PWYLLGOR ADNODDAU CYNALIADWY
SUSTAINABLE RESOURCES COMMITTEE

DYDDIAD Y CYFARFOD: **DATE OF MEETING:**	20 December 2022
TEITL YR ADRODDIAD: **TITLE OF REPORT:**	Planning Objective 6N - Intelligent Automation/Robotic Process Automation
CYFARWYDDWR ARWEINIOL: **LEAD DIRECTOR:**	Huw Thomas, Director of Finance
SWYDDOG ADRODD: **REPORTING OFFICER:**	Anthony Tracey, Digital Director

Pwrpas yr Adroddiad (dewiswch fel yn addas) **Purpose of the Report** (select as appropriate)
Er Sicrwydd/For Assurance

ADRODDIAD SCAA **SBAR REPORT**

Sefyllfa / Situation

This report provides the Sustainable Resources Committee with a deep dive into the Planning Objective 6N, as set out below:

By March 2023 develop an initial intelligent automation plan which combines Robotic Process Automation (RPA) technology, Artificial Intelligence and Natural Language Processing to streamline data collection and integration.

The Committee is requested to receive assurance regarding delivery of Planning Objective 6N.

Key Insights:
- The top 3 benefits of RPA within healthcare are:
  - Boost productivity with the introduction of "digital workers"
  - Improve efficiency, and reduce waste in the organisation
  - Improve accuracy, and reduce transcription errors

As a Health Board, we need to start off small and then build upon capacity and capabilities. By allowing tasks like these to be completed by automation, it will enable time to be repurposed to be otherwise spent. The target is to release 50,000 hours of time back into the organisation by 2025.

Cefndir / Background

To fully become an integrated health organisation, there is a need to pull information / data from disparate systems to allow matching and to provide information to all health providers in such a way that patient care can be improved. For instance, the current situation within Community is that, without significant investment, both time and resources to develop interfaces from the Welsh Community Care Information System (WCCIS), Eclipse, and Primary Care systems will be challenging. Attempts to improve integration in the past have often been hampered by the sheer complexity and fragmentation of systems.

Intelligent automation, where traditional RPA technology is combined with Artificial Intelligence (AI) and additional capabilities such as natural language processing, has the potential to address many of the barriers facing the Health Board. The concept of a 'digital worker', which sits behind the systems

routinely extracting the information/data and processing the information to be presented to a data lake prior to analytics, provides a solution to the current lack of data integration.

With intelligent automation, Hywel Dda will have access to a software platform that can automate any business process, interacting with line-of-business applications in the same way as a human worker. However, this would be carried out quicker, more accurately, and 24 hours a day, seven days a week. Intelligent, AI-enabled digital workers act as the integration layer between existing legacy systems to ensure data and information flows quickly and safely within the Health Board systems. This eliminates the need to dedicate people to undertake these tasks. Importantly, when it comes to fulfilling the integrated care agenda, intelligent automation enables us to increase the speed and scale of innovation, allowing them to develop and launch new services and applications, both internal and external, without longwinded IT infrastructure projects. It also allows the use of data, which until now has typically been untouched or underutilised, to generate meaningful and actionable insights into current operations and to deliver more timely, proactive and personalised care to patients.

Asesiad / Assessment

The RPA is a new wave of the future technologies and is one of the most advanced technologies in the area of computers science, electronic and communications, mechanical engineering and information technology. It is a combination of both hardware and software, networking and automation for doing things very simply. RPA is an emerging form of business process automation technology based on the notion of software robots or AI workers. RPA can leverage areas of AI, Machine Learning and Natural Language Processing to create Intelligent Automation.

The use of RPA, at every level of the Health Board, is being explored, including expectations for the future of RPA, for the individuals and teams across the Health Board, and why culture change management is so crucial. When considering RPA, there will be a requirement to reflect on the operational impacts of RPA and the tight cyber security measures that come into play, and how digital transformation through technology such as RPA can impact and improve the delivery of excellent patient care and experience.

Leveraging RPA to help healthcare work smarter, not harder

RPA is a form of business process automation using software robots, also known as automations or virtual / digital workers. These digital workers interact with the 'back end' and the 'front end' of a system. A front-end digital worker can do everything a human can, such as opening documents, clicking, and typing, etc, allowing data to be transacted between systems, databases, digital forms, or even many Microsoft Office products. Based on predefined rules and process steps, an automation can mimic the way a human completes a process. The Health Board needs to think of automations like additional team members, here to support existing teams.

