

RPA Tools and Mathematical Model for RPA Vendor Evaluation

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Abstract—Robotic process Automation or RPA is the latest technological advancement of our Era. With this skill, an expert can create programs and software that can do a lot of things on their own. All this and much more without any sort of human interaction in the picture. But what actually makes an RPA expert do such powerful work are the set of tools. As in order to implement RPA, the thing we need first is the tools for RPA. These tools are developed to make the work easier for the robotics process automation professional. There are several tools available in market to use but key is selection of right tool and RPA vendor.

Index Terms—RPA, Robotic process Automation, RPA Vendor, RPA evaluation

1 INTRODUCTION

WE are now entering RPA 3.0 or the 3rd wave of automation, where Artificial Intelligence (AI), Machine Learning (ML), scale-based automation and customer experience (CX) are spoken about together/interchangeably. The 1st phase of automation (RPA 1.0) was more of a rule-based process automation; and RPA 2.0 or the 2nd phase of automation was about task and complexity automation. The concept of RPA 3.0 becomes all the more important if we look at the rate at which the RPA market is expanding today, i.e. a \$1.1 billion market in 2017 is expected to reach \$8.6 billion by 2023, growing at a CAGR of 36.2% during 2018-2023. We propose a balanced 10-factor weighted linear equation for a holistic vendor evaluation approach in this rapidly changing RPA world. The RPA market has witnessed a state of crescendo in the last 2-3 years with multiple leading technology vendors and IT/BPM providers. For Business Process Management (BPM) or IT service providers, a multitude of factors are crucial today while they deal with clients. They are required to deliver more than their SLAs and need to look beyond the traditional Customer Value Model (CVM), Customer Satisfaction (CSAT) or Net Promoter (NPS) scores for thriving amidst guarded competition. Figure 1 is indicative of how client expectations from the IT/BPM vendors have changed with times. It is important that an organization ensures that it receives apt support and services for effective RPA implementation.

2 WHAT IS AN RPA TOOL AND WHAT ARE ITS FUNCTIONALITIES?

RPA tools are the set of programs that are used by robotics process automation experts. With these by their side, the task of the developing a system and other things gets pretty easy. But the know-how to operate these tools is very important. As for someone without any particular knowledge about these tools, they will be wasted.

In order to get a better understanding of RPA tools, we should first know about their functionality and benefits[1]. This will provide us with a better chance of grasping the information that we will discuss later in this article. These are the 3 functionalities that every Robotics Process Automation tool must have in it.

- The Bot that carries the working shall be able to interact with other systems in a decent manner. They should be using the method of either screen scraping or API integrations for this task.
- A tool should have optimization and technology that it can create another bot. This means that it should be able to make a replica of itself.
- The Bot in the play should be well-integrated with the AI it uses. They should learn from all the actions they or their user take and use it to automate the process by self.

2.1 Types of Robotic Process Automation tools

RPA tools are categorized into 4 different categories. Implying that any RPA tool out there can somewhat fit into these 4 categories. These segments of RPA Tools are:

- Hacks and Macros: these were simple automation tools that were used for small processing tasks. They were neither reliable nor scalable; all they were good for was the fact that they increased productivity.
- Programmable Bots: these bots were easy to use as they follow the programming pattern. These programmable solution bots were used to interact with other systems and feed specific information for the user.
- Self-learning Tools: The actual automation phase is believed to be started with the arrival of self-learning bots. These tools increase productivity by learning from their actions. They were great as they learnt from their mistakes and improved themselves without any human interaction.

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- Intelligence/Cognitive Automation Tools: Cognitive intelligence tools were a gem in the field and they can even handle random data. They can design things even when the information is complex and input makes no particular sense for a human eye.

3 EXISTING VENDOR VALUATION METHODS

While topline (revenue) and bottom-line (margins) are being accounted by businesses, only a few of them today are able to quantify the value delivered scientifically, especially across shared services, and then map it to the overall strategic and operational blueprints for their businesses. Existing models try to study this in detail, for e.g. the CLV or VLV (custom-

er/vendor lifetime value) and Net Present Value (NPV). These calculation processes use forecasts of revenues, estimated cost of delivering value, potential of future value etc. or vendor profitability that takes into account the profit a client makes over a sustained period of time, say 5 or 10 years. While all of these are vital and still valid, clients today are expected to go beyond these attempted models in the future.

