Robotic Process Automation

Why Robotic Process Automation is the Future of Healthcare

DIVURGENT

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Introduction

Advances in technology reflect an advancement of society, and the next wave of technology will likely incorporate Robotic Process Automation (RPA). Monotonous tasks that require excessive manual activities are a waste of time and money. The consequences of continuing to waste these resources results in reduced productivity and in the medium to long-term lost competitive advantages. These negative impacts on a company can be avoided by automating labor-intensive processes through the implementation of RPA.

RPA is software that can be designed to complete a task or process. The use of this technology is one, of many, logical solutions to more efficient operations in the healthcare industry. Applying RPA has already resulted in significant improvements in productivity levels due to a reduction of manual labor at a number of organizations.

This whitepaper will cover what RPA is, including its benefits, risks, and implementation process, and will outline a case study on Divurgent's use of an RPA system called PAL.

Background: Robotic Process Automation

RPA is the process of automating tasks with robots or software to reduce human intervention. Typically, RPA is not a physical robot rolling around a facility, but rather a program coded on a computer that digitally executes whatever it is configured to do. RPA scenarios can be designed for something as simple as sending automatic response emails, or something as complex as analyzing administrative data trends to generate predictive judgments for the company. The idea is to create a digital workforce consisting of intelligent software robots that accomplish tedious tasks.

RPA is made of multiple technologies combined and customized for different automation purposes. The concept first stemmed from the creation of Machine Learning in 1959 by Arthur Samuel with the original intent of creating artificial intelligence. This led to exploring computer capabilities with Natural Language Processing in the 1960s, which combined AI with computers to process the human language more accurately. Other key developments include screen scraping software that involved extracting data from websites, as well as workflow automation tools of the 1990s that automated manual work such as data entry and lead nurturing. Building off of these technological advancements, RPA was developed in the early 2000s and entered the mainstream in 2015. Robotic automation as we know it today has been expanded to be more cognitive. As the range of its purposes widens, RPA is predicted to be increasingly implemented in businesses and companies.

There are many problems in healthcare that RPA can address. Dozens of repetitive tasks can be identified in areas such as electronic medical records, financial systems, patient scheduling, clinical documentation, claims management, Medicare billing and compliance, and many more. Three examples of processes that some organizations have found success in implementing RPA technologies are:

- *Claims Processing* - There is a long delay between submitting a claim and receiving compensation from a payer organization due to someone having to spend hours on data entry. This creates a realistic avenue for RPA to improve upon by facilitating claims processing to save time and eliminate unnecessary work.
- *Clinical Data Extraction* - Extracting information from clinical documents and medical databases is a tedious task that consumes time and effort. This mundane manual work could be replaced by RPA to efficiently extract data and input it into websites such as public health registries.

- *Self Service* - Many processes can be turned into a station that customers can use on their own instead of having to interact with an employee. For example, frequently asked questions from clients in a call center can be handled by a chatbot.

Benefits of RPA

The numerous benefits of using RPA will allow companies to run more efficiently, one of the most valuable being time. Some of these benefits are highlighted below:

24/7 Processing	Robots don't need sleep nor are they restricted by labor laws; therefore, they can operate nonstop. This maximizes every hour of the day to complete these tasks which will immensely improve the rate at which tasks are completed.
Faster Turnaround Times	A bot is programmed with the sole purpose of completing a task and will execute it more quickly and efficiently than human capabilities allow. Thus, the processing time will be reduced.
Processing Cost Reductions	The expansive cost factors that go into processing can be simplified and condensed into a single cost to operate an RPA. For example, this can cut costs on claims and billing. RPA will greatly reduce the amount of money spent on processing costs.
Reduce Human Labor	The need for people to focus on mundane tasks can be eliminated, freeing workers time and energy. Healthcare professionals can use this additional time to produce higher-value work by focusing on more cognitive tasks like caring for patients rather than focusing on tedious data entry.
Accuracy and Efficiency	The same way a calculator is more accurate than mental math, RPA is less likely to make processing mistakes. It reduces human error and efficiently executes the task at hand.
Flexibility and Scalability	Another aspect of RPA is how flexible a program can be. Adaptations can be made to fit a company's needs to repurpose an existing RPA for different tasks with a bit of modification. It can also be scaled to a level of mass production if applicable.
Improve Satisfaction and Morale for Superior Healthcare Quality	In taking unnecessary stress off the shoulders of healthcare workers, RPA can improve both the morale of the workers and the satisfaction of the clients. It would allow the healthcare system to better address the needs of more people with a higher quality of care.

