NDL | Automate

A comprehensive public sector guide

AUTOMATION IN THE UK PUBLIC SECTOR

This paper is a complete guide to RPA and its implementation in the public sector, drawing on NDL's 40 years of digital transformation experience in this space. From uses and benefits, to suitability and methodology – read on to learn everything you need to know about deploying RPA in your public sector organisation.

CONTENTS

WHAT IS RPA?

Simply put, robotic process automation (RPA) is a technology that uses software bots to emulate rule-based, repetitive tasks just as a person would. It uses logic and software interactions to complete tasks much faster than people can – and without human error. Efficiency and security are key components of RPA, resulting in its growing popularity in the UK public sector.

What are bots?

RPA is powered by bots, but what exactly are they? When we refer to RPA bots, we're talking about software robots that exist in digital environments as programmable algorithms. As mentioned, they handle those repetitive, monotonous digital tasks that aren't inherently complex. They can work a lot faster than we do, don't need breaks, and won't accidentally misplace or share data – making them perfect for handling several public sector processes.

Bots interact with software just like we do – through keyboard strokes and clicks. To set them in motion, we simply configure our desired process, identify any variables, and provide a suitable environment for them to work in. As long as a process is logical and rule-based, chances are, a bot can do it. In fact, it's easier to talk about what a bot can't do – think!

On their own, bots can't make cognitive decisions - unless they're integrated with cognitive services and artificial intelligence (AI). They're programmed to follow rules. For example, in data synchronisation, they can pull information from one field, paste it into the next field, mark the relevant check boxes and hit submit. But they can't receive an application, read through the information, decide whether or not someone is eligible for their request, then deny or accept based on that judgement.

How do they do it?

Ignoring all the wider infrastructure requirements of an enterprise-grade platform, understanding how a bot drives an individual system might put this technology into perspective. We've already established the bot uses software the same way a person does, but what's going on under the hood?

Humans use software through user interfaces (UI), allowing us to drive a system visually on a screen. In that UI, we can find fields for data input, with labels to let us know what we're supposed to enter and where. There could be buttons, drop-downs, tabs, text, pictures - a whole range of controls. We use those controls with our keyboards and mice, armed with a host of shortcuts like copy and paste.

These systems might live on our desktops as apps, or the internet – accessible through our browsers. They could be created using a wide range of technologies, such as traditional Windows desktop apps, browser HTML, Java, Silverlight, etc. But what they all have in common, is that they rely on user interaction and the operating system (OS) upon which they work. Most of the time, especially in a business environment, this is Microsoft Windows. Other popular OSs include Linux, Apple macOS and Chromium OS.

Bots know how to interact with both application controls and their underlying OSs. This is an important aspect of RPA. This interaction with the OS message layer gives bots the speed and resilience that makes automation so effective. It also facilitates additional features that give bots an edge when processes become more complex – an example of this is the ability to interact with pictures as well as data. Not on a cognitive level, but in a logical way. For example, when a system displays a status indicator portrayed with colour, a bot can tell when an indicator turns from red to green - and how to respond accordingly.

On their own, bots can't make cognitive decisions, unless they're integrated with cognitive services and artificial intelligence (AI). They're programmed to follow rules – for example, in data synchronisation, they can pull information from one field, paste it into the next field, mark the relevant check boxes and hit submit. They can't receive an application, read through its information, decide whether or not someone is eligible for their request, and then deny or accept based on that judgement.

Attended vs. Unattended

We know what RPA is and we know what a bot does. Now it's time to talk about the different kinds of RPA – with the main two methods being attended and unattended.

ATTENDED

Attended automation gets bots involved in teamwork. Bots are deployed on the desktop of a person working alongside them. This type of automation is commonly deployed in call centre environments, allowing agents to quickly complete tasks and recall information in real time. For example, instantly retrieving all relevant information and forms when a caller is requesting a change of circumstance.

Attended automation often features controls within the process's main application, triggered by people with the push of a button, or within an independent user interface (UI) on a desktop triggered by specific activities. Some products allow for the insertion of bespoke 'triggers' in existing applications - invisible to the user and set off in the background by determined actions or tasks.

