RPA Internal Controls Support Audit Readiness

By Bernice M. Lemaire-Harvey and David A. Harvey

Given the repetitive nature of many finance and accounting tasks, the financial management community became an early adopter of robotic process automation (RPA). It can relieve tedium in processing invoices or calculating credit;[1] close out subledgers; or create financial reports and deliver them to regulatory bodies.[2] Initial efforts may use bots to activate or mimic user keystrokes and access one or more systems,[3] while more mature efforts may streamline business processes with optical character recognition, machine learning, and artificial intelligence.[4] Success depends on internal controls,[5] taking into account the RPA program complexity and maturity level, plus proper planning and coordination. Modern IT program management techniques, such as the Technology Business Management Framework (TBM), can enhance implementation, bridge the IT, finance and business areas,[6] and help integrate IT into the organization.[7] RPA usage in government demands focus on the U.S. Government Accountability Office (GAO) Green Book, related guidance in Office of Management and Budget (OMB) Circular A-123,[8] and the *Federal RPA Program Playbook* (Playbook), published in January 2020.[9]

RPA at NASA

NASA launched its RPA program in March 2018 to support its Shared Services Center (NSSC). Today, with more than 50 automations in production, RPA offers greater transaction quality and efficiencies and frees employees to analyze discrepancies, perform root cause analyses, and focus on process improvements. It is used to reconcile data in a new acquisition management system with data from a legacy system; and to monitor accounts payable and review the invoice routing and information system to determine items to be escalated and support compliance with the Prompt Payment Act. NASA attributes its RPA success to its organizational culture, evidenced in increased suggestions from employees for areas to automate.[10]

Internal Controls Determine Audit Readiness

The audit readiness of an RPA program depends on the success of each component of the internal control system — Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring.

Control Environment

Executive leadership is vital to establishing oversight responsibility and accountability for the RPA program. Several factors should be considered:

- **Executive sponsorship** – The tone at the top must establish openness to innovation as a means to improve government.

- **Accountability and governance** – A cross-section of the entity in RPA program delivery, such as IT, finance and operations, share responsibility and provide oversight.

- **Transparency** – Proactively brief the audit function early on, offer demonstrations, and make documentation readily available.

- **Accept the risk of failure** – Acknowledge the program might fail to reduce pressure and the temptation to overstate success and understate difficulties.

Risk Assessment

A number of internal and external factors drive RPA program risk. It can be mitigated with proper change management techniques and will likely require updated controls. Assessing all risks in an overall risk management process, in accordance with OMB Circular A-123,[11] may also target processes for automation. NASA determines automation opportunities by identifying at-risk business processes — those with backlogs, inefficiencies or quality issues — and assessing them against impact and likelihood criteria to determine whether RPA would reduce risk and create efficiency.[12]

Control Activities

Control activities lead to positive outcomes and enhanced audit readiness. Turn on audit logs, assign personnel review, address anomalies, and be ready to prove reviews and follow up occurred. NASA uses robust audit trails to validate information and its accuracy and completeness; its RPA audit log includes:

- All transactions processed.

- Details of any exceptions.

- Captured events, such as start and end times and abrupt ends in routines.

- Credentials of employees responsible for specific bot operations.[13]

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Figure 1. Selected RPA Control Activities

CONTROL OBJECTIVE	CONTROL ACTIVITY	CONTROL TYPE	CONTROL FREQUENCY
Ensure bot privileges are accounted for and traceable.	Prior to bot deployment, assign unique credentials to each bot so an audit trail of each bot's interactions is available.	IT Security	As needed
Ensure bot actions are recorded for later review and action as needed.	Enable audit logging for each bot automation; review each audit, error or exception log; and act on management requirements.	IT Security	As needed
Prevent or minimize intended or unintended bot script changes and maintain the integrity of the output.	Limit access to bot scripts to authorized individuals to minimize unintended or intended bot changes or tampering.	IT Security	As needed
Ensure the bot runs on the most current or appropriate data set, document set, file, database or other asset and provides relevant, reliable and expected output.	When changes to the asset, such as a database, are needed, business owners schedule the bot activity prior to running the bot.	Operational	As needed
Ensure bot exception reporting is available, reviewed and acted upon.	Develop exception reporting due to bot failure or unexpected deviation; assign the review and response to an IT professional and/or business owner, based on exception type.	Operational	As needed
Maintain effectiveness and integrity of bot actions and output.	Test each bot before introducing it into the production environment. Require business owner to sign off prior to deployment.	Operational	As needed
Ensure business objectives are met, costs controlled, and information provided for future RPA program enhancements.	Develop and monitor each key performance metric.	Operational	Monthly
Establish accountability and ensure bots meet business objectives.	Assign a business owner to monitor and report on each bot's (1) key performance metrics, (2) exceptions, (3) obsolescence due to process or business objective changes, and (4) output quality.	Operational	Monthly

Figure 1 presents examples of RPA control activities adapted from the Playbook.