These are just a few of the excellent benefits of incorporating RPA into healthcare. But what are some of the disadvantages?

RPA Risks

There are several drawbacks that should be taken into consideration when implementing RPA within a company. There is the cost of initial investment, a chance that the project will fail, the cost of upkeep, and even the ethical dilemma of job replacement. The initial investment to implement RPA can be steep, and so calculations are necessary to weigh if the savings accumulated by this investment can offset the costs substantially. The initial cost can vary depending on the developer or vendor. One bot typically costs $4,000 to $15,000 and implementation costs about $20,000 to $100,000 . Depending on the scope of the system, a company can spend multi-millions to compile a complex network of bots. Other initial development costs could include consulting, planning, opportunity assessment, design, testing, and deployment costs.

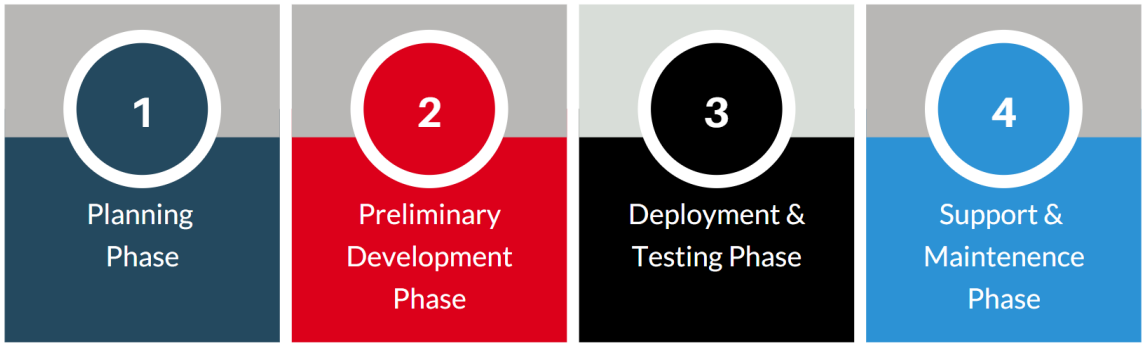
There is also a 30% chance that initial RPA projects could fail, most commonly due to poor preparation for the automation journey. There are numerous reasons why the automation wouldn't work from being incompatible with the software to installation issues. To risk investing money upfront only to have the automation be unfeasible would be a costly waste. Therefore, it is crucial to enact every step of the planning phase and the implementation process properly and thoroughly.

Another drawback involves the monitoring and maintenance of installed RPA. There is a cost to maintaining a system that can vary greatly with the complexity and the scale of the bot. Some vendors may charge for maintenance, system updates when software is updated, and other miscellaneous costs. Keep in mind that whatever profit the bots make need to at least breakeven with the cost of upkeep in addition to the initial costs.

There may also be a more ethical concern that robots will replace humans and create a surge of unemployment. This is a misconception. RPA cannot replace humans because they cannot replicate human cognitive functions. It does not have a brain of its own and thus cannot perform logical or critical thinking. It does however have the potential to alter work cultures as it could replace major functions of some jobs. While inevitably some jobs may be displaced, the rate at which RPA is developing is not fast enough to cause alarm for unemployment spikes. From a different perspective, a growing RPA market could generate jobs such as the positions to create the programs, to sell or customize them for a company, and even to maintain or repair systems. These are some of the risks and costs to consider when deciding if RPA is worth bringing into the business.

Implementation

Every vendor has a different implementation process when developing an RPA system. Some may make a generic program that is compatible with software such as Epic or Microsoft Teams, while others may prefer to completely customize a program depending on the situation. Regardless of implementation style, there are four basic phases that are crucial to successfully integrating RPA technology, described on the following page:



Planning Phase - Involves gathering the processes to be automated and identifying logistical factors for implementation. Proper preparation is one of the most crucial steps to ensuring the RPA will be compatible with existing systems and processes.

Preliminary Development Phase – The creation of automation workflows to diligently select automation candidates and identify risks.

Deployment and Testing Phase – Initial pilot or monitoring phase that uncovers outages and ensures a bug-free product. Once tested, the bots can be scaled and deployed.

Support and Maintenance Phase - Ensures the fully operational product is continuously updated across the database to maintain its productivity.

