Automating administrative tasks
Enabling staff to add more value

Delivering value with digital technologies

Digital technologies such as digital medicine, genomics, artificial intelligence, and robotics have a huge potential to transform the delivery of healthcare and NHS organisations.[1]

These technologies can empower patients to participate actively in their care, with a greater focus on wellbeing and prevention. They also support the prediction of individual disease risk and personalize the management of severe or long-term conditions. In service areas that are not patient-facing, technology can streamline data processing tasks to enable staff to be more value added, or to reduce headcount where the roles are only moving data around.

The HFMA, supported by the NHS England Digital Academy (formerly part of Health Education England), is delivering a programme of work to increase awareness amongst NHS finance staff about digital healthcare technologies, and enable finance to take an active role in supporting the use of digital technology to transform services and drive value and efficiency.[2]

As part of the programme, the HFMA is publishing a series of case studies. Working with organisations that have started on the digital transformation journey, we will identify examples of good practice and highlight the challenges that services face. This will include specific challenges relating to NHS finance.

This case study describes how trusts are using robotic process automation (RPA) in a range of clinical and non-clinical areas, streamlining manual data transfer and simplistic tasks, using careful process analysis and rules-based learning. The humans in the process can provide the brain power where it is needed, rather than spending most of their time doing jobs easily done by a digital assistant, virtual worker, or 'bot'. In box one, Nicci Briggs, chair of the HFMA Digital Council, shares her thoughts about the impact on finance departments.

Box 1 – RPA creates real positives

Nicci Briggs, chair of the HFMA Digital Council and chief finance officer at Cambridgeshire and Peterborough Integrated Care System (ICS):
'We are all having to make cuts in our finance departments and finding 30% savings is not easy. RPA is an opportunity to work differently. It can enable an expansion of the role of finance staff whilst saving time, taking out some of the parts they don't like and creating real positives.'

Utilising technology

The strategic direction for the NHS focuses strongly on the utilisation of technology. The *NHS long term plan*[3] stated that healthcare would be radically reshaped by innovation and technology, and the spring 2024 budget included a £3.4bn package for digital transformation in order to achieve a 2% increase in productivity and unlock £35bn of savings[4]. Some technologies are newly recommended, with information available via the health innovation networks, and others are already mentioned via the National Institute of Health and Care Excellence (NICE)[5].

The *2024/25 priorities and operational planning guidance*[6] stated organisations should 'continuously improve core enterprise IT suites to remove the constraints of legacy technology'. The lack of

---

[1] HFMA, *Introduction to digital healthcare technologies* July 2021
[2] HFMA, *Delivering value with digital technology* 2021
[3] NHS England, *NHS long term plan* August 2019
[4] The Health Innovation Network, *Spring 2024 budget how innovation can help increase NHS productivity* March 2024
[5] For example, NICE is evaluating the *ProKnow cloud-based system for radiotherapy data storage, communication and management: early value assessment* which uses artificial intelligence technology to analyse and improve contouring. March 2023
[6] NHS England, *2024/25 priorities and operational planning guidance* Annex section 3c, March 2024

connection between existing information systems constrains effective data flows, which cause inefficient processes and poor access to data. RPA is a useful tool to address these inefficiencies.

The reduction of manual data processes is also an area of opportunity for improving productivity. Improved electronic patient records and administration systems allow staff more time to use the full range of their skills, stimulating research and enabling service transformation, improving motivation, and focusing on value-added tasks. Trusts have found they can automate clinical and non-clinical administrative processes and reduce the need for manual data transfer. As well as improving productivity, automating processes also reduce the risk of error.

NHS England's digital productivity programme[7] has identified three priority areas of technology[8] that would gain significant benefits in healthcare:

- automation – specifically robotic process automation (RPA)
- automated identification and data capture such as radio frequency identification (RFID) tags
- extended realities – such as virtual modelling and environments.

