THE IMPACT OF INTELLIGENT TECHNOLOGY

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Your presenter

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Objective

Leave the session with a working knowledge of emerging technologies and how they are impacting Accounting & Auditing responsibilities.

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Today's agenda

- Market Trends
- Robotic Process Automation
- Data Analytics
- Drone Technology

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Market trends for 2020 per Gartner

- Hyperautomation
- Multiexperience
- Democratization
- Human augmentation
- Transparency & traceability
- Empowered edge
- Distributed cloud
- Autonomous things
- Practice blockchain
- AI security

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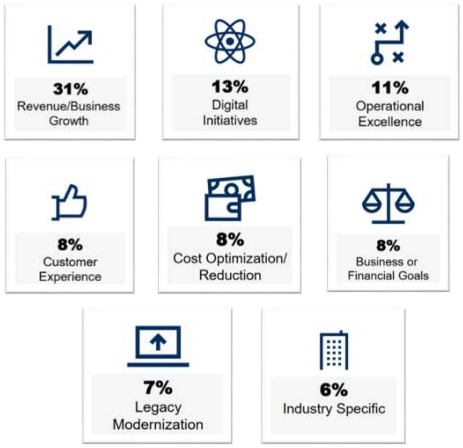
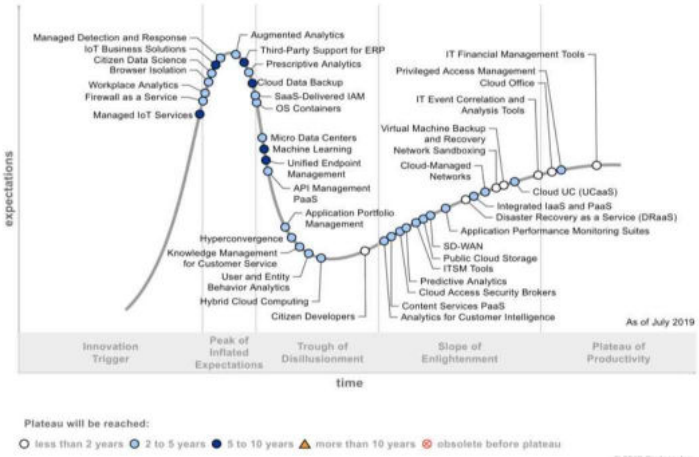
Mid-market enterprises – Priorities and hype cycle

What are your organization's top priorities?





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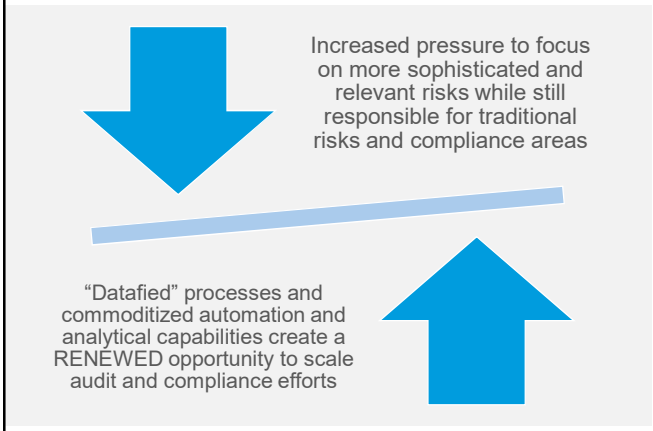
Why Use Technology to Transform How We Audit?



- Unprecedented velocity of change and risk
  - Service offering and process changes
  - Technology transformation
  - Workforce changes
  - Geographic coverage / expansions
  - Regulatory landscape
- Data is critical to business intelligence
- Data volume, variety, velocity and veracity
- DA becoming standard practice for regulators
- Expectation that audit to provide more value
- Opportunity for audit to challenge the status quo

Audit must innovate, scale and adapt

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The Need for Innovative Auditing

Automation / RPA

Automate and routinize key audit tasks
- Scheduled jobs
- Low cognitive task automation
- Manual, repetitive or high volume tasks
- Cross-application "macros"
- Higher-order task automation (with AI)

Risk Analytics

Answer questions about past, present, and future
- IFTTT, SoD, and business rules
- Data visualization
- Process mining
- Risk scoring, modeling and statistics
- Text mining, machine learning and AI

Agile

Organize, prioritize and deliver on audits
- Risk backlog vs defined plan
- Quick sprints, adaptable to changes
- Incremental work vs all at once
- Increased information and communication flow
- Client collaboration

