GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Hywel Dda University Health Board

Our Digital Response 2020 - 2025

Personal Introductions – Executive Lead for Digital

Our Digital Response is our commitment to improving digital technology in the Health Board over the next five years in response to the Health Board's Strategic Objectives. The Digital Response will help us meet our strategic vision of working together to drive excellence in care for our patients and communities.

This document presents the future strategic vision for investment in digital services for the next five years, in order to meet the priorities outlined within our Health & Care Strategy, 'A Healthier Mid and West Wales: Our future generations living well' approved by the Health Board in November 2018, and, the 20 year vision for population health outcomes set out in our Health and Wellbeing Framework, 'Future Generations: Living Well'.

This is specifically a digital, rather than an ICT Response, not just because it is a more modern term but because it makes an important statement about our future strategic direction. While digital healthcare includes all the familiar physical tools and systems that make up ICT, it also covers our use of this technology and specifically how we will use it to help us to change the way we perform our roles and deliver care.

Alignment with our system partners is crucial to our success. Our digital investment should be in line with our local system providers, to support greater collaboration and information sharing in the system. This is key to supporting the vision of *A Healthier Mid and West Wales: Our future generations living well*.

Having a strategic response to the Health Board's requirements gives us clarity and forward momentum for digital transformation. This Response outlines our ambitious plans for the future, with a practical approach and plan to get us there. It will work in harmony with the other enabling functions in the Health Board, including research and innovation, workforce, estates, quality improvement and finance. Together this will help us to deliver the foundations upon which our colleagues can continue to ensure all of our patients receive the best possible care. I want to extend a personal thanks to everyone who has been involved in the development of this Response.

Our Digital Response is our commitment to improving digital technology in the Health Board over the next five years. The Digital Response will help us meet our strategic vision of working together to drive excellence in care for our patients and communities.

Huw Thomas,
Director of Finance and Lead for Digital

Personal Introductions – Chief Clinical Information Officer

Our Digital Response outlines our ambition as a Health Board to drive transformation through digital healthcare. Digital technology will enhance care for patients by enabling us to make improvements in efficiency, quality of care and clinical safety.

In addition to my work as an Acute Respiratory Physician, I took on the role of Chief Clinical Information Officer in 2017.

I am passionate about how we as clinicians can drive improvements in patient outcomes by encouraging our adoption and engagement in the use of technology.

Digital technology plays a key role in making patient care more efficient and safe. Digital technology allows us as clinicians to easily record and share information centred on the patient. It has the potential to make care more seamless and address the barriers between services and organisations. It also has a huge potential to free up clinician and staff time away from repetitive administrative tasks back into patient care.

During my time I have heard from many of you about the frustrations you have with the current technology in the Health Board. You told us about inefficient and unreliable systems, and confusing paper-filled processes. It is clear to me that we have a lot of scope to improve our digital maturity and to have the systems that we need to support our work. While we know there are obvious improvements to be made to get the basics right, we should also keep in mind the huge opportunities that digital healthcare offers, and the huge strides forward that we have made over the last 3 years.

Digital is rising in the national policy agenda and is central to the NHS Long-Term Plan. The opportunities that improvements in robotic process automation, artificial intelligence (AI), digital medicine and genomics will have for us as a Health Board and workforce, will need to be developed over the coming years.

While this might feel futuristic we are already underway with exciting research and innovation collaborations locally including the clinical research fellowship programme which will be exploring the possibilities around patient flow and AI.

Dr Gareth Collier MBE
Consultant Respiratory Physician
Chief Clinical Information Officer

Personal Introductions – Assistant Director of Digital Services

Welcome to the digital response that describes our ambition to become the most digitally advanced integrated care organisation in NHS Wales over the next five years.

Fundamental to our health and care system transformation, will be the delivery of high quality, cost effective Digital Services. Our vision is to have secure, resilient, accurate and timely information at the point of patient care. This will be delivered through an integrated application suite, combining clinical and line of business applications, underpinned by a robust and cost-effective information infrastructure.

We will focus on addressing the key health and care objectives from a local, regional and national perspective. Our aim is to enable secure and legitimate information and knowledge sharing, supporting user (Patient and Clinician) access and 'self-sufficiency'. We will develop digital services that will shift health and care from 'isolation to integration'.

Our key focus areas will be:

- Integration with the partners to take forward the digital programmes and related population health initiatives.
- Unlocking the power of information to improve decision making at the point of care.
- Exploiting digital technologies to deliver patient centred solutions in neighbourhoods and communities.
- Keeping patient and service user's information safe, secure and up to date, and only used with appropriate governance and controls.
- Improving organisational digital maturity and user digital literacy to maximise the benefits of digital technologies.
- Delivering digital services which will be paper-free at the point-of-care by 2022.

When aligned with appropriate 'people' and 'process' changes, digital services will provide the best possible care for the patients we serve, whilst at the same time deliver a range of health and care system transformations.

Delivering digital change is all of our responsibility and will require the collaboration of multiple teams and individuals. This Response speaks to our collective vision, mission and principles for future development. It cannot be delivered by any one team in isolation and we all have a role to play in making the Digital Response real.

Many thanks for your time and support in progressing the Digital Road Map.

Anthony Tracey
Assistant Director of Digital Services

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Introduction

This document outlines the Digital Response for Hywel Dda University Health Board for the next five years. This goes beyond a typical ICT Response, encompassing the digitisation of processes, workflows and care pathways, supporting emerging healthcare technologies and ultimately transforming the way the Health Board works.

This is owned by the Health Board as a whole, since no single group can deliver significant digital transformation alone. Working together, the Digital Response aims to deliver simple, secure, interconnected systems and tools that save time and effort, improving our ability to deliver excellent patient care.

This Response supports our Health Board Values, and the importance of improving our digital systems and infrastructure, delivering technology fit to support our people in the future. The Digital Response provides more detail about our approach and how we will get there.

Developing digital healthcare technology will help to build improvements across a number of strategic priorities. The Digital Response will complement the work of a number of enabling functions that will come together to deliver transformation across the Health Board.
These include:

- Workforce
- Quality Improvement
- Transformation
- Finance
- Estates
- Research and Innovation

These enablers will need to work together to deliver the vision of the '*A Healthier Mid and West Wales: Our future generations living well*'.

How the Digital Response has been developed

This response has been developed following consultation with patients, partners and staff. It is supported by a robust implementation plan which outlines the key projects, outcomes and milestones we will need to achieve over the next five years. It is also supported by a launch plan that identifies the key activities and materials required to begin to embed the Digital Response in the organisation and in our governance processes.

Executive Summary

An **ambitious** Response **powering** our **digital future…**

Our Vision is an ambitious approach that presents the need for changing the culture through digitally enabled transformation combined with an opportunity for accelerated delivery and a focus on collaboration.

As a Health Board, that is facing significant challenges including sustained pressure from unprecedented demand for clinical services over the coming years, it is crucial that we use every available tool, including technology, to improve the safety, quality of care and efficiency of providing our services.

In a society that is rapidly embracing and adopting technology, the NHS cannot stand still. Our vision outlines how we intend to integrate digital solutions into every patient interaction and how, through clinical leadership, we will use these to improve the quality of care and experience of our patients and support our workforce providing safe and efficient tools.

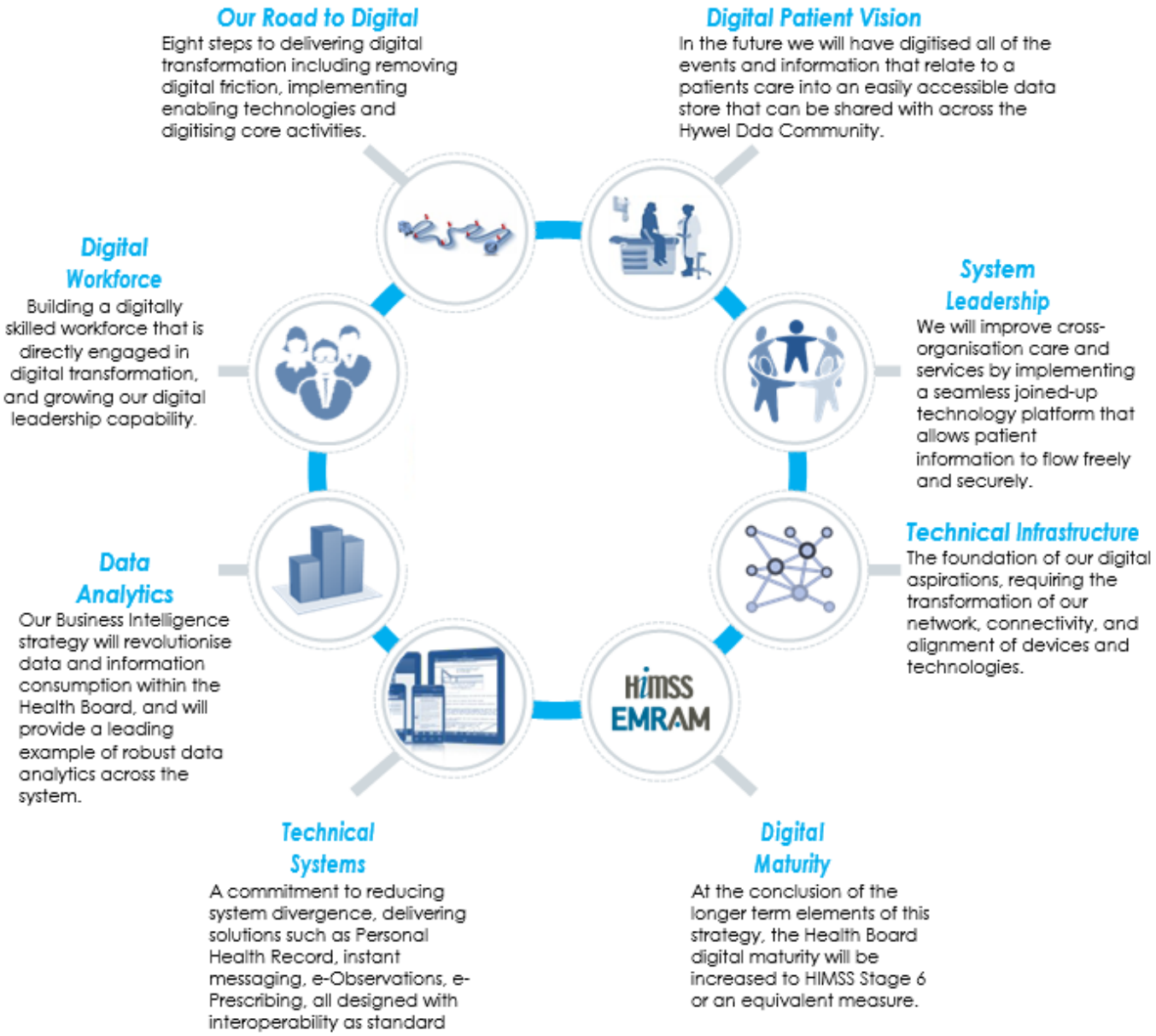
Our road to embracing digital will see us remove digital friction, implement enabling technologies, ensure technology is aligned to roles, and enable high quality data at the point of care. Additionally, we describe the digitisation of patient interactions and the automation of related processes, enabling the sharing of our data across the systems.

