

IPA: not your average automation

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How to combine RPA with AI

Introduction

Repetitive work within the technology sector is costing businesses 19 working days per year per employee, on average. 90% of workers are burdened with this repetitive work. Work that includes searching for data, data entry, data processing and analysis, and combining data from multiple sources (SnapLogic, 2017).

With numbers like these, it does not come as a surprise that companies have shown more and more interest in automating their business processes. Through automation, companies can relieve their workers of the repetitive, mundane, and time-consuming tasks, leaving more time to be spent on the things that matter.

But how far can we take process automation? With the recent surge of Artificial Intelligence (AI), we also see a shift in automation from classical rule-based automation to a new field called Intelligent Process Automation (IPA). With the addition of AI, process automation can now overcome one of its biggest hurdles, complex decision-trees that are easily solve by humans but are hard to express in rulesets.

In this blog series we will explore the possibilities of Intelligent Process Automation. In this first blog we will start with a foundation for the other blogs. We are going to introduce IPA and why it is a game changer in business process automation. In upcoming blogs, we will explore IPA further by addressing use cases, tooling and more. But first things first, what is RPA again and why do we need to make it smarter?

A crash course on RPA

An unbelievable 58% of government citizen-facing processes are paper-driven in the United States, and only 20% of public service employees in the UK do strategic work that requires analytical thinking. RPA has the potential to reform stagnant bureaucracy and free up employee time for human-centric activities (Minit, 2018).

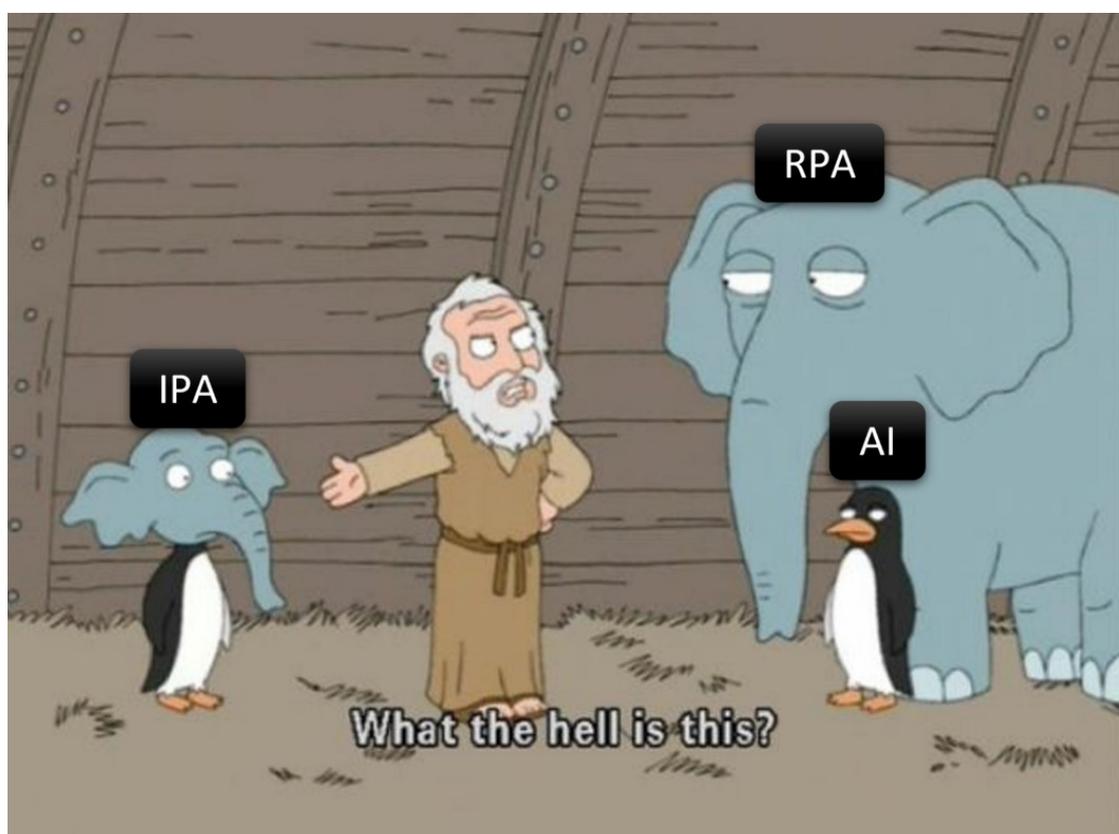
In recent years we have seen a rise in the use of Robotic Process Automation (RPA) to automate business processes and it is expected that this trend will continue. The term RPA has even become synonymous with the all-encompassing term *automation*.