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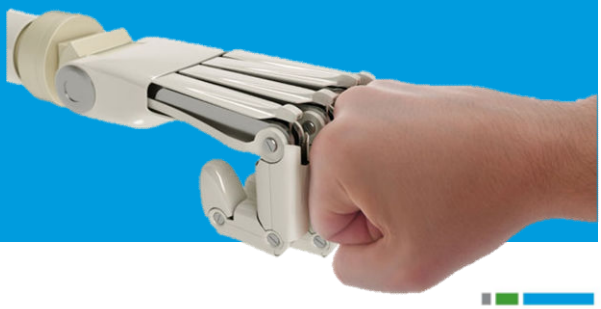
Workforce of the Future



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Workforce of the Future

- Variety of robotic, data-driven and automated solutions for driving productivity, coverage and scale
- Not a physical embodiment of a digital worker
- Virtual robot (software)
- Works in conjunction with the human workforce

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Workforce of the Future

Robotic Process Automation (RPA)
Behaves like a person

- Structured data
- Business rules
- No change process/systems
- 'Democratize' automation

+

Cognitive
Thinks like a person

- Extends RPA scope
- Unstructured data
- Computer vision
- Self-learning

+

Analytics
Analyzes like a person

- Easily tag data elements during bot creation
- Real-time data flow across disparate systems
- Business intelligence

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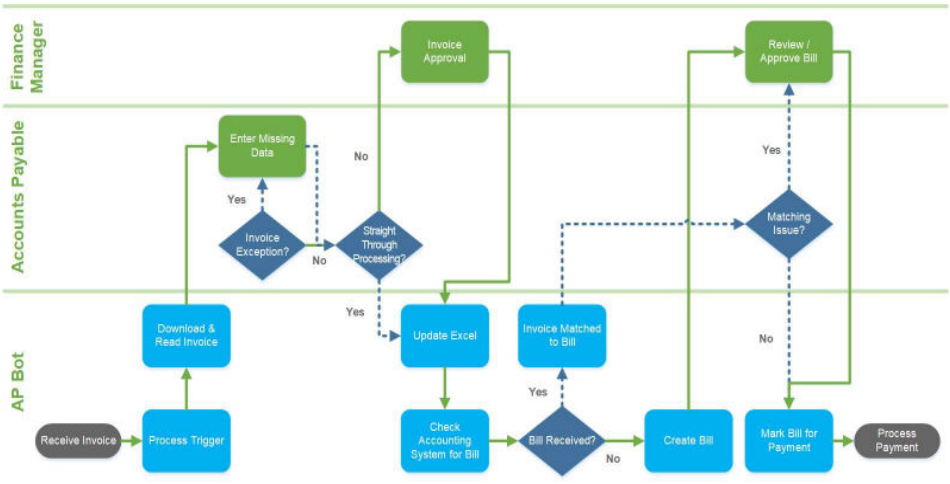
Example – AP Invoice Processing

Automated Invoice Processing



Key Benefits

- Improved accuracy
- Flexibility and scalability
- Decreased cycle times and improved throughput
- Enables departments to refocus on value-add activities
- Detailed data capture

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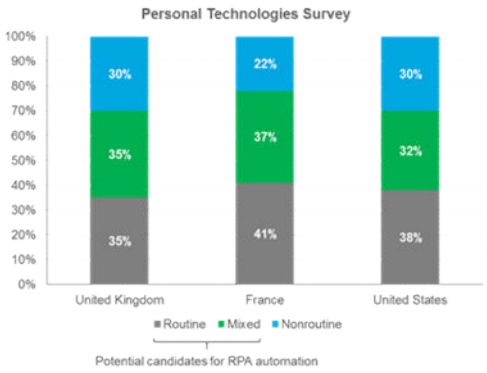
RPA's Impact to Organizations

RPA technologies are more effective when leveraged alongside structured, repeatable tasks. According to a 2019 survey from Gartner Research:

- Workers surveyed categorize 35-41% of their daily work as routine
- 32-37% of work is a mix of routine and non-routine

Manual aspects of non-routine processes can also be automated to reduce the number of touchpoints required to complete.