The HFMA's delivering value from digital technology programme has explored each of these topics with case studies, including the Plymouth Hospitals NHS Trust introduction of an RFID tracking system for medical devices[9], and the introduction of virtual reality for surgery at the Royal College of Surgeons and for pulmonary rehabilitation in Cumbria, Lincolnshire and Shropshire[10]. There have also been several events describing developments in RPA[11], such as the finance system processes at Manchester Foundation Trust[12].

> **Box 2 - Robotic process automation**
>
> In the HFMA comment 'How can digital support the productivity challenge?' Jade Ackers – programme director digital productivity within NHS England's transformation directorate – notes: 'This technology in its own right continues to play a key role in elective recovery by supporting and enabling staff to digitise and/or enhance clinical and business processes across all levels of the organisation.'

RPA is described as a transformation enabler, which can also accelerate the adoption of other digital technologies. RPA, or bots, can run 24 hours a day, any day of the week, and never become tired, distracted, or vary from the set task. They can become part of the team and they never make mistakes. Box 2 notes the importance of RPA as an enabler.

Many of us are familiar with chat bots in areas such as customer service, using rules and triggers to provide answers to frequently asked questions. These are examples of rules-based robotic process automation units, and liaison with this type of technology is becoming the norm. NHS England's transformation directorate suggest organisations should identify processes such as those shown in box 3.

[7] NHS England, *Digital productivity - key tools and information* accessed March 2024
[8] HFMA, *How can digital support the productivity challenge?* June 2022
[9] HFMA, *Using radio frequency identification to deliver efficiencies and improve patient care* October 2022
[10] HFMA, *Using virtual reality to improve access to pulmonary rehabilitation* May 2022
[11] HFMA, *The rise of the 'Bots' and the automation of administrative tasks* webinar March 2023, HFMA webinar *Driving efficiency by automating NHS finance processes* July 2021, HFMA round *table Is automation the way forward for the NHS?* March 2021
[12] HFMA, *Saving time and delivering better value for patients using robotic process automation in finance* Pre-accounts planning 2024, Day 2, 10:00 – 10:45 February 2022

HFMA members have reported examples of RPA that include processing referrals into the outpatient booking system, loading, and testing payroll data into the finance system, and checking recruitment information. Staff doing these roles manually often don't enjoy them or feel like they are adding value when doing them, so reducing such repetition can also improve morale.

In 2022 the NHS England transformation directorate provided a comprehensive suite of guidance for designing, delivering, and sustaining RPA within the NHS[13], so providers and ICBs can adopt these technologies using a framework. The FutureNHS RPA workspace[14] reports that all 42 ICSs have RPA live in at least one organisation, but there are many providers that have not yet embraced the technology.

In this case study we look at three NHS entities that have started to use RPA and have quickly found benefit, and a fourth that is just starting its journey. NHS Cheshire and Merseyside ICS has completed 16 streams of automation across all their organisations, Leeds Teaching Hospitals NHS Trust now has 50 processes live with a further 250 in the pipeline, and Calderdale and Huddersfield NHS Foundation Trust recently implemented outpatient referrals automation, releasing three whole time equivalent (WTE) vacancies from the budget. This document shares these case studies, and NHS Cambridgeshire and Peterborough share their expectations at the start of implementation.

What is robotic processing automation?

Simplistically, it is computer software that does repetitive tasks based on a series of rules, mimicking human actions. It is proven to save time and money, reducing the risk of errors – with the subsequent rework – and frees employees from monotonous tasks.[15] The automation can be called a virtual worker, virtual assistant, or bot.

RPA enables cost reduction and a greater return on investment than human staff. The FutureNHS workspace states[16] that most organisations report 20% to 30% cost reduction and 30% to 50% return on investment with RPA projects. They also report that RPA has provided the equivalent of around additional 850 staff across health and care.

Although many NHS systems are electronic, they often don't talk to each other. For example, the radiotherapy system may be separate from the electronic patient record, so users must go into the

---

[13] NHS Transformation Directorate, *Guidance for designing, delivering and sustaining RPA within the NHS - Key tools and information* May 2022
[14] FutureNHS collaboration platform, *Robotic process automation (RPA) - national health and social care community*
[15] Blue prism, *What is RPA? Robotic process automation explained,* accessed March 2024
[16] NHS England, *Robotic process automation (RPA) - national health and social care community,* February 2024

two systems separately, adding time to their process, or an administrator must manually transfer data from one system to the other to enable accurate waiting list data. Another common example is where the electronic staff record doesn't connect with the financial ledger requiring cross-system reconciliations or regular journals.

