


POINT OF VIEW | BUSINESS PROCESS OUTSOURCING

Evaluating Bot Mortality

Identifying and assessing the factors that can influence the life span of bot implementations

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Robotic Process Automation (RPA)



Robotic process automation (RPA) offers many benefits, in terms of both cost and efficiency

Automation is now an integral part of IT and business strategy. Robotic process automation (RPA) offers many benefits, in terms of both cost and efficiency. For example, considerations for human employees, such as set work hours, wage increases and cost-of-living adjustments, and promotion and attrition, aren't needed.

If you're thinking of implementing RPA in your organization, there are other factors that should also play an important role in the decision-making process, including:

- **Context-based learning.** RPA implementations are still in a nascent stage when it comes to the ability to learn based on context and then apply that knowledge to a scenario.

- **Fraud detection.** While it can be argued that fraud detection algorithms allow bots to identify fraud (mainly through pattern recognition and correlations), experts yet to build a bot that can heuristically sense fraud and act accordingly.
- **Decision-making in unforeseen scenarios.** It's known that bots work well in a controlled environment. But the ability to make decisions and recover from unanticipated situations is what makes humans superior to bots.
- **Auto-recovery.** Although code can be written that enables bots to recover, bots that can self-recover from unforeseen circumstances are still a long way off.


Given these pros and cons, it is clear that bots can perform much better than humans in some areas and that other more complex tasks are still better left to humans. But there may be something you haven't considered. While there have been many approaches and methodologies devised to measure the effectiveness and return on investment (ROI) of a bot deployment, bot mortality is often overlooked.

Reasons you should consider bot mortality in an RPA implementation

Consider a scenario where all the standard automation parameters, such as repeatability, volume and complexity, favor RPA. Now think about what happens after the implementation, if the very business condition that recommended RPA is no longer relevant. For example, assume you automated an existing process in a know your customer (KYC) risk assessment, where the risk is calculated based on a set of rules established to provide a risk score. Now assume, once the bot has been deployed to production, that very set of rules — and even the methodology behind it — changes. The result: The bot becomes irrelevant.

Another reason to evaluate bot mortality is that we often create business cases and determine their ROI based on a specific time period, such as three or five years. But what happens if the bot doesn't survive the specified time period? The business case may be incorrectly interpreted. Bot mortality evaluations can provide a view of the risk that we need to be aware of when making an RPA implementation decision.

The issues that can affect the life span of a bot are another consideration. As shown in Figure 1, these can be broadly divided into internal, external, qualitative and other factors.



- **Internal factors**
 - RPA technology
 - IT stability
 - Number of automated processes
 - Volume and size limitations
 - Configurability
 - Rule based vs machine learning based
 - Bot security
- **External factors**
 - Business environment
 - Technology changes
 - Integrations
- **Qualitative factors**
 - RPA sponsor
 - Organization's focus on RPA
- **Other factors**
 - Bot intelligence
 - Organization's culture
 - Externalization

External factors



The following external factors can impact bot mortality:

- **Business environment.** The life span of a RPA implementation can be impacted when you take into consideration the scope of automation within the overall business environment. If the business environment is very volatile and changes frequently, the probability of it impacting bot mortality is very high.
- **Technology changes.** Bots can be impacted by changes and modifications to technology, including those made to the IT infrastructure or programming languages used. Technology obsolescence may also impact bot mortality.
- **External integration.** Most automated scenarios depend on external integration — for example, extracting a file from a location or calling an application programming interface (API) or service. Changes in the scenario, as well as the frequency of those changes, will impact bot mortality.

Internal factors

Internal factors can also impact bot mortality. These include the following:

- **RPA technology.** Whether you've implemented bots using an in-house framework or popular products available in the market, any change to the underlying framework or technology can impact the life of a bot, and it will require modification.
- **Internal IT stability.** The life span of a deployed bot is dependent on the IT environment in which it operates. Any changes to that environment can also impact the bot.
- **The number of processes automated.** The more processes that are automated, the greater the chances of impacting the longevity of a bot.
- **On Premise vs Cloud deployment .** Deployment of the BOTS on a cloud or on premise will be a factor that can impact the BOT mortality. It will be difficult to predict which of the options has better longevity as there are many other factors that can influence making the decision difficult , however in general we can think that a cloud based deployment has a higher probability of success and hence better longevity , though this cannot be taken as a general rule. A detailed assessment of the existing landscape will be required to determine which of the option is suitable and can vary from case to case.
- **Volume and size limitations.** These limitations will define a bot's stability and mortality. If the bots are designed to handle large volumes and sizes, then the chances of stability are high. For example, there's a bot designed to handle a maximum file size of 1MB with a total of 1,000 line items within that file; if there are files that exceed these limits, then the bot can fail.
- **Configurability.** Designing a bot with configurability in mind increases its stability and longevity. The more configurable a bot is, the higher the chances are of it adapting to changing needs.
- **Rule based versus machine learning based.** Configurability and adaptability can be further subdivided into rule based and machine learning based. A machine learning-based bot (either cognitive or intelligent automation) is far more effective than one designed using traditional rule-based systems, and it also has better longevity.
- **Bot security and compliance.** In general, the more security and compliance built into a bot implementation, the greater the chances that the bots will sustain the environment.

Qualitative and other influencing factors

Some factors that influence the life of a bot may be qualitative in nature and thus difficult to measure. Factors that may have an impact include the following:

- Bot intelligence. The measure of intelligence that a bot is designed for, and its ability to learn from previous instances, depends on the algorithms and models used. It can't be quantified, and it can only be assessed at a high level.
- Organization's culture. The culture of the organization in which the bot is implemented plays a vital role in its success or failure. Organizations that are ready to accept change and new ways of working are likely to have a longer bot life span than those that are resistant to change.
- Externalization. The degree to which an organization emphasizes configurability and parameterization, wherever possible, impacts its chances for a successful RPA implementation and increased bot life spans. More emphasis means greater chances.
- RPA sponsor. Like any other initiative, those focused on RPA also need an executive sponsor who will champion the implementation. The lack of an influential champion or sponsor will lead to the initiative losing momentum.



A framework to assess bot mortality

We've discussed the significance of bot mortality for an organization, as well as the various factors that can influence the life span of a bot. But before embarking on an RPA journey, it's essential that your organization understands the various factors that can influence the implementation, as well as the degree to which each of these issues will impact it. Both will vary from organization to organization. Once the parameters, and the weight of each one, are assigned, you can create a scoring system to assess bot longevity based on your organization's environment.

Figure 2 shows a sample framework for scoring bot assessments. In this example, the scoring is as follows: low equals less than 10%; moderate equals 10% to 30%; medium equals 30% to 60%; high equals 60% to 80%; and very high equals 80% to 100%. A high score, close to 100%, indicates a high degree of stability and longevity for the bot that your organization either has implemented or plans to implement. Scoring less than 50% indicates some level of instability and uncertainty, and you should evaluate the implementation further.

Sr #	Parameter	Category	Baseline		Your bots		Score
			Value	Weight	Value	Weight	
1	Business environment	Internal					
2	Technology changes						
3	External integration						
4	RPA technology	External					
5	Internal IT stability						
6	Number of processes automated						
7	Volume						
8	Size						
9	Configurability						
10	Rule based						
11	Security						
12	Access control	Qualitative					
13	Bot intelligence						
14	Organization's culture						
15	RPA sponsor						
16	Externalization						

Scoring key

■ Low: less than 10%
 ■ Moderate: 10%–30%
 ■ Medium 30%–60%
 ■ High: 60%–80%
 ■ Very High: 80%–100%

To make sense of and derive value from the methodology discussed here, data needs to be populated across multiple engagements and a baseline created. A trusted service provider who has experience across multiple engagements is an ideal choice to help organizations evaluate bot mortality.

Conclusion

The assessment we have described is relatively simple and straightforward, but other methods (such as a balanced scorecard) could be devised that are formulae based and take more factors into consideration. It can also be combined with a standard RPA assessment approach, which considers some of the same factors. Together, these assessments can help you evaluate the pros and cons of an RPA implementation at your organization much more effectively.

About the author



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Renny Jose is a TOGAF-certified solution architect with more than 20 years of industry experience in financial services and healthcare, and has been involved in many client engagements across the globe. His areas of interest include analytics, machine learning, RPA and how technology can be innovatively used to impact human life.

Renny Jose has a master's degree in computer application (MCA), as well as certifications in banking, solution architecture and customer interactions, including an Academy of Customer Excellence (ACE) Certificate from Harvard.

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