

Chapter 21

Robot Process Automation (RPA) and Its Future

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ABSTRACT

Many software automation techniques have been developed in the last decade to cut down cost, improve customer satisfaction, and reduce errors. Robotic process automation (RPA) has become increasingly popular recently. RPA offers software robots (bots) that can mimic human behavior. Attended robots work in tandem with humans and can operate while the human agent is active on the computer. On the other hand, unattended robots operate behind locked screens and are designed to execute automations that don't require any human intervention. RPA robots are equipped with artificial intelligence engines such as computer vision and machine learning, and both robot types can learn automations by recording human actions.

INTRODUCTION

Robotic Process Automation (RPA) is the new technology that aims to create software robots (bots) that mimic human behavior. Transitioning to RPA, enterprises aim to reduce labor costs, increase productivity, reduce error rates and improve customer satisfaction. Increasing average cost of worker around the globe (The Biggest Cost Of Doing Business: A Closer Look At Labor Costs, 2018) (United States Nonfarm Unit Labour Cost, 2018) enterprises adapt the RPA technology very fast in the past few years. RPA has become one of the most trending technologies in many industries. This chapter will introduce the RPA technology and discuss its social implications.

In general, RPA is a system aimed at automating business processes through business logic and user inputs. RPA applications provide tools for users to define robots (or bots) that can mimic their interactions with applications processing a transaction, manipulating data, triggering responses and communicating with other digital systems. (Boulton, 2018) According to a Trecent report automation technology such as RPA are predicted to have a potential economic impact of \$6.7 trillion by the year 2025. According to the same report, the automation market will have the second largest economic impact only behind the mobile

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Internet (Ostdick, 2018) In a recent survey of 500 senior decision makers, 77 percent of respondents believe RPA will drive productivity, through the automation of mundane, transactional tasks. In the same survey, 56 percent of respondents indicated they are planning to use RPA to free up staff, allowing them to focus on higher value work. (What is RPA?, n.d.) Given these statistics, RPA is expected to grow into one of the leading technological platforms and will become a standard for performance. (Ostdick, 2018)

The term RPA can be dated as early as mid-2000s, although the underlying technologies such as computer vision and workflow automation has been developing for some time before. While RPA is still considered as a developing technology, it still relies on the technologies artificial intelligence (AI), screen scraping, and workflow automation and elevates these technologies to a new level, advancing their capabilities in a significantly improved way. Rather than being dependent on code as is required for screen scraping, RPA software provides tools for users to build workflows in a visual way that can be entirely independent of coding knowledge. Also, unlike many web scraping tools, some RPA software makes use of optical character recognition (OCR) technology to adapt to changing websites without requiring intervention from a human employee.

Deloitte suggests that RPA is the combination of AI and automation: “RPA, a synonym to AI, is the application of technology allowing employees in a company to configure computer software or a ‘robot’ to reason, collect and extract knowledge, recognize patterns, learn and adapt to new situations or environments.” (Laurent, Patrick; Chollet, Thibault; Herzberg, Elsa, 2018) In addition, collaboration between RPA and AI allows for complex capabilities to emerge. While automation mainly aims to restructure and organize rule-based and repetitive processes; defining and handling exception cases are still highly manual tasks. At this point, AI can help the automation software for processes that do not require complex decision-making and analysis, such as natural language processing, (NLP) or online customer support. Future of RPA is seen as the coordination between these technologies.

It's recognized that AI technologies will have a significant impact on our society. What happened in the 19th century with Industrial Revolution, a similar social change is likely to take place in the 21st century with AI. We know from history and from what AI does that the first jobs to go are the ones that are simple and repeatable jobs and tasks that are currently performed by people. We can be confident that the jobs being replaced are only one very small side of what AI is really going to change for the society. The short-term job losses and lack of laws and regulations should be a big concern to all and be addressed at the same pace as technology is advancing. Between the job creation, reallocation of skills, and the improved quality of life that much of society will experience as a side effect of AI, long-term benefits to society will lift up all of society across the globe. (Kelemen, 2018)

This chapter will introduce the technologies used in RPA applications and discuss the future of RPA.

BACKGROUND

Automation is a system that functions without direct human interaction. Many automated systems have the following in common: taking the human factor out and thus improving precision, quality, and accuracy. The first idea of how to automate processes using software came in 1935, when the computer scientist Alan Turing described how a systematical algorithm could work processes more effectively. His ideas on algorithms and automation had a lasting impact (Middelburg, 2017) In 1965 the first Robotics Institute was opened (Willcocks P. L., 2016), and service automation was the next wave of improvement in automation (Middelburg, 2017).

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