Enhancing Business and Reducing Risk through Digitization

May 2019
Five questions as you begin your process automation journey

1. How does business process automation enable our Finance goals?

2. What automation tools exist and what can they do?

3. Where in Finance should we be applying automation?

4. How do we get momentum and begin our automation journey?

5. How do we sustain through robust governance?

Disclaimer: This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors.
Depending on who you ask, Automation may mean...
What does Automation mean to you? Describe in one or two words.
What’s in your automation toolbox?

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The Evolution of Automation and Advanced Technologies

PwC’s Digital Services

The Evolution of Automation and Advanced Technologies

**Past**
- **Macros and Scripts**
  - Rules-based automation within a specific application (e.g., Excel) to provide users with a way to automate a repeatable process with highly structured data

**Today**
- **Robotic Process Automation (RPA)**
  - Automating labor-intensive, repetitive activities across multiple systems and interfaces by training and/or programming third-party software to replicate a user’s workflow
  - Reengineering existing business processes by using software, integrating systems, and restructuring labor to optimize workflows and minimize costs
  - Users intervene to handle exceptions as they arise

**Future**
- **Intelligent Process Automation (IPA)**
  - Combining RPA with artificial intelligence technologies to identify patterns, learn over time, and optimize workflows
  - Through “supervised” and “unsupervised” learning, algorithms make predictions and provide insights on recognized patterns
  - With IPA, robots can replace manual clicks (RPA), interpret text-heavy communications (natural language processing), make rule-based decisions that don’t have to be pre-programmed (machine learning), and offer customers suggestions (cognitive agents)

**Algorithmic Business**
- Industrialized use of complex mathematical algorithms to drive improved business decisions or process automation for competitive differentiation

**How do RPA and IPA differ?**
- RPA directly mimics human
  - Red > Program > Dupli
- IPA learns how to become more efficient
  - Red > Program > Dupli

**Current State**
- **Trending**
- **Future State**
Automation Growth

By 2020, RPA will be a part of most organizations, and will continue to move into autonomous systems.

Automating business processes will result in significant cost savings (3x over offshoring) and productivity increases, resulting in potential job losses (110-140m knowledge workers by 2025).

These changes will have direct implications on Organizations’ structures and operations...

**CEOs are generally positive about the impact of robotics**

- Of CEOs think robotics will bring new innovations into their business models: 64% (Min: 40%, Max: 80%)
- Of CEOs who have adopted robotics say that it has increased productivity: 94% (Min: 70%, Max: 100%)
- Of CEOs believe it will increase their revenue per employee: 64% (Min: 40%, Max: 80%)

...and by 2030 the way we work will have changed drastically.

Robots Process Automation (RPA) drives 3x savings over offshoring. CPA goes further, replacing ~110-140m knowledge workers by 2025.

**Early adopters have started the journey and are exploring Robotic and Cognitive process automations as their top drivers for innovation, growth and productivity.**
Analytics: Continuous Assurance
Where do you believe your organization falls within the maturity scale for analytics?

- **Level 0 – Developing**: 6%
- **Level 1 – Relevant**: 44%
- **Level 2 – Consistent**: 19%
- **Level 3 – Integrated**: 6%
- **Level 4 – Embedded**: 25%
- **Level 5 – Transformed**:
Building an Analytics Strategy

Guiding Principles

- Establish realistic milestones
- Combine knowledge of audit, data, ERP and business process / operations
- Build a team of resources with the right combination of skills
- Develop capabilities and re-usable analytics across the business
- Leverage the right technology
- Demonstrate continuous quick-wins
- Establish communication plan and assessment against success criteria
- Incorporate analytics throughout the audit life cycle in a meaningful way
- Coordinate with other lines of defense (e.g., business, compliance)
- Define and assign analytics governance procedures
- Incorporate program level procedures
Barriers to Success: Avoiding the Pitfalls

As internal audit builds or revisits its data analytics strategy, our experience shows that there are common points of breakdown that can ultimately hold internal audit back from realizing the analytics promise.