Figure 1. Gartner: Online Workers Describing Their Work as Nonroutine



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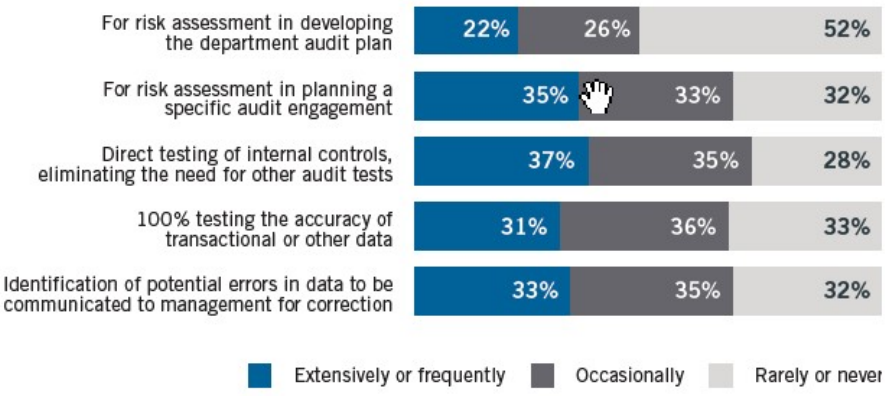
Data Analytics' Impact on the Audit Process

Exhibit 12: Ways Internal Audit Uses Data Analytics



Source: 2019 North American Pulse of Internal Audit Survey

Note: Q7: In what ways does your internal audit department use data analytics? *n* = 537.

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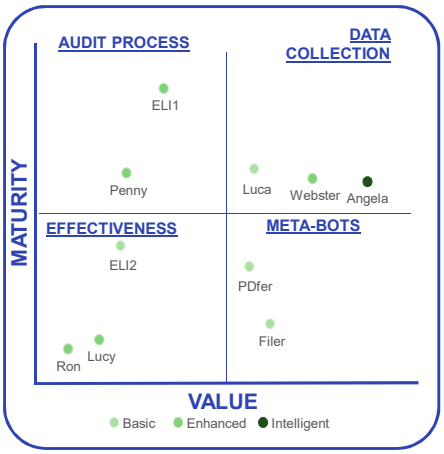
Your Audits Supported by "Digital Assistants"



AUDIT PROCESS

ELI-1 – Prepares a dashboard with 30+ descriptive analytics in 5 minutes

Penny - Logs into the systems and traces transaction IDs and extracts 10+ support docs and puts it in a single PDF

DATA COLLECTION

Angela – Navigates through a system and extracts customer correspondence

Luca – Logs into bank websites and extracts customer payment information

Webster – Web scraper that crawls through relevant information contained in a website

EFFECTVENESS

ELI-2 – Intelligent auditor notifications (audit plan progress, IT charges, early analytics exceptions, etc.)

Ron – Verifies and documents that automated processes were executed as intended

Lucy - Manages data requests *(In development)*

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What Might the 'Audit of the Future' Look Like?

As an auditor, my day starts with:

1. Notifications of any significant risk changes that occurred overnight
   - The risks themselves
   - The tools management uses to monitor risks
2. Options for how those risk changes might influence my day/week
3. Actioning the "next steps" of any testing that could not be fully automated
4. Discussions with management and other experts about emerging risks and indicators that could be used to enhance risk monitoring

…and my day ends with:

1. Planning the next phase of audit optimization
2. Adjusting/training my army of audit bots as new information is learned
3. Pressing the "do audit" button as I head home

One Audit = One Day
Data-Driven Stories build Insight
Speed/Value/Quality

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RPA Overview

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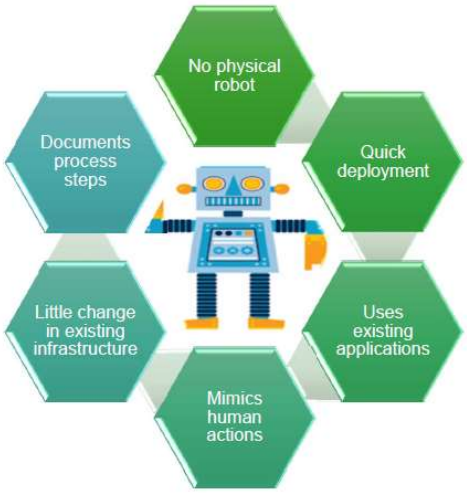

- Benefits of RPA
  - Increased productivity and efficiency - Focus employees on higher value activities
  - Scalability and flexibility - Replicate robotic tools across geographies/business units
  - Accuracy - Robots don't make mistakes or judgement calls, and they don't get tired
  - Compliance - Bots can self-document their activities, and provide audit trails humans may forget
  - Cost savings - Automation quickly reduces administrative and back office costs for fast ROI
    - Can save 50-80% current costs of a process
    - Costs as little as 1/3 the price of an offshore full-time employee (FTE) and as little as 1/5 the price of an onshore FTE

