

How RPA and Intelligent Automation are Transforming Healthcare

Healthcare providers can use Robotic Process Automation, Intelligent Automation and Artificial Intelligence to reduce costs, increase process efficiency, and deliver better patient outcomes.

According to PWC, the healthcare industry processes 30 billion transactions each year, costing more than \$250 billion.¹ The reason for the high expense? Most of these transactions are processed manually.

This not only squeezes operating margins and profits but adversely impacts the quality of patient care. How? Because when more money is spent on administrative tasks there is less money to invest in facilities, equipment, patients and healthcare staff.

Harnessing the power of Robotic Process Automation (RPA), Intelligent Automation (IA), and Artificial Intelligence (AI) can dramatically improve healthcare by enhancing the productivity and availability of healthcare professionals.

Healthcare providers that use RPA, Intelligent Automation and AI can free healthcare staff from manual, resource-intensive tasks, thus enabling them to do what they do best – focus on higher-value work and spend more time delivering medical care.

In 2022, more than half of US hospitals ended up with a negative margin, marking the most difficult financial year since the start of the pandemic.

Source: Bain / KaufmanHall

¹ <https://www.pwc.com/us/en/services/alliances/amazon-web-services/healthcare-intelligent-automation-platform.html>

What is Robotic Process Automation (RPA)?

Robotic process automation (RPA) is a technology that uses computer software to mimic back-office tasks completed by human workers, such as extracting data, filling in forms, and copying and moving files to deliver significant and immediate value. Healthcare providers can deploy RPA software, or 'digital workers' as they are sometimes known, to automate and execute business processes. For example, ensuring discharge instructions are followed, processing account settlements, online appointment scheduling, equipment and resource training, account and claim settlements, and more.

According to a recent survey of health system executives, 60% cite rising costs as their greatest concern.

Source: Bain

Healthcare providers need to function in real-time, without slack. Cumbersome, error-prone manual tasks slow down processes and affect everything from compliance to the patient experience. RPA software creates efficiencies by automating tasks that improve data accuracy and reporting, which enables decisions to be made more effectively and efficiently. This translates to cost savings and ultimately means that resources can be used where needed most, thus providing better patient outcomes.

Intelligent Automation and Artificial Intelligence

An RPA solution, when used in conjunction with artificial intelligence (AI), creates Intelligent Automation (IA). Intelligent Automation aims to closely mimic human talent and actions such as reading documents, decision making or speech recognition, but not replace people.

RPA can use capabilities like natural language processing (NLP) and optical character recognition (OCR) to read documents, extract data, and make decisions. For example, Intelligent Automation can help determine whether a patient should be referred to a particular doctor or not.

What are the Benefits of RPA and Intelligent Automation in Healthcare?

With mounting pressure to reduce costs, increase the speed of operations, simplify tasks, increase the efficiency of business processes and improve the patient experience, healthcare organizations are positioned to benefit significantly from RPA and Intelligent Automation.

Healthcare leaders can implement RPA and Intelligent Automation to successfully:

- Reduce healthcare administration costs by automating repetitive manual tasks that are time- and resource-intensive.
- Increase the speed of processes, such as triage, by automating mundane tasks.
- Improve the accuracy of data, tasks and reporting by reducing the likelihood of human error, ensuring task and output consistency and empowering healthcare providers to promote best practices.
- Improve the productivity of healthcare staff by automating tasks that don't require human intelligence or thought, freeing up healthcare staff to focus on more complex activities.
- Improve the patient experience by providing high-quality and individual care due to effective decision-making, reduced costs, and greater visibility across the entire patient record.



Example Healthcare Processes that can be improved with RPA and Intelligent Automation

1. Completing administrative tasks

Administrative data is one of many types encountered in a healthcare setting. Administrative data entry often doesn't require specialized skills, but it's a task that can be very repetitive. RPA can use intelligent document processing (IDP) software, a mixture of Optical Character Recognition (OCR) software and AI, to prepare and ingest documents such as health records and insurance claims.

Using Intelligent Automation technologies, such as natural language processing (NLP), speech recognition and image recognition, digital workers can extract data from a wide variety of document sources and transfer it into a database, healthcare application or other repository – all without the need for a healthcare staff to be involved. That said, should you wish to have a healthcare professional inspect the digital workers' work, that can be done very quickly.

Automating administrative tasks aims to give healthcare staff, doctors, nurses, and other clinicians a respite from the repetitive administrative tasks that distract them from attending to patients. Digital workers can take care of rote tasks necessary for positive patient outcomes but detract from healthcare staff's patient-facing duties.

For example, healthcare providers can integrate conversational AI into their core IT systems and, when used in parallel with RPA, conversationally manage their entire invoicing processes. Alternatively, digital workers can send patient notifications and alerts about appointments or prescriptions, collect patient data and provide advanced health analysis. Or Intelligent Automation can transfer data rapidly and accurately from one application to another.

Doctors, nurses, and other caregivers can make more informed treatment decisions with patient data at their fingertips.