By allowing tasks to be completed by automation, the time spent undertaking these tasks can be repurposed. Employees are freed up to fully focus on high-value or high-priority activities, such as patient care, or face-to-face interactions, which require cognitive input.

The emphasis for RPA within the Health Board is on how to reduce inefficiencies and waste. In fact, almost everywhere you look in the Health Board, there are opportunities to improve manual and duplicated processes and, crucially, freeing up time and reducing waste.

Benefits of RPA in Healthcare industry
Intelligent automation and RPA combine the power of AI and machine learning (ML) to deliver digital workers, which can take mundane tasks away from humans. Digital workers can be trained to retrieve data, enter it into forms and report back on progress with a full audit process in place. For healthcare providers, this can translate into a series of benefits, including:

- ***Improved Patient Experience*** - Improved patient experience is the top priority for the healthcare sector. You can significantly improve back-office systems and bring in various self-service channels to give personalised experiences to patients. Self-service portals and self-check-in kiosks remain highly convenient for patients as they can get rid of paperwork and wait for their turns for a long time. In a way, RPA in the healthcare sector can make a difference in patient care.

- ***High Operational Efficiency*** - RPA solutions are designed for handling rule-based tasks. Talking about the healthcare sector, long wait times for patients and the complexity of IT systems can cause frustrations among the staff. Here is what RPA can do for healthcare services- it brings automation in repetitive back-office processes and increases operational efficiency. As a result, patients can get improved services and healthcare professionals can work with more efficiency.

- ***Reduced Overheads*** - Automation in healthcare can reduce operations costs and improve financial management. RPA in the Health Board will be aimed at increasing efficiency and optimising available resources for ensuring financial sustainability and maintaining high standards in patient care, whilst reducing waste in the organisation.

- ***Minimal Chances of Human Errors*** - When your staff can get more time to focus on what they like as per their skills, the chances of errors can be decreased. Robotic process automation in the healthcare sector makes it possible by bringing automation to repetitive tasks. RPA can assist healthcare professionals to eliminate the chances of human errors. Automated systems need less human intervention, and therefore, the chances of errors can be reduced.

- ***Better Health Management*** - Modern healthcare concepts like telehealth and remote patient monitoring (RPM) have contributed to preventing admissions and improved support in the home. RPA can strengthen both these and other recent approaches in the healthcare sector by supporting collaboration and bridging the infrastructure gap. Doctors and case workers can make full reports of their patients and coordinate follow-ups efficiently with the help of IA. Such enhanced community health management can also assist doctors to make effective preventive care strategies. Intelligent automation enables all stakeholders to collaborate more effectively by breaching the systems and infrastructure gaps that keep data and resources siloed within specific organisations and functions. In doing so, doctors and case workers are able to make full assessments of their patients and can coordinate follow-up care without needing to pass patients from pillar to post. On a macro scale, this data can also be used to evaluate overall population health and make informed decisions around population health management and preventative care strategies.

- ***Reduce operating costs and improve financial sustainability*** - Driving down costs, ensuring financial efficiencies, and innovating new revenue streams are all central meeting and maintaining desired service standards. This means ensuring operating costs are kept low, processes are running efficiently, and new ideas can be implemented at pace. It can be delivered by flexing existing resources to meet peaks in demand, for example, or by introducing new billable services without needing to add additional headcount.

- ***Improved Data Management*** - RPA leads to effective and efficient management of regulatory, financial, and operational data and improves compliance with data related protocols. Data Management can be enhanced through the application of RPA. Applying RPA to an organisation's central database contributes to increased data quality, reliability, and output consistency. Allowing legacy data to be extracted from systems, and transferred into the current data infrastructure

Use Cases for Intelligent Automation and RPA in Healthcare

Streamlining workflows with RPA allows organisations to become more adaptable, and adaptive. Work performance, participation, and effectiveness are all increased due to eliminating routine chores from employee shift lengths. RPA provides high value with minimal risk, all while expediting digital transformation. The following are some typical RPA applications in healthcare and their benefits to the organisation.

- **Patient Scheduling & Appointments Management** - One of the most time-consuming processes for healthcare providers is the administration of patient scheduling and appointments. With intelligent automation, patients can access self-service booking systems and personalised multi-channel communications to confirm appointments, change appointments, and update patient record systems, freeing employees to provide front-line care.