UNATTENDED

Unattended automation really is what it says on the tin – automation that can run independently. Unattended bots live in a virtual environment, either on a server or in the cloud. These bots usually handle specific processes or transactions, with tasks sub-divided between a virtual workforce – similar to a production line. These bots are particularly scalable, as they can be cloned quickly and easily to increase processing power.

Unattended automation is commonly controlled through a manager, which can allocate, supervise and audit individual bot performance - recording and reporting any issues to administrators. This is usually supplemented by some form of transaction orchestration and queueing. As bots work independently, processes can run 24/7 – or simply whenever demand calls for it. A great example of this flexibility is when a process is set to run outside of office hours, avoiding added strain on servers or systems when they're used most.

AUTOMATION BENEFITS EXPLAINED:
WHY RPA?

Now we're clear on the what, it's time to think about the why. Understanding the fundamental benefits of RPA is not only important when considering a project, but when seeking internal and external buy-in too.
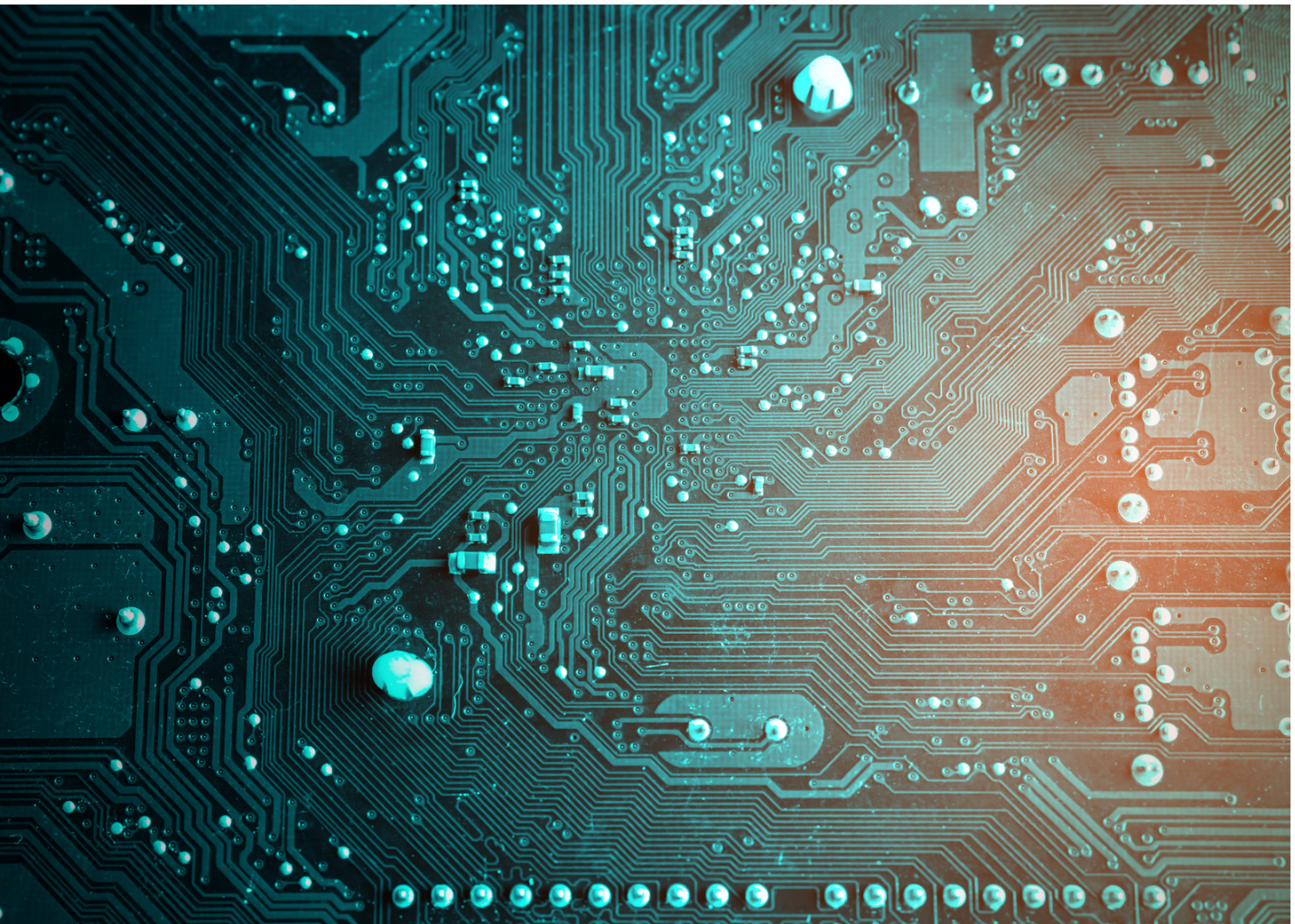
Efficiency