2. Billing and Revenue Management

RPA can help automate repetitive and rule-based tasks in the finance department. For example, RPA can generate invoices and work orders, process payments, reconcile accounts, create transparent audit trails and generate reports and update accounts in real-time

RPA and Intelligent Automation streamline processes such as billing, fraud detection, claims and invoice processing, improving accuracy and speed. It optimizes scalability and efficiency, freeing healthcare provider finance departments to focus on more strategic and value-added activities. It enables innovation in data analysis, addresses compliance issues, provides insights and reduces risk.



Case Study: Using Automation to significantly Improve the efficiency of Invoice Processing.

Our client's Accounts Payable team had traditionally processed invoices through a combination of manual processes and semi-automated solutions in its accounting system using a system that generates a unique code to identify transactions and invoices.

By applying automation to the invoice process, the client now uses RPA with document and optical character recognition (OCR) that automatically reads and understands how to process the data, moving it directly into the system.

What are the benefits?

As well as experiencing a significant reduction in errors transcribing invoice data into the system, the automated process reduces reliance on third party accounting support. Overall the automation is delivering an annual saving of \$ millions in the Accounts Payable function.

3. HR Management

Today's healthcare providers' HR teams are required to become increasingly strategic. Implementing RPA and Intelligent Automation in HR can help free up time for activities that require proper human assessment and intervention, as well as free time to train and hone skills.

For example, digital workers can gather and review candidate resumes and profiles and assess those against their job requirements to create a candidate shortlist. Healthcare providers can define rules and requirements to determine which resumes and profiles are selected for the next stage in the recruitment process.

Digital workers can contact selected candidates and schedule interviews. It can also notify potential candidates that they were unsuccessful. If a candidate rejects, cancels or doesn't show up for an interview, the digital worker can then move to the next-best candidate and inform them that they have been selected for the next stage and schedule a date and time for the interview.

When a candidate is successful, digital workers can use information from the job description to create a personalized offer letter. Once an HR professional approves the letter, the digital worker sends the offer electronically to the candidate.

Upon receipt of an acceptance, the digital worker can then begin the process of onboarding. This can include creating and sending onboarding documents, such as tax forms, benefit enrolments, instructions for the first day, company policies, etc. Digital workers can grant system access, provide user accounts, and ensure the successful allocation of equipment and office space. Digital workers can also be used to book training, transfer tax and salary data to payroll, and initiate hiring data into HR applications.



Case Study: **Streamlining HR processes with Intelligent Automation.**

We have developed and delivered two major HR management automations for a large US healthcare payer/provider that have generated substantial cost savings and improved efficiency.

The first automation streamlines our client's workforce absence management system, so that employees requesting leave of absence receive the correct wage benefits as well as state benefits in their pay-checks. Previously this process was fragmented, manual and costly to administer as it relied on data and calculations from different systems.

The second automation addresses inefficiencies in our client's recruitment process. Our client prioritises internal applications to advertised vacancies, but relied on manual processing and checks when retrieving an internal candidate's HR profile and work experience. The new automated system removes these steps by generating the required information into a report for recruiters and coordinators.

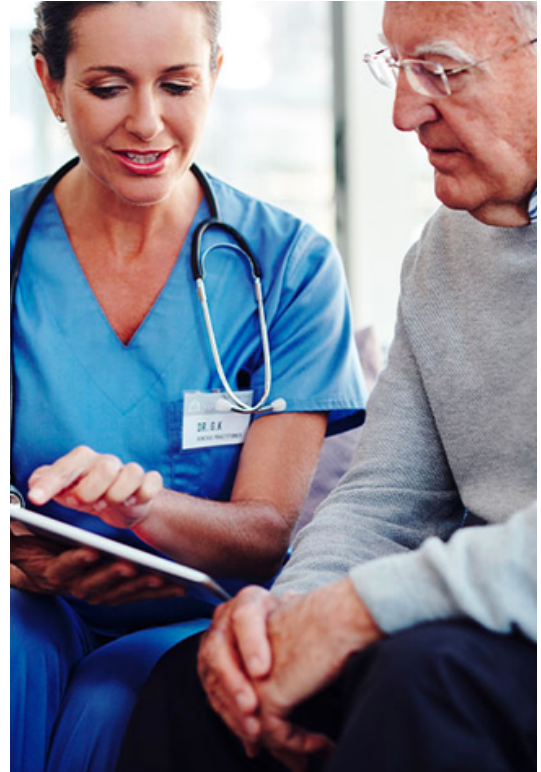
What are the benefits?

Combined, these automations have reduced processing costs by several \$ million a year, equivalent to nearly 70 full time staff equivalents. They have also significantly improved the accuracy and efficiency of work effort and processing times.

4. Appointment Scheduling

Managing appointments is one of the more composite operations within a healthcare setting. Although multiple scheduling systems are used, many patients still need help navigating. Intelligent Automation technologies can easily automate appointments by providing a multichannel secure gateway for patients, which collects and feeds data into the healthcare provider's core systems.

