Maturity Appraisal of RPA Application in China

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Abstract—**With the development of innovation technology, RPA (Robotic Process Automation) is used in more and more fields. This paper analyzes the key characteristics of RPA application, puts forward the "4W1H" method to promote the implementation of RPA, and focuses on the analysis of RPA process maturity judgment standards, summarizes the RPA hot map of financial process. This paper will play a good guiding role for RPA application in China.**

Keywords—RPA; Maturity; Appraisal; Financial management

I. INTRODUCTION

With the development of innovation technology, RPA (Robotic Process Automation) is used in more and more fields, so does in China.

RPA is simply a software solution that mimics a variety of rules-based, repeatable processes that don't require real-time creativity or judgment. RPA can perform the rules-based, standard processes without interruption, quicker than humans can, with reduced chances for both error and fraud. In short, by "taking the robot out of the human," people are freed up to take on higher-value work.[1]

RPA refers to applications that deliver rule-based repeatable tasks, typically performed by humans, through use of technology in the user interface layer. [2] RPA is a technology that:

- Is used to create automated software Bots that replicate the human interaction on an application. Bots capture and interpret the actions performed by humans in the real world on an application.

- Bots Interact with the presentation layer of the computer - the GUI - just like any human user would do. Hence it is easier to monitor the performance of a bot as compared to traditional automation.

- Work with any application, just like you and me would do. That is, Bots are capable of performing actions on applications based on various architectures of a single application.

- Switch from one environment to another, just like anyone working on multiple applications.

- Validate data, make rule based, algorithmic decisions within pre-defined parameters. [3]

The market for RPA solutions is poised for significant growth. In fact, we believe the importance of automation is only going to increase for the organizations of the future, given automation's promise of better service, cost containment or reduction, reduced errors, and so on.

II. APPLICABILITY ANALYSIS OF RPA

RPA is best suited for process that are repetitive and deterministic, and with minimum level of ambiguity and very few exceptions. Robotic tools are not invasive, i.e. they use the front end and existing application security, so tend to be quick to implement and have rapid payback periods.[4]

Many studies have predicted the impact that RPA will have on employment. One recent study predicted that RPA will replace 16 percent of jobs by 2025. However, many organizations believe that average attrition of 7.3 percent, coupled with retiring Boomers and the expansion of the "gig economy," in which people choose freelance work over full-time employment, will balance most of these reductions. [5] While some argue that RPA poses a significant threat to lower-paid workers, it could actually lead to stronger employee satisfaction and engagement. Early findings from a recent RPA deployment implemented in the credit card fraud and chargebacks department of a financial services company hinted a significant increase in their employees' satisfaction, though research is still underway to show how this truly impacts employees. Some studies suggest that as many as 50 percent of the activities performed by a given employee are mundane, administrative, manual-labor-intensive tasks that are less than satisfying. These are an ideal fit for RPA. [6]

In summary, we believe that while some people will be negatively impacted, just as ATM implementation affected branches in the last century, there will be different jobs in the future that leverage different skills.

There are some processes suitable to deploy with RPA as below Fig. 1.

Key Characteristics for 'Robotizing' are,

- Rules based with no judgement involved (Note - many activities such as evaluation are not judgement and can be codified with rules)
- No need for voice interaction
- Electronic data rather than paper; though OCR can be used as part of the robotic process to convert to electronic data
- Sufficient part of the process to justify the automation i.e. sufficient volume (process repeats and FTE currently involved)

Process	Key Characteristics
1.Gather/collect information	Data search and retrieval (internal and external secure site access)
	Data collation and aggregation/consolidation
2.Validate/mapping	Data mapping and verification/validation
	Error pattern analysis and identification
	Unstructured data collation and analysis
	Optical character recognition-enabled natural language data review
3.Record/entry data	Recipient data entry and logging
	Multiple interface data entry
	Archive metadata and information
4.Calculate/allocate	Automated calculations
	Rules-based decision making
	Intelligently allocating work between robots (load balancing)
	Task allocation and exception handoff processing
	Straight-through processing by combining robots together
5.Transport/communicate	Data migration and testing (one-one; one-many; many-one; many-many)
	Automated notifications to staff, suppliers and customers
6.Report/analyze	Automated reporting on robotic activity and performance
	Analysis and document or report production
	Supports detailed analysis of process performance

Fig. 1.   Processes Suitable to Deploy with RPA.

III.   '4W1H' METHOD TO TO IMPLEMENT RPA

How to appraise the maturity of process, that means how to identify whether the processes are suitable to implement RPA or not?