The first and most apparent benefit of RPA is its incredible time-saving capabilities. Bots can work much faster than humans – in fact, they work as quickly as applications and OS allow. This is a huge advantage, taking those mindless administrative processes away from essential public sector workers who have plenty of better ways to spend their time. RPA is a great way to churn through those ever-building backlogs, or bridge the gap between those long processes that add to waiting times. Especially with unattended automation that can work 24/7, RPA efficiency can revolutionise services and processes.

Scalability

RPA allows an organisation to scale up its operations and transaction volumes without having to increase its human workforce. In times of austerity, it's often used to cover gaps left by shrinking budgets. This scaling can be achieved in minutes rather than months - significantly less time than it takes to recruit and train a team. That being said, RPA is not a replacement for people. Without cognitive abilities, emotions or judgement, RPA is simply a means to give time back to the work that really matters.

Quality

When implemented properly with correct data to work from, a bot is 100% accurate, delivering perfect quality at all times. Bots aren't prone to transcription errors or mistaking a capital 'i' for a lowercase 'l'. They can't accidentally misplace information – or share it with anyone or anything it shouldn't. They're forced to obey the business logic of any target application, so they don't interfere with the databases of a vendor. And to top it all off, they can often provide a more comprehensive audit trail than the target systems that they drive.

Agility

Having a digital workforce means an organisation can create new processes very quickly - in days and weeks rather than months. It also means organisations can leverage existing and legacy systems or infrastructure while introducing new processes and technologies. In other words, it allows digital transformation without having to reinvent the wheel. Even if a process or system is temporary, transactions can be taken out of service extremely easily, without leaving unused system investment or workforce redeployment to worry about.

Security

As mentioned, bots can't leave a printout on the copier, or accidentally leave their laptops on the train. When bots handle data, the process is incredibly secure – especially when replacing a paper-based system. They can't understand the data they're handling, and they can't lose it either. Bots are much more reliable than we are when handling sensitive information in any capacity, but this benefit is particularly advantageous in the public sector.

Improved public services

All of these benefits combined lead us to our final and most important benefit – improved services and care for the public. Be that in a health, council, policing, housing or educational setting. Improved efficiency means shorter waitlists, faster turnarounds, and more time for people. Scalability means demand can always be met, and quality means we get it right, first time. Agility prepares us for the future and the unpredictable, and security keeps essential public data safe and sound. All of this leads to better services for the public – and an improved working life for those providing them.

HOW CAN RPA BE APPLIED?

We know what it is, we know what makes it great – but do we know what it can do? Though RPA can be applied to any suitable process, there are a few main uses we see time and time again. In this section, we'll look at the main applications of RPA, including some real-life examples to put the power of automation in the UK public sector back into perspective.

AUTOMATION

One of the first usages to consider is process automation. This includes taking an existing process and automating it, or simply creating an automated process to meet a specific objective. It's the widest usage, referring to the use of technology to automate and streamline various processes and tasks. This could include anything from data entry to validation and analysis.

In the UK public sector, process automation can be used to improve the efficiency and effectiveness of public services by reducing the need for manual labour and minimising errors. For example, in healthcare administration, process automation can be used to automate the scheduling of appointments and the tracking of patient information. In council finance, process automation could be used to automate the processing of invoices and expense reports, the tracking of budget and the management of payrolls.

EXTRACTION

RPA is also a fantastic way to extract information. The process typically involves using RPA to automate the collection of data from multiple sources - such as databases, spreadsheets, and other applications – before organising and structuring the data in a way that's useful for analysis and decision-making.

