

Redefining Digital Workforce Scalability – Key Factors to be Considered

What is bot scalability? Are you as an enterprise embracing the new era of digital workers? Let's delve into why automation scalability is a stepping stone on your journey towards Automation Singularity.

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Introduction

Automation Singularity—The journey begins

In our experience, many enterprises are scaling up automation efforts at an unprecedented pace and deploying bots or digital workers across multiple business functions. They are focused on developing a highly customer-centric and agile automation strategy that ensures seamless interaction between humans and bots to co-create the future workforce. In other words, scaling bots will usher in a transformative change, wherein the human and digital workforce will work alongside each other, to create a truly digital enterprise.

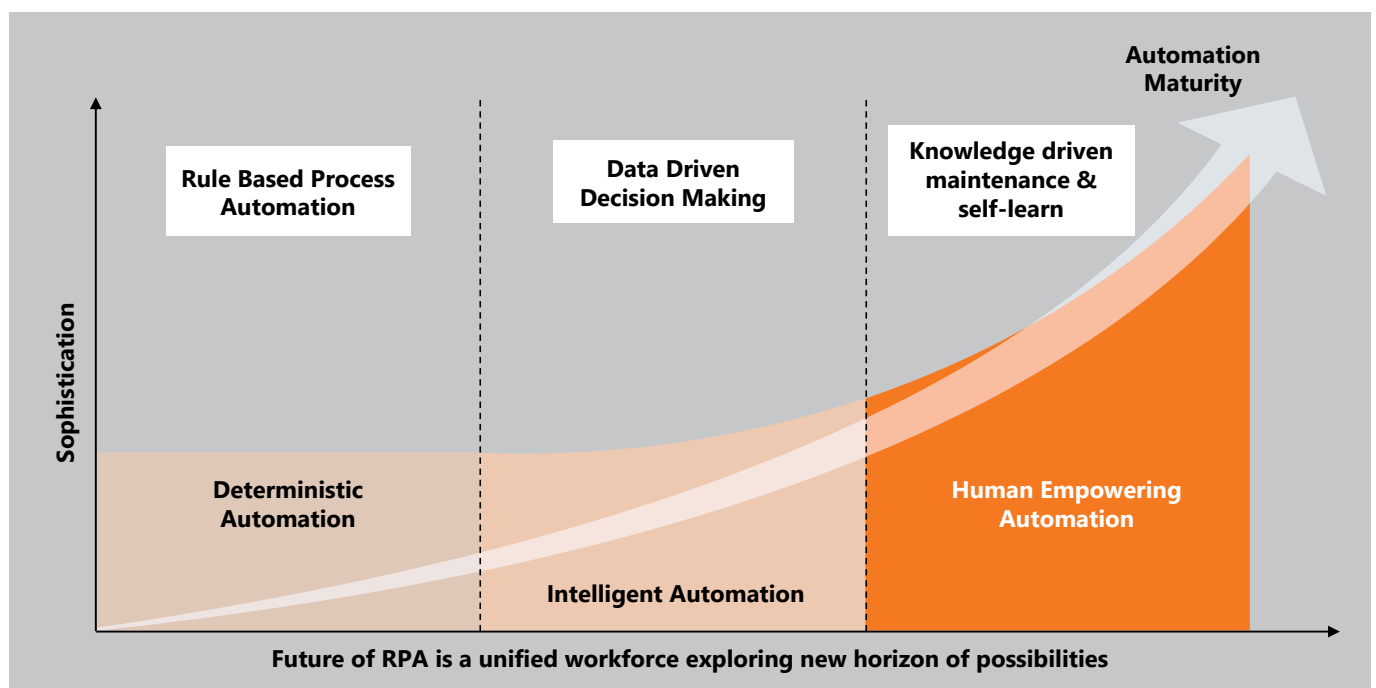
Enterprises today are focusing on the creation and deployment of a unified workforce comprising humans and bots, where humans will drive customer orientation, have a say in the final decisions and strategies, while digital workers will complement these efforts through productivity and consistency.