Finally we will reflect our growing wealth of data and how we will feedback to decision-makers at all levels of the Health Board through compelling self-serve Business Intelligence (BI).

Our aim is not to simply "go paperless", although this will be a by-product of digitisation, but to ensure that the information our teams require is available in the right place, at the right time and on the right device. With the information needed to hand, our teams will be able to perform to their maximum potential, leading to increased quality, safety and efficiency which will in-turn will drive down costs.

The need to collaborate and interoperate with our local partners is also key to our digital vision and reflects that we are part of a wider team of organisations and that patient care will be greatly improved if we all have sight of each other's actions.

Our **Digital Vision** at a glance…



The future vision for the Digital Response is underpinned by four key digital themes:

- Digitally Connected Patients - empower patients to actively manage their health and care
- Digitally Enabled Workforce – enable staff to access shared health and care records
- Business Intelligence and Analytics – insight driven culture to improve quality, outcome & research
- Digital Infrastructure – provide secure access and interoperability

Setting the Scene

Digital technology is an integral part of most people's lives and is increasingly at the heart of the healthcare agenda. Digital technology is already transforming the way in which we deliver care and the way that we work as a Health Board.

There are increasing digital challenges for healthcare providers to contend with, e.g. recent cyber-security incidents have highlighted the vulnerability of healthcare systems; expectations regarding technology are well ahead of current systems on offer; and robust digital systems are vital to delivering seamless and safe patient care.

There are also a number of opportunities for digital healthcare technology to help meet some of the key priorities for the NHS. Health organisations are already seeing the benefits of implementing Robotic Process Automation (RPA) and Artificial Intelligence (AI) to ease the burden on the workforce by removing the need for repetitive administrative tasks. Emerging technological capabilities are creating new ways to deliver care. Patients already have the option of virtual primary care appointments, and the increased use of this approach could help dramatically reshape the outpatient journey.

Our current Services

Digital Services provide Health Board-wide services for Information Management, Clinical Coding, Telecoms, Patient Applications and ICT Technical Services (ICT Service Desk, Devices, Networks, Storage, Data Centres, Security, Integration, Web Services and Information Governance).

In summary:

8,500 devices

10,000+ users across the Hywel Dda Community

£8.3m budget (0.98% of the Health Board)

137 staff WTE (1.37% of the Health Board)

81% excellent user rating

There are over 130 clinical ICT systems in use across the Health Board. Many of these are unsuitable because they are either out of date, unsupported or lack key functionality. Many of these systems are silos of information and many systems will carry similar information. Inconsistencies in these sources of data could pose safety risks at worst and a significant administrative burden on staff at best. Even with so many systems in place, there is still a large amount of paper in use.

A recent assessment of our digital maturity against the global HIMSS (Healthcare Information and Management Systems Society) scale showed the size of the challenge ahead of us.

We aim to achieve HIMSS Level 3 within two years of publication of this Response and to progress to level 5 by the end of the strategic journey. This will enable us to become a **Digital Exemplar**.

National policy landscape

A number of key documents and initiatives emphasise the national policy focus on Digital.

Launched in December 2015, "Informed Health and Care", the Digital Health and Social Care Response for Wales, sets out the ambitions and expectations of the Welsh Government as to how health and social care will use technology

to enable greater access to information to deliver real benefits and improved outcomes for people in Wales. The development of the National Digital Plan is a key enabler in improving Digital planning across NHS Wales and supporting the delivery of the Informed Health and Care Response and supporting service transformation. To date the processes and authority for prioritisation of all national Digital projects have not always been clear, consistent and collaborative. The net result has been a long list of priorities, a lack of clarity on which are collectively the most important and a collective failure to deliver at the pace and scale agreed. A new national business case process has been implemented which has provided clarity of which systems / products will be available to the Health Board.

There are a number of national business cases that are either at outline business case, or progressing to full business case stage that will require significant input from Digital, either from Business Change, Application Support or ICT to support the implementation. There has been no indication nationally that additional resources will be made available to the Health Board and it will be left to local discretion whether additional resources will be given to the projects. The risk of not agreeing to implement the national Programme is that the Health Board will not be able to optimise its usage of the products and therefore not realise the benefits outlined within the business cases. The following table is a list of the known business cases within the national pipeline which will have a significant impact on the Digital Team, above those already noted within this paper:

System / Product	Stage in the Business Case Pipeline
Re-procurement of pathology system and Welsh Laboratory Information Management System (WLIMS) including upgrade (LINC/LIMS)	Full Business Case – likely implementation 2021/22 onwards
Implementation of new Critical Care EHR system	Full Business Case – likely implementation 2020/21 onwards
Welsh Pharmacy and Medicines Management System (WHEPPMA) – full e-prescribing product	Outline Business Case – awaiting confirmation of funding from WG before moving to FBC and procurement
E-flow & e-observations	Outline Business Case – awaiting confirmation of funding from WG before moving to FBC and procurement
PROMs/ PREMS	Accelerate of current programme
Transformation of Nurse Documentation through standardisation and electronic approaches	Pilot phase within the Health Board, FBC will be required to continue rollout across Health Board, circa £700-900k required
Implementation of new integrated eye care EHR including Electronic referrals	Outline Business Case – awaiting confirmation of funding from WG before moving to FBC and procurement
Continuation of the roll out of WCCIS to other areas within the Health Board	Pilot phase in Ceredigion underway, with a FBC to be developed for further rollout within the Health Board
All Wales Risk Management System (replacement to DATIX)	Procurement Phase – awaiting implementation data
Replacement of the pharmacy system	Procurement Phase – Implementation November – December 2020

Working with our partners

The Health Board already has a good working relationship with our local partners. We currently collaborate with partners at various levels including across the Hywel Dda Community.

We will look to develop a Digital Roadmap, which outlines the ambition for the design, implementation and wide-scale adoption of digital and technology solutions for health and care services within the Hywel Dda Community. The roadmap will highlight how digital will address key local challenges, including delays in leaving hospital, increasing wellbeing, creating greater ownership of health care and information, providing quality acute care across the Health Board area, and care closer to home.

We will collaborate with our partners to deliver the best solutions for our communities. We will

learn from each other and share our experiences so that we can all improve digital technology for the benefit of our patients wherever they are treated.

Information Governance

In order to deliver much of the above, there is a need to have a strong information governance framework which can ensure compliance and provide the necessary assurance to the Health Board. Every citizen should feel confident that information about their health is securely safeguarded and shared appropriately as it is in their interest to do so. Everyone working in the healthcare system should see information governance as part of their responsibility. People using healthcare services are entitled to expect that their personal information will remain confidential. They must feel able to discuss sensitive matters with a doctor, nurse or healthcare professional without fear that the information may be improperly disclosed. These services cannot work effectively without confidentiality. However, people also expect professionals to share information with other members of the care team who need to co-operate to provide a seamless, integrated service. So good sharing of information, when sharing is appropriate, is as important as maintaining confidentiality. All organisations providing healthcare services must succeed in both respects if they are not to fail the people that they exist to serve.

The Digital Response's overarching aim has been to ensure that there is an appropriate balance between the protection of the patient or user's information and the use and sharing of such information to improve care. Across the healthcare system, all staff undertake annual training in information governance. The commitment to training is important. However, the Health Board and managers must not see the mandatory training as a "tick-box exercise".

There needs to be a fundamental cultural shift in the approach to learning about information governance. The Health Board staff should be educated and not simply trained in effective policies and processes for sharing of information. They should have formal information governance education focused on their roles, and this should be at both undergraduate and postgraduate level. This education should include a professional component explaining why there may be a duty to share information in the interests of the patient, as well as the legal aspects of the common law of confidentiality, the Data Protection Act and Human Rights Act.

Our Digital Vision

To become the most digitally integrated care organisation in NHS Wales which will enable the delivery of patient centred high quality, safe and sustainable care to our community

Our Mission

To empower patients and staff to securely access information anytime, anyplace, on any device.

