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COURSE
82405A

Deploying RPA and Exploring Quantum and Edge Computing

Robotic process automation has moved from concept to reality in many accounting and finance functions. This course goes beyond the basics, focusing on how to implement and manage RPA effectively, including governance, risk, and change management considerations. It also introduces quantum and edge computing—technologies still maturing but with significant long-term implications for data processing and business operations. Professionals looking to deepen their technology literacy and prepare for the next wave of innovation will find this course especially useful.

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Assignment

- Study the full course materials included here.
- Complete the review questions after each chapter.
- Answer 8 final exam questions.
- Final exam is scored immediately, 70% or better passes.
- Certificate of completion is available in your account.
- Failed exams can be retaken free of charge.

Course Objectives

- Recognize the stages of the RPA lifecycle.
- Identify the characteristics of edge and quantum computing.

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Chapter 1: ROBOTIC PROCESS AUTOMATION IMPLEMENTATION AND MANAGEMENT

Chapter Objective

After completing this chapter, you should be able to:

- Recognize the stages of the RPA lifecycle.

The excerpt from an IT consulting blog highlights the importance of companies developing policies and oversight for end-user development of RPA processes. The interview is with Marcelo Blbajari, the RPA Service Practices director at IT Convergence.

Our main stakeholder, the IT director of the company, discovered that several business owners had executed automation projects without the IT department's involvement or approval, funding the activities with their own budgets and without even notifying IT about the initiatives.

This was done as a proactive activity from those business owners who could not afford to wait for the next yearly round of evaluation for candidate projects, which is the official process in the company to define and fund the projects that will be executed during the year.

Automated processes (usually referred to by the fancy name of "robots") imitate the actions carried over by a human user to complete an activity, like entering an invoice into an application, or downloading files from different sources to consolidate a period closure report.

In order to be able to do that, robots hold passwords and system access credentials and have access to sensitive personal and company information.

The IT department has strict rules about how all types of security threats are handled and has some very specific processes that apply to system security, like password requirements, periodic regeneration, the prohibition to share passwords, tools to securely store the passwords, etc. It also has many processes that define how systems must log all types of user activities as well as login attempts, login failures, password changes, etc.

Without considering security policies or letting IT know, the business departments gave robot processes the same system credentials and passwords used by human users. They thought that if John Doe enters invoices, a robot that does the same job could use the same user and password as John Doe, as it was doing the same activity.

What if fake invoices are entered by an automated process that was tweaked to do that?

What if the real human user approves payment for an amount higher than he's allowed to, and then blames the robot that uses his same credentials?

What are your key recommendations for companies in a similar situation?

If you face the same situation, where your business departments are ahead of IT and start automating processes without IT participation, you can still get back on track by defining the governance plan for automation processes and then adjusting the already existing processes as needed[1].

RPA FRAMEWORK: SUCCESSFUL RPA PROJECTS

Robotic process automation (RPA) can help increase the efficiency of business processes in an organization. However, to reap the benefits of cost savings and efficiency, you should consider the following vital factors before implementing RPA.

Select the right process for automation. If you are using RPA for the first time, start with a well-documented, simple, and repetitive process. Simple tasks that can be easily defined and translated into the software are good first candidates. Select a repetitive process that does not require additional thought or judgment. If the process and the related software are constantly changing, the process is not ready for RPA. Automating an unstable process will require significant ongoing maintenance and will likely create problems and inefficiencies. Therefore, carefully select the first candidate process. Once the process is identified, document the process's activities using a documentation technique such as flowcharts. Then sequence the activities, possible exceptions, and rules for each step. Choosing a more straightforward process as the first candidate will help the organization better understand the RPA development process and become familiar with the RPA software tool. If the first automation project succeeds, it will help obtain employee and management buy-in, thus gaining momentum for future projects and seeing a faster return on investment. Allow time for employees to learn the RPA software and gradually move into more complex processes. However, remember that complex processes well-suited for RPA should be repetitive and rule-based.