Automation Singularity refers to a highly customer-centric and agile oriented state of constant improvisation and optimization through a unified workforce, opening up an expanded horizon of possibilities. It reflects a hyper-optimized state which serves as a beacon for enterprises to design, structure and deliver products and services.

At EdgeVerve, we believe Automation Singularity is a journey wherein enterprises traverse from attended and unattended automation to Intelligent Automation and ultimately to human-empowered automation that touches every process, employee, and system in the enterprise. In short, Automation Singularity refers to the seamless synergy of human and bot workers to co-create a future workforce.

In this paper, we have highlighted the importance of scalability of bots in the age of Automation Singularity and the key factors that enterprises should consider to implement a scalable digital workforce.

Long way to go towards Automation Maturity



Paving the road to a successful and scalable Automation Implementation

With the advent of Robotic Process Automation (RPA) tools, a growing number of enterprises are recognizing the value of RPA in increasing their productivity, cutting the costs and enhancing the job satisfaction of their human workforce. What was once considered a luxury, has now become a necessity. However, if the RPA tool is not able to scale, it may emerge as the biggest roadblock in the organization's journey towards operational scalability by maximizing the automation opportunities. Thus, business leaders must consider RPA scalability as one of the essential factors while zeroing in on an RPA tool.

At a broad level, there are 4 pillars of determining the scalability of a RPA product:

1. Automation breadth - Improvement in the existing capabilities of the bots through recent technological innovations
2. Ease of automating - Ease of converting an existing business process to a completely automatic RPA process
3. Automation robustness - Stable and secure process executions day-after-day
4. Bot scalability - Ability to effortlessly handle the rise/fall in the number of bots required via state-of-the-art bot management

While most of the leading RPA vendors have made significant advancements in handling the first three requirements listed above, there still exists a lot of scope in improving the end-user experience in handling the bot scalability. Although a large RPA setup may seem to be far-fetched at the onset, decision-makers should remember that the aspirations in RPA implementation should always be high even though they begin small, since it is no longer an option. Large scale bot deployments with a couple 100 bots are fast becoming a reality, and many organizations are experiencing the nuances of handling challenges of managing RPA deployments on a massive scale.

