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## RESEARCH ARTICLE

# AUTOMATION TRENDS USING ROBOTIC PROCESS AUTOMATION IN IT WORLD

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**ABSTRACT**

Today enterprises are challenged by tectonic shifts in nearly every aspect of their businesses – economic, technology, demographic, and customer preferences etc. To help them meet these challenges, organizations are adopting technology and automation solutions to enable best – in – class Business Process Management (BPM). One technology gaining rapid favor is Robotic Process Automation (RPA)-essentially defined as automation that can handle rules based and repetitive tasks without human intervention, or unassisted automation.



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## INTRODUCTION

RPA refers to automation which interacts with a computer centric process through the UI of the software which supports that process and RPA is a subset of Business Process Service Delivery Automation (BPSDA). Many technologies including artificial intelligence (AI), expert systems and other process of automation have served predecessors to RPA but RPA takes AI and expert systems to an elevated level .RPA is the use of computer to create a "virtualized FTE or robot" to manipulate existing application software in the same way that a person today processes a transaction or completes a process. Robotic automation involves a practice in which a machine or computer software mimics human actions in order to complete rule-based tasks. In context of IT industry, robotic automation is accomplished by using automation software, which utilizes the Robotic Process Automation (RPA). Some basic processes in IT, which can be managed through robotic process automation include access management, request management, availability management, monitoring, incident management, and problem management. Robotic automation helps reduce the operating costs while additionally supporting agility in order to meet the customers varying and evolving needs. The robotic automation software tools help automate existing user actions and thereby, facilitate IT companies in incurring cost savings as robotic software can replace the employees performing similar repetitive tasks. Key factors driving the global IT robotic automation market include cost benefits and improved efficiency over manual process handling, ability to leverage other application software without integration, increasing adoption in finance and accounting (F&A) sector and potential alternative to offshore outsourcing among others. The robotic process automation reduces the need for human intervention in routine repetitive tasks and thus creates a virtual workforce capable of handling large number of repetitive tasks. Further, the automation occurs at the GUI layer thereby eliminating the need of integration with other systems. Moreover, robots can work 24x7x365 eradicating the constraints of human labor to work for limited hours. Thus, significant reductions in cost, time and labor can be achieved by implementing robotic process automation.

The IT robotic automation market comprises RPA technology providers and RPA service providers. Some of the key technology providers for RPA include Blue Prism, IPSoft, Inc., Be Informed B.V., Appian Corporation, and Automation Anywhere Inc. whereas RPA service providers include Sutherland Global Services, Tata Consultancy Services, Accenture plc, Cognizant Technology Solutions, Infosys Limited, and Hewlett Packard Company. Leading Automation RPA vendors are as follows:-

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The global IT robotic automation market in terms of revenue (US$ Mn). The market has been segmented as follows:

1. **IT Robotic Automation Market, by Type:**
   - Tools
   - Services
2. **IT Robotic Automation Market, by Tools:**
   - Model-based Application Tools
   - Process-based Application Tools
3. **IT Robotic Automation Market, by Services:**
   - Professional
   - Consulting
   - Integration and Development
   - Application Management
   - Infrastructure Management
   - BPO
   - Application Management
   - Infrastructure Management
   - TrainingManagement
4. **IT Robotic Automation Market, by Geography:**
   - North America
   - Europe
   - Asia-Pacific
   - Middle East and Africa (MEA)
   - Latin America

**RPA vs Traditional Re-engineering & BPM Projects**

**Table 1: Difference between RPA & traditional methods RPA Journey Map**

| Aspect | RPA | Traditional |
|---|---|---|
| Business Approach | Focuses on replacement of FTEs with a "virtualworker"; cost reduction, quality improvement and more productivity | Re-engineering of the underlying process to drive efficiency and create a more consistent customer experience. |
| Technology approach | To automate processes without changing, replacing, compromising or adding maintenance overhead onto existing applications | Build new application to replace existing; begin with requirements definition leading to design/development/testing |
| Process Approach | Leave processes as it | Transform and re-engineer processes |
| Flexibility | With machine learning can adjust | If not defined, then will not be able to support |
| Time to market | Development and Testing requirements are on very low end | Typically large scale efforts and become capital expense efforts |

## Analysis – Suitability & Potential Saving

**Suitability: Most suitable:** Low complexity / volatility and big headcount

- **Suitable:** low headcount / low complexity
- **Potentially suitable:** High complexity with a high headcount
- **Not suitable:** High complexity and low headcount

**Table 2. RPA Journey**

| | |
|---|---|
| Assessing Robotic Process Automation | • Gain Understanding of RPA technology, benefits, shortcomings<br>• Evaluate Product Vendors<br>• Gain high level business support<br>• Identify opportunities and conduct several POC |
| Establish CoE | • Setup a CoE function for at least one LOB<br>• Provide consulting services to help LOB understand RPA, benefits case and support deployments<br>• Establish dev environments and processes |
| Establish Scale | • Expand CoE to support company wide<br>• Develop Training programs to help business deploy rapidly<br>• Create integration frameworks and management dashboards<br>• Standardize security and release governance models |
| Embed RPA into Normal Day to Day | • RPA becomes part of the operational and technology fabric in the company<br>• RPA becomes core to any new product development or project<br>• Virtual workforce becomes part any of annual planning activity |

