HFS Research

How the NHS could save $650m using RPA to combat complexity, save money, and bring admin staff back from the edge

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Phil Fersht, Jamie Snowdon, and Ollie O'Donoghue

Defining Future Business Operations

Modern healthcare institutions are under more pressure now than ever before to provide adequate patient care and balance their budgets, whether it's the faltering private US system or the perennially vilified UK National Health Service (NHS), in addition to growing aging populations.

While there clearly is no simple answer to cure these woes, beyond throwing more and more tax money at the problem and the continuous revamping of healthcare policy, hospital governance, and insurance procedures, it's crucial that healthcare leaders wake up to the opportunities digital technologies can bring, in particular robotic process automation (RPA), which helps battle complexity, digitizes broken workflows, reduces costs, and give professionals the breathing space they need to carry on their essential work.

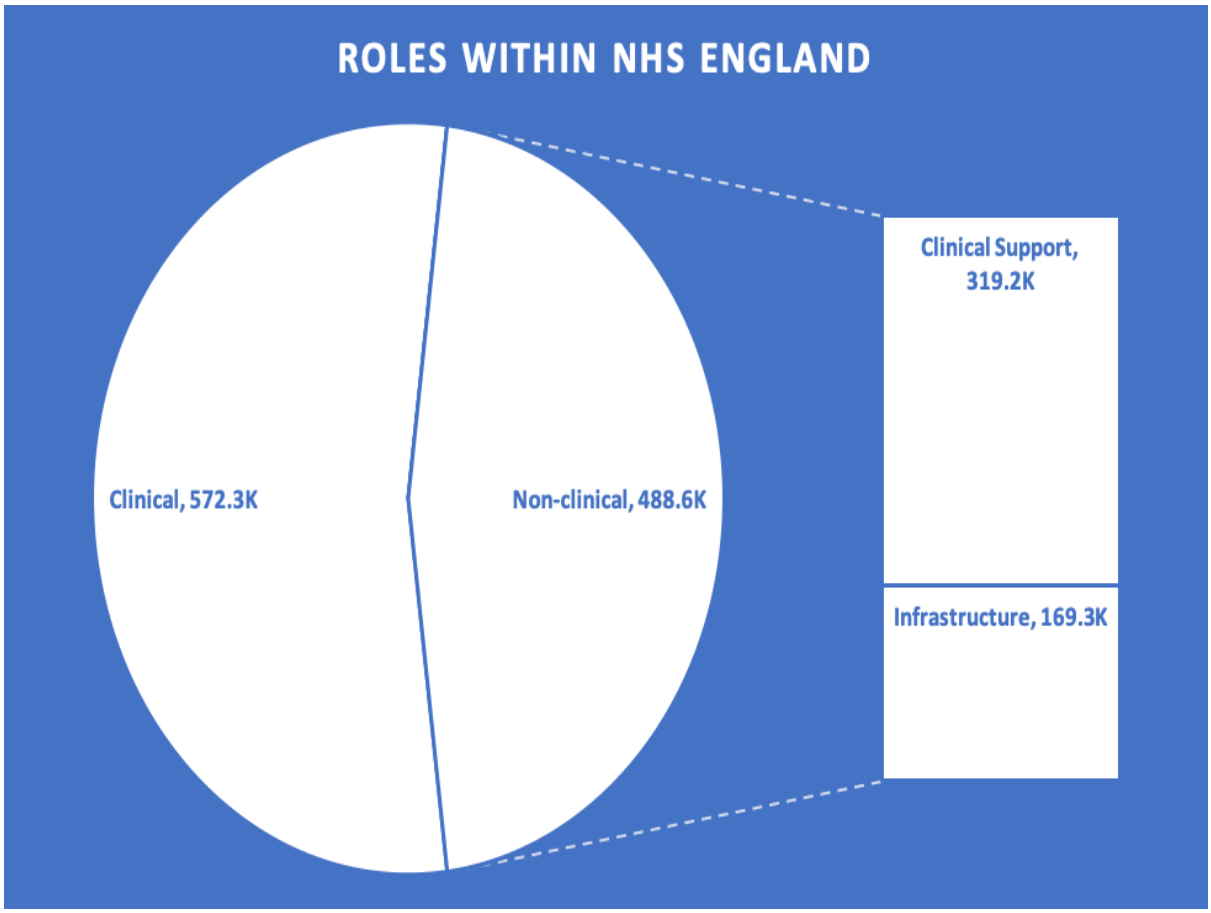
The UK's NHS battles with massively scale, complexity, understaffed administration, and inefficient processes

Anyone familiar with healthcare in the UK will understand the fine line the government-funded NHS has to tread as an organization, being both beloved as a national institution, but bemoaned as a totem-like figure of underfunded public sector inefficiency that offers wildly inconsistent patient outcomes. Meanwhile, its beleaguered and hardworking staff heroically battle on against all the odds to keep the wheels from falling off.