Automated data extraction is incredibly popular in the UK public sector, as it removes human-centric risk from pulling large quantities of potentially sensitive information from systems. An example of public sector RPA extraction could be extracting patient data from electronic health records, and then using this data to track the performance of different treatments or analyse the effectiveness of different healthcare service areas.

INTEGRATION

RPA data integration in the UK public sector refers to automated communication between separate systems and applications. This process typically involves automating the extraction, transformation, and loading of data between different systems to ensure information is up-to-date and available - wherever and whenever it's needed.

RPA integration is a fantastic solution where APIs aren't available or feasible, offering a secure and accurate connection between systems. Automation can link disparate systems together within a single organisation, or across public sector organisations in larger-scale data records. This can greatly improve collaboration and coordination.

An example of this could be the integration of electronic patient record systems in a healthcare setting, or the linking of databases for policing information. The integration capabilities of RPA are endless, as it emulates manual rekeying, so we're not bound by the limitations of API or web service connections.

SYNCHRONISATION

In the UK public sector, RPA-led data synchronisation is a technique used to keep data up to date in different systems and applications simultaneously. That could be systems used by different departments within a single organisation, or systems used across different organisations within the public sector. For example, if a change of circumstance occurs in one system, bots are able to detect and replicate this information in all other relevant locations.

RPA-led data synchronization is particularly useful in the UK public sector, as it can help improve the efficiency and effectiveness of public services.

By automating the process of data entry and validation, RPA greatly reduces the need for manual rekeying, which saves significant time and resources. Additionally, the automation of data synchronisation eradicates the risk of errors, which can help ensure that service users receive accurate and up-to-date information.

RPA-led data synchronisation can be used in various departments and organisations within the public sector. In healthcare, it can be used to ensure that patient data is accurate and up to date across different systems and applications, such as electronic patient records and appointment scheduling systems.

MIGRATION

There's a recurring issue in the public sector – upgradeability. With data locked into legacy systems, adopting modern technologies with better capabilities can seem impossible. One of the biggest RPA uses in the public sector is migration – using bots to move data from one system or place to another. It usually involves extracting information, transforming it into a specific format, and entering it into a new system. Much like integration, but without a lasting link between two targets, and with (usually) much higher transaction volumes to contend with.

RPA migration has the same benefits as extraction and integration – the most important being its safety and accuracy, with bots avoiding gossip or making the occasional typo, as well as its speed. Some of the migrations we've seen would have taken decades to complete manually, with bots able to chew through the same unthinkable volumes of data in a matter of hours or days – not beholden to expensive vendor migration costs.

END-TO-END PROCESSING

INTELLIGENT AUTOMATION

End-to-end transformation refers to the use of multiple technologies to digitise processing from front-end data capture to back-office synchronisation. It commonly features automation working in conjunction with technologies such as apps, eForms, workflow, APIs and/or web services. It's currently the leading transformation approach within the public sector due to its ability to maximise ROI, amplifying singular capabilities by making them work in conjunction with each other.

Intelligent automation refers to the use of RPA and cognitive services, such as machine learning, natural language processing and artificial intelligence, to automate and improve various processes and tasks. In the UK public sector, intelligent automation improves services by building on the benefits of automation – such as time savings, accuracy, efficiency, security and quality – to include more complex tasks such as decision-making and analysis.

In a healthcare setting, intelligent automation could analyse patient data and predict which patients are at risk of developing specific conditions and assist in diagnostics. In local government, intelligent automation could make decisions on benefits applications – ensuring specified criteria are met before awarding payments. It could be used across the public sector, improving things like customer service with AI chatbots that can trigger RPA administrative tasks - like appointment scheduling. With such advanced capabilities, the possibilities really are endless. AI doesn't mean bots can 'think for themselves', but they can utilise complex algorithms programmed for specific uses.

EXAMPLES FROM THE
NDL COMMUNITY

AUTOMATED GP REFERRALS

Successfully accelerating patient pathways and reducing administrative work for its clinicians, East Lancashire Hospitals NHS Trust automated its GP referrals to replace a previously manual and paper-based process. With the support of NDL's Delivery experts, a solution was crafted within just days – allowing bots to pick up repetitive tasks, such as verifying patient information against the NHS Spine and creating viewable documents within its clinical portal.

