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# SIFMA Insights

RPA, Not Your Science Fiction Movie Robots

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## Executive Summary

Robotic process automation (RPA) is a type of process automation technology based on the notion of software “robots”. The software mimics the actions of humans in carrying out a specific task – RPA is meant to take the repetitive out of routine, “robotic” tasks. As we once read, it takes the “robot out of the human.” RPA can free up employees to focus on higher value and more intellectual tasks, as well as enabling more time for value-added client interactions.

While RPA can be an improvement over more basic technologies (straightforward automated processes, macros), it is not as advanced as other emerging technologies, such as artificial intelligence (AI) or machine learning. Financial institutions are still in the early stages of adopting this technology, looking for opportunities to apply RPA beyond just cost reduction. RPA is relatively IT-light (not requiring a lot of IT to get it up and running) and can be implemented in agile timeframes, making it easier to identify and apply use cases, as compared to modifying legacy systems or implementing other emerging technologies like blockchain or AI.

RPA is making a fintech solution attainable for firms of all sizes and in a timely manner. RPA is also meant to work with other technologies, often acting as an intermediary between legacy systems and new fintech offerings. And, RPA can be used to increase oversight and decrease risk, always an area of importance in financial services.

That said, no two firms are alike, and, therefore, an appropriate RPA usage for one firm may not fit with another’s business structure and strategic priorities at this time. Inside this note, we analyze: what RPA is and what it is not, take our members’ pulse through an anonymous survey and identify opportunities for RPA in financial services.

## What It Is...

Robotic process automation (RPA) is a type of rules-based process automation technology based on the notion of software “robots”. Meant to increase process efficiency, RPA software can mimic the activity of a human manually performing routine and repetitive tasks performed on a computer. RPA can perform these tasks faster and more efficiently, removing the potential for human error. McKinsey indicates RPA “offers a potential 30%–200% ROI in the first year, and employees may like it too.”<sup>1</sup> Removing the mundane, repetitive tasks frees humans up to focus on high-touch client-related or strategic thinking activities, both higher value in nature. Employees might prefer this to repeating the same mundane task all day long. RPA can also assist firms in increasing oversight and collecting data to analyze how efficiently processes are executed.

RPA appears ripe to assist firms with various data tasks: extraction, entry, aggregation, transformation, reporting, reconciliation and maintenance. It can also be applied to lower value tasks such as file maintenance and storage or email confirmations. The goal is to reduce the cost of labor needed for these manual tasks, freeing up personnel for value-add projects. At this time, financial institutions are moving cautiously in identifying RPA applications for financial transactions workflows, such as payments or money transfers.

We also note many firms are implementing internal governance frameworks to evaluate each potential RPA use case and monitor its application. Many firms using or considering RPA have designed rigorous review processes that address questions such as ROI above and beyond general business processes improvement and regulatory concerns, as well as standard IT development analysis.

Regardless of the use case, RPA is relatively IT-light (not requiring a lot of IT to get it up and running) and can be implemented in agile timeframes – as compared to other emerging technologies like blockchain or AI – making it easier for firms to identify opportunities and apply RPA into existing systems. Further, firms can layer RPA on top of legacy technology systems to interact with them more efficiently or connect them with other systems or technologies. RPA can be connected to other emerging technologies, such as: optical character recognition (OCR) and computer vision processing of images, natural language processing (NLP), chatbots, voice recognition advanced data analytics, etc.).

## ...And What It Is Not

There is a wide range of automation technologies today, ranging from systems well established within the financial services industry to more advanced emerging technologies, such as AI and machine learning (discussed below). While both RPA and robotics can be used to replicate human actions, they are not exactly the same concept. Robotics is an interdisciplinary branch of science and engineering – computer science, mechanical engineering, electrical engineering, etc. – involving the development, programming and use of robots, or computer systems, that can operate autonomously to substitute for humans or replicate human actions.

RPA uses software or other technology to replicate a task typically performed by a human on a computer.