Where automation is the 'mother term', which entails automating a business process with any of the tools available, for example by using API's or scripts, Robotic Process Automation is the act of automating business processes via software robots that mimic the actions of a human worker through a rule-based decision system, often on legacy software where an API is not present.

With RPA speeding up processing times and reducing costly errors, processing costs decline and per-employee output increases. Common savings from these efficiency improvements fall within 25% and 50% (Kofax, 2020).

RPA is widely used to automate processes like merging documents, filling in forms, executing tasks within a legacy software program or scraping websites. RPA is a good fit when a process has well defined decision boundaries that can easily be distinguished. Letting automations do these tasks comes with several advantages: an automation is less likely to make mistakes, can work at any time, will not get bored or fed up and is cheaper than a human employee. But RPA slows down when a process is more complex and relies on a human to make difficult decisions or interpretations. A robot lacks two main things: (1) it cannot make complex decisions by itself and (2) it cannot interpret complex documents on its own. To overcome these issues, automation solutions often use a *human in the loop*: a system wherein robots perform tasks up to a point where an employee must step in to make a decision or interpret text after which the robot takes over again.

However, in this digital age a question does arise, is it not possible to automate at least some human decisions?



IPA, not alcohol but automation

According to a survey, many companies across industries have been experimenting with IPA, with impressive results; automation of 50–70% of tasks, which has translated into 20–35% annual run-rate cost efficiencies (Markets and Markets, 2022).

With the rise of more and more computing power, there have also been enormous advancements in AI: image recognition combined with deep learning driving cars, outlier-detection models recognizing fraudulent transactions or cyber-attacks, the rise of recommendation systems, and NLP models that can hold a conversation so well that people believe it is sentient. With these milestones it comes to no surprise that process automation can also benefit from the current state of AI.

With regards to the above-mentioned decision-making limitations of RPA, AI can complement the process as a cognitive factor. The complexity of many if-then-else rules are not an issue for AI models. They can easily deal with large decision trees, can learn rulesets and develop human thought processes.

IPA in action

AI techniques that collaborate well with automation are Natural Language Processing (NLP) and Optical Character Recognition (OCR). A good illustration of this is intelligent invoice processing. Retail companies get large volume invoices, often in different formats and through different channels, for example via email or post. Processing these invoices can be a time-consuming and monotonous process for humans. However, it is a perfect fit for IPA. The invoices can be extracted by RPA and interpreted by NLP. The model can even interpret scanned invoices with the help of OCR. After the relevant information is extracted from the invoice, it can be saved in a file, fed to a database, or used as input for the company's preferred software.

To further illustrate the power of IPA let's discuss an actual Sogeti success story. One of our clients has a large volume of documents which need to be reviewed by a legal team before they are sent to other parties. Before the actual review of these documents, which includes redacting sensitive information, the legal team has to scan the documents and decide whether they are relevant for their business partners. This document scan was a time-consuming task that we automated with the help of NLP. Using the previously labeled data we trained a model that was able to learn on what grounds the legal team decided to label a document as relevant or irrelevant and label the documents as such via automation on the document management system. The model performed so well that the client has adopted this intelligent automation into their business process, resulting in a time savings of 30.000 hours over the course of a few years, calculated by multiplying the time spent by the number of unprocessed documents.

About the authors

This blog has been written by Micha Kastelein and Jeroen ter Voert, RPA Engineers and Data Scientists at Sogeti and are currently diving into the emerging field of IPA. Via this blog series we will take you along on our journey wherein we explore the possibilities of IPA and keep you up to date on our findings. Our series will continue with the exploration of IPA tooling, its considerations and a dive into some business cases. Stay tuned voor more content on <https://www.sogeti.nl/kennishub>