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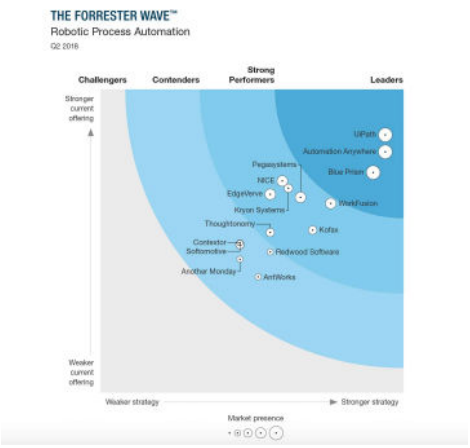
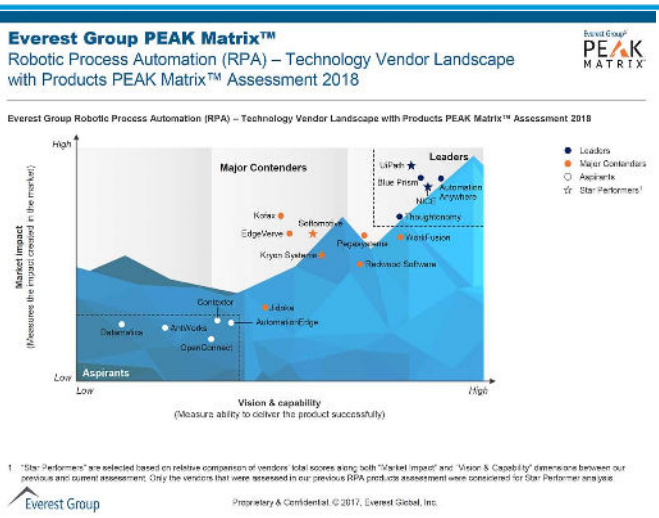
RPA Industry Landscape





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Current Reporting Process

Managers log into portal, select relevant data and export data → Data exports are reformatted and prepared for calculation or templates → Data is pasted into templates or managers key in formulas manually to generate metrics → Managers key in the metrics into the weekly reporting template provided by client → Metrics are sent to Director to review for reasonableness and accuracy

Process Frequency: Weekly
Time: ~ 191 hours annually *(30 minutes to download/prepare reports, 3 hours to calculate, 10 minutes to create and send reports)**

Automated Reporting Process

The BOT logs into the portal using user credentials, selects relevant data columns, and exports data as Excel spreadsheets → BOT copies data files to network drive and delegated to the appropriate query folders based on unique identifiers → The BOT refreshes Power Bi queries using new data. The dashboards and pivot tables update with new figures → The BOT reviews figures for reasonableness and accuracy before exporting and sending to team for review

Process Frequency: No Change in frequency
Time: ~ 6 hours annually *(5 minutes to run task from start to finish, 2 minutes to update queries)*

Key benefits

Quantitative:
~185 hours of savings annually

Qualitative:
Improved analytical accuracy

Value focused talent – reduction of time performing manual/routine tasks

Reduced process time/faster identification of issues

Improved employee morale

Enablement of future automation and data analytics opportunities

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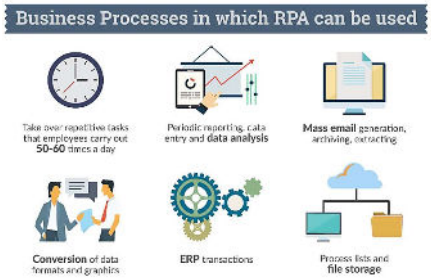
Top RPA Use Cases by Area

- ***Financial Operations*** – data entry, invoice processing, taxes, Accounts payable
- ***Human Resources*** – Track Timesheets, onboarding/offboarding processes
- ***Information Technology*** – fix technical problems, password setting, setting up application accounts, system maintenance
- ***Operations*** – Procurement, requisition approvals, supplier comparisons, Re-Orders
- ***Data & Analytics*** – Collecting data across systems and monitor processes
- **Audit and Compliance Processes -** Collecting data across systems and performing audit procedures based on pre-determined rules



What RPA Costs

Typical recurring annual costs per individually purchased bot: $12,000 - $16,000

Typical recurring annual costs per bot, enterprise agreement (minimum 10 bots): $10,000

All-in, year-one costs per bot, including solution scoping, process re-engineering, programming, implementation, and testing: $40,000 (estimated)

Source: Gartner

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How to Identify Opportunities for Automation

introduction to our opportunity scan methodology

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Buzz Words for Automation Opportunities

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Kick-off Opportunity Scan Exercise

Capture Automation Ideas from SMEs via On-line Survey Tool

Scope of Assessment

Key Value Drivers

RPA Simplicity Factors

Overall Fit

Evaluate Automation Ideas via Opportunity Dashboard

Select Pilot(s), Agree Next Steps and Execute

Use Case 1 Use Case 2 Use Case 3

Agree on POC or Pilot(s)

Crawl Pilot Phase (1 – 5 processes)

Walk Phase 2 Automation Opp. (Next 10 – 20 processes)

Run Highly Automated Control Environment

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What are we looking for?