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<sup>1</sup> <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-next-acronym-you-need-to-know-about-rpa>

These are often mundane or routine tasks, whereas robotics is frequently used in dangerous situations in industrial, manufacturing or other industries to prevent human harm (ex: manufacturing, bomb deactivation, etc.). RPA is just another form of rules-based software automation, like other forms of automation used for decades. *The use of the term “robot” within RPA software does not imply use of judgment, alteration of program rules or capability of decision making that has not been specifically built and tested by the implementation team, as seen with AI.*

Robotics is not the same as other more advanced emerging technologies, such as:

- **AI** – In the 1950s, the fathers of the AI field, Marvin Minsky and John McCarthy, described AI as “any task performed by a program or a machine that, if a human carried out the same activity, we would say the human had to apply intelligence to accomplish the task”.

*Difference: In RPA, the software “robots” must be provided with instructions, as they do not possess intelligence.*

- **Machine Learning** – Machine learning is a form of AI where computer algorithms can learn from data without specifically being programmed.

*Difference: In RPA, the software “robots” are not autonomously learning or getting better over time at identifying issues or options, unless humans update the RPA programs.*

Yet, RPA can be an improvement over more basic technologies like:

- **Straightforward automated processes** – Financial institutions have long looked to automate manual processes. For example, the shift to integrated execution systems from hand punching order tickets after execution on an exchange was implemented decades ago. While sometimes difficult to delineate RPA from ongoing industry automation, it is helpful to think of it as a specific program environment designed to carry out automated tasks at scale, within the core IT infrastructure.

*Difference: RPA can be leveraged at other places within a firm’s technology and operations flows – bridging the gap between discrete systems or platforms, managing information produced by different systems, etc. – tasks humans have performed in the past but can be automated.*

- **Macros** – A macro is a short sequence of code that automatically expands into a set of instructions to perform a single task. (A similar concept is a script, which is a sequence of computer codes that execute a specific procedure or series of tasks.) Macros are generally user-built additions to off the shelf software, such as spreadsheets or database software.

*Difference: Instead of scripts within a single program, RPA offers discrete software “bots” that can interact with a range of different programs and systems. These actions can be tracked and monitored within a structured IT governance framework much more easily than software macros, which are often developed outside of IT control protocols.*

## Member Pulse – Identifying RPA Opportunities

As we are still in early days of adoption for this technology, firms are approaching RPA development from a broad range of business models, operational structures, control frameworks and management objectives. SIFMA surveyed its members on their current RPA applications and thoughts for how to incorporate it moving forward, with 82% of respondents indicating they are currently using RPA. We found what may be an appropriate RPA usage for one firm may not fit with another's business structure and strategic priorities at this time.

Below we share some of the use cases, highlighting:

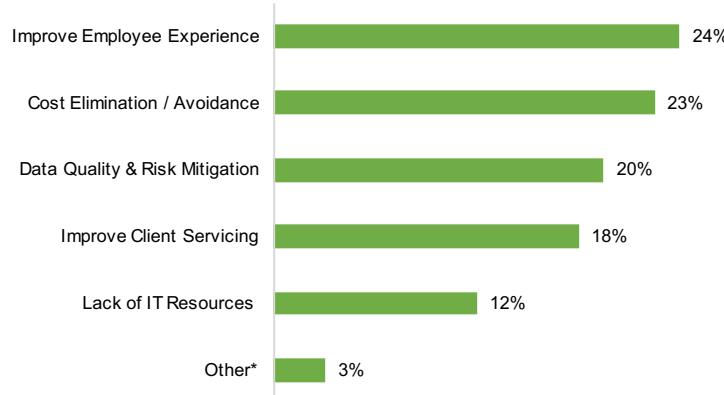
- Financial institutions are looking to use RPA for more than just cost reduction
- RPA can be used to increase oversight and decrease risk
- RPA is meant to work with other technologies, often acting as an intermediary between legacy systems and new technology offerings

Further, respondents of our survey went on to identify areas they do not foresee applying RPA:

- **Band-aids** – Some firms indicated a preference to not use RPA as a band-aid for areas where broader system and process redesign is needed.
- **Complex processes** – Some firms chose to not use RPA for complex process (where multiple decision points exist), selecting a full system redesign instead.
- **Connecting technologies** – The connections between RPA and other technologies were mentioned as potential barriers to adoption. For example, if a firm has already deployed OCR, it may be more comfortable integrating processes with hand written documents into their RPA program (while others may stick to processes involving entirely digital information).