Implementing RPA starts with a user case to establish the rules, then proceeds to the creation of digital instructions and crucially, tells the system what to do when the rules cannot be followed. An example user case is shown in Box 4.

Box 4 - RPA user case example
A user case is written for each process. The bot understands system 'a' and system 'b', the task is defined, and the action taken:
- 'On system a, take the NHS number – which is always on the top right of system a / page 1 and the patient date of birth, which is always in box iii, and
- match this data to the patient in system b / page 27
- if this information matches, transfer the referral record to page 28, so the outpatient clerk can look at the list and arrange for clinical triage
- if the information does not match, flag it as an exception, and put it in the list for human review.'

The programming language is then written to structure the process.

Many of the interfaces are not simply transfers using the computer. A typical process automation may require ***bot – person – bot – person*** steps in the process to ensure local need is met.

Bots record everything they do so the process is auditable. Reconciliation between input and output is a part of the process ensuring no record is lost. Times are recorded, increasing accuracy in the tracking of performance management data. Data storage and processing can be done in secure cloud locations, to prevent the need for additional local information technology equipment and to reduce the risk of lost data.

In simple terms, there are two distinct types of RPA[17]:

- attended RPA works alongside an employee and is triggered by them as they work through different processes. RPA is a tool that the employee engages with when they reach a particular point in a process
- unattended RPA requires very little human intervention – instead, the RPA is triggered to act when a particular point in the workflow or process is reached, by another robot or at predetermined times.

Some processes include both attended and unattended RPA – these are referred to as hybrid RPA.

The RPA uses the front end of the software systems, so it needs to log in using login credentials (a username and/or email address). In many cases, organisations give the virtual worker a name, and make them part of the team – a useful concept when the human team member is working with their virtual counterpart daily, and it is helpful to identify the many different bots working on different processes. For example, at Manchester University Hospitals Foundation Trust[18] the GNRI named bot (an abbreviation of goods received not invoiced) works on the review, comparison, and processing of appropriate outstanding items.

Some staff have shown natural concern over the replacement of their role by a virtual assistant. In the case studies below, evidence has shown that removing repetitive tasks from the human role has resulted in more interesting work, and this has quickly overcome any initial hesitation. Staff inclusion in the RPA project is vital on several levels. They are best placed to understand which processes might be automated, but are also much more likely to support the implementation of RPA where they have been part of, if not instrumental in, the process of identifying those systems that are to be automated.

---

[17] UiPath, *Attended or unattended RPA? Advantages for both solutions*, accessed August 2021
[18] HFMA, *Pre-accounts planning 2024, Day 2, Saving time and delivering better value for patients using RPA in finance* February 2024

RPA in the NHS

There are a wide range of support materials for RPA, such as frameworks, guidance, networks, and case studies. Many trusts already have skills to establish RPA, for example, informatics professionals establish these processes as part of their role and in a smaller way, finance professionals set up macros to automate production and management of Excel files. However, while it is possible for NHS staff to implement automation in their service areas, setting up RPA will need allocated time, time to train staff (perhaps backfilling will be required) and time working on the project, plus additional server, or virtual server space.

An alternative option is to engage specialist firms with NHS and RPA knowledge, with links to established cloud-based applications. This can fast track the implementation, building on the understanding and technical skills of previous successes.

The case studies featured here relate to the work of e18 Innovation with a range of NHS entities, on both clinical and non-clinical administrative tasks.

NHS Cheshire and Merseyside ICS

Implementing a collaborative automation programme has created a shared suite of benefits across the ICS. The need to improve the many different repetitive and manual administrative processes inspired them to contract at scale on behalf of their 17 providers, potentially saving money and accelerating the developments.