We will deliver a ***Digital Health Board***, providing ***exceptional care***, ***quality*** and ***safety*** for our patients, a ***single view of information*** for our clinicians, with ***collaboration*** at our core.

Working together

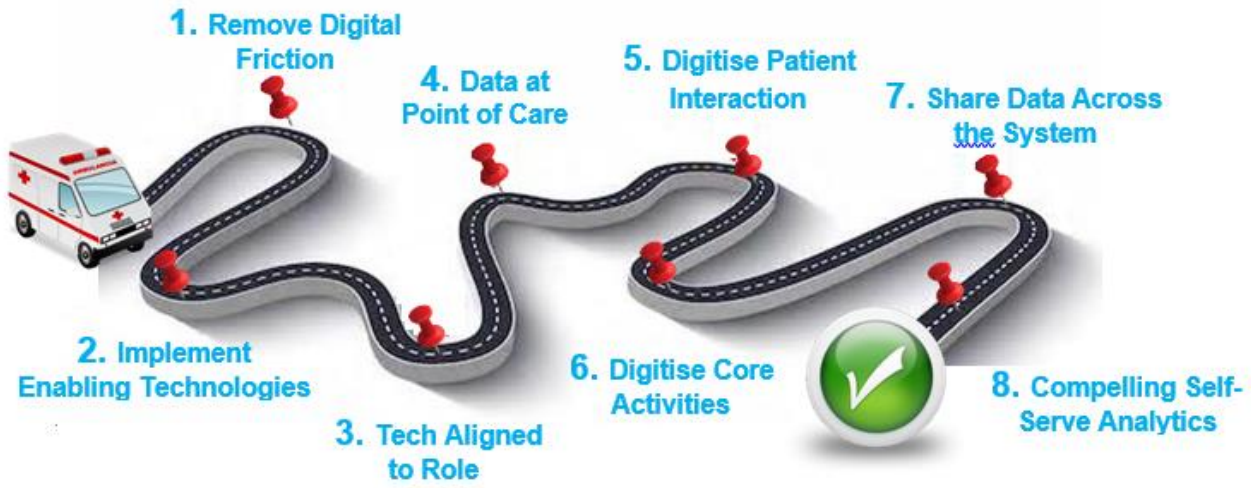
As a Health Board we will collaborate to realise the possibilities of digital transformation. This cannot be delivered by any one team, department or individual. We will be open and transparent about issues, and work with pragmatism and creativity to create solutions that are right for the Health Board, our patients, communities and staff. Digital healthcare technology is an important enabler, and can only be successful where it is developed closely with clinicians, staff, patients and with the other enablers in the Health Board to transform the way that we do things. In order to achieve a truly Digital Health Board, we will look to create the following:

- A Digital Community
- A Digital Hospital
- A number of Digital Wards within the Acute and Community Setting
- A Digital Home

Each of the above will utilise all the new and latest technology and will become a test bed for new digital solutions, with the emphasis on implement, test, adopt and review before a wider rollout would be considered. Placing technology in real life situations will not only test the products / systems, but also the maturity of the organisation to adopt the technological, cultural and system change.

Our Road To Digital

Making **digital** an **integral** part of our **culture…….**



By embracing the Response and making digital technology a key component of all organisational transformation, we will ensure it is part of every clinical pathway and contributes to the care given to, and safety of, our patients. Digital transformation will blend into our culture to become a foundation of change that leads to improved patient care and safety.

Our road to digital is characterised by the following key points on the journey

Removing Digital Friction

We will remove the high levels of digital friction experienced by our teams when accessing patient information. We will remove multiple logins, passwords and slow authentication in order to reduce the fatigue and discontent that can build when using a high number of disparate systems.

Our Response will be to reduce digital friction by using fewer systems and more streamlined access methods whilst retaining high levels of security.

Implement Enabling Technologies

Digital Systems must improve our teams' ability to support patient care rather than be viewed as an administrative barrier.

Tech Aligned to Role

We will implement digital technology that allows carers to remain at the patient's side when updating or viewing information. We will supply our staff with devices pertinent to the environments in which they are operating. Tools such as tablet computers, smart phones, and wearable devices will all have a place in our new digitally connected way of working.

Data at Point of Care

Smart graphical representations of patient data will be made available to clinicians at the point of care, this will improve the speed at which analysis can be made and improve the accuracy of decisions.

Digitise Patient Interactions

Our patients' safety and care will also be improved as digital systems inform prescribers of potentially dangerous drug combinations whilst automatically tracking drug administration times and prompting nursing staff when medication is required. By using clear digital instructions and prescriptions, safety will be further improved as the reliance on interpreting hand written notes will be removed.

Digitise Core Activities

As the Response progresses, the use of digital tools will become second nature, for example, the clinical observations of our patients will be a fully digitised end to end process. This will have massive administrative and clinical benefits by removing the need to manually collate and process paper charts across every bed and instead, activity can be easily prioritised based upon recorded observational feedback. Digitising core activities, such as observations, will lead to improved patient care, safety and reduced costs.

Share Data Across the System

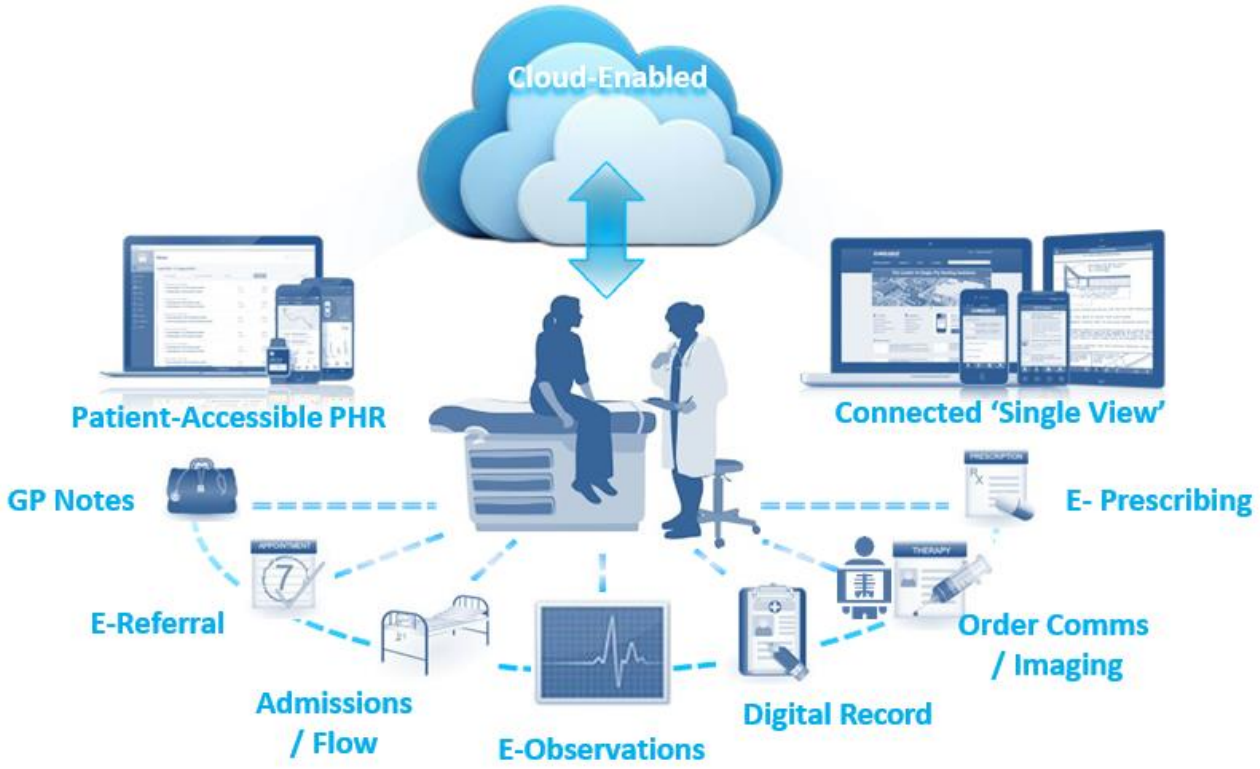
At an organisational level, the success of our Response will be proven when digital is regarded by our patients, staff and health economy partners as a key enhancement to every clinical pathway and is embedded as a way of working. By sharing our information with partners and services across the Hywel Dda Community and wider national bodies, we will occupy a leading role in shaping the future direction of healthcare within the region.

Compelling Self-Serve Analytics

The data we acquire throughout our daily activity will be proactively placed back into the hands of our clinicians, managers, leaders and decision-makers through compelling self-serve reports and dashboards. There will be a desire to get smarter through advanced data analytics.

Our Patient Vision

Our **digitally transformed future** healthcare vision…



In the future we will have digitised all of the events and information that relate to a patients care into an easily accessible data store that can be shared with our partners. Clinicians will be able to view all the requests and results relating to a patient, including images, not only from our Health Board but also our partners in primary, secondary and community care.

By digitising the complete care pathway, from admission through medicines administration and onto discharge, patients will receive better and safer care as our teams will have a clear and easily understood picture of the patient's health.

The digital Health Board will look to revolutionise the way our teams operate and will make technology work for them. With the patient at the centre of the data, we can include them in this digital revolution by providing access to their records and increasing engagement in their own heath care.

Digitise Patient Interactions

In future, our patients must be able to interact and provide updates to our teams in ways more efficient than the existing physical appointment process. Some examples of future digital interactions are the ability to record information relevant to their health, view results, and seek quick help using "webchat" type tools and to also hold online appointments.