1. Embarking on the journey without a defined strategy or in isolation
2. Isolating the Digital Team
3. Falling into the automation trap
4. Seeing analytics as just a bolt-on to existing audit procedures
5. Underestimating the power of organizational culture
Analytics: Illustrative Use Cases
Illustrative analytics and visualizations: IA Risk Assessment

### International Location Scoping & Rotation Schedule

#### Map View

![Map View Image](image)

#### Score Components

<table>
<thead>
<tr>
<th>Score Components</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
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#### Rankings by Location

<table>
<thead>
<tr>
<th>Company</th>
<th>Average Score</th>
<th>Gross Sales</th>
<th>Inventory</th>
<th>Net Income</th>
<th>Total Discount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magna Foundation</td>
<td>38</td>
<td>81,273</td>
<td>25,026</td>
<td>1,177</td>
<td>4,059</td>
</tr>
<tr>
<td>Niel Dictum Company</td>
<td>38</td>
<td>117,804</td>
<td>38,109</td>
<td>2,402</td>
<td>13,034</td>
</tr>
<tr>
<td>Asque Company</td>
<td>35</td>
<td>2,665,377</td>
<td>102,101</td>
<td>34,520</td>
<td>383,763</td>
</tr>
<tr>
<td>Qualique Ltd</td>
<td>21</td>
<td>222,045</td>
<td>67,410</td>
<td>4,079</td>
<td>24,520</td>
</tr>
<tr>
<td>Ac Feugiat PC</td>
<td>20</td>
<td>194,542</td>
<td>35,478</td>
<td>4,963</td>
<td>36,490</td>
</tr>
<tr>
<td>Metis Incorporated</td>
<td>29</td>
<td>908,469</td>
<td>3,881</td>
<td>(3,732)</td>
<td>49,481</td>
</tr>
<tr>
<td>Fusce LLP</td>
<td>26</td>
<td>103,303</td>
<td>30,054</td>
<td>6,253</td>
<td>2,065</td>
</tr>
<tr>
<td>Urna Company</td>
<td>28</td>
<td>107,239</td>
<td>25,435</td>
<td>6,399</td>
<td>10,947</td>
</tr>
<tr>
<td>Vehicula Ei Inc.</td>
<td>20</td>
<td>81,684</td>
<td>23,770</td>
<td>1,470</td>
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</tr>
<tr>
<td>Anyu LLC</td>
<td>17</td>
<td>49,224</td>
<td>14,075</td>
<td>1,382</td>
<td>84</td>
</tr>
<tr>
<td>Eget Incent Out LLP</td>
<td>27</td>
<td>486,473</td>
<td>11,917</td>
<td>4,576</td>
<td>67,355</td>
</tr>
<tr>
<td>Eli Aliquam LLP</td>
<td>27</td>
<td>763</td>
<td>639</td>
<td>187,968</td>
<td>9</td>
</tr>
</tbody>
</table>

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Applying analytics to T&E can help with expedited monitoring and review using transactional data. Analytics provide a data-driven approach to identifying risks, understanding and quantifying control failures and operational inefficiencies, determining root causes and remediation strategies, and assessing key risk and performance indicators (KRIs, KPIs). T&E analytics can serve as a repeatable mechanism for IA to provide transparency into performance across the organization.

**Example Analytics**

- **Trending of volume and amount per period (employee, approver, department, etc.)**
- **Anomalies/Outliers**
  - Duplicates
  - Receipts – Missing; just below threshold
  - Split expenses
  - Keyword searches
  - Excessive mileage
- **Out-of-Policy**
  - Late submissions
  - Non-card spend
  - First class flights
Illustrative analytics and visualizations: IT Audit – Asset Management
A perspective on building and scaling an effective automation program

Intelligent Automation

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Where is your organization in their Intelligent Automation journey?

- Just starting off and learning what it is: 50%
- We have started it but am not sure what others have done around automation: 14%
- We have a few bots running: 18%
- We have more than 10 bots running in the organization: 18%
Introduction to Intelligent Automation and Market Landscape
What is Robotic Process Automation?