- **Claims Management/Medical Claims Automation** - With intelligent automation, we will be able to process thousands of claims in hours instead of weeks, reduce claim handling time, provide much-needed assistance to patients and providers, and reduce the number of unpaid claims. Using digital workers to automatically manage communications between different parties in claims management can eliminate errors caused by data re-entry and provide a platform that can be easily updated in line with changing government regulation.

- **Data Entry, Migration and Management** - Digital workers create the ideal solution to the time-consuming and resource-hungry work involved in data entry, migration and management, whether that's onboarding new employees or migrating patient records. This frees valuable people from the constraints of administrative tasks, and — from printing and scanning documents then re-entering data — helping teams go paper free.

- **Invoice Processing** – The Health Board can use intelligent automation to work in combination with optical character recognition to read, convert and upload the information from invoices in system compatible data formats, which can then be automatically distributed throughout the organisation.

- **Patient Onboarding** - Visiting a hospital can be stressful for patients, so healthcare providers are increasingly using intelligent automation to streamline patients onboarding. This includes gathering the patient's medical data, demographics and insurance information, then identifying next steps for administrators and medical staff, plus creating or updating electronic patient records.

- **HR Onboarding and Efficiency** - A combination of the COVID-19 crisis and pressure on resources has left healthcare workforces suffering from overwork and stress. Healthcare providers increasingly recognise the value of efficient and effective onboarding and HR management using digital workers, reducing the time needed to bring new employees up to speed as quickly as possible. A simple sign-on process can give a new member of staff access to all pre-planned systems and areas of a hospital they need to work quickly and efficiently, for example.

- **Integrated Care** - Healthcare providers are increasingly working in a more integrated way with other organisations, such as social care, law enforcement, government, and education. In these instances, digital workers should be considered as a way to integrate different IT systems used by multiple parties instead of creating brand new systems from scratch.

- **Data Analysis and Forecasting** - Projects are underway to gather data from letters sent by outpatient clinics to patients in order to understand treatment patterns and forecast future resource needs. The data included in these letters is semi-structured so it can be read and analysed by a digital worker, leading to greater insights into how outpatient clinics are treating patients. Another application is using a digital workforce to analyse patient data and validate trial eligibility. Processing a single application manually could take up to 35 hours because of

the level of detail required. Digital workers can process tens of thousands of applications in just a few hours.

- *Digital Front Door/Digitising Healthcare Automation* - A digital front door supported by intelligent automation enables healthcare providers to change the way in which patients interact with clinics and hospitals. It leverages multiple technologies, including remote consultations, mobile applications and patient portals, all of which are designed to reduce the amount of time spent filling out paperwork and inputting data.

- *Contact Centre Automation* - An efficient contact centre is foundational to the success of any healthcare provider. With intelligent automation, a provider can empower its contact centre team to better serve patients by automating simple inquiries and creating a single source of truth for patient data. Doing so frees agents from time-consuming tasks and enables them to focus on patient needs, while patients spend less time on the phone.

- *Connect Disparate Systems* - The back office is the powerhouse of patient processing. Patient journeys are underpinned by the ability to move data through a back office accurately and efficiently, from initial appointment and through to discharge. Digital workers can assist back-office and administrative staff; rather than highly trained staff moving data from one system to another, digital workers can access the same applications and systems as a human team. The digital workers are ready to take on laborious yet essential data-handling and migration tasks.

Things to Consider when Implementing RPA in Healthcare
Indeed, RPA technology can transform the processes of your healthcare organisation. However, various aspects will require consideration whilst implementing RPA to get a high return on investment in a relatively short period while improving patient experiences.

Some of these aspects include:

- Repetitive processes that are to be automated
- Inter Departmental activities and collaboration
- Infrastructure and other related facilities
- Core objectives and budgetary limitations

Hywel Dda Approach
Given all the benefits and use cases for the use of RPA within the healthcare setting, the Health Board has invested resources into a number of proofs of concepts (POC). These used cases will be utilised as information gathering, for a wider proposal and plan for the adoption of RPA within Hywel Dda. The current POCs are highlighted below, and work is ongoing with a number of leading RPA companies to develop the POCs and increase the Health Boards understanding of the application of RPA, and its benefits in real time.