Key Considerations for Deploying Bots

Is the process standardized?	Is the process defined?	Will there be a return on investment?
• Easily defined, limited variability • Stable data structure • Easily repeatable • Strong data integrity and accuracy • Standardized forms, fields • Measurable outcomes for evaluating efficiency	• Defined beginning/end • Limited human discretion • Few exceptions • Defined exception paths • Defined number of systems • Defined system flow • Defined, consistent inputs/outputs	• Strategically important • High volume • High frequency • Manual/duplicative effort • Lacking alternative solutions • Compliance or regulatory requirement(s)

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Data Analytics Overview

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Data Analytics: An Overview

DEFINITION

Data Analytics (DA) is using technology to automate, in part or in whole, the discovery, interpretation and communication actionable insights and meaningful conclusions derived from data

SIMPLIFIED FOR AUDIT

Digital Evidence (business data) + Algorithms (set of operations / procedures) + Technology (understood by computers)

CORE ELEMENTS

Automated	Purpose	Rule Source	Focus
• Ad hoc	• Descriptive	• Experts	• Risk (KRIs)
• Repeatable	• Diagnostic	• Statistics	• Performance (KPIs)
• Continuous	• Predictive	• ML/AI	
	• Prescriptive		

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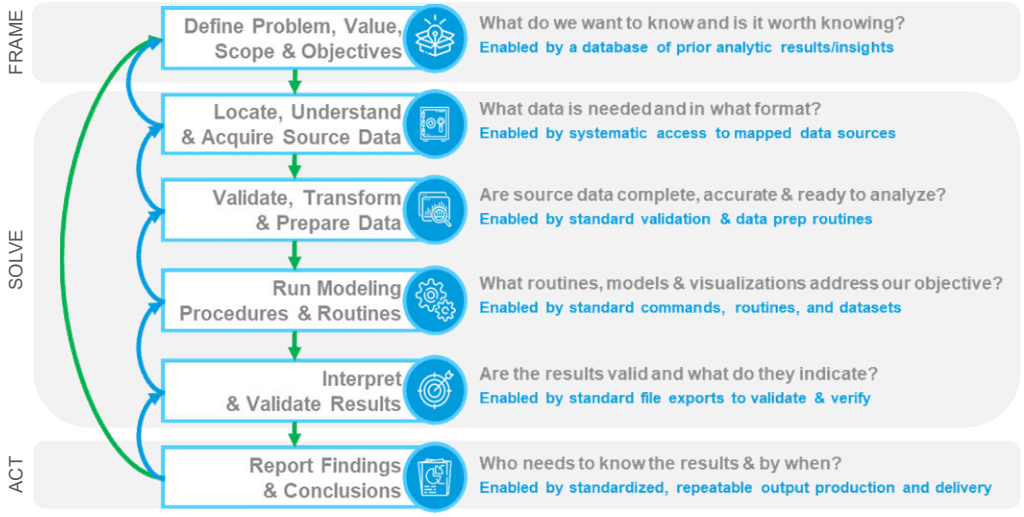
Automating the Stages of Data Analysis



Using technology, these stages can be made more repeatable or continuous

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Using Technology to Enhance Auditor Insight and Judgment

LEARN	CATCH	CONFIRM	VALUATE
Profile business activity: Who, What, Where, When, Why and How?	Identify ineffective controls	Attest to the effectiveness	Assess impact of an event
Report changes within the organization and systems	Identify persistent or new risks	Affirm something's existence	Estimate likelihood or probability
Conduct Exploratory Data Analysis (EDA) – what could we be looking at?	Detect anomalous/irregular patterns	Corroborate an allegation	Calculate level of effort, return on investment, or cost of implementation
	Identify noncompliance	Substantiate an audit finding	
	Detect fraudulent activity		
	Flag waste and abuse		

Each mode can be ad hoc, repeatable or continuous

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Trends in Audit Analytics

Using analytics throughout the audit process
- Risk assessment and development of audit plan
- Risk assessment and planning focus of specific audits
- Testing controls
- Substantive procedures (e.g. recalculation and verifying application processing)
- Reporting audit findings
- Follow up on audit reports

