Innovative Use of Robotics in Internal Audit

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Al Anievas  |  Senior Manager, Risk Advisory Services
BDO and our Internal Audit Webinar Series
Polling Question 1 (Test)

From which time zone are you participating today?

A. Eastern  
B. Central  
C. Mountain  
D. Pacific  
E. Other
Mandy Carroll, CFE, MBA
Managing Director  |  Risk Advisory Services

As a Managing Director in BDO’s Risk Advisory Services practice, Mandy is an experienced risk executive with a proven track record advising clients on governance, risk control issues with a deep technical expertise in internal audit services, risk assessment and mitigation, and control monitoring and redesign. With over 10 years of combined risk advisory, internal audit, regulatory compliance and internal controls experience, Mandy provides expertise in enterprise risk assessments, process and controls assessments (including SOX compliance), Pre-IPO control design, internal audit co-sourcing, and performance optimization to identify and creatively solve various business issues.

Mandy is effective at managing and training multidisciplinary teams to arrive at data-driven, fact-based results within time and budgetary constraints. In addition to her continuous focus on exceptional client service, Mandy is committed to diversity and inclusiveness with a focus on developing, empowering and connecting young women professionals and working moms. Additionally, Mandy serves as a mentor for the POSSE program.

PROFESSIONAL AFFILIATIONS
The Institute of Internal Auditors (IIA)
Certified Fraud Examiner

EDUCATION
M.B.A in Finance, Suffolk University
B.B.A. Siena College
Alejandro is a Senior Manager in BDO’s Risk Advisory Services practice with over nine years of experience preparing and presenting detailed reports for executive management, board of directors, and audit committees on risk assessments, scoping, internal controls, gap analysis, and audit findings.

He has established internal audit departments for several large companies, and has developed IA charters, protocols, and reporting tools. Alejandro has successfully added value to his client accounts by identifying opportunities to improve governance, risk management, and internal controls.

Prior to joining BDO, Alejandro spent almost seven years with Ernst & Young’s Risk Advisory group, where he managed over 50 team members and was responsible for oversight and management of various client accounts. Alejandro also has external audit experience as he began his career with PwC’s Assurance practice.

PROFESSIONAL AFFILIATIONS
Certified Information Systems Auditor
Information Systems Audit and Control Association (ISACA)
Institute of Internal Auditors (IIA)

EDUCATION
M.A., Accounting, Bentley University
B.A., Corporate Finance and Accounting, Bentley University
Special Guest: Sander Rurup, M.Sc., MCSA
Data Analytics Manager | BDO Netherlands

Sander currently manages a team of analysts that focus on a variety of topics, such as: Robotic Process Automation, Process Mining, Machine Learning, and managed reporting services.

He holds a bachelor’s degree in Economics, a master’s degree in Information Management, and a master’s degree in IT Management. Additionally, he is currently pursuing a PhD in the field of Accounting Information Systems and Statistics.

His understanding of both business administration as well as information systems makes him an experienced and versatile analyst as he has a feel for both technology and numbers.

In addition, Sander also works as a forensic investigator and has been actively involved with several high profile cases in the Netherlands.

PROFESSIONAL AFFILIATIONS
Institute for Financial Crime (IFFC)

EDUCATION
M.Sc., Information Management, Tilburg University, Netherlands
M.Sc., IT Management, Turku University, Finland
B.Sc., Economics, Fontys University, Netherlands
Today’s Learning Objectives

At the conclusion of this course, participants will be able to:

- Identify and explain the evolution and common uses of robotics in organizations;
- Identify aspects of robotics that can be used to enhance the work of an Internal Audit Department;
- Discuss common risks associated with robotics;
- Discuss how to most effectively combine the use of robotics and human intuition in an effective internal audit function.
The Evolution of Robotics
How did we get here?
What is “robotics”?

- Specialized software that is used to create “bots”
- Bots are used to automate specific and repetitive tasks using rule-based procedures
- Bots utilize user interfaces and can span across multiple desktop applications
What can robotics do?

- From basic data maintenance to reorganization of complex data collections, Robotic Process Automation helps automate, streamline, and optimize business processes, which has a direct, positive impact to the bottom line.
Polling Question 2

“RPA” is the acronym for:

A. Robotic Production Algorithm
B. Robotic Platform Agreement
C. Robotic Process Automation
D. Retraining Platform Assistance
Common Uses of Robotics in Organizations
Common uses of robotics

When discussing common uses of robotics, two aspects to be considered are **industry** and **process**. No matter the lens, the objective is the same: develop automation that is reusable and scalable, creating long-term increased profit and value.

- Healthcare - Medical coding
- Healthcare - Patient data processing
- Healthcare - Medical billing and processing
- Manufacturing - Invoice generation and validation
- Banking - Accounts payable
Common uses of robotics, cont’d.

- Banking - Credit card and loan processing
- Banking - Fraud detection
- Retail - Order processing and payments
- Retail - Communication between manufacturers, suppliers, TPL, and customers
- Retail - Contact center automation
What is an ideal use of robotics?