A powerful tool to perform **manual, time-consuming, rules-based office tasks** more efficiently by reducing cycle time and at lower costs than other automation solutions.

**Computer-coded software**
- Non-invasive, zero change integration on target system and security
- Operate on top of other existing software

**Mimic interactions of users**
- Record and automate user interactions with one or more software applications
- Interact with the user interface (UI) of existing applications in the same way that an everyday user would

**Work cross-functional and cross-applications**
- Are entirely technology agnostic and can be used with any application (e.g. ERP, DB, MS Suite, ASCII file, structured PDF, thin clients such as Citrix)
- Use a central repository for easy management of automation scripts and processes

**Enable the automation of repetitive, rule-based processes**
- Build workflows with dynamic decision/branch points and loops for scaling (up/down)
- Ability to granulize processes into smaller components to allow reusability

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How is RPA different from older automation efforts?

Traditional IT transformation is a costly and time consuming process automation approach.

Robotics Process Automation allows faster time to market, with business process-focused digital workforce development.

Characteristics of RPA processes:

1. Digital
   - Documentation required to process the transaction is digital or has been digitized (e.g., scanned and read with OCR)

2. Rules-based
   - Decision making is rules-based and does not require human judgment. Rule sets do not require very frequent or automated adjustment

3. Defined
   - The process is understood, well documented, and well defined (e.g., instructions, owners, systems, connection points to other processes)

   - Requires manual, non-automated, intervention to facilitate the execution of the process, even if systems (or multiple systems) are utilized

<table>
<thead>
<tr>
<th>Criteria</th>
<th>RPA</th>
<th>Traditional IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to value</td>
<td>Days/weeks</td>
<td>Months/years</td>
</tr>
<tr>
<td>Cost to achieve</td>
<td>ROI in months</td>
<td>1+ years to ROI</td>
</tr>
<tr>
<td>Staff impact</td>
<td>Staff replacement</td>
<td>Staff efficiency</td>
</tr>
<tr>
<td>Development</td>
<td>Business driven presentation layer integration</td>
<td>Complex IT architecture &amp; integration</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Super User/teachable robots</td>
<td>Rigid/time consuming</td>
</tr>
<tr>
<td>Focus</td>
<td>Speed to value, low and medium complexity</td>
<td>Complex enterprise automation projects</td>
</tr>
<tr>
<td>Security</td>
<td>User access driven</td>
<td>Enterprise standards</td>
</tr>
</tbody>
</table>

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More Specifically, “Robots” can do the Following:

- **Rules-Based Triggers**: Automatically initiate and execute activities based on pre-configured rules.
- **Data Scraping**: Capture content and simulation of key strokes and mouse clicks from various systems including webpages and desktop applications.
- **Data Entry**: Automated data entry and transfer across different systems.
- **Document Image Capture**: Optical Character Recognition functionality with the ability to identify specific fields and words.
- **Audit Trail and Metrics**: Log specific key strokes to maintain an audit trail.
Demo – IA Example

https://youtu.be/oreDg8BqZbo
Finding RPA Opportunities
Spotting Automation Opportunities

RPA is best applied to processes that exhibit a strong mix of specific characteristics, although that mix can be relaxed as the organization becomes more experienced with robotics.

**High volume/Low complexity (RPA)**
- Low Volume/High Complexity suited to IPA

**Generally large teams**
- Many FTE performing the same role or activity

**High levels of standardization**
- Process re-design can help stabilize processes

**Stable environment**
- Technology, organization and/or process will not change in mid-long term

**Swivel chair processes**
- Supported by multiple software applications that are not integrated

**Quality is key**
- High level of quality is mandatory, and/or regulated

**Highly rules-based processes**
- RPA can execute processes with structured rules

**Limited exception handling**
- Complex exception handling by a human

**Few rules-based tasks**
- Order Processing/Management
- Regulatory Reporting
- SEC Reporting
- Financial Planning
- Budgeting and Forecasting
- Financial Analysis
- Internal Audit
- Performance Measurement
- Profit Center & Profitability Reporting