4 MODEL FOR HOLISTIC VENDOR VALUATION

The model envisages itself from a client perspective and takes into consideration ten factors that are measurable and can yield to an all-inclusive model of valuation (Fig.2)

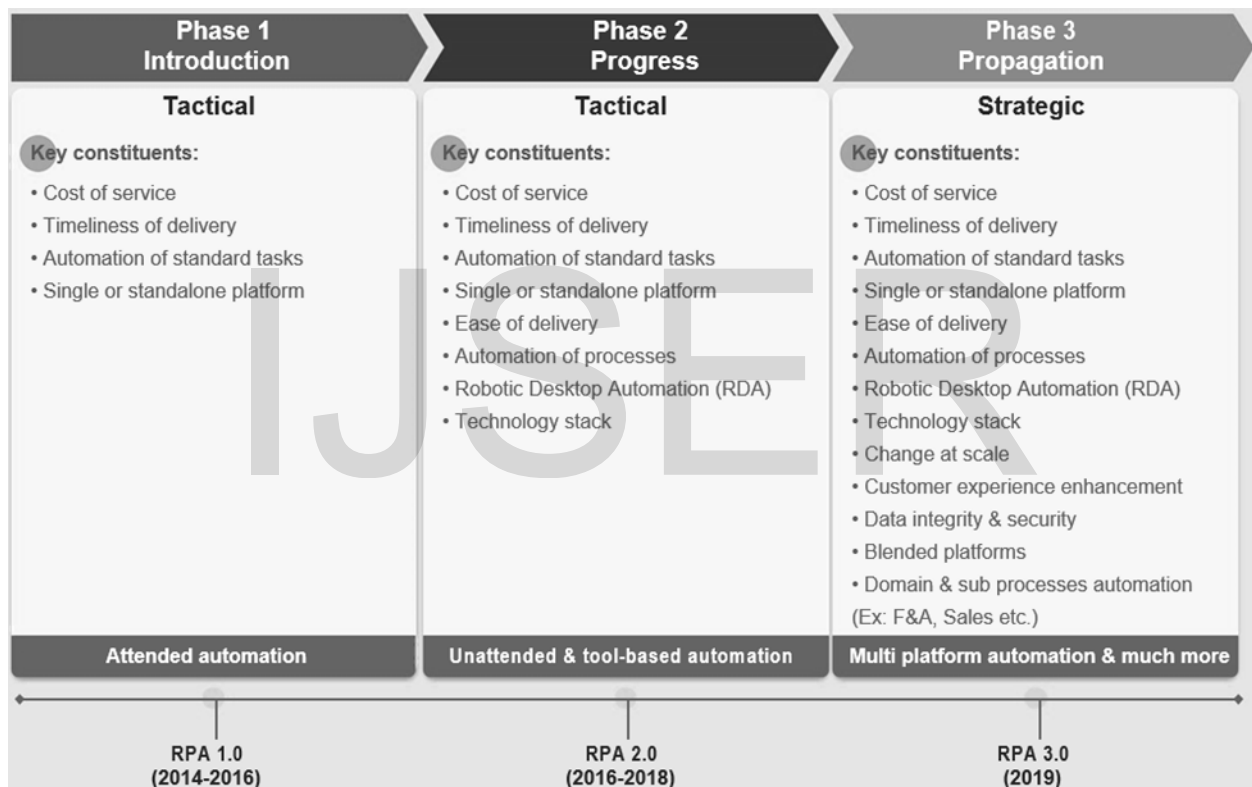


Fig. 1 Changing expectations of businesses from RPA service providers.

| Financial impact (F) | Pricing impact (P) | Delivery & Implementation (D) | Training & Support impact (S) | Security & Integration impact (I) |
|---|--|---|---|---|
| <ul style="list-style-type: none"> • % improvement to revenues (top line) • % improvement made to bottom line (margins) • Billing cost/employee (\$K) • \$M savings in 1/2/3/5 years via automation • \$M saved/additionally generated (1/2/3/5 years) | <ul style="list-style-type: none"> • Pricing overview (1/2/3/5 years) • Component based pricing clarity (Fixed Vs Variable) • Process complexity pricing (Simple, Medium, Complex, Highly Complex) | <ul style="list-style-type: none"> • Speed/Time of delivery • SLAs/KPIs promised Vs delivered • No. of delivery locations • Domain led knowledge • Quality & development methodology • Min. viable implementation | <ul style="list-style-type: none"> • Languages for support • 24*7*365 toll free/audio support • Classroom/on-the-go training • Online/on-go training • Training & support for buyers & suppliers | <ul style="list-style-type: none"> • Quality of data & process security model • Quality of/Data encryption tools used • Integration with ERP/ Legacy/On Premise/ Cloud applications • Synchronization of various data sources |
| Process Scale impact (C) | Value impact (V) | Governance impact (G) | Technology impact (T) | Resource impact (R) |
| <ul style="list-style-type: none"> • No. of processes simplified (As-is) • No. of processes eliminated • No. of processes post automation that are of medium, high, very high complexity (To-be) • No. of processes which are continually audited | <ul style="list-style-type: none"> • Customer experience on support provided • No. of sub processes impacted (Ex: O2C, P2P, R2R etc. of F&A, vendor mgmt. for Procurement etc.) • Scale of change witnessed (1/2/3...n number of processes) | <ul style="list-style-type: none"> • Real time alert controls • Defined escalation models & SLAs • Dashboarding & visualization ability • Change requests (CR) tracking & resolution • Stakeholder mapping • Advanced scheduling & API capabilities | <ul style="list-style-type: none"> • RPA vendor stack employed • No. of bots & platform/s • Quality of technology-tools architecture • Impact to existing data/server architecture • Capability of bots (AI/ML/NLP etc.) | <ul style="list-style-type: none"> • No. of full time/part time resources eliminated via RPA/automation implementation • No. of resources upskilled/re-skilled • No. of roles enlarged • Improvement in per resource productivity |