What is clear in the hunt for business benefits is that it is imperative to select the right processes (namely those with the highest RPA potential). The best way to achieve this is to ensure that both the business units and the CoE have a say and share responsibility for the evaluation, selection and prioritization of the automation pipeline. Typically, we see a functional approach favored with multiple adjacent processes filter through a set of structured evaluation criteria. These are augmented by desk side assessments, to align the suitability of RPA versus the business benefits. An integration assessment should also be included in the evaluation and selection process to test technology/tool compatibility with existing business applications. [7] This may include an assessment of licensing implications. Emerging best practice is to assign processes to 'waves' where low hanging fruit is prioritized for immediate RPA and while other processes such as Digitization or Lean are assigned remedial action to prepare them for RPA at a later date. On this latter point, we try not to talk to clients about an RPA only approach as the risk of starting with a hammer is that you end up looking for anything that might resemble a nail. Instead, we advise clients to approach RPA as one more lever in the Digital Operational Excellence toolkit rather than as a stand-alone panacea. Implicit in this approach is the need to eliminate wasteful processes and apply operational excellence levers (Digitization, Organization Design, Outsourcing, Offshoring) on a value-stream basis. This holistic approach which is both realistic and more likely to achieve the end-to-end business transformation

There are many organizations that can benefit from RPA, when we should now be considering the opportunities, there are typically five steps method named '4W1H' to developing a RPA strategy.

A.   What?-Assess for Automation Opportunities

- Which processes are good candidates for automation?
- Which processes would be suitable to pilot?
- How should the process owners be engaged to try automation?
- What are the impacts of proceeding with the pilot?

B.   Why?-Build Your Business Case

- Why does automation support your business needs?
- What are the benefits?
- What are the pain points being alleviated?
- What are the metrics to determine whether automation is valuable?
- What is the strategy for re-deploying existing resources after automation?

C.   How?-Determine The Optional Operating Model

- Which operating model works best for your organization?
- Do you have the right team to support the solution and carry out responsibilities?
- Who will manage and monitor the software?

D.   Who?-Identify Your Automation Partners

- Who are the main vendors in the RPA space?
- Who are the providers who cater to your business needs the most?
- How should you compare the pricing models in order to understand what you are paying for?

E.   When?-Plan The Automation Roadmap

- How long should your pilot be?
- What are the stages after the pilot?
- What is your strategy for scale?
- How will you ensure impacted stakeholders understand the what, why, and how of automation?

The objective of the Process Selection process is to identify a set of processes amenable to automation, and which exhibit varying attributes so as to ascertain the benefits of the PoC program accurately. [8]

The selection methodology measures and compares each process on the complexity/criticality & maturity, frequency of occurrence (daily/weekly/monthly etc.), geographical reach (different geographies involved in the process), internal/external focused (customer-facing or internal employee/vendor facing), and systems (level/number of interaction with systems in executing the process)

A.   Definition of a Process

RPA process selection requires defining some criteria, and assess processes against those criteria. Not just a cost play.

- Is a succession of operational and granular actions (click, field filling, calculation, control…) executed by an operator on his/her workstation
- Can be either very simple or very complex with a very large number of steps and actions (e.g. Analysis and payment of claims)
- Can be fully automated (end to end) or partly automated including interactions between the virtual assistant and the operator
- Is described in details by an operating procedure explaining step after step each action to be executed by the robot
- Can be any process (business, support) that includes computing actions

Finance Processes have been validated against the following criteria to ascertain suitability for RPA:

- Repetitive -Frequency of occurrence of the operation or task
- Rules Based -Degree to which multiple instances of the task look like each other
- Error-Prone -Likelihood and organizational impact of an error occurring during standard procedure
- People Intensive -Number of people required to perform the task for the entire operation
- Time Critical -Likelihood and organizational impact caused by delays in the process

Fig.2. RPA Opportunities in the Finance High Level Function

B. Analyze Process Data and Comparison on Key Attributes

RPA process should pay attention to the key attributes as below.

- Effort Estimate
- Level of Standardization
- Cross Functional Dependency
- Process Volume
- Level of Process Stability
- Frequency of Execution
- Number of Data Sources
- Current Quality Parameters
- Predictability of Exceptions
- Number of System Interfaces
- Level of Criticality
- Level of Flexibility
- Types of Inputs
- End Customer Information
- Volume Fluctuations

IV. APPLICATION SCENARIO ANALYSIS OF RPA IN FINANCIAL MANAGEMENT

According to the method of maturity appraisal of financial process, there are several RPA opportunities in the Finance function, particularly in high volume, transactional activities that require minimum, rules based judgement. Please find the Fig. 2.

V. CONCLUSIONS

In China, RPA has driven fast efficient agile change that can offer an attractive ROI. The market is still maturing and most firms are either at experimentation stage or getting to scale. The first wave of RPA have been pioneers, leading the market in exploring how to design, deliver and run RPA at scale. Many lessons are available for the second wave to accelerate and de-risk similar journeys.

With the economic development so fast in China, the next few years will see a tipping point as delivery models and methods are refined and digital and cognitive tools become more accessible and easier to integrate. RPA maturing within a wider digital operational excellence offering remain unchanged − eliminate, simplify, standardize and automate. The digital future of work should be highly appreciated, we can be sure that the world will adopt robotic and cognitive technology faster and faster in the future.

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