**Many structured/rules-based tasks**
- General Ledger Accounting (journal processing)
- Fixed Asset Accounting
- General Ledger Close
- Account Reconciliation
- Purchasing/Procurement
- Accounts Payable
- Payment Processing
- T&E Accounting/Reimbursement
- Customer Billing
- Accounts Receivable
- Legal Entity Reporting
- Expense/Revenue Allocations
- Financial Control

**Low capacity potential**
- Limited exception handling

**High capacity potential**
- Many structured/rules-based tasks

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Example Opportunities for RPA in Internal Audit

Internal Audit offers a broad range of opportunities for opportunities for automation using both RPA and potentially IPA technology. Below are example areas for potential automation across the foundational, risk assessment and execution phases.

<table>
<thead>
<tr>
<th>Foundational</th>
<th>Risk assessment and audit plan development</th>
<th>Execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying and understanding stakeholders' expectations</td>
<td>Building or Internal Audit’s Strategy</td>
<td>Preparing the Audit</td>
</tr>
<tr>
<td>Building Internal Audit Quality</td>
<td>Driving Internal Audit Business</td>
<td>Planning the Audit</td>
</tr>
<tr>
<td>Understanding the Gather Information to Identify Risks</td>
<td>Evaluate and Prioritize Risk Universe</td>
<td>Conducting Fieldwork</td>
</tr>
<tr>
<td>Develop and Communicate the Risk Based Audit Plan</td>
<td>Preparing the Audit</td>
<td></td>
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</tbody>
</table>

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<thead>
<tr>
<th>Comm. w/stakeholder</th>
<th>Setting Internal Audit’s mission</th>
<th>Audit Plan Comm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing talent</td>
<td>Understand Org Structure</td>
<td>Coordinating Logistic &amp; Project Milestones</td>
</tr>
<tr>
<td>Conduct Interviews</td>
<td>Develop the Risk Universe</td>
<td>Performing Fact Finding</td>
</tr>
<tr>
<td>Draft the Audit Plan</td>
<td>Audit Project Staffing</td>
<td>Evaluating the control design</td>
</tr>
<tr>
<td>Audit Plan Staffing</td>
<td>Establishing Engagement Objectives</td>
<td>Distributing the Validation of Management Actions</td>
</tr>
<tr>
<td>Identifying controls based on risk</td>
<td>Preparing the Final Audit Report</td>
<td>Monitoring Management Actions</td>
</tr>
<tr>
<td>Setting Internal Audit's mission</td>
<td>Coordinating Risk &amp; Control Matrix</td>
<td>Auditing Effectiveness Testing Overview</td>
</tr>
<tr>
<td>Creating the Audit Program</td>
<td>Operational Effectiveness Testing Overview</td>
<td>Report Quality Review Documentation</td>
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<tr>
<td>Confirming Scope</td>
<td>Auditing Effectiveness Testing Overview</td>
<td>Archiving Documentation</td>
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<tr>
<th>Coordinate Assurance across org.</th>
<th>Developing a strategic plan</th>
<th>Planning Memo</th>
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<tbody>
<tr>
<td>Managing performance</td>
<td>Prioritizing Risks</td>
<td>Finalizing Scope</td>
</tr>
<tr>
<td>Ongoing Risk Assessment</td>
<td>Confirming Scope</td>
<td>Preparing Management Action Plans</td>
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<tr>
<th>Audit Plan Updates</th>
<th>Preparing the Document Request List</th>
<th>Preparing Management Action Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating the Audit Program</td>
<td>Conducting a Closure Meeting</td>
<td>Gathering &amp; Sharing Feedback</td>
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Approach to an Effective Robotics Program
Organizations can embrace the digital mindset and establish a strategy and vision that can be used across the entire organization.