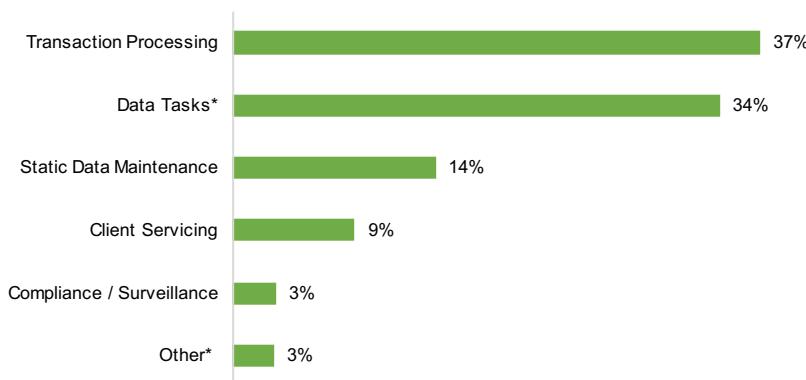
The industry continues to embrace the potential of RPA to deliver greater efficiency, improve client experience and execute processes with less risk and error. A greater understanding of the applications of this technology and how effectively it can be supervised could lead to an expansion of use cases.

### Primary Driver for Using RPA

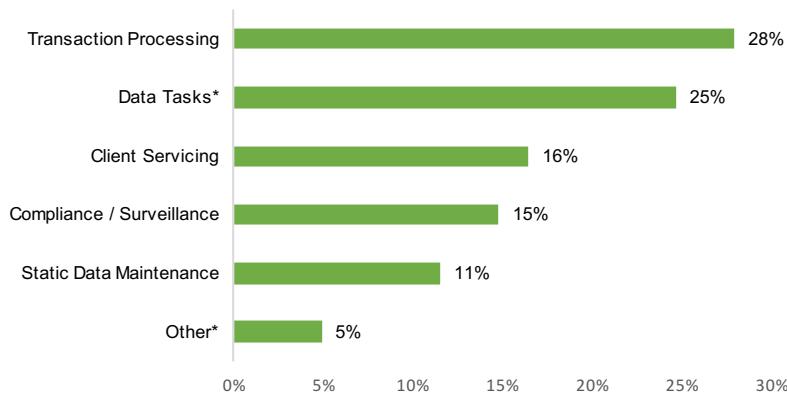


Note: Lack of IT resources to automate/enhance processes. Improve employee experience by increasing the quality of their work tasks. Other includes risk management and automation of repeatable tasks.

### Current Use Cases for RPA



### RPA Use Cases Under Consideration



Note: (Top) Data tasks include extraction, aggregation entry, transformation & reporting. Other includes reconciliation processes.  
 (Bottom) Data tasks include extraction, aggregation entry, transformation & reporting. Other includes non value-added tasks such as saving files, transferring data, sending e-mails, plus reconciliation processing.

## SIFMA's Next Steps

Firms also recognize that successful implementation of RPA is not limited to finding the right technology and connecting with operational processes. It also needs to be incorporated into the supervision, risk management and regulatory frameworks that govern financial institutions. If not implemented within a proper governance structure, or deployed without suitable quality controls, RPA can create and multiply issues at a faster rate than manual processes, as with any other software. Firms are developing programs to govern maintenance and oversight of bots – as they do for human employees – understanding how bot focused supervision programs and segregation of duties can manage risks. Similarly, the industry is working to understand how this new technology and its applications fit into existing regulatory frameworks.

SIFMA will continue to work with its member firms to help support the development of RPA technology. SIFMA will facilitate discussions on firm experiences and good practices for supervising RPA bots and integrating RPA into technology risk management and oversight frameworks. SIFMA and its members will also look to engage regulators and supervisors in dialogue to explore how to accommodate digital labor into regulations designed for human labor practices.

## Appendix: Terms to Know

<b>AI</b>	Artificial Intelligence	<b>IT</b>	Information Technology
<b>Bot</b>	Computer programs that speak like humans	<b>NLP</b>	Natural Language Processing
<b>Chatbot</b>	Software engaging in natural language dialogues with users	<b>OCR</b>	Optical Character Recognition
<b>DLT</b>	Distributed Ledger Technology*	<b>ROI</b>	Return on Investment
<b>Fintech</b>	Financial Technology	<b>Robotics</b>	Use of robots to substitute for humans or replicate human actions
* Blockchain is one type of DLT		<b>RPA</b>	Robotic Process Automation

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