For example, an AI-powered chatbot can schedule appointments based on a doctor's availability using their voice. In addition, AI-powered chatbots can be designed to interact with CRM systems like Microsoft Dynamics or Salesforce to help healthcare staff track visits and follow-up appointments for a particular patient while keeping the information accessible for future reference. AI-powered chatbots may even collect and process co-payments to further streamline the onboarding process – and chase up payments as needed.



5. Serving Patient Healthcare Information

Consultations often result in many frequently asked questions/general inquiries about diet, sleep routines, medications, etc. These questions are important but seldom need input from a busy healthcare professional with many more patients. "How can I get a prescription?" "How long is someone contagious after a viral infection?" "When is the next vaccination for my 2-year-old baby?" "Is there a specific diet to be followed during my medication period?" "How often should I change my bandages?"

Questions like these are fundamental, but they can be answered without a specialist healthcare worker. An AI-powered chatbot can help walk patients through post-op procedures, inform them of what to expect, and notify them when to ask for medical help. The AI-powered chatbot can store conversations and report the nature of the patient's questions to the healthcare provider.

AI-powered chatbots trained for FAQs can address all types of patient queries for all manner of patients. How? Because the AI-powered chatbot is live 24x7x365 and speaks more than fifty-two languages, it can address patients' inquiries in their language at their convenience and, if help is needed, provide a connection to a live agent or automatically refer the patient to a medical professional.



Case Study:
**Harnessing
Intelligent
Automation to
deliver patient
medications quickly
and accurately.**

Physicians and nurses can spend hours completing and administering prescription renewals. Which means less time spent with patients.

We have developed an intelligent automation solution for a major healthcare provider that automatically reviews patient clinical profiles to check when new dispositions are due. Where required, it completes the refill authorisation request and places a note of the prescription on the receiving patient's clinical record.

What are the benefits?

With Intelligent Automation, patients receive the right medication at the point of need, whilst healthcare providers benefit from substantially reduced administrative time and near 100% accuracy, freeing up physicians and nurses to focus on patient care. In addition, our client is benefiting from ongoing annual savings of several \$ million.

6. Healthcare Compliance

The healthcare industry evolves daily with changes in regulations, technologies, procedures and practices while still meeting high compliance standards. Digital workers can be employed to record data and generate reports during audit trials. These reports can be automatically shared with authorities for evaluation and approval. Digital workers also allow healthcare providers to control data access, ensuring that the correct people access relevant healthcare data. With RPA, HIPAA compliance and data compliance becomes easier to manage.



Delivering Better Patient Outcomes

Integrating RPA and IA in the healthcare sector is a pivotal innovation to address the prevalent administrative inefficiencies that can significantly impact healthcare providers and their patients. The healthcare industry needs to grapple with a high volume of manual transactions and enormous operational expenses, which can detract from the quality and availability of patient care.

RPA and IA offer healthcare providers substantial benefits by automating repetitive and rule-based tasks, improving operational speed, and mitigating the risk of human errors, which are fundamental in enhancing process efficiency and, subsequently, the patient experience.

By leveraging technologies like natural language processing (NLP), optical character recognition (OCR), and artificial intelligence (AI), healthcare providers can facilitate the seamless execution of back-office tasks such as data extraction, form-filling, and data migration, allowing healthcare professionals to allocate more time to patient care and high-value work. This, in turn, assists in refining patient outcomes and enabling informed decision-making through real-time, accurate data.

The deployment of RPA and Intelligent Automation in healthcare is not merely a technological upgrade but a strategic advancement, addressing multifaceted operational challenges. It is essential for healthcare leaders to strategically implement these automations with a clear understanding of the areas that can procure the most benefits. Such implementations enable healthcare staff to focus on delivering enhanced patient care and improve the overall patient experience and quality of healthcare services.



Kieran Gilmurray

Recently named as one of the Top 50 Intelligent Automation Influencers in the world, Kieran has nearly 30 years experience leading digital transformation in organisations and is the author of the book "The A to Z of Organizational Digital Transformation."



Virtual Operations works closely with healthcare organisations globally, helping them achieve their digital transformation ambitions, improving productivity and creating long term value. Our clients typically experience over a 100% return on investment when they work with us.

We do this across multiple areas: from ambulatory patient care through to HR and revenue management, with expertise integrating intelligent automation tools with healthcare systems such as Epic, HR Connect, Meditech, Cerner and Salesforce.

We understand that every organisation is unique, with its own set of challenges and aspirations. We take a personalised approach, working closely with you to gain a deep understanding of your workflows and objectives. Our team then leverages the power of intelligent digital tools that cater to your specific needs, whether based on a tried and tested healthcare application we have developed, or created specifically for you.

We don't just advise and implement automation solutions. We are with you through every step of the digital transformation journey as your organisation grows and diversifies, delivering post-launch end-to-end support and maintenance.

In every case, our aim is to drive a tangible return of investment and elevate your competitive edge. To date, we've added an impressive \$1.6 billion in value to the organisations we've had the privilege to work with.

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