Currently accounted by clients,
 Partially accounted by clients,
 To be accounted by clients in future

Fig.2: 10-factor approach to vendor evaluation RPA

In Fig.2, proposed components have been listed under ten categories, namely Financial Impact (F), Pricing impact (P), Delivery & Implementation (D), Training & support impact (S), Security & Integration (I), Process scalability (C), Value impact (V), Governance impact (G), Technology impact (T) & Resource impact (R). There are many areas (Given in Green) which will evolve over a period of next 1-2 years. Let us try and assign priorities to each of these factors, given the importance a client can hold for each while being serviced by a IT/BPM vendor. The weights being proposed below are only indicative* and can vary depending on the applicability for each client/a set of clients and these could further vary by the intensity of RPA deployments across industries, i.e. Manufacturing, Retail, CPG, Travel & Transportation, Healthcare etc.

- Technology (T), Financial (F): 15% each
- Security/Integration (I): 12%
- Pricing (P), Value (V) & Delivery (D): 10% each

- Training & Support (S) & Process scale (C): 9% each
- Governance (G) & Resource (R): 5% each

If this is plotted as a linear equation, the above weights could be depicted as 15%(T) +15%(F) +12%(I) +10%(P) +10%(V) +10%(D) +9%(S) +9%(C) +5%(G) +5%(R), or it can be depicted as 0.15(T) +0.15(F) +0.12(I) +0.10(P) +0.10(V) +0.10(D) +0.09(S) +0.09(C) +0.05(G) +0.05(R). Fig.3 represents a proposed numerical approach to calculate the Comprehensive Vendor Valuation Score (CVVS). To start with, a value on a scale of 1-5 (1 being the lowest and 5 being the highest) can be calculated for each of the factors. E.g. Technology impact (T) can have a scale of 1-5 with a predefined set of matrices that help assign a score of 1-5. If Technology impact (T) has 4 parameters each with a score of 3 (the higher the vendor performance on a particular parameter, the higher the score), then the score of (T) is the average of four parameters, i.e. 3+3+3+3/4=3. Thus, (T) has a total score of 3.

| | | |
|--|--|---|
| Comprehensive Vendor Valuation Score (CVVS) | | F (x) {Financial Impact (F), Pricing impact (P), Delivery & Implementation (D), Training & Support impact (S), Security & Integration (I), Process Scalability (C), Value impact (V), Governance impact (G), Technology impact (T) & Resource impact (R)} |
| CVVS | | F (x) {(F), (P), (D), (S), (I), (C), (V), (G), (T) & (R)} |
| CVVS | | 15%(T) +15%(F) +12%(I) +10%(P) +10%(V) +10%(D) +9%(S) +9%(C) +5%(G) +5%(R) |
| CVVS | | 0.15(T) +0.15(F) +0.12(I) +0.10(P) +0.10(V) +0.10(D) +0.09(S) +0.09(C) +0.05(G) +0.05(R) |
| CVVS | | 0.15(T) +0.15(F) +0.12(I) +0.10(P) +0.10(V) +0.10(D) +0.09(S) +0.09(C) +0.05(G) +0.05(R) |

Fig. 3: Numerical approach to RPA vendor evaluation

The same process can be repeated for remainder of the parameters and a net equation can be formed. This net equation when multiplied by their weights of 15%, 12%, 10%, 9% & 5% will give a total CVVS on a scale of 1-5. Going by general industry standards a net score of ≥ 3.5 would be considered a true reflector of the value being created for clients. This approach for organizations to rate their vendors could serve as a pointer to examine industry, business, technology, and delivery factors apart from the conventional factor of pricing. A famous quote by Brian Tracy connotes this, "Value is the difference between the price you charge and the benefits the customer perceives they will get. If the customer perceives they will get a lot of benefit for the price they pay, then their perception of value is very high."

The higher the price-value sensibility on either sides of the table, the greater are the levels of satisfaction and brighter are prospects for business and relationships in this world of automation.

5 CONCLUSION

Based on evaluation method you will be able to choose the appropriate RPA tools. The comprehensive assessment makes the candidates evaluate their choice of tool in relation to the problem of the organization they wish to solve with RPA. Choose the right RPA toll and get started with, analyzing existing business processes and developing an RPA plan to improve the efficiency of a workflow. Reducing operational costs and errors through automation, and Diagnosing and solving problems during the development and implementation of RPA software robots

REFERENCES

- [1] Kumar, Arvind, RPA (Robotic Process Automation) – Case Study, pp 1703-1706,2018.
- [2] <https://www.psmarketresearch.com/market-analysis/robotic-process-automation-market>
- [3] <https://www.briantracy.com/blog/sales-success/how-to-sell-value-rather-than-price/>

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