- Define the automation vision and strategy
  - Assemble stakeholders to define automation vision and strategy
  - Inventory of automation opportunities
    - Rapidly identify a pipeline of automation opportunities that achieve value drivers aligned with the automation strategy and vision

- Establish governance and operating model
  - Work with management to design the future state governance and operating model for the automation program
  - Execute an automation pilot
    - Demonstrate the future state digital workforce by piloting automation within finance

- Define standards and frameworks
  - Develop tools to mobilize, support, and accelerate the automation program
  - Communication & Training Plan
    - Conduct and organize relevant trainings to accelerate internal automation programming capabilities
PwC’s approach for automation using RPA, through Pilot

<table>
<thead>
<tr>
<th>1 Automation strategy</th>
<th>2 Build, execute &amp; evaluate pilot</th>
<th>3 Implementation plan and execution roadmap</th>
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</thead>
<tbody>
<tr>
<td>Process Scan</td>
<td>Automation / Process Preparation</td>
<td>Understand your current state</td>
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<tr>
<td>Leverage PwC’s tools and</td>
<td>Tool selection</td>
<td>Refine and document your strategy</td>
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<tr>
<td>criteria to assess the</td>
<td>Automation environment setup</td>
<td>• Organizational design</td>
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<tr>
<td>testing processes and key</td>
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<td>• Update of IA approach/methodology</td>
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<tr>
<td>controls</td>
<td></td>
<td>• Ongoing Assurance</td>
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<td></td>
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<td>• Continuous Auditing</td>
</tr>
<tr>
<td>Opportunity Assessment</td>
<td>Automation Build Sprints</td>
<td>Define your future state</td>
</tr>
<tr>
<td>PwC’s Opportunity Assessment Methodology assessing whether each target process can and should be automated</td>
<td>Determine and provision digital worker access requirements</td>
<td>Training and future state auditing model</td>
</tr>
<tr>
<td>Business Case Development &amp; Prioritization</td>
<td>Build and configure digital worker instruction(s)</td>
<td>Develop roadmap</td>
</tr>
<tr>
<td>Identifying the expected return / outcome of the automated process, and the priority of the automation pipeline</td>
<td>Validate appropriate toll-gating, notification, and control points</td>
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<tr>
<td>Automation Tool Selection</td>
<td>Process deep-dive and automation analysis</td>
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<tr>
<td>PwC’s leading next-generation approach designed to implement repeatable control testing using RPA</td>
<td>User acceptance testing and deployment</td>
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<tr>
<td></td>
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<td>Execute pilot and evaluate results</td>
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<td>Communicate results and potential for automation-at-scale</td>
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<td>Reading and Reacting to Data</td>
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Moving the organization from Pilot to Scale

**Phase 0: Investigate**
- **Understanding the Value and Solution Exploration**
  - Proof of concept buildout
  - Preliminary vendor exploration and assessment
  - Innovation strategy
  - Knowledge share around automation strategy best practices
  - Initial Robotics strategy planning

**Phase 1: Set the Strategy**
- **Automation Strategy**
  - Case for change
  - Opportunity assessment and benefits quantification
  - Automation driven functional/technical architecture strategy
  - Link to overall corporate strategy – tangibles (e.g., cost) and intangibles (e.g., customer satisfaction)

**Phase 2: Mobilize the Program**
- **Enterprise Mobilization & Deployment**
  - **Program Standup**
    - Governance and operating model design (COE, program design, etc.)
    - Risk and control assessment and implementation
    - Future state BAU operating model – user and technology
    - Detailed architecture design, inclusive of vendor selection
  - **Build Execution**
    - Pilot Program (2 – 3 months) “First 5” -- Prove the Value
      - Delivery management and oversight
      - Business analysis (process design and user testing)
      - Robot script development and tool configuration
  - **Automation Program (6 - 9 mths)** “Next 50” – Develop an intake strategy, create demand and a roadmap, build and deploy Robots
  - **Long Term Operating Model Strategy**
    - Future user operating model (inclusive of organizational design, shared services and location strategy, and “line” role definitions)
    - Technology support model at scale

**Phase 3: Execute the Plan**
- **Business as Usual** “Next 500” – RPA becomes part of the culture
Final Considerations

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Final Considerations

- Process automation is a journey with RPA as a starting point
- Start to identify processes to automate now, use data to validate
- Begin to develop a governance framework
- Build and evaluate 2 pilot bots
- Identify change agents to be early adopters
- Share results with the broader organization

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Thank you!

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