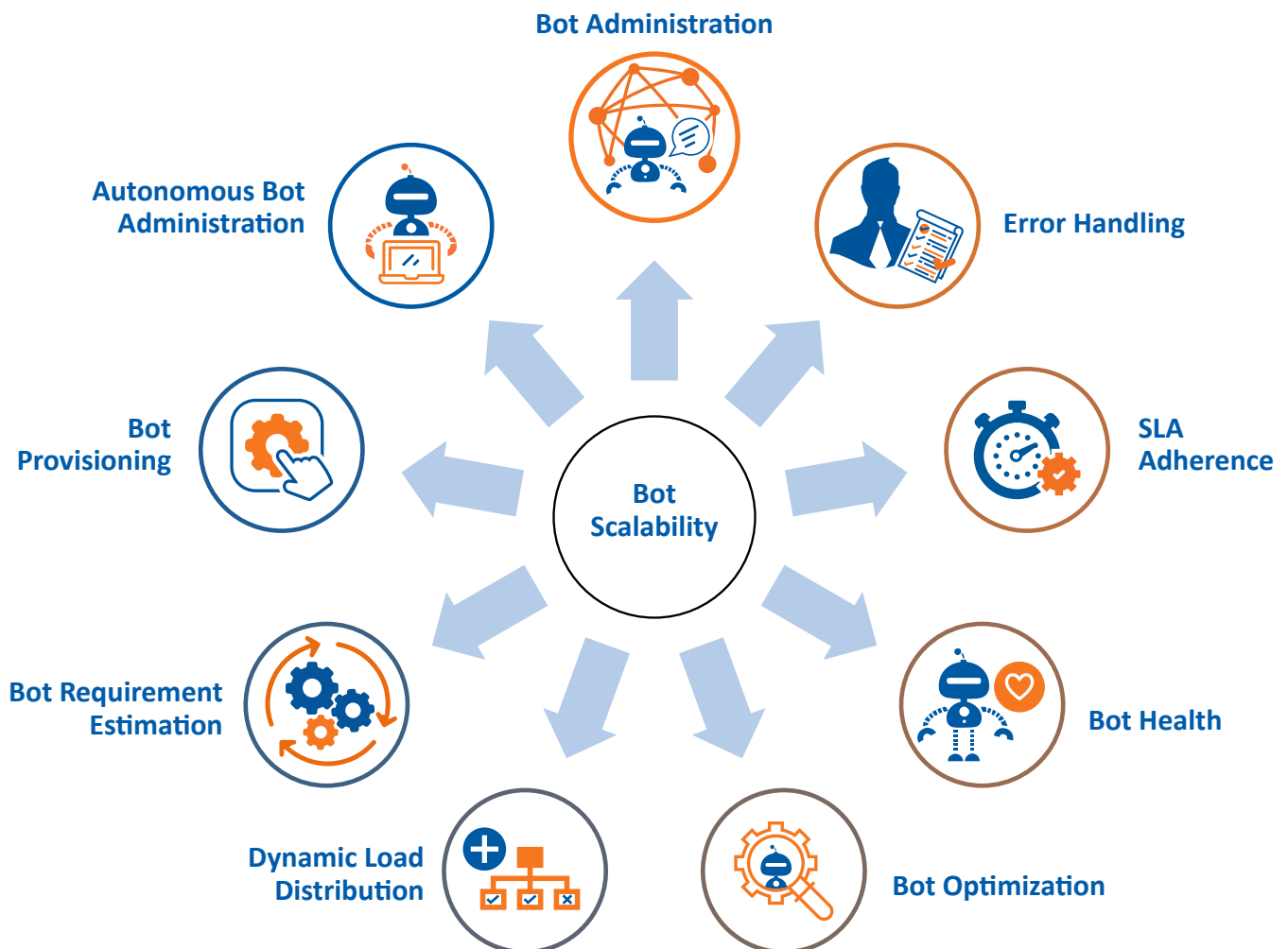




Robotic Process Automation and Bot Scalability

Key points to consider

Some of the crucial factors that need to be taken into consideration while planning for a continuously evolving stable RPA setup are detailed below:





Bot Administration

A typical RPA implementation lifecycle will begin with the automation of a few clearly defined business processes. Once the customer is acquainted with the RPA tool and the teething issues are resolved, the customer will look at opportunities to add more business processes, across business units, to the existing RPA setup. This quest of increasing automation is further augmented by merging of cognitive technologies like Optical Character Recognition (OCR), Natural Language Processing (NLP), Computer Vision (CV), Voice recognition and other areas of Artificial Intelligence (AI) in the existing RPA capabilities. This is equivalent to starting a small company by hiring a few workers, and gradually increasing the workforce capability by hiring new people and extending the existing skillset. Once the number of workers crosses the threshold of being humanly manageable, there will be a need for HR managers and corresponding software tools to manage the workforce. The same concept applies to the digital workforce. At a minimum, an easily comprehensible centralized bot administration interface should be provided. It should be supplemented by adequate alerting and monitoring tools to help the RPA admins in scaling their operations.

Error Handling

Once RPA is put into practice, like any other system, there could be a few transactional errors. The RPA tool should be able to notify the corresponding end-user about the occurrence of an error and provide an ability to drill-through the steps executed in the failed transaction. RPA tool should also consider having a human interface to re-try the execution in specific scenarios. Further to this, there should be a means to analyze the frequently failing error-prone processes and suggest a permanent fix for the root cause. With added intelligence, the system should be able to identify the error and attempt to retry processing the incoming transaction, and in other cases, self-heal the failed transaction, in case a similar error has occurred in the past. While the apparent target is 100% Straight through Processing (STP), there should be a periodic assessment to check that the STP rates are improving with time.

SLA Adherence

While error-free STP is one indicator of the effectiveness of an RPA implementation, another important criterion is the adherence to SLA (service-level agreement). The RPA tool, at a minimum, should allow the admins to prioritize the task allocation based on process criticality and also allow to set up custom schedules to handle projected rise/fall in critical tasks. Moreover, the RPA tool should provide detailed metrics of SLA violation with the analysis of bots and processes with most frequent SLA violations. In a more comprehensive setup, the RPA tool should be able to predict the SLA violations and provide

an ability to distribute the traffic, thereby ensuring that critical process SLAs are met by over-riding the non-critical transactions. Further to this, the RPA tool should be able to suggest the best possible bot allocation for the estimated workload in a given setup to ensure the best possible SLA adherence.