Automated auditing of common business process areas
- Continuous monitoring/testing in lower risk areas frees up audit resources for focus elsewhere

Collaboration with 1st and 2nd Lines of Defense
- Moving analytics into business areas and into risk management and compliance functions

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Innovative Auditing Across the Audit Process

Strategic ← Emerging Risks can be identified anywhere in the audit process → **Granular**

Develop audit plan

- Data-driven risk indicators
  - Agreement between system configuration and transactional events
  - 1st and 2nd line KRIs and CSA results
  - People risk indicators to get at residual risk
- Continuous Risk Assessment (CRA)
  - Data mine changes and flux

Plan the audit

- Data profiling and trending
- Visual and statistical analysis
- Process mining to understand transactional flow
- Bots push questionnaires to control owners
- Data mine survey responses

Controls testing

- Bots extract evidence from disparate systems
- Bots automate sample selection
- Bots solicit stakeholders for information
- Bots monitor unattended mailbox for responses
- Rules-based exception testing
- Auditors conduct ad-hoc analysis

Substantive procedures

- Ad-hoc analysis
- Remote procedure calls to web services (e.g., Google APIs)
- Recalculation and reperformance
- Application processing verification

Reporting audit findings

- Data-driven quantification of findings and risks
- Dynamic reporting of risks and findings
- Evaluate need for additional continuous audit procedures
- Provide management with analytic prototypes

Follow up on findings

- Automated alerts of aged issues/exceptions
- Automated re-testing of resolution
  - Quality
  - Timing
- Visual issue trending

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Value of Data Analytics in Internal Audit

Value proposition for data analytics remains essentially unchanged:

1. **Greater assurance and confidence**
   Based on examination of 100% transactions and activities in an audit area
2. **More efficient audit processes**
   Reduction in hours required for many audit tasks
3. **More valuable insights for business management**
   Quantified findings in audit reports
4. **More timely insights into risk and control issues**
   Through automated control testing and risk monitoring

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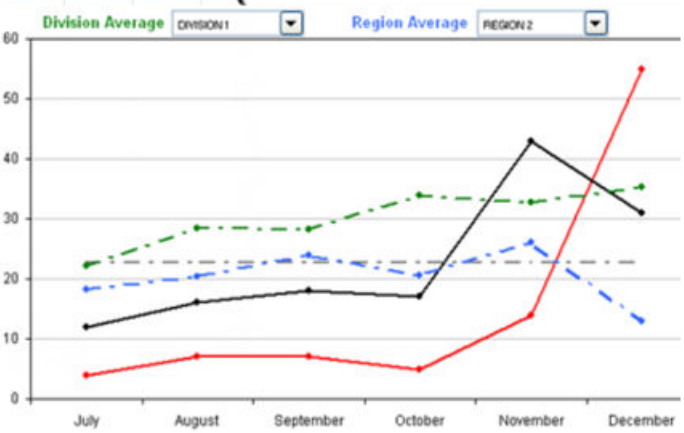
Risk Scorecard and Continuous Risk Monitoring

Metric	Risk Weight	Location A	Location B	Location C	Loca D
Internal Resource Risks					
% Management Turnover	10.0%				
% Staff Turnover	5.0%				
% Empl. with < 2 yrs at company	7.5%				
Average Performance Evaluation	2.5%				
Financial Reporting Risks					
% New to Closed GL Accounts	7.5%				
% New to Closed Cost Centers	5.0%				
Accts with activity > 3 std dev from PY	10.0%				
Dormant account activity	5.0%				
Performance Risks					
% Change in transactions/employee	2.5%				
Products with > 2.5 std dev from PY	7.5%				
% Complaints to sales orders	10.0%				
# open audit issues > sev 2	7.5%				
Systems Risks					
# type-3 trouble tickets reported	10.0%				



Analytics won't replace the traditional risk assessment process, but it should make it better

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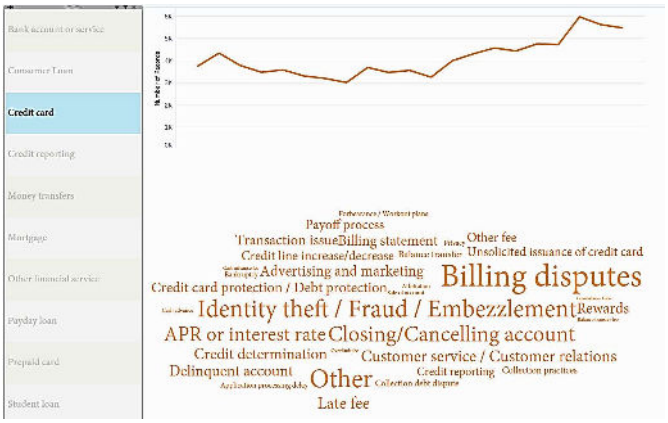
Potential Application: Text Mining