- Improved patient experience with faster access to services
- Time savings for clinicians equal to two and a half FTEs
- 83,000 sheets of paper saved per month

WCCIS MIGRATION

With the introduction of the country-wide Wales Community Care Information System (WCCIS), Conwy was required to migrate over 12 million social care records before the expiration of its legacy system – a particularly pressing task due to its large elderly population. Choosing RPA, the council was able to complete the full migration in time and without error, ensuring care professionals had instant access to vital information.

- Accessible care records for improved citizen experience
- 12 million records migrated successfully
- 2,000 working days saved

eLEARNING REGISTRATIONS

In order to provide fast access to essential eLearning for new healthcare workers, The Mid Yorkshire Hospitals NHS Trust replaced its manual registration process with full automation. Where the Trust's training team previously completed registrations by hand, dealing with cohorts of around 200 applications per month, bots now complete this process independently – even assigning users to relevant learning by job title.

- 72.5% faster access to essential training material for clinical staff
- 24/7 processing to include locum and agency applications
- Increased capacity for face-to-face training

BREATHING SPACE

In light of the cost-of-living crisis, Norwich City Council understood the importance of the government directed scheme Breathing Space - offering debtors a 60-day pause on recovery enforcement. Repurposing its existing Tell us Once RPA project, it was able to automate applications and ensure all departments are notified - assuring interest, recovery action and communications are halted from every faction of the council.

- Dignified access to financial assistance and advice for residents
- Reduced citizen debt implications, such as mental health concerns
- Effective response to financial crises with cross-department communications

CARENOTES DATA RECOVERY

South London and Maudsley NHS Foundation Trust operate a single patient health record (EPR) system, Carenotes, which underpins numerous systems that can't function without it. When it faced a cybersecurity threat and was temporarily taken out of commission, the Trust responded with a temporary data warehouse to store clinical records. Once reinstated, SLaM was able to recover and migrate data back into the system without disruption to care.

- Uninterrupted delivery of patient care & preservation of records
- Fast response to a national system outage
- Avoidance of clinical risk & data loss

FREE SCHOOL MEALS

Following the COVID-19 crisis, Swindon Borough Council saw a 2000% increase in applications for free school meals. Using RPA, it was able to fully integrate existing back-office systems, instantly processing data between the council's records and those of the Department of Education – as well as introduce the ability to operate on a 24/7 model, thereby providing citizens access to information as and when needed.

- Faster access to essential free school meals with a 66% reduction in wait times
- 98% increase in process efficiency
- Increased safeguarding with improved data security

SUITABILITY:
TO RPA OR NOT TO RPA

At this point, we understand what RPA is, we know how it works, we know why it's beneficial and we know how it can be used. It's time to think about when RPA should be used. What makes a process a good candidate for RPA, and when shouldn't we automate one? We already know that RPA can only work within rule-based, logical processes – but how exactly do we define that? In this section, we'll delve into suitability in more detail.

When should we automate?

Aside from being rule-based and logical, let's take a look at some other elements of a good RPA target.

HIGH TRANSACTION VOLUMES

A great automation target often has high transaction volumes or takes a lot of time from people. An imperative element of RPA transformation, particularly in the public sector, is its return on investment (ROI). Of course, there are plenty of exceptions to this rule, such as out-of-hours processes or those launched to tackle a single project or backlog. However, it's always important to contextualise the investment of a project – and a high transaction volume is always a good sign that automation is going to deliver great benefits.

PRONE TO HUMAN ERROR

Another sign of a good automation target is its error rate. We're only human. We make mistakes. Particularly if a task is monotonous and repetitive. If there's a particular task that falls victim to typos, accidental entries, missed transactions or inconsistent input, RPA is usually a fantastic way to uplift it. Examples of this are usually administrative, like re-keying between systems or manually migrating data. Small – and very easy – mistakes in processes like these can cause a lot of headaches, and can even impact service experience. Bots get it right every time.

SUBJECT TO COMPLIANCE

Where compliance is a must (and non-compliance can end in damages, fines or other legalities), RPA is an excellent advantage. They get the job done quickly, without error, and won't submit a transaction until it's complete. With a bot on the case, you can rest assured that nothing will be missed. As long as relevant data is accessible to a bot, and it's been configured correctly, you know for sure that the job will be done correctly and quickly – letting you sleep a little easier at night!