Proof of Concepts

- **Community Nursing Referrals (Pembrokeshire)**. The Health Board is working with the Davies Group (BluePrism) to automate a Community Nursing referral process. This automation will take information from Civica Scheduling (Malinko), Welsh Nursing Care Record (WNCR) and the GP system for the selected patient to fill in the relevant sections of the referral form. This project has taken longer than anticipated due to its complexity. A lesson learnt from this approach is to start simple and the expand our knowledge of RPA.

- **Workforce automation.** The Health Board is working with Northampton Hospital Trust (RPA Centre of Excellence) to document two Workforce process and automate one of these. The first process to be considered is the automating the training records into the Electronic Staff Record (ESR). The recording of training courses and the attendance at the courses to

ensure an accurate record is kept so staff training attendance is captured in a timely manner, this is important when specific courses are a pre-requisite of a staff member being able to work in a certain area of the business. Estimated capacity release **2 FTE.**

- **Finance automation**. This is the automation of two processes within the finance team. Firstly, the request to raise a bill. The process exists because invoices need to be raised to customers. Request to Raise Bill (RRB) Excel forms are (mostly) sent as attachments in an email to a shared inbox. Sometimes these can be pdfs, some can also be sent directly to the Finance team. Overall, digitising the information mapped, this process would be expected to save around **0.35 FTE per year**. It is relatively simple and highly suitable for automation. It would be an ideal process for a first foray into automation. However, using the lesson learned from the Community Nursing Referrals, consideration is to be given to the need for some business change to occur (decide how the bot would show an email is actioned, how "printing" is completed). There will also need to be extra fields/validations to be added to the RRB Excel template to allow the bot to make the correct decisions.

  The second process that has been identified for RPA is pay recording. The process exists as there are some staff who are on the incorrect code, so they need to be recoded onto the right ones in the oracle system until it is fixed centrally elsewhere. As the process is very manual, there is a lot of sense checking that occurs currently which leads to this process taking up at least 40 hours per month to complete. It is anticipated that the bulk of all records can be uploaded to the oracle system without human intervention. This would then free up capacity to focus on the more complex, manual recodes that need some human input. The perceived benefit of this automation would be in the region of **0.22 FTE**.
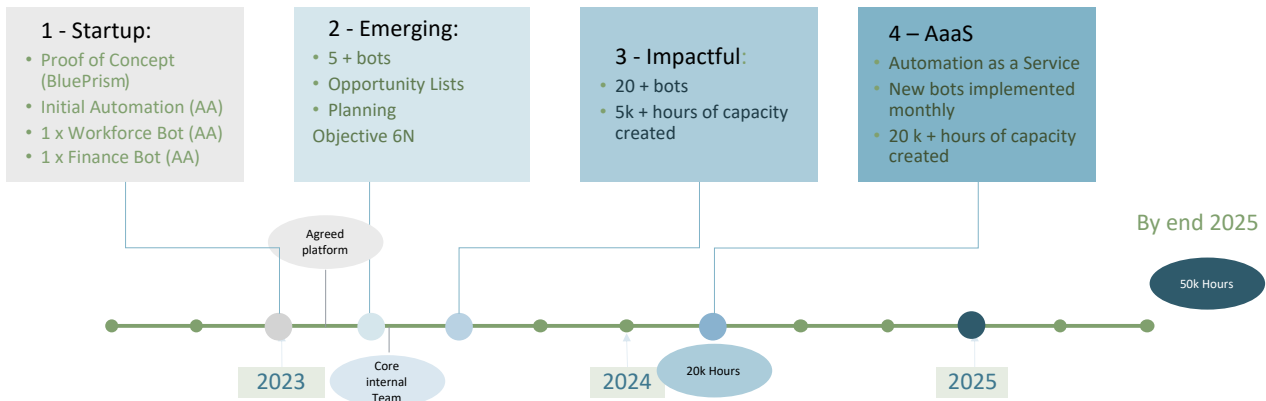
Hywel Dda Plan
In general terms, the main benefit from IA/RPA will be the release of capacity. The quantifiable benefits will be identified with each automation. In order to provide measurable benefits, the teams **are looking to release 50,000 hours of capacity back into the Health Board by 2025.** Based on the work to date, this considered a realistic target. The return-on-investment calculations and benefits realisation plans are purposely being kept simple to simplify the selection and development processes. The expected capacity released by the four proof of concept processes is in the order of 3,000 hours.

RPA Roadmap 2022 -2025

Developing seamless integration and automation of repetitive tasks.