- Exact and fuzzy key word hits in text analysis
- Themes and word counts of internal polls/surveys
- Sentiment analysis of social media posts
- Negative news analysis of business partners
- Mining key attributes of legal documents
- Analysis of call center interactions
  - Disclosures
  - Complaint patterns
  - Protocols initiated
  - Fraud indicators



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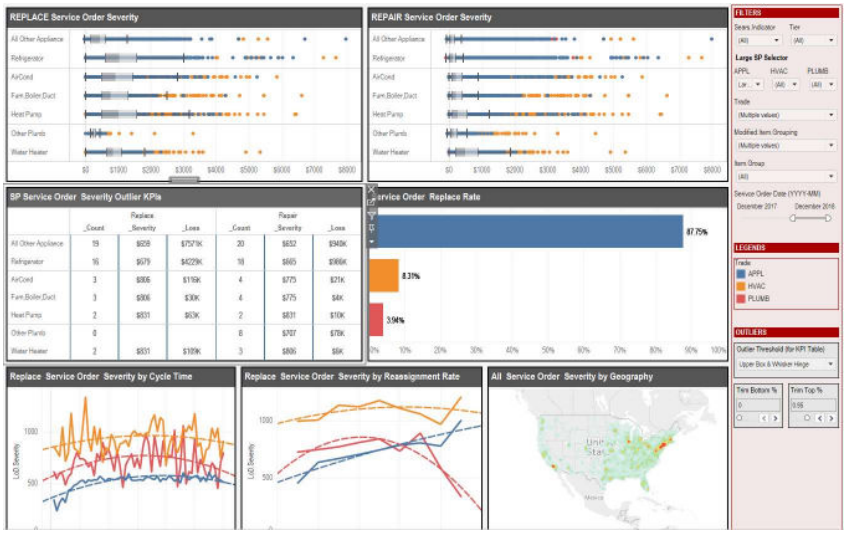
Dynamic and Continuous Reporting



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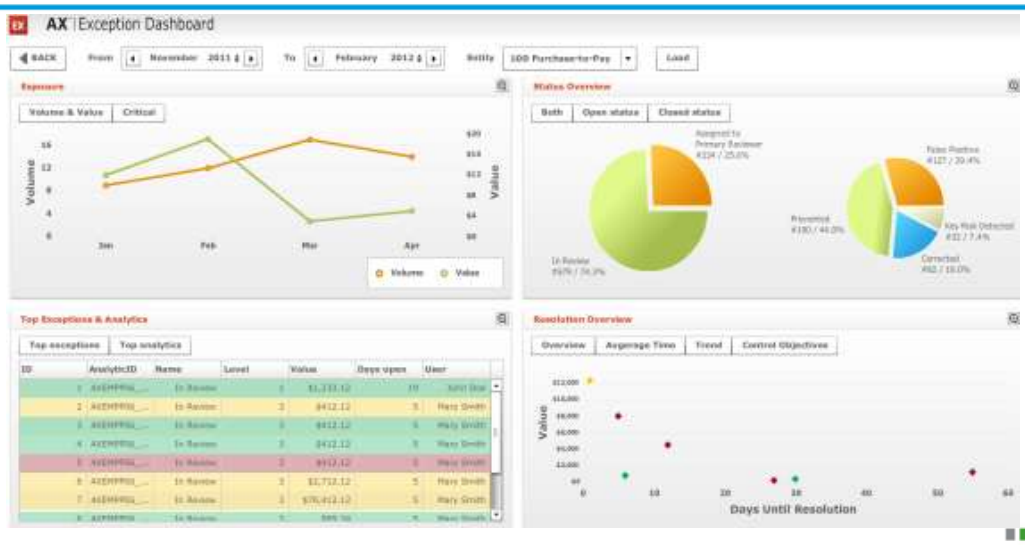
Exception Follow-up and Monitoring