Apps Integrated with Systems

We will improve the health and wellbeing of our patients by providing them with digital solutions and apps that are integrated and interoperable with the Health Boards systems. Personal Health Record facilities are a crucial

enabler that will allow our citizens to view their treatments and information in a seamless way across the community, regardless of whether this is from their local GP, a secondary care hospital or community health provider.

Accessible Records Across the Hywel Dda Community

Our digital platforms will interoperate across the whole community and provide patients with the ability to access their records and care plans wherever they are, allowing them to be more active participants in their own care.

One Place for Patient Information

We picture a time when a patient will be able to, through a single app, see when their next GP appointment is due, when a community nurse will be visiting and when their hospital consultant expects to see them. By providing citizens with straightforward access to this kind of information, we will allow them to have a clearer view of all NHS interactions which will in turn reduce the likelihood of missed appointments.

Empowering Citizens

By providing our citizens with straightforward access to Personal Health Records, we will improve safety and efficiency across the NHS whilst also empowering them to take control of their own healthcare needs. Our digital revolution will simplify and empower our patients.

Working Together

Some of our key measures will be how we improve quality, safety and patient experience in our service. We will move to a highly interoperable, care-system wide approach to technology solutions and away from disparate silo-based implementations. Only by working together and joining up our digital platforms will we be able to create a single view of the NHS for our patients.

Friction-Free Information Exchange

We will remove the digital friction between our Health Board and other providers by implementing a seamless joined-up technology platform that allows patient information to flow freely and securely. By ensuring our information is available across the region we can improve the flow of patients into and out of our hospital. Community care providers will be able to use our data to automatically seek and allocate community beds based upon patient needs. Reciprocally, they will be able to understand our bed-state and use this to assess if a patient would be better to remain in place with local care.

Unifying Disparate Information

We will ensure that our staff and all those based within our health and care system have the ability to view a complete picture of the individuals they are caring for, rather than the current jigsaw puzzle than can have pieces missing.

Championing 'Connecting Care'

Working together as a single health community is vital to create a safe and holistic view of our citizen's health. Along with other providers in the region, our teams are already able to view GP records, current medications, mental health information and correspondence.

Digital Inclusion

The Health Board is also looking to support people who lack the confidence and skills to use digital health services and information through the Welsh Governance digital inclusion Programme. The Digital Inclusion Charter is for organisations in Wales which are promoting basic digital skills and helping people get online. Since the launch of the Charter hundreds of organisations have signed-up. The Charter includes six pledges and is a simple way for organisations to show their commitment to helping digitally excluded people enjoy the benefits of the internet – particularly older people, people with disabilities, unemployed people, social housing

tenants and families in poverty. Signatories of the Charter also commit to working together in a spirit of co-operation to promote digital inclusion in Wales. The charter principles are outlined below:

- Ensure that all our staff and volunteers have an opportunity to learn basic digital skills, and that they take advantage of this opportunity.
- Ensure that digital inclusion principles are embedded into our day to day activities.
- Encourage and support our staff and volunteers to help other people to get online and have the confidence to develop basic digital skills, and help other organisations to embrace digital tools.
- Commit support and resources for digital inclusion activities and initiatives in Wales in whatever ways we can.
- Share best practice and activity around digital inclusion with Digital Communities Wales – Digital Confidence, Health and Well-being so that our activities can be co-ordinated for maximum impact and measured consistently.
- Look to build local partnerships amongst organisations which want to share ideas and co-ordinate activities with others in their area.

Our Design Principles

To support our vision we have developed five Design Principles.

Digital technology is constantly changing and evolving and as a Health Board we will be flexible and open to new opportunities. Though we outline the key planned programmes we feel that it is most important to outline the principles on which we will all be developing digital technology.

The Design Principles are a statement of our collective values for the development of digital technology in the future. They have been informed by the Health Board, the Digital Team and with partner ICT colleagues from elsewhere in the organisation.

The Design Principles will:

- Provide governance and oversight of all digital initiatives, i.e. when proposals come to the Digital Programmes and Business Case Assurance Group they will need to meet each of the five principles in order to be approved.

- Act as a consultation and engagement tool to create better conversations around the possibilities for digital transformation, i.e. when our Digital Business Partners are working directly with teams or providing training.

- Provide guidance and support for digital programmes or improvement initiatives that are in planning, development, implementation or review, i.e. these can be considered five success criteria against which a digital programme can be deemed to be effective.

Digital solutions should be:

Simpler

- We will rationalise the number of systems in use.
- We will not replicate complex processes before digitising.

Connected

- We will create tools and systems that bring together information from disparate systems.
- We will not create closed systems which create silos of information.

Faster

- We will develop digital solutions that streamline work for clinicians, improving their speed and efficiency, whilst enhancing the patient experience.
- We will not develop inefficient solutions that detract from the patient experience.

Enabling

- We will create digital solutions to transform care pathways.
- We will not create solutions in isolation, and will learn from others to accelerate implementation.

Secure

- We will develop digital solutions that are safe and secure, and meet our security standards.
- We will not support any solutions that put patient data at risk.

Our Digital Maturity

Our journey to a **digitally sophisticated** organisation…

Exceeding Expectations

Our staff and patients should have a digital experience that exceeds their expectations and is in line with the best digitally enabled businesses. Our health is more important than our wealth, yet we can already bank online and purchase insurance but must wait for a paper letter confirming appointments for major surgery.

Raising Our Ambitions

As an organisation we must accelerate and raise our ambitions to create a digitally led Health Board that exceeds the expectations of both our staff and patients. The HIMSS assessment framework provides an excellent benchmarking facility and outlines the levels of maturity hospitals should be striving for. With the existing high quality staff, buildings and facilities available to us, we will aim for the highest level of digital maturity which will create an improved safe, efficient and friendly environment for all.

HIMSS Maturity Index

At the conclusion of the longer term elements of this Response, the Health Board's digital maturity will be increased to HIMSS Stage 7 or an equivalent measure.

Safety Through Digital Maturity

As a digitally mature organisation we will be able to shorten our diagnosis and treatment times whilst simultaneously creating a more efficient and cost effective organisation due to a large scale reduction in repetitive, manual and resource intensive activities. Our digital solutions will increase safety whilst simultaneously reducing resource intensive activities.

More Than Just Electronic Paper

Our digital Response will not simply look at existing processes and digitise them, it is important that as an organisation we embrace the change that technology can bring and use these to transform our current workflows. We will introduce new developments, such as instant messaging tools, and empower our teams with the flexibility to use these in new and exciting ways.

The days of waiting for call-backs from a pager request will come to an end as we replace them with instant secure messaging containing photos and other media.

Familiar Tools, Freshly Implemented Secure, medically focused, versions of consumer style tools, such as instant messaging, will be introduced to improve our organisations communication abilities leading to an increase in efficiency and faster service for our patients

Clinical and Operational Led Change.

All of our staff will become well versed and understanding of the need to move from traditional practices into digital solutions; our clinical and operational teams will become the drivers of change and the identifiers of service improvements with the digital teams being the enablers of transformation.

Digital As Standard

Our organisation's clinical and operational leaders will encourage and lead the move to digital solutions by embracing the changes and supporting individuals as their jobs and working practices change. It is important that the use of digital technology is not seen as an optional requirement of patient care but a

necessary component that will improve our patient's outcomes.

Leadership Level Advocates

Our organisational leadership will encourage and support staff as we move from traditional solutions and introduce digital working at all stages of patient care.

Digitally Enabled Best Care for Everyone

As an exemplar Digital Hospital, signified by achieving HIMSS level 6, our Health Board will deliver consistently safe, reliable, high quality care in an environment that is loved by staff and reassuring to patients. Our ambition is to get to Level 5 at the end of this Response with the readiness work prepared to move to Level 6 or Level 7 which is a fully digital Health organisation.

Patients treated in hospitals that make use of digital technologies to provide care will consistently have better outcomes than those treated in hospitals with a low digital maturity. Our Health Board of its size and demographic is heavily reliant on the movement of paper to facilitate the provision of care.

HIMSS (Healthcare Information and Management Systems Society) is a non-profit international organisation whose goal is to promote the best use of IT and management systems in the healthcare industry. HIMSS have created the EMRAM (Electronic Medical Record Adoption Model) digital maturity model to enable providers of care to measure IT adoption and maturity within their organisations. Hospitals that have achieved a high HIMSS level consistently report significant reductions in medical errors, have improved readmission rates, higher operating margins, lower staffing costs, greater staff satisfaction, and reductions in duplicate orders and in general have improved patient safety and the overall quality of clinical care.

By providing our staff with digital solutions, not only will we improve the safety and reliability of care that we provide but we also improve the experience of our colleagues. At a time when we have workforce challenges, evidence supports the idea that staff have a better experience and are more inclined to move to work in hospitals that have improved digital maturity. By working digitally, supporting our colleagues with the skills to confidently embrace technology and by harnessing the rich data outputs from our solutions, we will become a leading example of a Health Board that provides outstanding digital care in the NHS.

HIMSS methodology means that you must complete all of the previous level before you can achieve the next. This Response will see us achieving HIMSS Level 6 in the next five years.

We will choose how we navigate through these levels according to our need, priority and investment, which may mean that our progress is not linear, however, with the right direction and strategic funding we will reach level 6 by the end of the Response.