1 - Startup:
- Proof of Concept (BluePrism)
- Initial Automation (AA)
- 1 x Workforce Bot (AA)
- 1 x Finance Bot (AA)

2 - Emerging:
- 5 + bots
- Opportunity Lists
- Planning Objective 6N

3 - Impactful:
- 20 + bots
- 5k + hours of capacity created

4 – AaaS
- Automation as a Service
- New bots implemented monthly
- 20 k + hours of capacity created

By end 2025

50k Hours

Agreed platform

2023   Core internal Team   2024   20k Hours   2025

16.09.2022   HDUHB – RPA Roadmap   06

Summary

While RPA is helpful in advancing the broader route to digital transformation, it usually gets used as a short-term solution. Instead, enterprises must focus on a long-term intelligent automation plan to remove temporary solutions and costly disruptions. While the adoption of RPA across the NHS has been staggered, and varies hugely from organisation to organisation, the overall message is clear: RPA can help support the ongoing growth and development of healthcare services and their associated data pools locally, regionally and nationally. Within the NHS to date, a wealth of RPA use cases, including many across HR, IT, Finance and Clinical areas, are available.

Easy implementation, seamless performance, and 24x7 availability are some of the top characteristics of RPA bots. With the help of RPA, human errors and operating costs can be reduced while increasing efficiencies and improving patient care services. As one of the fastest-growing technologies, RPA will certainly enhance doctor-patient interactions by combining AI and ML in the coming years.

Argymhelliad / Recommendation

The Committee is asked to:
- **NOTE** the initial target for capacity release of **50,000 hours by 2025**
- **RECEIVE ASSURANCE** on the progress to date and the ambition of the Health Board to fully integrate Robotic Process Automation, where required.

Amcanion: (rhaid cwblhau) Objectives: (must be completed)	
Committee ToR Reference: Cyfeirnod Cylch Gorchwyl y Pwyllgor:	2.2 To receive an assurance on delivery against all relevant Planning Objectives falling in the main under Strategic Objective 6 Sustainable Use of Resources (See Appendix 1), in accordance with the Board approved timescales, as set out in HDdUHB's Annual Plan.
Cyfeirnod Cofrestr Risg Datix a Sgôr Cyfredol:	Not Applicable

Datix Risk Register Reference and Score:	
Safon(au) Gofal ac Iechyd: Health and Care Standard(s):	3.4 Information Governance and Communications Technology 3.5 Record Keeping All Health & Care Standards Apply
Amcanion Strategol y BIP: UHB Strategic Objectives:	6: Sustainable Use of Resources
Amcanion Cynllunio Planning Objectives	6J_22 Intelligent Automation
Amcanion Llesiant BIP: UHB Well-being Objectives: Hyperlink to HDdUHB Well-being Statement	Not Applicable

Gwybodaeth Ychwanegol: Further Information:	
Ar sail tystiolaeth: Evidence Base:	Not Applicable
Rhestr Termau: Glossary of Terms:	AI – Artificial Intelligence IA – Intelligent Automation NLP – Natural Language Processing POC – Proof of Concept RIG – Regional Interoperability Group RPA – Robotic Process Automation
Partïon / Pwyllgorau â ymgynhorwyd ymlaen llaw y Pwyllgor Adnoddau Cynaliadwy: Parties / Committees consulted prior to Sustainable Resources Committee:	Not Applicable

Effaith: (rhaid cwblhau) Impact: (must be completed)	
Ariannol / Gwerth am Arian: **Financial / Service:**	The ambition is to release 50,000 hours of time back to the Health Board.
Ansawdd / Gofal Claf: **Quality / Patient Care:**	The reduction in possible human errors will benefit patient care, and removing routine processes will also free up valuable time for clinical teams to treat patients
Gweithlu: **Workforce:**	By its nature RPA will release capacity for staff to be refocussed onto more complex tasks
Risg: **Risk:**	Each RPA POC is risked assessed during its discovery phase
Cyfreithiol: **Legal:**	There are not legal issues with the use of RPA within the Health Board, however, if we utilise RPA and or AI to aid

	decision making then there are more ethical issues that require to be consider, especially in relation to UK GDPR
Enw Da: **Reputational:**	Not Applicable
Gyfrinachedd: **Privacy:**	Not Applicable
Cydraddoldeb: **Equality:**	Not Applicable