The key areas identified for automation included:
- data migration
- referral management
- human resources
- financial management
- cancer care
- clinical coding
- discharge management
- outcoming patient events
- diagnostics
- appointment management
- mental health and community services
- primary care

In 2023 the ICS concluded the first year of RPA was a success and was no longer a 'proof of concept'. Across the ICS, the early adopters report improved patient outcomes by increased patient-facing time, reduced operating costs, and boosted workforce morale. Box 5 explains they are not stopping there, with plans to enhance the interoperability between systems and share success stories to identify new areas for automation and greater patient satisfaction.

> **Box 5 – Finding the next stage**
> Faye Sefton, former digital and data programme manager, NHS Cheshire and Merseyside ICS: 'We are excited about the next stage of our partnership, as we begin to utilise *e18 Innovation's* extensive knowledge of the NHS to understand where automation can be implemented across key pathway programmes such as cancer, diagnostics, elective recovery and primary care.'
>
> John Llewellyn, chief digital and information manager, NHS Cheshire and Merseyside ICS adds: 'The collaborative automation programme between Cheshire and Merseyside ICS and *e18 Innovation* stands as a testament to what is possible when innovative technology and healthcare come together in a cohesive manner. As both parties look towards building on this success, it's clear that the future of healthcare in Cheshire and Merseyside, and potentially the broader NHS, is on a trajectory towards greater efficiency and patient satisfaction.'

Leeds Teaching Hospitals NHS Trust

In 2019 a few outpatient processes were the first to be automated. The project was so successful that word spread, and the automation moved quickly onto streamlining cancer pathways and cancer multi-disciplinary team meetings. Cancer referrals were increasing significantly, causing major service pressure. Automating the input of referral data into the patient administration system (PAS) and local dashboard, the trust saw an immediate reduction in the time spent moving information around to understand the two-week wait position.

The PAS and radiotherapy system Mosaiq did not interface with each other, so this was another area for automation – reducing time on validation between the oncology team and Mosaiq appointments. The virtual worker checks whether a patient has attended their radiotherapy slot and stops the clock on the PAS when appropriate.

A third area was the remote monitoring of cancer patients in the community. One staff member – monitoring 150-300 patients per month – was manually working with three different systems to ensure appropriate care was provided. This took over two full shifts just on data reviews and updates. The virtual worker automation reduced this to just 16 minutes, allowing the staff member to focus on ringing the patients who needed personal intervention.

Calderdale and Huddersfield NHS Foundation Trust

This trust has transformed the outpatient referrals process in 90% of their specialties using RPA. Called 'e-RS Referrals into EPR', the implementation in the central outpatient department has saved 150 hours per week: which equates to £88,369 per annum.

The process rationalises the 10 minutes for each referral where staff members were manually transferring the patient data from the referral to the local Cerner electronic patient record. The intelligent automation now fast-tracks the process for standard referrals, allowing the staff to deal directly with the exceptional cases that the RPA cannot deal with, which is approximately 5% of cases. The exceptional cases include more complex case referrals and any data quality issues box 6 describes the trust's approach to adopting RPA.

> **Box 6: Adopting RPA**
>
> Julian Chadha, RPA general manager, Calderdale and Huddersfield NHS Foundation Trust (CHFT):
>
> 'e18 [Innovation] have been on hand to support our automation programme from the start and continue to work with the CHFT teams on further process selection aligned to our organisational, ICS and national objectives.
>
> It's a very exciting time and we are only at the start of our automation journey, so looking forward to expanding the scope across the organisation. With the success of our first process, we are excited about the future potential of our automation programme and the benefits it will continue to bring to the trust and the community we serve.'

Next, the trust aims to roll out the automation to the remaining outpatient service areas and beyond.

NHS Cambridgeshire and Peterborough ICS

Matt Douglas, director of digital and infrastructure at NHS Cambridgeshire and Peterborough ICS, found that the ICB's finance processes within the Oracle system were repetitive and time consuming. The automation of some of these would free up members of the finance team to focus on more interesting tasks. One example was the process of coding and assigning an invoice to a purchase order.

The ICB is also using RPA to reduce the number of key stroke intensive tasks in primary care, such as prescription renewals and checks. This work is part of an aim to give one minute of a patient appointment back to the clinician (Box 7).