STAGE	HIMSS Analytics EMRAM EMR Adoption Model Cumulative Capabilities
7	Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security
6	Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting; Full CDS
5	Physician documentation using structured templates; Intrusion/Device Protection
4	CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity
3	Nursing and Allied Health Documentation; eMAR; Role-Based Security
2	CDR; Internal Interoperability; Basic Security
1	Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM image management
0	All three ancillaries not installed

Our Digital Ecosystem

The Hywel Dda Digital Ecosystem will be run in partnership bringing together partners from health and social care, industry, academia, local authority and third sector organisations. We will focus on improving health across Hywel Dda through the spread and adoption of digital health solutions. As part of the Ecosystem, we have developed the following concepts that will be foundation:

Digital Home

A Digital Home will be a highly automated home, they have also been referred to as the "connected home." The residence will be networked not only for computers and entertainment but also for security, heating, cooling, lighting, as well as control of appliances, including healthcare devices, robotic vacuum cleaners, and lawn mowers.

Digital Ward

Imagine a future where hospital wards have no paper case notes or files. Information on a patient's medical condition is automatically captured via intelligent context-aware devices and sent directly to the Patient Administration Systems.

Digital Hospital

A digital hospital should have smart car parking, inside its corridors, there are robots delivering medication. Automated guided vehicles deliver lunch trays. Machines that deliver the pneumatic tubes that carry blood samples from patient floors to the laboratory. Patients and staff that wear real-time locating devices, to improve security, and efficiency of staff.

Digital Community

Connecting primary care, wellbeing and community services with cutting edge digital healthcare products and platforms to integrate healthcare will be key for the development of a digital community. Digital equipment needs to be supplied to improve recording of activity, and case management ensuring that the interoperability of systems is key so that we enter once and read by many systems. The development of the concept of a Digital Community Nurse will be able to support patients in their homes, to help identify early signs of deterioration or exacerbation.

Develop digital solutions that will deliver lifestyle services, social prescribing services, referral and booking hub services, workplace health and many more.

Supporting the Digital Response

While digital transformation is everyone's responsibility, the Digital Service Team acknowledges that they have a clear role to play and need to lead the change. To support this new direction the Digital Team is adopting a new team structure and is appointing new clinical support roles.

Under this structure there are now five key functions which give prominence to our future priorities, and help us to work and deliver on the Design Principles.

Digital Business

Delivers the Digital Strategy. Responsible for coordinating engagement with clinicians, staff, patients and partners, delivery of the Digital Strategy, budget, policy, portfolio and communications.

Digital Services

Oversees all current technology in the organisation. Coordinates all digital services, including the service desk, network and operations centre, infrastructure, information and data, and training and education.

Digital Security

Defines and delivers the cyber security strategy, the enterprise security architecture, security culture change and assesses and mitigates the organisation's risk, providing assurance and ensuring compliance relating to technical security.

Digital Architecture

Owns the Digital Blueprint to guide the priorities, projects, budgets, and staffing to deliver the Digital Strategy. Acts as a design authority which owns and drives standards throughout the organisation.

Digital Solutions

Includes all aspects of the successful project and programme delivery of digital solutions, including business analysis, project governance, quality assurance and testing.

New leadership and engagement model

In order to support the new Digital Response we have identified a model for leadership and engagement.

The **Assistant Director of Digital Services** provides the leadership on digital health and care, across technology and information and sets standards and priorities for the Health Board. Our expectation is that the Assistant Director of Digital Services will take a leadership role regionally and nationally, representing the Health Board at Welsh Government.

Relationship Managers will act as a key point of contact for the sites and directorates. They will work closely with Transformation and Quality Improvement colleagues. These strategic roles will help provide guidance and technical expertise to ensure the right solutions are in place for services. These will be designed to complement the existing Finance Business Partners, and it will be important for each of these functions to work together to help to define the role.

While the Digital Team can bring technical expertise, to be successful the development and implementation of solutions needs to be clinically led.

We already have a **Chief Clinical Information Officer**, who is responsible for ensuring that the design, implementation and use of digital technology is done safely, efficiently and supporting adoption within the clinical setting.

Adding to this role we are looking to strengthen the role of the **Chief Nursing Information Officer**, recognising the key role that nursing professionals already play in digital transformation and design. Linked to this is the need to develop a key set of stakeholders which will include Therapies and Mental Health and Learning Disabilities.

All of these roles will have dedicated time allocated to supporting digital transformation. These roles will be a key point of contact for other clinicians and staff. They will provide guidance and leadership and have a central role to play in delivering the Digital Response.

Skillsets and training

To support the transition to our new structure and the embedding of new roles we acknowledge that the Digital Team may need training and support. The use of digital technology will play an increasingly large part in all roles in the NHS. The recent Topol Review estimated that within 20 years, 90% of all jobs in the NHS will require some element of digital skills.

The majority of staff will be very technologically adept in their own lives but this does not always translate to confidence with use of digital technology at work. Part of this is driven by the user-unfriendliness of systems, which are much less intuitive than most current personal technology. We will be working hard to address this over the next five years.

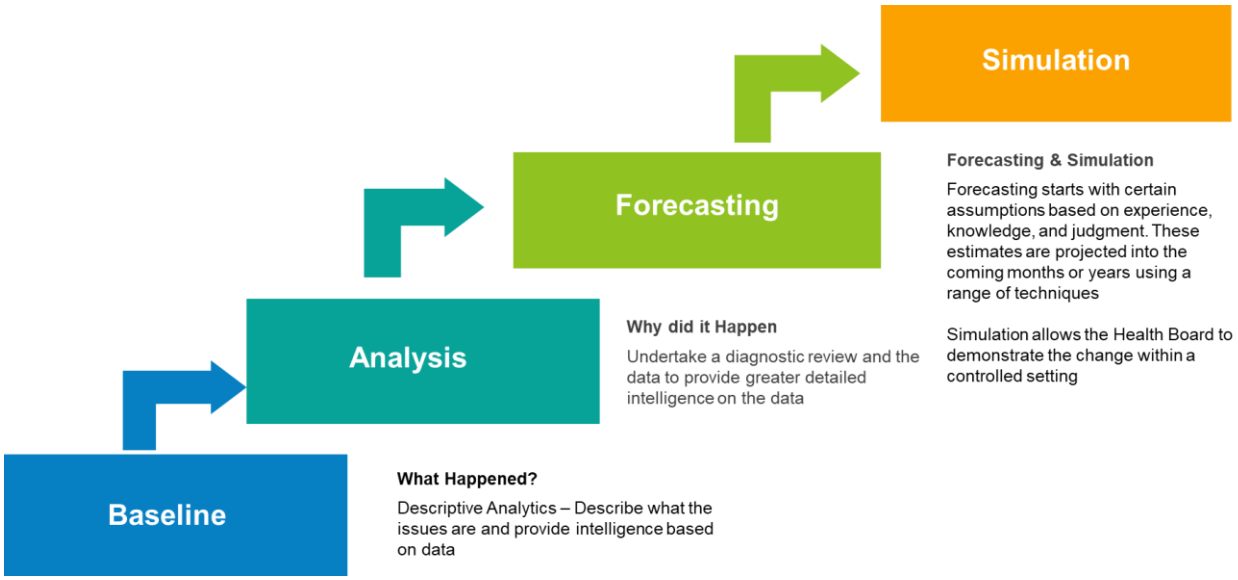
To increase digital confidence we need to ensure that we are recruiting for the right skills, giving new staff appropriate induction and supporting skilled staff with the right training to develop others. We know that it can be difficult for staff to take time away from their day-to-day roles so we will be looking at how we can deliver technical training differently. We will prioritise training on the ward rather than in the classroom where appropriate, and focus on delivering practical training at the right time for users.

Business Intelligence and Data Analytics

Getting **smarter** with **self-serve** intelligence…

Our Business Intelligence Response will revolutionise information consumption within the Health Board, and will provide a leading example of robust data analytics across the system. The objectives are organised into a number of phases over the next 5 years. They represent the roadmap to improving the use of data and information in health and care across Hywel Dda. With an increased level of engagement the potential evolution of analytics can progress across Hywel Dda, the journey that needs to be travelled is through a collaborative approach. The journey will move the Health Board from traditional "descriptive analytics" which reflects what has happened at points of the patient journey towards "predictive and prescriptive analytics", therefore becoming a learning health system, which evolves its information and data to suit requirements.

Decision makers will use data and information as the primary source of their decision making, using analytics to understand the root cause of the issue and the question being tabled. This would initiate further thinking and opportunities around potential data points that could be sourced to support the forecasting and simulation work flows. Primary and Community Care interactions are an obvious gap in the current data sources, Welsh Community Care Information System (WCCIS) will support the community element in the coming years and give a valuable insight into the out of hospital care that residents of Hywel Dda currently receive.



Therefore the 5 pillars of the Response will be:

Self-Service & Self Sufficiency

The cornerstone of our Response is to embed self-service and self-sufficiency of analytics within our directorates. The directorates know the questions that need answering to drive change and improvement. Our intention is to place powerful interrogation tools and compelling dashboards in the hands of clinicians, analysts, managers and decision makers, while decreasing the reliance on digital delivery resources.

Focus on Data Management & Quality

The retained BI function will ensure that data is engineered according to the most rigorous professional standards, with the latest thinking influencing the creation of increasingly sophisticated and user-friendly insight models. Quality and availability of data will be the core aim of the BI function, in order to ensure data is reliable when sliced and interrogated through different perspectives or organisational levels.

Step-Change in Analytical Maturity

Over the lifetime of the Response we will transform our analytical maturity, embracing and driving changes that come with broader usage of data. We will provide better predictions, safety improvements, pre-emptive controls, usage of AI models, and greater confidence in our information-based decisions.