INVOLVING MULTIPLE SYSTEMS

If a process involves multiple systems, it's often a great candidate for RPA. These processes - often involving rekeying, integration or synchronisation – tend to require a lot of time, effort and training when executed manually. Plus, instances of error are often far higher, due to the confusion of switching between systems. Bots can switch between systems with ease, interacting with both software and OS without getting muddled up – making RPA an ideal solution.

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When shouldn't we automate?

We have a better idea of a good automation candidate, so what makes a bad one?

NO RULE-BASED DEFINITIONS

If a process can't be defined in concrete rules, it's not a good candidate for automation. In other words, we can't automate processes that rely on judgement. Let's put this into perspective with a real-life example: we introduce a rule that states, 'if pathology results return "clear", then we sent a notification to the patient. If not, we refer to a different clinician for diagnosis.' That's a clean-cut, rule-based process – perfect for automation. But what happens if the results return "positive", and this requires a clinician to make a situational decision, based on medical information?

Well, bots can't make that decision – not without the help of a person or cognitive services, anyway. And let's not forget about the 80/20 rule. If 80% of the time this process doesn't require that clinical judgement, and we establish a referral mechanism for the remaining 20% of the time we do need judgement, this process is still a pretty good candidate for RPA. But if most of the time we need that decision-making, it's probably not the best investment – let's save some time for the clinician to focus on this process, and use the bot elsewhere.

PROCESS INCONSISTENCIES

One of the first questions to ask when identifying a process's suitability for RPA is: Is this process consistent? As mentioned, bots are logical - we need a nice, predictable process for them to reach their full potential. Do the systems or screens involved behave the same way all the time? Or does the process vary quite a lot? Do we know every journey in a process, or is decision-making involved? While complex processes can be broken down into smaller processes, inconsistent processes can be tricky to automate without additional AI or workflow technology working in tandem.

UNSTRUCTURED DATA

Another hurdle that affects the suitability of a process for automation is the data we're working with. Bots need structured data – we're talking about information in well-defined forms, such as fields in a database or web service. We're not talking about handwritten scribbles in a scanned PDF or information hidden in a huge wall of free-flowing text. Now, that's not to say a paper-based process isn't a good candidate – it just means we need to clean up the data first, often with front-end technologies like mobile apps or eForms. But if a process is fundamentally unstructured, and the target data is never orderly, RPA probably isn't the answer – unless we add handwriting analysis through cognitive services as part of an intelligent automation.

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SUITABILITY SUMMARY

Hopefully, you now have a much stronger idea of what makes a good candidate for RPA and what makes a bad one. We're looking for those high transaction processes that are rule-based, logical, and will save a lot of time and errors. If you have a project in mind, a few useful questions to ask include:

- Is the data we're using logical, structured and in the same place for each transaction?
- Can we clearly define rules for every journey within a process?
- Are occurrences often enough to make this automation worth the investment?
- Does this process require judgement, and if it does, does that happen more than 20% of the time?
- Do we have a system in place to take over transactions that a bot can't complete?
- Are there clear, well-defined starting and ending points to this process?

Good automation targets

Bad automation targets

Good automation targets	Bad automation targets
High transaction volumes	Requires lots of judgment
Logical	Inconsistent
Consistent	Low transaction volumes
Multiple source/destination systems	Infrequent
Involves structured data	Involves unstructured data

KICKSTART & ACCELERATE DIGITAL TRANSFORMATION WITH NDL | AUTOMATE

We know what RPA is, we know what it can be used for, we know why to use it AND we understand the delivery process. Which software should we choose? We might be slightly biased, but NDL Automate – our low-code RPA product – has been specifically designed for the UK public sector. Built on over 40 years of experience of public sector digital transformation, and constantly evolving based on the needs of our community, Automate and the wider Evolve Digital Transformation Platform is sure to suit your team better than any other.

Whether it be reflecting a simple change of circumstances across multiple systems or the extraction of complex data from several different applications, Automate Bots can be programmed to emulate any manual cyber-based task. Capable of a wide range of interactions, such as keystrokes and clicks, Automate streamlines business processes by improving efficiency – reducing or removing the need for human interaction.