> **Box 7 – Reducing the white noise**
>
> Nicci Briggs, CFO of Cambridgeshire and Peterborough ICB and chair of the HFMA Digital Council:
> 'The best thing that an ICB can do for GPs is to reduce the burden of administration. It creates more relaxed GPs that can focus on the important things.'
> Matt Douglas agreed:
> 'By automating tasks such as the reviewing of results, the normal results can be processed and only the results which need action will be highlighted to them. They have less 'white noise'.

The finance and the GP projects are at the early stages, but initial reviews have gained a lot of engagement. The primary care project started with four GP practices, but already, more GPs are asking to be included. The ICS has been pleased to note that their three largest providers are also implementing RPA, with initial automations in the test phase. Cambridge University Hospitals NHS Foundation Trust has implemented several finance automations, and the others are quickly following suit. Many organisations are automating the same types of process (Box 8).

> **Box 8 – Finding economies of scale**
>
> Nicci Briggs, CFO of Cambridgeshire and Peterborough ICB and chair of the HFMA Digital Council:
> 'With so many trusts automating the same process on the same software, we should get together to facilitate an automation library. We would still licence for our own specific systems, but to start from an existing automation could reduce the amount of development days we need to purchase'.

Digital focus

The RPA projects above use the SS&C Blue Prism Cloud[19] – a cloud based virtual server, which prevents the need for additional hardware to run the processes[20]. Cloud-based services prevent the need for organisations to purchase and run hardware locally, saving the need for physical space and additional staff time to manage the servers.

> **Box 9 – Who initiates the project?**
>
> Nicci Briggs, CFO of Cambridgeshire and Peterborough ICB and chair of the HFMA Digital Council:
> 'It doesn't have to be an IT person who kicks off the RPA project. IT professionals are needed of course, but the team can be driven by the service or functional area that needs the change. Let the staff take control.'

As with any digital project, information governance (IG) is very important. Leeds Teaching Hospitals NHS Trust has prepared a process to ensure that each automation project conforms with the appropriate requirements. Rob Child, the trust's programme manager supporting digital delivery for outpatients reported that where the automation is just mimicking the human task, the IG process has been straight forward as the IG is already in place for the task. They ensure that they have strong business continuity plans in place in case the automation is paused for any reason.

Workforce focus

Often when implementing RPA, there is initial concern from staff members currently doing the processes that the bots will take on. They fear loss of employment and what it will mean for them to work differently. Involving the team members to understand the process and that the automation will not necessarily remove their jobs, is a key part of the communication. RPA can enable staff to explore more interesting tasks such as direct patient liaison, developing strategies or helping projects be achieved.

Accounting treatment of expenditure

NHS bodies are required to classify all expenditure as either capital or revenue, as described in the briefings *Accounting for revenue and capital: implications for the digital age*[21] and *Accounting for digital technologies – looking at the detail*[22]. It is important to understand whether expenditure on a new digital product or service meets the definition of capital expenditure, as there is a limit on the amount of capital expenditure that the NHS can incur in any one year. The complex accounting rules mean it is not always immediately clear whether new digital investments are capital or revenue expenditure.

---

[19] SS&C Blue Prism, *Intelligent automation* accessed March 2024
[20] SS&C Blue Prism, *Cloud-based automation platform*
[21] HFMA, *Accounting for revenue and capital: implications for the digital age* December 2021
[22] HFMA, *Accounting for digital technologies - looking at the detail* October 2022

Licence fees for off-the-shelf software are typically purchased on a software as a service basis and there is no owned or controlled asset involved. The software runs on existing hardware, virtual servers and so on and even with bespoke developments, the software ownership is with the supplier. The RPA software is therefore a revenue service cost that is incurred as the software is used.

In some cases, where the programming code has been created by the NHS body, is run locally, and has a market value, the NHS body may have an intangible asset in accordance with accounting standards. If this is the case, the expenditure will be capital expenditure. However, each digital project should be assessed separately, and different parts of a project may be classified differently.

