Start small and be specific.

Determine the data requirements.
Consider existing resources and structured data.

Focus areas with higher value relative to complexity– higher ROI

Consider areas that pose heightened risk, across risk domains

Example use case:
IT security administration

Error prone manual processes
<u>Action</u>: 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
<u>Action</u>: Use data analytics and visualisation to assess the population of disbursements to identify those with the greatest risk profile requiring further investigation.

Solutions Database   ← **IT Controls** →   ← **Process Controls** →

| Access Controls | Configurations Review | Audit Logging | Change Management | HR/Payroll | Procure to Pay | Asset Management | Claims |

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.

Get in touch

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