Picking the right process is the most important step in successfully implementing RPA.

- Which processes need improvement?
- Which processes have the greatest opportunity for cost / time reduction?
- Which have the most negative impact to department goals?
- What will be the impact to risk or compliance with the introduction of RPA?
- Will it create large enough benefits? Can it scale?
- How will process owner react to RPA?
Polling Question 3

What is the most important step to successfully implement RPA?

A. Selecting the right process
B. Implementing in the right industry
C. Hiring the right talent to run the bots
D. None of the above
What is an ideal use of robotics, cont’d.

Processes that could be enhanced through robotics usually exhibit these characteristics:

- Mature
- Repetitive
- Rapid processing
- Multi-system interaction
- Data manipulation and formatting
- Excessive user interface navigation
- Focus on business impact

The ideal use case for robotics is working across multiple applications with no underlying connectivity
Examples of RPA in action

RPA can be used to automate repetitive manual tasks that can cause errors and slowness in response time. The following are examples of some of the bots that have been created to gain efficiencies and save time.

Two examples we’ll be highlighting:

- A large healthcare provider was looking to reduce error, lead time and cost while confirming compliance with healthcare patient requirements.
- A large international auction house was looking to streamline its AP process and increase accuracy.
Patient registration example
Patient registration example

- Identified recurring bottle necks in the registration process
- Identified the sweet spot for inferring DBC products
- Quantified operational slack
- Potential for improvement: 5.674 hours - roughly $280,000
- Input was subsequently used for a working capital analysis as well, resulting in further cost savings
- Potential for improvement was set at 5.674 hours, which translates to roughly $280,000
Accounts Payable

- Over 2,000 process variants were identified
- A mean duration of 23 days was noted (based on invoice date)
- 78,000 cases, comprising around 550,000 events
- The first 20 variants account for less than 30% of all the cases.
- Typically you would like to see between 10 and 20 of the variants take care of 80% of the cases.

<table>
<thead>
<tr>
<th>Model</th>
<th>Activities</th>
<th>Variant Count</th>
<th>Median Case Duration</th>
<th>Mean Case Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>24</td>
<td>3,857</td>
<td>12d 23h 52m</td>
<td>28d 15h 55m</td>
</tr>
<tr>
<td>Model 2</td>
<td>18</td>
<td>623</td>
<td>26d 6m</td>
<td>1M 15d 23h 53m</td>
</tr>
<tr>
<td>Model 3</td>
<td>17</td>
<td>678</td>
<td>1M 4d 9m</td>
<td>24d 2h 5m</td>
</tr>
</tbody>
</table>
Accounts Payable example

1. Throughout the analyses it became apparent that Model 3 and Model 2, despite being different business models, have a similar administrative process. Model 1, however, is heavily reliant on Purchase Orders;

2. AP processes of Model 1, Model 2 and Model 3, consist out of, respectively, 24, 18, and 17 unique activities. All activities found in the Model 2 and Model 3 process are found in the Model 1 process;

3. For the Payables processes, mean case-handling times vary noticeably between the aforementioned organization’s business models.

4. Interestingly, median handling times of both Model 1 and Model 2 diverge strongly from the mean handling, implying the existence of both faster- (i.e. as part of a ‘happy flow’) and slower paced cases.

1. In over 16k cases, the administration process began with the activity ‘Amount Invoiced’. This could imply some form of administrative retroactivity, but also carries inherent risk;

2. In some cases (i.e. invoices) are updated, again, after the amount has been transferred and cleared;

3. Throughout the analyses, a sizeable number of transactions are executed as part of a subset of recurring invoice and PO numbers.

4. The Receivable process, is quite well-managed. However, as became apparent during the interviews, the process is mainly reliant on mails between colleagues. It goes without saying that this poses a significant risk.
Accounts Payable example
Aspects of robotics that can be used to enhance the work of IA Departments
Internal Audit’s Role in RPA

There are **three main roles** that Internal Audit should play with robotics:

1. Partnering with business units to implement RPA
2. Leveraging RPA for Internal Audit activities
3. Auditing RPA
When partnering with a business unit or management to implement RPA, Internal Audit should consider the risk.

Instituting a governance structure with appropriate controls up front will help mitigate relevant risks.

Organizations can find potential issues by asserting governance, risk management, and controls into the implementation of RPA.

Processes in flux should be given special consideration as the robot may need to be modified to reflect that change. The responsibility of highlighting these risks should lie on Internal Audit.
Leveraging RPA for Internal Audit

As you can imagine, controls testing lends itself to a conducive environment for robotic process automation. Controls testing is typically repetitive, with consistent documentation and support.

When optimally utilized, using RPA to automate testing of general controls can free up hundreds of auditor hours (potentially more). Auditors can use this time to shift their focus on other high risk areas or other priorities.