One of the core challenges for the NHS is the sheer scale and complexity of the operation. The UK National Health Service (NHS) is a large and complicated organization, being the sixth biggest employer in the world with 1.7 million people employed throughout the UK and a turnover of $160 billion.

The roles of the people that make up this leviathan institution are, of course, varied, and range from heart surgeons to legal teams. In Exhibit 1 we can see how the workforce is broadly split between clinical and non-clinical roles, with just over half of all roles focused on the clinical work of the institution.

Exhibit 1: **Breakdown of roles in NHS England by clinical vs. non-clinical**



Source: NHS Hospital & Community Health Service (HCHS) monthly workforce statistics—Staff in Trusts and CCGs July 2018

Many huge public-sector organizations, like the NHS, have become plagued by inefficiencies of scale that have worsened as they continue to grow

When we dig into the non-clinical roles, we can see that there are 320,000 staff providing administrative support for clinical staff within the NHS in England alone, with a further 170,000 within NHS infrastructure that manage and provide centralized services and facilities for the NHS. These support functions are not all administrative, as they include cooks, cleaners, and other staff required to deliver medical services.

Aside from scale, another major challenge in the NHS story stems from the identity of the NHS. In many ways, it is an enveloping brand of many disparate organizations, representing a broad array of medical services often decentralized and unique in their operational structure. This means that often the underlying structure of individual units within the NHS rely on different underlying processes, methods, and technology stacks. The only common thread is the centralized funding and provision of health services free (in the most part) at the point of delivery.

This complexity is the main reason why attempts to solve efficiency issues within the NHS tend to progress with large scale "big bang" IT and technology projects, which have broadly failed or been woefully over-budget. These endeavours have proved particularly challenging when the technologies being implemented aren't flexible, and IT and operations staff are simply expected to adapt to it and learn how it works. Other large organizations across the globe have similar stories. The FBI and US Navy are other good examples of government funded mega-organizations, where lack of uniformity and common ways of running operations have created real inefficiencies of scale. Against this background, we have witnessed numerous stories over recent decades about the pressure the NHS is under, in terms of the overall cost savings mandated by governments and a prolonged environment focused on austerity and lack of funding.

Underfunded administration has led to overworked staff and excessive subcontracting costs across much of the entire NHS organization

As a result of years of austerity measures there has been considerable stress on NHS staff—both medical and administrative—often providing uncomfortable insights into the unique pressure professionals are under. Stories abound of administrators, struggling to deal with the volume of paperwork, covering absent colleagues and using scarce and often ineffective—and costly—temporary staff. This is increasingly resulting in patients struggling to access staff to schedule medical appointments and failures of basic follow ups delivering a knock-on effect to patient care where appointments and treatments go un-booked or delayed.

Even in these tough times for the institution, many of its leaders are looking optimistically at the opportunities new technologies that can be customized provide, which can solve business inefficiencies and don't involve the massive complexities of entire system upheavals. One particular example provides insights into how one NHS trust is actively addressing some of these issues, both in terms of saving the NHS money

directly, easing pressure on administrative staff and providing a better more consistent service for patients being referred to hospitals. All of these endeavours are in line with the broader objective of ensuring that the NHS meets some overriding objectives to digitize services.

Enter RPA: a tool that is reducing GP referral processing time by 75%

The starting point for this work began at the East Suffolk and North Essex Foundation Trust (ESNEFT). The organization faced many of the same pressures discussed above and like all healthcare services within the UK, they were directed to enable all GP referrals to be processed via the Electronic Referral Service (eRS) by October 2018. However, the existing system for processing electronic referrals was based on manual processes and was slow—a common challenge.