RPA CASE STUDY ON PAL

At Divurgent, we recently partnered with a large physician group to implement an RPA program called PAL that automated payroll processing. Our client wanted to review their ERP processes to look for opportunities for improvements. We found many opportunities including significant manual data entry and processing related to payroll.

The client had a large quantity of data inputs from disparate systems needed to determine payroll amounts. These calculations relied on someone collecting the data from the sources, manually entering them in Excel sheets, and exporting them from the legacy system to get approved by the managers. Additionally, the payroll specialist then sent emails to the providers one by one. There was a tremendous amount of manual calculations to determine payments that led to a lot of errors in the final amounts, and the whole process took 72 hours to complete. This repetitive, time-consuming process was ripe for robotic automation.

To solve this problem, Divurgent developed PAL, a platform that could ingest the data directly from the source. Ultimately PAL's main goal is to determine the payment amount and to send out notice of payments. It took the form of a website that automatically performed calculations and automated the review process to approve payment, which generated pay statements in a PDF format and automatically emailed them to the providers. The entire payroll process was brought down from 72 hours to 15 minutes.

PAL is a real-life example of how RPA can work. A problem needed to be addressed - a payroll process was inefficient, time-consuming, and inaccurate. The solution dramatically reduced the time to process payroll, drastically improved the accuracy of the payroll calculations, and increased the security of sensitive payroll information. This method of having a problem, finding an RPA solution, and implementing in phases can be applied to endless possibilities of situations to advance healthcare into a new era.

CONCLUSION

There is much speculation over the possibilities about how RPA can be used in the future. RPA is a piece of the solution to the many challenges faced by the healthcare industry. The information presented in this paper can be helpful towards understanding what an RPA is, learning the pros and cons of using RPA, and give an overview of how to implement RPA. The case study on PAL provides an example of how this technology can be used in healthcare. There are endless possibilities of utilizing RPA, and Robotic Process Automation will play a key role in the future of healthcare.

About the Authors

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Sam is the Associate Dean of Graduate and Professional Studies, an Executive in Residence and the Program Director of the master's in healthcare management at American University in Washington, DC. He is an industry visionary and has developed a unique approach of bringing key industry best practices that represent the future direction of where the entire healthcare industry is headed. He is a sought-after advisor, mentor, and speaker, and has provided consulting services to various organizations in the governments, industry, startup and the non-for-profit fields. Sam is also the founder and CEO of Potomac Strategies LLC, a an advisory firm serving clients in the health care, technology and medical devices sectors.

Prior to his role at American University, he was a Professor in the field of Healthcare Management, Policy & Strategy and the Founder and Program Director of the Master of Science in Management of Healthcare Informatics and Analytics (MHIA) at The George Washington University's School of Public Health. Sam held key leadership roles at PricewaterhouseCoopers (PwC). He was the leader of the Health Reform program office tasked with determining the consulting firm's response to policy changes impacting the healthcare field and clients. He also led the firm's New Venture Incubator where he was responsible for creating strategic integrated solutions that brought multi-competency skills, tools and technologies to clients. In that capacity, he was responsible for designing, developing and enabling over $500M in new revenue and partnerships.

While he was leading these strategic initiatives, Sam continued to serve clients in his role as Mid Atlantic Health Industries leader in order to apply his knowledge and to remain focused on their needs. He is recognized nationally for his expertise in Project and Program Management, Business Intelligence and Analytics, Business Continuity, Complex Clinical & Financial Systems Implementations, HIPAA, ARRA/ HITECH, Audit, Risks and Governance Consulting, and the Convergence of the business of healthcare with IT.

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Senior Consultant with over 10 years of experience in academic and traditional healthcare settings. Skilled in Epic, data analytics, and EHR optimization. Passionate about identifying areas of opportunity to streamline operations, maximize use of IT, and deliver higher quality patient care. Former clients include Mayo Clinic, MD Anderson, University of Colorado Health, and MUSC.

Prerna's most recent work includes co-manage setting up and executing 80+ agent call center supporting patient engagement, pre-registration, and virtual health initiatives for a NY client; design and build data visualizations to provide visibility into engagement metrics and offer agent productivity insights; support firm development of telehealth solutions offerings, including vendor analysis and comparison of key capabilities; develop firm board matching program to support internal team members development and promote community engagement.

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Elizabeth worked with Divurgent in the research and development of this white paper, consulting several external and internal resources, and collaborating with our subject matter experts.

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