## Saving Potential

HC = Headcount

- **HC Saving:** Complexity factor*HC
- **Support team:** Volatility factor* HC
- **Total HC Saving:** HC saving – support team

## Additional factors

- Robots work 24 hours/day without breaks
- Robots work faster than humans (2-3 times)

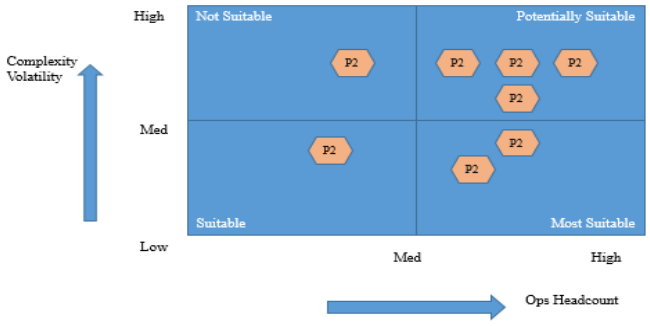


**Fig 1: Headcount vs Complexity**

## Advantages of RPA

- Cost reduction – Can yeild cost reduction of 35 -65 % for onshore process operations and 10 -30 % offshore delivery.
- Better service delivery - Can enhance process quality, speed, governance, security, and continuity.
- Short time investment recovery – Takes just 6 – 9 months for RPA implementation to recover its investments.

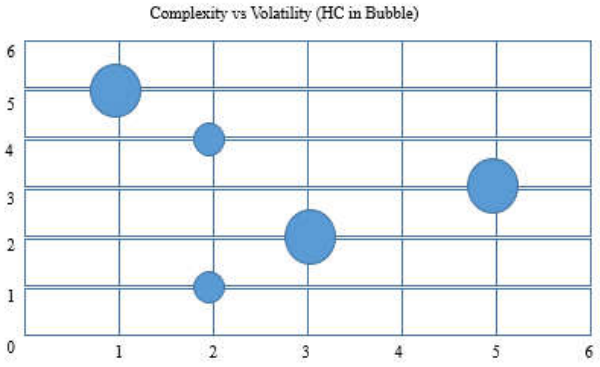


**Fig. 2: Complexity vs Volatility**

## Challenges with RPA

- Resistance from client's IT team.
- Hidden costs, such as implementation, hosting, and maintenance.
- Lack of real time visibility on part of the process the robot is working on.
- No strategic value as a standalone technology.

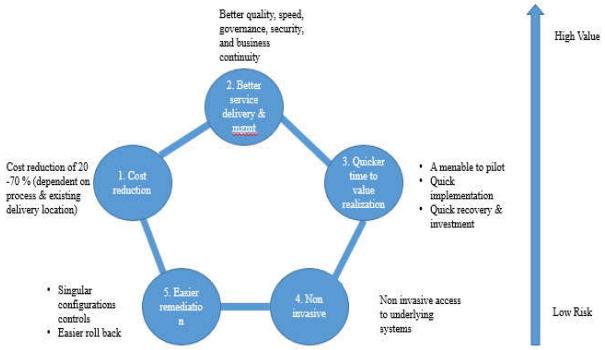


**Fig 3: Challenges of RPA**

## Current market adoption

- The potential for RPA varies by industry and horizontal business functions, invoice processing, order processing, and claims management are some processes with high RPA potential.
- Traction for RPA is higher among existing BPM buyers and its growing faster as compared to the adoption among new buyers.
- Almost all service providers have built support capabilities for RPA.

## Industrial automation trends

**Multi-touch:** Like many trends, multi-touch started in the commercial world and migrated to industrial automation. The driving force for this trend is user demand for the speed, power and flexibility of multi-touch in their plant floor operator interface applications. After exposure to the advantages of multi-touch through smartphones and tables, users will no longer accept the older, inferior single-touch technology. Suppliers are responding by incorporating multi-touch technology into their products. Newer versions of Windows have built-in multi-touch support, as do most modern touchscreens. Many SCADA and PC-based HMI software programs have native multi-touch support, making it easy for users to design their applications to take full advantage of capabilities such as zoom, pinch, expand, swipe and pan — along with multi-finger touch capability.

**Mobileapps:** Smartphone and tablet users love their apps as it's much faster to obtain information by touching a single button than by starting up a web browser, typing in a URL and navigating to the correct page. Developers have responded by making thousands of apps available for everything from finding the nearest happy hour to checking the latest sports score. In the world of industrial automation, apps are finding a home as the latest and greatest way to quickly access plant operating information from smartphones and tablets. Simply press an on-screen button, and a customized view of a manufacturing facility quickly appears on the screen, ready for instant access. With quick access to actionable information through apps, efficiency and productivity improves.