These automations can be scaled up or down to reflect demand, running 24 hours a day, 365 days per year as needed - under the full control of the NDL Hub technology on which Automate is built. In addition to automating processes, the platform facilitates data sharing across different software applications, including both front-end and back-office systems.

Automate studio

A low-code development environment, providing intuitive Automation creation. Complete with a 'code bot' to streamline the creation of common Automation components. Allows automations to be scripted without the need for advanced coding skills.

Automate Bots

Running in Attended or Unattended mode, Automate Bots run your automations, either alongside users, where human interaction is required, or in server environments for rule- and logic-based processes.

Comprehensive online documentation

Every product within the NDL Evolve Transformation Platform is supported by in-depth technical documentation, accessible online 24/7. We'll share all documentation relevant to your chosen licence(s) with your organisation when you activate your software – but you can also find it anytime in our customer-exclusive Community Portal online too.

Distributed architecture

Built on a modern technology stack, Automate utilises NDL's unique and industry-leading Server<->Agent architecture to support distributed data processing, allowing it to interact with a wide range of environments and services - regardless of their physical location. Automate supports all modern cloud configurations, be that public, private, hybrid, or community.

Processing control & auditing

Workloads can be balanced as required, with resources being brought online and offline as demand dictates. When running in a private cloud configuration, the creation of failover systems ensures uptime is maintained. Automate provides a comprehensive data warehouse to log transactional performance, allowing BI technologies to be utilised to assess and monitor system usage.

Data security

All data passing through Automate is encrypted, with data fully protected at rest and in transit. Users can be assigned dedicated roles within the system, limiting their access as required, and maintaining separation between end-users and administrators. Full audit logging ensures that you can satisfy your organisation's governance requirements.

Integration & end-to-end processing

Automate can be used seamlessly with the wider Evolve Platform, allowing for automated apps, eForms, workflow and even API integration. When used alongside Connect, Automate unlocks the art of the possible with immaculate cognitive service integration.

HELP FROM THE DELIVERY EXPERTS

At NDL, we're not just a pretty software platform. Our support, education and project services are all designed and delivered to help you maximise your use of NDL products.

Support services

Need a helping hand? Our support services and Wetherby helpdesk are here to ensure your organisation gets the very most from its NDL products – including everything from configuration and diagnostic support, to impartial advice and best practice.

Education services

Looking to improve in-house skills and capabilities? Our training courses and mentorship schemes are designed to progress your skills from foundation to practitioner level, ensuring your teams are fully equipped and prepared to deliver your strategy. All learning is designed to suit your specific requirements.
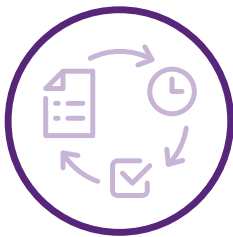
Project services

Stretching your current resources? Our expert project services team is on hand to help co-deliver or independently design, deliver, test, and deploy applications on your organisation's behalf – helping you to achieve your objectives alongside a trusted and established team.

Ready to take the leap?

Over the last 40 years, we've helped organisations across the UK sector to:

- Liberate data from locked-down systems, allowing clinicians to use predictive analysis to prioritise patient pathways
- Create new services and workflows to process billions of data elements
- Provide faster access to assistance for patients, residents and other service users
- Introduce new technologies, such as apps and eForms, made possible with RPA integration, synchronisation and migrations
- Save millions of hours and give time back to those working hard on the frontlines to support the UK public
- Innovate and allowed public sector organisations to safely navigate COVID-19 and the post-COVID world

To learn how we can help your organisation achieve RPA digital transformation, don't hesitate to get in touch with your requirements and arrange your free demo. For some real-life inspiration, take a look at our ever-growing library of NDL Community success stories – first-hand stories from healthcare, local government, policing, housing and education organisations can really put the power of automation into perspective.

We also urge you to join us at our upcoming online and in-person events – they're a fantastic way to collaborate with public sector peers and get industry tips and tricks from NDL experts. We hope to see you soon.

🌐 ndl.co.uk

✉ info@ndl.co.uk

📞 01937 543500