Bot Health

In order to ensure that the bots keep serving continuously without any system-induced errors, it is necessary to ensure that their health is well maintained. Thus, it becomes necessary for an RPA tool to provide a seamless view of the resource utilization of bots and the underlying system hardware on which they are deployed. In addition to this, the tool should also be able to temporarily delegate work to other bots to allow a downtime for the bots during a planned outage for deploying software patches and upgrades. In the near future, the RPA tool could provide a predictive maintenance routine using resource utilization metrics.

Bot Optimization

One of the important objectives of the RPA admin will be to ensure minimal running costs of the RPA setup by ensuring that each bot is utilized to its optimum capacity. This would necessitate an RPA scorecard with a set of visualizations targeted at measuring the bot performance and utilization metrics. In addition to this, the RPA tool should be able to analyze the current usage patterns and provide suggestions for the best possible bot configuration to manage the current workload. Ideally, a bot should be able to serve any RPA process, since, unlike humans, the skills and performance of each bot with a similar hardware and software configuration will theoretically be the same.

Dynamic Load Distribution

While planning for optimal utilization, the RPA admin should account for some bench strength to handle sudden spikes in incoming automation requests. There should be an adequate spare capacity of bot servers and licenses to handle the critical business processes in case of an unexpected breakdown and transitional overloads. This would also aid in phase wise product migration and 3rd party hardware/software upgrades across the RPA setup. RPA vendors should, at a minimum, provide email notifications to alert the users and interface to manually handle such scenarios. Additionally, they should consider the implementation of dynamic load distribution where the system automatically allocates the critical tasks to under-utilized and non-critical bots.





Bot Requirement Estimation

Once the RPA setup configuration is stabilized with the currently available infrastructure, the next step is to adequately estimate the requirements of new bots. The RPA tool should be able to accurately forecast the bot requirements based on the workload model consisting of the number of business processes, the expected execution time of each process, frequency of each process and existing bot capacity. RPA tools should also consider providing seamless provisioning (preferably one-click) of bots.

Bot Provisioning (with supporting Infrastructure)

Once the bot availability and utilization requirements are correctly estimated, the RPA tool/vendor should be able to accurately forecast the corresponding hardware and software infrastructure for the RPA setup. The hardware requirements would primarily consist of:

1. Infrastructure required to run the bots

Although the cost, availability and maintenance of hardware and software have been considerably simplified with availability of (Infrastructure-as-a-service) IaaS and (Software-as-a-service) SaaS respectively, the same needs to be appropriately budgeted for. However, the point to consider is the ease of configuring the RPA tool to add/remove bots as and when the supporting infrastructure is made available. Additionally, RPA tools could consider integration with the leading Infrastructure/Cloud Management providers and tools to provide a seamless comprehensive control to the end-users. The recently launched AssistEdge cloud RPA by EdgeVerve can prove to be a perfect fit in this case.

2. Infrastructure required to run the components supporting and managing the bot setup and process execution

In addition to the hardware requirements for the robots, one should also keep in mind the hardware requirements for the supporting base infrastructure required for running the bots in terms of the server-side components like the database, transaction queues, bot management console and underlying micro-services. Based on the RPA tool used, there would also be a need for additional software licenses, for instance, databases and the same needs to be budgeted.

RPA tools should strive to analyze the bot usage statistics in a relatively stable RPA setup and alert the RPA admins about predicted rise/fall in requirements. Further to this, means to auto-provision the bots to handle sudden spike and surges could be incorporated.

Automated Bot Administration

Being an automation product, RPA vendors should also consider leveraging automation opportunities in managing the RPA setup. To facilitate the same, dedicated utilities & framework components should be provided out-of-the-box to monitor the overall setup, notify the anomalies and automatically take corrective actions wherever possible.