Getting Smarter

As our Response matures, so will our usage and scope of the data we work with. We will no longer be constrained by only the data our Health Board holds – we will look to predictive modelling tools, artificial intelligence and machine learning to boost our insight of Health Board organisation and big data inputs. Sophisticated analytics will then become available on the consumer's device of choice, enabling intuitive use of data.

Data Analytics Objectives

Our solutions will enable us to:

- Embed skilled Analysts within the Health Board
- Reveal emerging trends internally and externally in the wider populous
- Highlight key issues in our data quality
- Provide detailed insight and analytics to clinicians, managers and decision-makers
- Model the direction and performance of the organisation from multiple perspectives
- Support the collaborative use of data across the system, in conjunction of sharing best practice

Technology: Infrastructure

The **foundations** of our digital **aspirations**…

Our digital infrastructure is currently undergoing a huge transformation in order to provide the stable foundations for our future aspirations. As our digital transformation moves forward, the dependency on devices that can connect reliably and at speed is critical; without this our staff and patients will become locked-out from the information they need.

This work is of crucial importance to the ongoing sustainability and security of digital services and is the principle enabler for our long-term strategic aims. It is also the work that is least visible to patients and staff, operating "below the water line", but powering our day-to-day activity.

Over the next 3 years the network across our entire estate will be replaced with a solution which has been designed to meet future expectations of growth in size and breadth of services. We will also look to leverage cloud-based approaches as our Response and needs evolve.

A stable network will enable our vision of providing information to staff using the right devices for their situation. For example, teams will have tablets or other mobile devices which will provide them with patient observations and records to hand when performing ward rounds - minimising the need to leave the bedside and providing more time for patient interaction.

Outpatient clinics will have devices that allow our consultants to converse with patients whilst also viewing historical records with minimal delay, in addition to having the ability to rapidly record notations digitally. All of our staff will have the capability to use whatever devices are appropriate to their situation and location. For example smart phones will replace pagers, tablet devices will replace pens, paper and clipboards with traditional laptops or desktops being used when high degrees of input are required.

Enabling new ways of **working**…

Embracing the 'Internet of Things'

As we progress further, the use of Internet of Things sensors, along with dedicated telemetry and tracking devices will provide data to improve the care given to our patients by providing real-time feedback of observations and locations.

Bring Your Own Device (BYOD)

The ability of staff to choose or bring their own devices and have secure access to our systems will become part of everyday life. The flexibility provided by allowing clinicians to configure devices to their liking also improves productivity and efficiency and we envisage a time when a clinic can be held in any room or location.

'Pop-Up' and 'Virtual' Clinics

With access anywhere we will be able to flex and operate "pop-up" clinics at locations outside of the Health Board and take specialist care into community locations closer to our patients. In addition, the use of high speed network connectivity will allow us to hold online video consultations as an everyday event.

Renewed Cyber Security

To support this level of flexibility, we must also continue to invest in Cyber Security measures so that our Citizens data is kept safe. Our software will be maintained in line with supplier

support and we will commence the rollout to the latest versions of desktop operating systems and office productivity tools over the next 12 months.

Cloud-Based Solutions

The move to cloud-based Office 365 is more than a simple replacement of our aging productivity tools. As our data is moved into the cloud, our teams will be able to access the data, securely, wherever they may be. The highly collaborative nature of the platform will allow us to share our data, subject to information governance rules, with other providers and commissioners far more efficiently.

Virtual Collaborations

It will become normal practice to hold multi-disciplinary team sessions where everyone has access to the same information at the same time and are able to update this in real time. The safety and outcomes for our patients will be greatly improved as hand-overs will have an accurate and timely flow and gone will be the need to fax, print or email static documents. The need to fax will be completely eradicated from patient care in the first stage of the Response.

Fit-For-Purpose Hosting

Whilst some services will benefit from cloud-based solutions, there will be a continued need to host our own systems locally for performance and cost reasons. We will take a pragmatic approach to our future infrastructure requirements and use a hybrid-cloud methodology accompanied by the need to maintain pace, security and supportability, wherever our systems are based.

A Place Where IT Just Works

The underlying IT Service will be standardised into an industrial strength solution where things will "just work". When incidents and problems do occur, we will ensure there are skilled teams available to remedy the situation with minimal impact to the staff and patients.

Implementing **IT solutions** that **just work**…

Making Decisions

Prioritising the right things

In order to address the Health Board's current digital maturity challenges and deliver a strong foundation for the future a significant amount of work needs to be done. We have heard from people about technology that was outdated and hard to use, areas where improvements need to be made to keep pace, as well as more innovative forward looking technology.

Digital initiatives can be described as falling into three stages:

- ***Maintain:*** necessary work that needs to occur to address immediate issues and prevent problems from occurring ("keeping the lights on")
- ***Improve:*** work to improve current systems and ways of working; and
- ***Transform:*** work that fundamentally changes how we work and operate.

While work will need to be undertaken to address current issues, solely focusing on these activities will not help us to achieve our goals or keep pace with technological change.

The Digital Team has a prioritisation approach, and have worked closely with clinicians, care groups and partners to understand key priorities. This takes a balanced approach to rank priorities using weighted categories to ensure that we are focusing on things that will make the biggest impact. These categories, include:

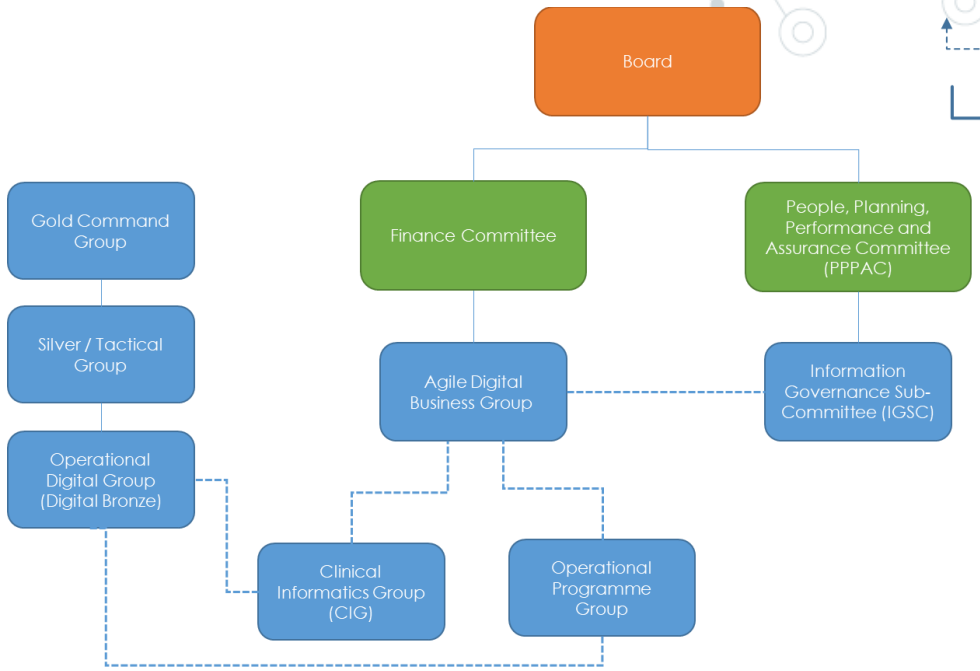
- **Risk**: level of corporate and clinical risk of not implementing
- **Benefit/return on investment**: level of corporate and clinical benefit delivered against investment
- **Funding availability:** for implementation and support
- **Resource consumption:** required to implement
- **Political imperative:** meeting Executive and Board priority and national mandates
- **Time criticality:** on phasing of implementation
- **Response linkage:** how the development links to the overall Health Board Response
- **Audit recommendations:** how the Response ensures that the recommendations from Internal and External Audit are addressed

We will continue to work directly with clinicians to review this approach across the life of the Digital Response to ensure we are pursuing the right priorities.

Robust governance

We have identified that as a Health Board there is too much fragmentation and diversity in the digital solutions we have in place, and the ways in which they are used. The Design Principles outline the standards that the Health Board will collectively work towards and this will be supported by robust governance.

All proposals for digital investment will be reviewed at the Agile Digital Business Group. To be approved, business cases must demonstrate how they meet the Design Principles, in addition to existing requirements to show alignment with the Health Board's strategic aims and good programme management. Guidance and advice will be provided to assist with developing business cases. There is a clear line of governance and oversight from the Board / Executive Team downwards. We acknowledge that there are additional key governance forums and the need to ensure consistency of messaging.



Ongoing engagement and feedback

During the implementation of the Response an extensive engagement exercise will be undertaken by the Digital Team. This consultation will be invaluable in helping us to shape the thinking and development of this Response. It is also a first step in a program of ongoing engagement that will support the delivery of the Digital Response. We want to build engagement into the way in which we deliver all of our programmes of work.

These principles of engagement are key to our approach in delivering the Digital Response. We believe that we can only deliver the right solutions if we work together.

Delivering the Digital Response

The Health Board has set strategic aims which outline the key priorities for the organisation to deliver. The strategic aims are part of a larger strategic and governance framework and are designed to effect positive change.

One of our Strategic Aims is to:

- Build the foundations on which our team can best deliver care.

ICT systems and infrastructure, information and data sharing, are identified as central to ensuring that teams have the tools and support they need to succeed. The Health Board Response identifies the importance of ICT and system investment, addressing current gaps and issues, and ensuring that solutions are integrated across Hywel Dda.

To deliver against this aim, the Digital Team has identified a number of programmes of work within a five-year implementation plan.

These programmes are designed to organise the many strands of work that need to be completed, and the implementation plan will be used to organise resources and plan for the future.