Information and Communication

Quality RPA program information allows management and other personnel to communicate clearly and make fact-based decisions. Good communication that emphasizes enhanced human jobs and added value assuages fear of robots replacing humans and helps garner employee buy-in. NASA's Service Delivery Guide, for example, describes ways RPA serves customers and helps manage expectations. Moreover, each bot implementation at NASA requires complete and current records to support communication, safeguard program quality, and withstand audit scrutiny.[14]

The document, which includes pre- and post-RPA workflows, business rules, exception handling, systems accessed, functions used, test cases and results, process owner and bot assignments, is presented to auditors with a list of active automations available for demonstration.

Monitoring

Monitoring encompasses management activities in a) supervising operations and performing separate evaluations, and b) following up on audit recommendations. For RPA to run properly, management should review performance metrics and exception reports and promptly resolve audit and other review findings. When setbacks are identified at NASA, they are quickly reported and addressed with corrective action plans.[15] This method

falls in line with the Playbook, which encourages program managers to monitor and evolve performance metrics as RPA activities mature and capabilities increase. **Figure 2** presents examples of RPA performance metrics adapted from the Playbook.

RPA success depends on effective internal controls. As part of audit readiness, government financial managers must be prepared to demonstrate bots to auditors, offer documented evidence of RPA program and automation controls, and provide accurate performance metrics. In so doing, RPA will withstand audit scrutiny, become a regular part of operations, and allow agencies to focus more human work hours on their core missions. ❘❘

Figure 2. Selected RPA Performance Measures

PERFORMANCE MEASURE NAME	PERFORMANCE MEASURE DESCRIPTION	TYPE
Bot Statistics	Bot performance, such as run times and number of outputs.[a]	Operational
Bot Error Rates	Tracking errors helps determine whether bots work correctly. Compare pre-RPA processing error rates to post-RPA rates.[a]	Operational
Found Opportunities	Reports on new opportunities, internal or external to the organization, found when a workforce becomes more efficient.[b]	Programmatic
Cost Per Bot	The cost to develop individual bots will vary according to script complexity and RPA program maturity.[c]	Programmatic
Labor Hours Found	Determined by computing labor hours for tasks prior to automation, minus monitoring, exception handling or other hours incurred in maintaining and running bots. Tracked per bot and per program.[d]	Programmatic
Labor Dollars Found	Determined by applying labor rates to the labor hours found. Tracked per bot and per program.[d]	Programmatic
Total Investment to Date	Calculate costs to develop and maintain the RPA program to determine total investment to date and monitor trends.[b]	Programmatic

a. Useful for all RPA program implementations.
b. Useful for newer RPA programs and as they mature.
c. Particularly advantageous in newer RPA programs and useful as they mature.
d. May be better suited to more mature automations, where sufficient time has passed to accurately calculate savings.

Endnotes

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3. Osman, C. C. "RPA: Lessons Learned from Case Studies," *Informatica Economica*, 23(4), 2019, pp. 66-75. https://doi.org/10.12948/issn14531305/23.4.2019.06

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5. Farhat, I. I. "RPA and the Government Audit," *Journal of Government Financial Management*, 68(1), 2019, pp. 42-47.

6. Torrones, Phillip. "Powering Innovation with TBM," *Journal Government Financial Management*, Winter 2020.

7. White, Sarah. K. "What is TBM? A framework for driving value and innovation in IT," CIO.com.

8. GAO *Standards for Internal Control in the Federal Government* (Green Book); OMB Circular A-123, *Management's Responsibility for ERM and Internal Control*. Issued pursuant to the Federal Managers' Financial Integrity Act of 1982 (Public Law 97-255, Sept. 8, 1982), and thereby based in law, these documents represent a mandatory framework for effective, efficient internal controls.

9. Federal RPA Community of Practice. *Federal RPA Program Playbook*, 2020. https://digital.gov/communities/rpa/

10. Interview with Pam Wolfe, Director, NASA Shared Services Center, Enterprise Services Division. April 2020.

11. See Endnote 5.

12. See Endnote 10.

13. See Endnote 9, p. 5.

14. Ibid, p. 6.

15. Ibid, p. 7.

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