The above considerations can be bucketed as follows to gain a bird's eye view of the proposed scale criteria:

Features	Must Have	Should Have	Good to Have
Bot Administration	<ul style="list-style-type: none"> User-friendly bot administration interface 	<ul style="list-style-type: none"> Bot monitoring & alerting 	<ul style="list-style-type: none"> Autonomous bot administration
Error Handling	<ul style="list-style-type: none"> Error notification Drill-through error steps 	<ul style="list-style-type: none"> Error analytics Re-try failed transactions 	<ul style="list-style-type: none"> Self-healing
SLA Adherence	<ul style="list-style-type: none"> Set process priority SLA adherence analytics 	<ul style="list-style-type: none"> Recommend bot allocation for SLA adherence 	<ul style="list-style-type: none"> Dynamic resource leveling to meet critical SLAs
Bot Health	<ul style="list-style-type: none"> Resource utilization logs 	<ul style="list-style-type: none"> Resource delegation 	<ul style="list-style-type: none"> Predictive maintenance
Bot Optimization	<ul style="list-style-type: none"> Bot utilization metrics 	<ul style="list-style-type: none"> Bot scorecard 	<ul style="list-style-type: none"> Recommend best configuration for optimal utilization
Dynamic Load Distribution	<ul style="list-style-type: none"> Notifications in case of sudden spikes/system breakdown 	<ul style="list-style-type: none"> Supplement phase wise migration scenarios 	<ul style="list-style-type: none"> Dynamic bot allocation
Bot Requirement Estimation	<ul style="list-style-type: none"> Regular and peak load indicators 	<ul style="list-style-type: none"> Requirement forecasting for existing/new setup 	<ul style="list-style-type: none"> One-click bot allocation/de-allocation
Bot Provisioning	<ul style="list-style-type: none"> Recommended hardware and software BOM Support Cloud/VM deployment 	<ul style="list-style-type: none"> Seamless integration with 3rd party cloud and infra vendors 	<ul style="list-style-type: none"> Auto provisioning

Conclusion — Human-digital twins working at scale

Organizations today emphasize agility, the flexibility of scaling up or down as required, cost efficiency and building a culture of continuous innovation as the primary goals of driving enterprise-wide transformation.

AssistEdge provides a host of features geared around achieving bot scalability at the enterprise level:

- Control Tower Dashboard for bot administration with Operational Dashboards on Process and User Performance
- Exception Handling using retry capabilities with an on-demand retry of automation requests
- Ability to set custom robot schedules and prioritize processes, SLA adherence reports
- Infrastructure Health Monitoring with CPU and Memory Utilization statistics

- Robot Utilization reports, Ongoing Transactions View and Out of box Dashboard for different platform roles
- Dynamic Operational Scaling with alerts for potential SLA violations, rule-based bot re-allocation
- Dashboard for application usage analysis, time spent analysis and volume trends over time to bring out seasonality in requests helpful for better planning

With AssistEdge RPA 18.0, we have introduced 'Albie', a cognitive engine to seamlessly unify the human-digital workforce. This intelligence powers the digital worker to automate tasks requiring limited discretion, assist human decision making with targeted recommendations and continuous learning from feedback, thereby expanding the scale of adoption of RPA beyond the traditional boundaries. From providing cognitive services on tap to capturing business-relevant data, AssistEdge Intelligent RPA has a host of features that go beyond the obvious benefit of scalability, empowering enterprises on their journey towards Automation Singularity.

In today's cutting edge innovative and disruptive global market, Automation at scale is a primary business need. Organizations who have started early have the natural advantage to grow to large scale automation deployments. However, not all is lost for the late starters, investing in the right tool with the right partner would go a long way in creating a synergized human-digital twin working at scale.

Are you prepared to embark on the journey towards Automation Singularity?

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At EdgeVerve, we are making constant strides towards transforming enterprises by providing AI enabled business applications, leveraging the Infosys Nia™ Platform with capabilities across the automation continuum. With the advent of cognitive automation, we believe this three-pronged strategy will drive our clients to the future.



AssistEdge is an award-winning enterprise-grade automation platform that enables organisations adapt to market challenges that demand scalability, security, intelligence and innovation. It spans across the automation continuum from deterministic through intelligent to human-empowered automation.

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