Digital transformation is an important foundation upon which greater transformation can occur. The implementation plan will deliver a number of benefits against all of the Health Board's strategic aims.

Below you will find a summary about each programme of work including the desired outcomes and key projects. More detail about the programmes can be found in the supporting implementation plan.

	Role	Care	Delivery	Our People	Foundations
Delivering the Digital Response					●
Enabling Patients	●	●			●
Enabling the Workforce		●	●	●	●
Digital records & Interoperability	●	●			●
Protecting patient information		●			●
Strengthening digital healthcare systems	●	●	●	●	●
Strengthening digital infrastructure			●	●	●
Enabling hospital flow & integrated care	●	●			●
Beyond the Health Board	●				●

Delivering the Digital Response

Why

The Digital Response begins with this document and work will need to be undertaken to make sure that it is embedded in the organisation and structures are put in place for the objectives to be realised.

Outcomes to Achieve

- Launch and communicate the Digital Response to support successful delivery of the objectives
- Establish necessary governance and prioritisation arrangements to support the Digital Response
- Create the teams and skillsets to support the delivery of the Digital Response
- Engage with staff, partners and patients to support the delivery of the Digital Response
- Regular measurement of benefits delivered and review of progress against the Digital Response

Highlight

Launch and embed the new structure and roles in the Digital Team.

Enabling Patients

Why

Patients are keen to see improvements in current technology, and in exploring how digital improvements could change the way in which they receive care enabling them to take the lead and giving more choice.

Outcomes to Achieve

- Enable patients to have more choice over how they receive care and provide options to access their personal information
- Improve patient and visitor navigation around the Health Board
- Continually improve patient and visitor Wi-Fi throughout the Health Board
- Support divisions and specialities to implement tools and technology to support research and innovation
- Provide patients with more opportunities to access information and give feedback

Highlight

Deployment of the personal health record through which patients will be able to directly access information about their healthcare.

Enabling the Workforce

Why

We have heard from staff that many of our current systems and technology are a point of frustration and provide a barrier to delivering great patient care. We know that we need to plan

Outcomes to Achieve

- Enable staff to prescribe and manage medicines safely and digitally by delivering a Health Board-wide medicines administration solution

Highlight

Introduce Health Board-wide electronic prescribing and medicines management, enabling staff to prescribe and manage medicines safely.

for different ways of working in the future, and the digital capabilities, training and culture we need to create.

- Enable staff to communicate and collaborate more quickly, reliably and securely
- Provide the necessary infrastructure to enable mobile working
- Support staff to work differently, utilising new digital innovations to address fundamental workforce challenges

Digital records & Interoperability

Why

The Health Board has over 130 clinical applications many of which are silos of information that some clinicians cannot access. Where systems can be accessed there are many to navigate with time-consuming logins and access obstacles to overcome. Systems may contain different versions of the same data, which could lead to inconsistencies and potential safety concerns.

Outcomes to Achieve

- Deliver a single clinical information portal, giving a unified clinical view of patient data for staff, with information from a variety of clinical systems
- Improve our digital maturity as a Health Board and continue our journey from paper to digital records

Highlight

Continued evolution of the Welsh Clinical Portal providing staff with a unified clinical view into the electronic patient care record.

Protecting patient information

Why

Following the 2017 Wannacry attack, cyber security in healthcare is high on the national agenda. We have initiated a cyber-programme of work to address serious security failings within the Health Board. During consultation patients told us how important it is for them to know that their personal information and data is kept safe.

Outcomes to Achieve

- Deliver a safe and secure Enterprise Security Architecture which protects the Health Board's data and assets

Highlight

Deliver a robust cyber security Response covering governance arrangements, data classification and data handling, cultural improvements and the establishment of a Cyber Security Operations Centre.

Strengthening digital healthcare systems

Why

There are a number of systems in use around the Health Board which are either out of date, unsupported, or lack key functionality. Any change in clinical systems should be led by the Design Principles with support from the ICT Department to ensure we are meeting our strategic ambitions.

Outcomes to Achieve

- Support the replacement and improvement of priority clinical information systems
- Collaborate with directorates and teams to identify appropriate decisions in relation to end-of contract and end-of-life digital healthcare systems

Highlight

Develop and implement a roadmap for the development of Electronic Patient Record (EPR) systems currently supporting clinical speciality areas.

Strengthening Digital Infrastructure

Why

In order to deliver the ambitions of the Digital Response the Health Board needs to invest in the necessary hardware and software infrastructure. There are a number of must do infrastructure investments, alongside activity to prepare for the future.

Outcomes to Achieve

- Maintain and improve the Health Board's data centre and network capability, capacity and performance
- Support patient care through the management and tracking of medical equipment and devices, ensuring they are in the right place at the right time

Highlight

Refresh the Health Board's data centres and networks, replacing end-of life equipment and providing the digital infrastructure to support the Health Board.

Introduce a Health Board-wide asset tracking and management solution for medical equipment and devices.

Enabling hospital flow & integrated care

Why

Managing the flow of patients through the hospital efficiently, especially those admitted via the Emergency Department for unscheduled or urgent care, is critically important.

Outcomes to Achieve

- Deliver digital solutions to enable improved patient flow in the Health Board and beyond
- Digitise workflow to support the removal of fax machines in use across the Health Board

Highlight

Introduce enriched features to systems to improve patient flow, both within and beyond the Health Board

Beyond the Health Board

Why

Our patients, staff and partners report frustration with the difficulty of sharing information with organisations beyond the Health Board. We and our system partners are committed to improving the use of digital technology to enable us to share clinical information with our care partners more effectively, helping to improve care for patients wherever they receive treatment.

Outcomes to Achieve

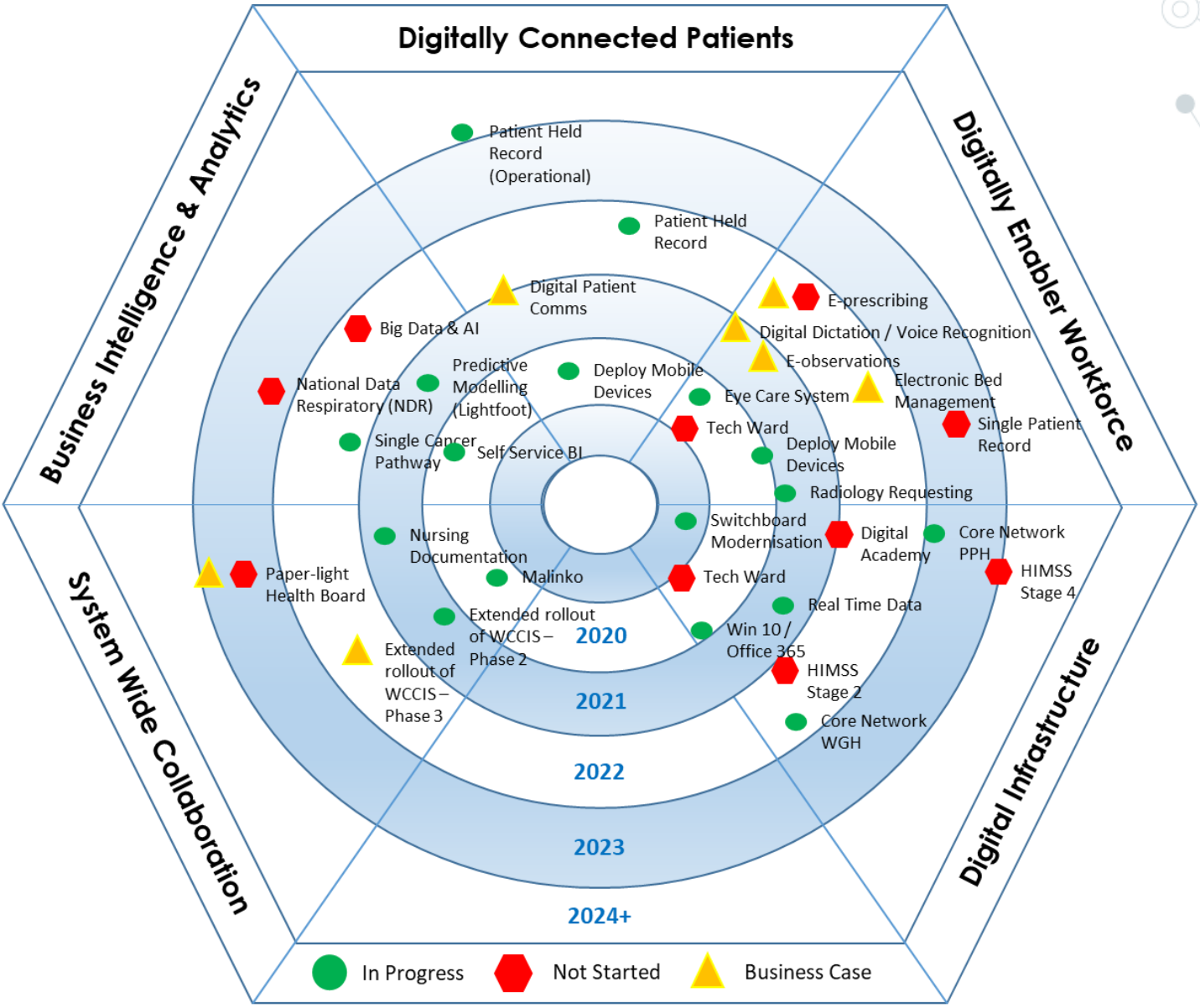
- Support the implementation of Hywel Dda community-wide solutions which create greater system integration and digital interoperability
- Support the delivery of the Local Digital Roadmap for the Hywel Dda community
- Enable staff to connect securely to digital healthcare systems from wherever they provide patient care

Highlight

Enrich the shared care record held, improving access to patient information, supporting clinical decision making.