Internal audit should have a unique understanding of suitable areas for utilizing RPA and identify controls that are appropriate for automation.
SOX controls testing

Within SOX compliance, there are numerous ways to use bots to gain efficiencies. The controls within SOX have aspects that signal where RPA will be a value added solution. Controls that demonstrate the following attributes are good candidates for RPA:

- Data intensive
- Repetitive in nature
- Rule-driven
- Electronic trigger to the process
- High error rates
- Have electronic start-points and endpoints
- Sensitive content
- Involve manual calculation
- Complex IT landscape
Auditing robotics

- When a process has been automated, previous testing approaches will need to be redesigned. However, testing automated controls is much more efficient for auditors.

- There are different considerations when auditing in a bot environment. The following table displays the focus areas by stage that should be reviewed:
## Auditing robotics, cont’d.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activities</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>• Obtain an understanding of the processes where RPA is being used</td>
<td>• Does the risk and control matrix need to be updated for RPA risks and controls?</td>
</tr>
<tr>
<td></td>
<td>• Create an audit plan</td>
<td>• Have IT auditors been involved in the process?</td>
</tr>
<tr>
<td>Design</td>
<td>• Obtain an understanding of the in scope processes and their interaction with IT</td>
<td>• Have new risks for IT been brought into scope?</td>
</tr>
<tr>
<td></td>
<td>• Identify risks associated with processes in scope</td>
<td>• Have interfaces been considered?</td>
</tr>
<tr>
<td></td>
<td>• Identify the controls associated with the processes in scope</td>
<td>• Do ITGCs that are currently in place need to be augmented for additional risks?</td>
</tr>
<tr>
<td></td>
<td>• Assess the design of controls</td>
<td>• Has IPE requirements been considered due to the change in controls?</td>
</tr>
<tr>
<td></td>
<td>• Identify the design gaps currently found in the process/controls</td>
<td></td>
</tr>
<tr>
<td>Operating Effectiveness</td>
<td>• Perform testing of operating effectiveness over controls</td>
<td>• Should controls testing be decreased/increased?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Are there monitoring controls in place?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Has the testing methodology changed?</td>
</tr>
<tr>
<td>Reporting</td>
<td>• Develop audit report detailing observations, recommendations and management’s action plan</td>
<td>• Have changes to design, risk and control matrix, roles, training/education and technology been addressed?</td>
</tr>
</tbody>
</table>
Polling Question 4

TRUE OR FALSE?

The **three main roles** that Internal Audit should play with robotics are: Partnering with business units to implement RPA, Leveraging RPA for Internal Audit activities, and Auditing RPA.

A. TRUE
B. FALSE
Risks associated with robotics
Considerations and challenges

There are many risks to be considered for RPA that require special consideration when implementing RPA:

- Deploying automation during a time of change
- Deploying automation to an unprepared organization
- Deploying automation without an oversight and maintenance plan
- Deploying automation too broadly
- Process documentation
Considerations and challenges, cont’d.

The following questions should be considered prior to implementing RPA:

- Does the organization have the right resource commitment?
- Is the estimated need for developer/designer input sufficient?
- Have the stakeholders been identified?
- Do you have appropriate buy-in?
- Who will be responsible for monitoring and maintenance?
Other considerations - Value assessment

**Costs**
- Software license for RPA software - development vs. executing
- Software license for the bots
- User training

**Time**
- Creating and testing the bot
- Monitoring the performance of the bot
- Maintenance of the bot as processes change
Implementation considerations

*Internal implementation*

- Leverage what you have
- Understand your corporate automation strategy
  - What is the timing of the plan?
  - Is it a global plan or a local plan?
  - How will robotics projects be prioritized?
  - When can you expect to start seeing the benefits?
Implementation considerations, cont’d.

*External implementation*

- Firm licenses robotics development software
- Firm provides experienced development team
- You work with the firm to design the solution
- You license the software to run the bots (minimal fee)
- Bot is still a desktop application running within your firewall
- Firm develops and maintains bots
- When the firm is ready, the bots can be passed over to internal resources
Polling Question 5

TRUE OR FALSE:
RPA is rules-based automation that demands correct programming, planning, and stability, which means even the smallest mistakes in programming can have huge consequences.

A. TRUE
B. FALSE
Concluding Thoughts
Concluding Thoughts

- RPA uses specialized software to create bots which are used to automate specific and repetitive tasks using rule-based procedures.
- RPA helps automate, streamline, and optimize business processes, which has a direct, positive impact to the bottom line.
- Picking the right process is the most important step in successfully implementing RPA.
- Processes that could be enhanced through robotics usually exhibit characteristics such as repetitiveness, multi-system interaction, data manipulation and formatting, and excessive user interface navigation.
Concluding Thoughts, cont’d.

- Internal Audit should partner with management to implement RPA for business processes, Internal Audit should consider the risk.
- Within SOX compliance, there are numerous ways to use bots to gain efficiencies.
- When a process has been automated, previous testing approaches will need to be redesigned. However, testing automated controls is much more efficient for auditors.
- Many RPA risks require special consideration such as preparedness, oversight, resources, developer input, cost, time, internal vs external implementation and stakeholder buy-in.
Questions

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