Top tips on RPA

Based on discussions with those who have adopted RPA the following key lessons have been identified.

Buy-in is vital

For any change to succeed it needs to be championed. This starts at the top, so for RPA this means that the organisation will either have a digital strategy or digital is part of the organisation's overall strategy. Without senior management support, projects like automation will not get the investment in time, attention, as well as cash that they need.

Also essential is engagement with the staff who know the processes. Including them in the process enables them to understand they will have more interesting tasks and can identify areas for improvement.

Understand the business case

Before investing in digital technologies, a business case needs to be developed that sets out the problem and how the proposed solution will deliver value. In the case studies above the business case included establishing the financial and non-financial benefits framework, process mapping, metrics collation, return on investment modelling and prioritisation.

In the three advanced case studies, the evaluation of the completed business case for one area has proved so successful, senior management have elected to quickly move on to automate other processes or services, or to establish a rolling programme.

In 2020 the HFMA published research into unlocking efficiencies with digital workers[23]. The participants reported that business cases should be clear that the objective was not just about financial savings but should focus on the problem that needs to be solved and the advantages of using automation to solve that problem. The findings of the current case studies reflected the findings of 2020 – whether the task being automated is patient-related or a back office function, freeing up staff time is a valuable asset to promote.

Understand your processes

RPA works in some processes better than others. A process design document will need to be developed that breaks the process down to almost a key stroke level – it will consider the actions taken and the data that is accessed during the process to determine whether automation is possible.

During this detailed review it is important to consider whether the process can be improved in other ways – a poor process could be automated, but the best solution may be to change the process and then consider automation. Just because things have 'always been done this way' does not mean that they are being performed efficiently or effectively.

Develop expertise gradually

Those that have invested in and benefited from RPA say that it is important to get started and automate a simple process to understand how it works and provide proof of concept. This will de-

---

[23] HFMA, *Unlocking efficiencies with digital workers* November 2020

mystify the technology and can be done relatively inexpensively – it gives everyone the confidence to take the process to the next stage.

While it makes sense to demonstrate the benefits of RPA with a small process, the benefits are maximised when there is a programme for adopting RPA with the goal of automating several processes each year. This way, the learning from that first process can be maximised.

Most organisations will need to use external consultants at the start of their automation journey as they have the expertise that is not available in house. However, it is important to build up that expertise and train staff internally. In the same way that the staff who will be affected by RPA need to buy into automation, developing internal expertise demonstrates that the whole organisation is committed to the process on a long-term basis.

The cost of investing in staff and providing appropriate training should be included in the business case for RPA investment. There is a soft benefit for NHS bodies of investing in staff to develop automation and other technological changes internally. If these staff are encouraged to engage with developments, they will be able to engage with clinicians and the whole digital transformation agenda, meaning that other innovations may be able to be adopted at a faster pace and more efficiently than relying on external consultants.

Work with all parts of the organisation

Once one area has been trialled, and you are ready to scale up, consider all areas for automation. Are there patient facing administrative tasks that can be improved by RPA? Are there other back-office tasks that need automation?

Ask questions of all areas, and significant improvements can be found.

Acknowledgments

About the HFMA

The Healthcare Financial Management Association (HFMA) is the professional body for finance staff in healthcare. For nearly 70 years, it has provided independent and objective advice to its members and the wider healthcare community. It is a charitable organisation that promotes best practice and innovation in financial management and governance across the UK health economy through its local and national networks.

The association also analyses and responds to national policy and aims to exert influence in shaping the wider healthcare agenda. It has particular interest in promoting the highest professional standards in financial management and governance and is keen to work with other organisations to promote approaches that really are 'fit for purpose' and effective.

The HFMA offers a range of qualifications in healthcare business and finance at undergraduate and postgraduate level and can provide a route to an MBA in healthcare finance. The qualifications are delivered through HFMA's Academy which was launched in 2017 and has already established strong learner and alumni networks.

HFMA

HFMA House, 4 Broad Plain, Bristol, BS2 0JP
T 0117 929 4789
E info@hfma.org.uk

www.hfma.org.uk