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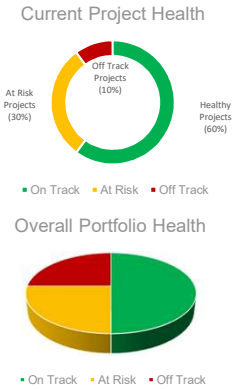
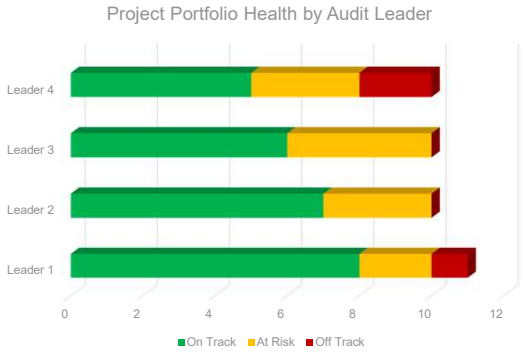
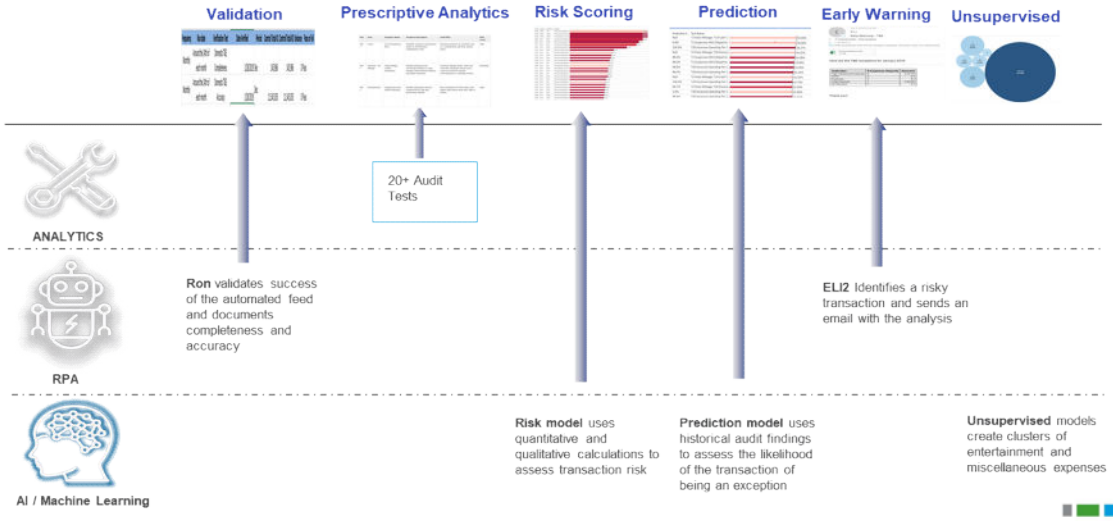
Dynamic Reporting of IA Professional Practices

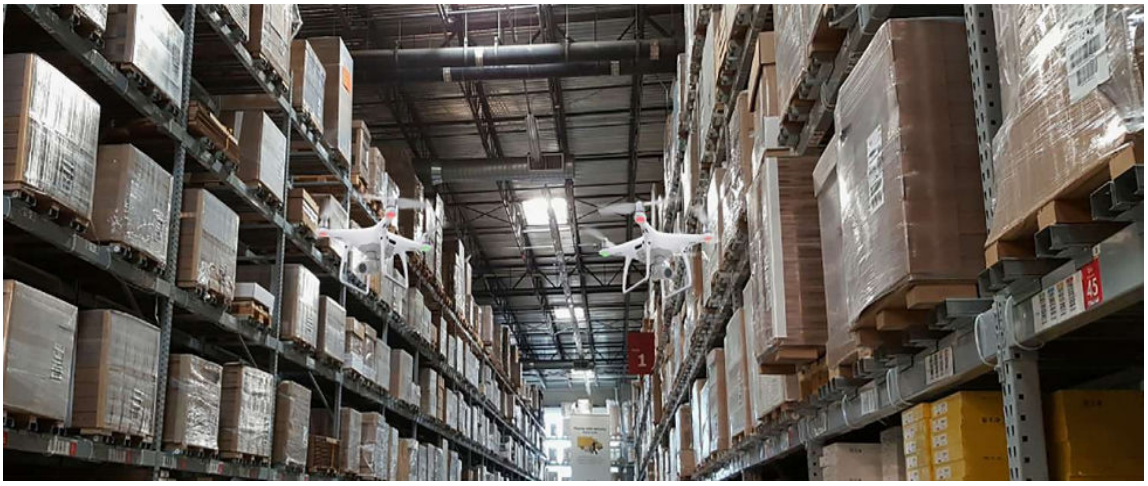




Putting Everything Together (An advanced case…)



Drone Technology – enhancing audits



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