Determine the goal(s) of RPA. Like any other IT implementation, determine the overall goals for implementing RPA. Is the project goal to reduce human errors, improve back-office processing, increase the processes' efficiency, or reduce staffing costs? Once the goals are identified, determine a plan of action. For example, if error reduction is the primary goal, first establish the source of the error. Then decide whether you need to modify tasks or business rules. Determine whether the business rules are followed consistently. If not, do the rules or the process need to be changed? Any changes to the process or business rules must be changed before implementing RPA. If incomplete and inaccurate upstream data are the

source of the issue, RPA will not fix the problem. Finally, create several performance measures based on the goals to identify whether RPA implementation achieves the set objective.

Think long-term. RPA can help bridge the gap between newer systems and legacy systems. Although RPA can increase the lifespan of legacy systems, dependence on legacy systems can become a point of pain in the long run. Organizations should not consider RPA to be a quick, short-term fix but part of their long-term IT and business strategy plan.

Remember employee concerns. Similar to other software implementations, management should also consider several organizational issues. A significant component of RPA success relies on employee buy-in. When employees hear about automation, they may have a natural fear of job loss or job changes in the future. Management support for RPA and clear communications about RPA implementation goals will help reduce anxiety among employees and potential sabotage of RPA bots. Getting employees involved in RPA projects through training and education can also create employee acceptance of RPA.

Have a long-term maintenance plan. Once the bots are developed and deployed, they will need ongoing maintenance and oversight. Businesses frequently change, and your bots may need to update accordingly. Be sure to allocate staff to ensure that your RPA scripts are running efficiently and meet the business's needs.

RPA projects can fail due to various reasons. In Table 11.1, we organize factors contributing to failure into four areas: (1) technical, (2) process, (3) organizational, and (4) people.

TABLE 11.1 WHY DO RPA PROJECTS FAIL?

Technical factors contributing to RPA failure
• Choosing a solution that requires intensive programming • Not relying on RPA marketplaces and other readily available tools • Choosing a solution that did not demonstrate scalability • Not testing your software bots thoroughly
Process factors contributing to RPA failure
• Not choosing the right processes to automate • Choosing a process that changes frequently • Choosing a process with insignificant business impact • Choosing a process where errors are disproportionately costly • Choosing a process that involves higher-level cognitive tasks • Choosing a complex process. Although its subprocesses are simple, the process itself may be complex if it has too many subprocesses • Choosing a process for which better custom solutions exist • Striving for end-to-end automation when it is not cost-effective
Organizational factors contributing to RPA failure
• Lack of leadership buy-in • Company is lacking a clear RPA strategy • Lack of management of RPA bots once deployed to production • Not setting clear objectives for the automation strategy • Not having a big picture view over the implementation process • Poor change management process • Third-party problems if using a third party to develop the bots
People factors contributing to RPA failures

- Shadow development by end-users
- Unrealistic expectations
- Lack of time commitment from local team
- Trying to implement RPA on your own without expertise
- Relying solely on the IT department
- Lack of governance

RPA LIFECYCLE

RPA projects will also follow the development lifecycle process. A typical technology development lifecycle has planning, analysis, design, implementation and testing, and maintenance stages. In the following sections, we discuss specific concerns, issues, and important decisions related to RPA in each stage.

Plan

Planning is the first essential step in an RPA project. At the end of this step, you should be able to answer why you are using RPA and whether it is feasible to do so. Planning also requires a firm to evaluate the strategic impact of the RPA project and categorize projects into programs and portfolios. You want to justify to management that RPA is the best solution and to support its economic feasibility. During the planning stage, you would:

- **Identify candidate processes for RPA.** The first step is to identify the business processes that can be automated using RPA. As mentioned in the previous section, use the guidelines provided to evaluate whether a business process is suited for RPA. Next, determine whether each process will be a single project or whether you can group related processes to create portfolios. Determine the project or portfolio scope to understand the boundaries of what will be included or excluded in the automation.
- **Determine the technical feasibility of RPA.** Consider whether RPA is compatible with existing technology. When deciding on the RPA software tool, you should consider the following:
    - Is the software compatible with the existing applications?
    - What features are available for development?
    - Does the tool meet the demands of the process, such as whether it can handle the volume of transactions?
    - Is it user-friendly?