Essentially, once the GP had made a referral to the Trust, the support staff have to find information such as scans, blood tests, and other results which need to be manually downloaded and appended to the file. In a process which may seem bizarre to many enterprises, this often meant admin staff were required to print off material and then scan it back into the same computer (using the same printer and scanner) to create a PDF file to navigate bottlenecks between unintegrated systems. The PDF document is then uploaded to the administration system. Approximately, this process took around 20 minutes for each referral and created, what the trust described as an avalanche of admin, distracting medical secretaries from their primary task of supporting patients and consultants.

ESNEFT had already started a pilot scheme looking to automate some accounts payable processes with the RPA provider Thoughtonomy, which was showing a great deal of promise. So, the Trust decided to use the system to automate the referral process across five clinical specialties, using “Virtual Workers” (BluePrism bots), which actively monitor incoming referrals from GP patient appointments in real-time, 24 hours a day. Once triggered, the Virtual Worker extracts the reason for referral, referral data, and supporting clinical information and merges the information into a single PDF document. This combined document is then uploaded into the Trust’s administrative systems. The RPA system uses virtual smart card technology for authentication providing the same level of data security assurance as the old manual process. Overall, the complete task now takes less than five minutes. The Virtual Workforce is able to update all systems, instantaneously and extract critical information, which it passes on to the lead consultant for review and grading.

One of the most important aspects of this technology is its ability to work within the current system, regardless of how chaotic and unstructured that may be. It is technology that adapts to the real world and the way people actually behave and work rather than expecting people to miraculously change current tropes and behaviours. This is perhaps the single most important reason RPA works: it provides whatever shaped peg is required, no matter the hole.

This first stage has significant cost savings—estimated to be £220,000 in the first year—without removing staff. Crucially, the £220K saving achieved is made up of agency staff and sundry costs such as printing. ESNEFT believe that 500 hours of time was saved thanks to the solution. Plus it increased the job satisfaction of the admin staff, who could concentrate on more important aspects of their role.

For us, although the top line cost saving number is important, it's the fact that a technology solution proof of concept has been deployed successfully (and relatively painlessly) within the NHS. To deliver the outcome required, there was no need to drive an enormous transformation project to align and integrate systems. Which, given the lack of appetite for big bang projects in the NHS is an achievement in itself. Simply put, the way the technology is used can be fitted into the existing chaos—it's technology for the real world. It can provide a bottom-up solution to productivity improvements, which is a project that replaces part of existing workflows and automates manual and repetitive tasks. It accomplishes these things with the double whammy of removing tasks which is disliked, genuinely improving outcomes to patients, whilst helping to drive efficiency.

Bottom line: The NHS is not alone in facing an unforgivingly complex estate, but with technologies that fit into the chaos of the modern organisation, this is only the start

If we look more broadly at the impact RPA technology could have on the NHS, we can use a simple calculation to estimate the ramifications this technology can have. We know that savings of £220K have been made on 2,000 GP referrals per week. But the figure for NHS England as a whole, puts GP referrals at 3.5m from April 2018 to June 2018. So, if this were scaled up, we could see savings across NHS England purely for GP referrals at a staggering £30m, this included all hospital referrals the figure rises to almost £50m, or around £1m per week. To put this in context, this would equate to almost 850 nurses for the GP

referrals or almost 1,400 for all referrals in England (using the average cost of £35,500 per annum for a mid-tier nurse, source: Nuffield trust).

This is the tip of the iceberg, considering that more than 520M working hours are currently spent on admin and approximately £2.6 billion is spent on agency staff across the NHS as a whole during 2016. There is a great deal of savings to be had. Even if only a quarter of the agency spend is non-medical, that could be £650M per year that could be freed up with only positive impacts on patient outcomes.

HFS Research authors

Phil Fersht | CEO & Chief Analyst

Phil Fersht is a world-renowned analyst, writer and visionary in emerging technologies, automation, digital business models, and the alignment of enterprise operations to drive customer impact and competitive advantage. (View bio.)

Jamie Snowdon | Chief Data Officer

Jamie Snowdon has primary responsibility for overseeing the development of HFS' Quarterly Market Index, in addition to managing and developing the firm's data-centric products and services. He works across the HFS analyst teams to define evolving services markets and create market size estimates and forecasts. He also manages HFS' quantitative survey and benchmark data. (View bio.)

Ollie O'Donoghue | Research Vice President – Head of Graduate Academy

Ollie O'Donoghue is Research Vice President, IT Services. With over five years' experience in the IT services industry – as both a practitioner and a research analyst – Ollie understands the impact IT services have in the modern business environment. (View bio.)

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