**HTML5:** Although apps are great for users, they take much longer to develop than browser-based access. Most plants have a number of PC-based human machine interface (HMI) platforms, and most of these run off-the-shelf HMI software. Leading HMI software packages offer built-in HTML5 support, as does most every mobile device operating system. This mutual support for the HTML5 standard allows users to develop remote access screens conforming to the HTML5 standard, and then deploy these screens to almost any remote device. This write-once and deploy-many-times functionality saves time and simplifies browser-based remote access. HTML5 also allows for automatic adjustment of screen size depending on the display device, further simplifying deployment.

**BYOD:** Rare is the industrial automation professional who doesn't own a smartphone, a tablet or both. Ownership and constant use brings familiarity, and the desire to use these personal devices for business purposes is increasingly supported by employers. For the end user, bringing your own device (BYOD) to work offers convenience, ease-of-use and built-in remote access. For their employers, BYOD is much cheaper than supplying a separate mobile device to each employee. There are some security concerns, but methods exist to deal with these, ensuring BYOD practices will continue to grow and prosper.

**Online research and purchasing:** Back in the day, industrial automation products were purchased from distributors who came to plants bearing donuts, product brochures and pricing information. But many recent surveys show users now prefer to find products through the Internet, relying on search engines and other tools. In many cases, these same users are choosing to continue their online experience from research to purchase, mimicking the path many follow to buy products ranging from plane tickets to purses. Supplier websites and online stores with their readily available part numbers, specifications and technical manuals will continue to support this trend.

**Onlinelearning:** Just as growing numbers of people want to use the Internet to research and buy products, so it is with learning. The old paradigm of employment for life with a company that would provide lifelong training has gone by the wayside. In its place is the requirement for automation professionals to be responsible for their own professional

development, and many are turning to the Internet as a source for this training. Vendors are responding by providing online content in the form of videos, e-books and other training materials, allowing users to select topics of interest and proceed with learning at times and places of their choosing. The volume of affordable online training materials will continue to expand and improve.

**Grid computing & virtualization:** As the PC has become more powerful, its resources have become more underutilized in many commercial and industrial applications. Virtualization provides a means to efficiently utilize these resources by allowing multiple instances of operating systems to run on a single PC. One typical industrial automation application consolidates multiple server-level functions such as I/O, database and SCADA onto fewer PCs. This not only saves money as fewer PCs need to be purchased and maintained, it can also increase reliability by allowing near instantaneous switching from a failed to an operating PC.

**Industrialwireless:** This trend doesn't have to do with wireless access by remote devices, but rather with wireless transmission of data from sensors to control systems. In a typical application, a sensor is installed in a remote location, maybe a tank farm, and transmits information via a wireless mesh network to a control system which may be located far away. In these and other similar applications, wireless communication is much cheaper to install and maintain than wired equivalents as there are no wires to run and repair. Users are responding by increasing demand from near zero just a few years ago to over $500 million annually today, with double-digit growth rates projected for the foreseeable future.

**Robotrevolution:** Unlike many industrial automation trends, this one isn't borrowed from the commercial world, but is instead migrating in the other direction, from industrial to commercial. Industrial robots used to be dumb devices designed to perform the same simple operation over and over, like picking a particular part from one specific location and placing it to the same spot. Nowadays, robots driven by software and vision systems can be programmed to perform a variety of tasks, which fits with today's demand for flexible manufacturing. Combine this with the robot's ability to work collaboratively and safely with humans and other robots, and this trend will continue its growth.

**Rise of DC power:** DC power is coming to the forefront, supplanting AC power in many instances. With high voltage transmission lines, DC provides advantages over AC in terms of efficiency and lower construction costs. At the user level, more end devices such as VFDs, computer hardware and other components use DC and have to provide conversion from AC internally. This is driving in-plant distribution systems to use DC instead of AC, as with server farms where most power consumption is DC.

**Conclusion**

Robotic process automation (RPA) is the application of technology that allows employees in a company to configure computer software or a "robot" to capture and interpret existing applications for processing a transaction, manipulating data, triggering responses and communicating with other digital systems. Robotic process automation (RPA) is the use of software with artificial intelligence (AI) and machine learning capabilities to handle high-volume, repeatable tasks that previously required a human to perform.The real property administrator (RPA) designation is a professional designation for people who work in property management. The designation is administered by Building Owners and Managers Institute (BOMI) International, an independent nonprofit institute for property and facility management education.Business process automation (BPA) is the strategy a business uses to automate processes in order to contain costs. It consists of integrating applications, restructuring labor resources and using software applications throughout the organization.Advantages commonly attributed to automation include higher production rates and increased productivity, more efficient use of materials, better product quality, improved safety, shorter workweeks for labour, and reduced factory lead times. ... Worker safety is an important reason for automating an industrial operation.

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