What & When?

Key **activities** and **timings** within the digital Response...



2020-2021

This period is characterised by key activities that will enable further phases of the Response, notably the upgrading of our network, operating system and productivity tools. The data warehouse will move into production, and we will begin appointing key staff into transformation and academic roles.

2022-2024+

The early work on our foundations enables a consistent programme of delivery in our patient, clinician and system wide plans. New tools and services will begin deployment from 2020, including the pilot of a digital Patient Health Record, alongside E-prescribing.

What this Means for Me

Perspectives on a **digitally transformed** organisation…

Teulu Jones

In order to provide some context to how digital will support the transforming clinical agenda, outlined within "A Healthier Mid and West Wales", and in particular how it will improve the "Jones" family health and care, the following scenarios are designed to help illustrate what the digital vision might mean in practice:

Starting and Developing Well	How the Digital Response will make improvements
Ben's Story	
Ben injured his arm in a game of football and was in pain. Leanne took him to the emergency department, where the doctor arranged for an X-ray. The doctor could access the X-ray electronically and promptly diagnosed the injury as a fracture. The doctor applied a cast to the broken limb, and prescribed medication to assist with the management of Ben's pain. When Ben was discharged, an electronic discharge summary was sent to his regular GP with information about when Ben was treated and discharged, the nature and treatment of the injury, and the recommended follow-up. A text was sent to Leanne about caring for his cast, and what to do if there were problems. Ben's GP could see when the injury needed to be re-assessed and what medications had been prescribed, reducing the risk of duplicate prescription. An appointment was automatically sent to Leanne. This meant that Ben and his family did not need to return to the hospital for additional assessment, only for the removal of the cast.	Implementation of a single Emergency Department system across the organisation which will improve patient flow through the emergency department ***(Available - 2022/23)*** MTeD (Medicines Transcribing and e-Discharge) – will improve the flow of the discharge summary back to the GP in a timely fashion ***(Currently Available)*** Patient Communications – improvements in the way in which the Health Board will communicate with patients. ***(Available 2022)*** Electronic prescribing and Medicines Administration – will remove the need for paper prescriptions and therefore reduce the error rate and duplicate prescriptions ***(Business Case Development - Year 1 2020/21, with all Wales implementation in Year 2 &3)*** Making the patient record available to the clinician whenever necessary, either directly as an electronic record or via a scanned image of a paper record. ***(The scoping for an outline business case will be developed during 2021/22).***

Starting and Developing Well	How the Digital Response will make improvements
Inpatient – Maternity Services	
Leanne was admitted to Bronglais Hospital as an emergency. She is 19 and is 24 weeks pregnant. When she was admitted, the emergency team were able to access the most recent medical record and list of medications from the Individual Health Record, show that she has been off work with pregnancy related problems, and that her son, Ben, was born prematurely. Her full hospital medical history was also available electronically as it had been scanned and linked to her records through her NHS number. Leanne is being closely monitored while she is in hospital due to her previous pregnancy related problems. The readings taken by a number of pieces of equipment on the ward are able to automatically update her electronic patient record through a Bluetooth / Wi-Fi connection. So when her temperature, blood pressure, blood sugar and respiratory measurements are taken these are automatically transferred electronically. These are presented as a dashboard of information that everyone looking after her are able to see at a glance, including at the bedside through the use of tablet devices.	Welsh Summary Care Record (Individual Health Record) ***(already available in Secondary Care)*** Making the patient record available to the clinician whenever necessary, either directly as an electronic record or via a scanned image of a paper record. ***(The scoping for an outline business case will be developed during 2022)*** National Health Records Repository (Welsh Care Record Service) ***(already available in Secondary Care)*** Electronic White Boards / Patient flow - drives the patient journey, ensuring timelier responses and improved quality of care. In turn, this drives bed management and provides real time indicators of current bed state right across the Health Board ***(An outline business case has been submitted to Welsh Government for funding)*** Electronic Observation - facilitate robust and effective management of hospital at night priorities, and to provide electronic observation recording and management. ***(An outline business case has been submitted to Welsh Government for funding)*** Provide better information through the use of electronic nursing documentation and digital dashboards ***(A pilot will be undertaken in 2019/20)***

Living and Working Well	How the Digital Response will make improvements
Rhys Jones - Chronic Disease	
Rhys is a 52 year old man is a heavy smoker and very overweight (BMI 36). His GP determines that Rhys would benefit from attending sessions with allied health professionals around his weight management, and smoking cessation and take part in an education Programme. His GP uses an electronic care planning system which assists in development of a multi-disciplinary team care plan tailored to his specific needs. Through this plan he is able to electronically refer Mr Jones to each of the appropriate services,	Welsh Community Care Information Solution (WCCIS) – will be integral to ensuring that health and social care professionals can communicate effectively about patients. ***(Available 2020/21 for Ceredigion County)*** Outpatient Modernisation - Provide patients with electronic interfaces with the OPD service, to include appointment booking and reminders and provide information and general communications. ***(Available 2020/21 as part of the patient empowerment programme)*** Patient Communications – improvements in the way in which the Health Board will communicate with patients. ***(Available 2020/21 as part of the patient empowerment programme)***

Living and Working Well	How the Digital Response will make improvements
Rhys Jones - Chronic Disease	
including a referral to a hospital specialist for assessment. When Mr Jones arrives for his appointments he is not required to repeat his basic information, or medical history and his most recent test results are immediately available. Each care provider has been able to update his information electronically and can view the most recent position on Mr Jones' care. Mr Jones is also able to electronically view his medical record held by his GP, as well as his family, if he has made that functionality available to them. For some of Mr Jones' future appointments, he will be able to attend a virtual clinic, conducted through video-conferencing, supported by the specialist nurse at his GP practice, as the consultant has access to his latest information, reducing the need to travel to the hospital.	Welsh Clinical Communications Gateway (WCCG) – improvements in the referral protocols and advice. ***(Continual rollout program of new versions of software when available. It is anticipated that there will be 3 releases per year)*** Welsh Summary Care Record (Individual Health Record) ***(already available in Secondary Care)*** Making the patient record available to the clinician whenever necessary, either directly as an electronic record or via a scanned image of a paper record. ***(The scoping for an outline business case will be developed during 2022/23)*** Community Technology Project (including Telehealth) ***(Improvements in the availability of Telehealth within the Health Board will be developed during the life cycle of the Digital Response)*** Virtual Clinics via Attend Anywhere & Microsoft Teams ***(Available Year 2020/21)*** Home monitoring ***(Available Year 2020/21 – 2021/22, via the Technology Enabled Care Programme)***

Growing Older Well	How the Digital Response will make improvements
Technology Enabled Care	
 Mari lives at home with her husband Alun and receives regular home visits from different members of the Community Resource Team, including social care, as she has recently developed mild dementia and has become increasingly frail. Mari wears an alarm system around her neck that in an emergency, she can press. This alerts her family and neighbours directly, via text message, that she is requesting help. Her home is also equipped with sensors that can alert her family about out of the ordinary changes in her circumstances. All of the professionals involved in her care update her care record through the Community Care Information System, and every member of the team is alerted to any changes in her care. When her GP changes her medication, this is communicated to the team when they next view her electronic record.	Welsh Community Care Information Solution (WCCIS) – will be integral to ensuring that health and social care professionals can communicate effectively about patients. ***(Available 2020/21 for Ceredigion County)*** Home monitoring ***(Available Year 2020/21 – 2021/22, via the Technology Enabled Care Programme)*** Making the patient record available to the clinician whenever necessary, either directly as an electronic record or via a scanned image of a paper record. ***(The scoping for an outline business case will be developed during 2021/22)*** Welsh Summary Care Record (Individual Health Record) ***(already available in Secondary Care)***

Growing Older Well	How the Digital Response will make improvements
Technology Enabled Care	
When Mari decides to go to stay with relatives she first tells the District Nurse who is able to electronically suspend her home care package on her tablet so that Mrs Jones does not need to remember to tell everyone who visits her. She also agrees with her a date for it to re-start. If she needs care while staying with relatives, the local team will be able to access to her medical history. Mrs Jones became particularly unwell on one occasion and her family took her to hospital. The hospital team were able to see her clinical history, current care arrangements, and what medicines were prescribed. They were able to electronically alert the community team that Mrs Jones had been admitted to hospital.	

Growing Older Well	How the Digital Response will make improvements
Age Care	
 Alun's sight has been deteriorating for a number of years, and he now finds it difficult to read anything but the largest text. Mr Jones now receives all of his communication about his GP and hospital appointments via text and e-mail. An app on his tablet reads these documents aloud to him. Through his tablet he can add appointments to his electronic diary that speaks to him to remind him when he needs to attend. He uses an app that reads his electronic communication aloud to him in his first language which is Welsh. Mr Jones sees his optometrist regularly to check the condition of his sight. If he is sufficiently concerned the optometrist is able to make an immediate electronic referral to the Ophthalmology team at the hospital for Alun. Because of his failing sight Alun sometimes feels a bit down. Each day he records his mood on an app on his tablet that his GP told him about, via his own personalised health portal. This helps him track his mood, and if he feels low for an extended period he is able to recognise this and has been told to then contact the primary care mental health worker at the GP practice for advice and help.	Outpatient Modernisation - Provide patients with electronic interfaces with the OPD service, to include appointment booking and reminders and provide information and general communications. ***(Available 2020/21 as part of the patient empowerment programme)*** Patient Communications – improvements in the way in which the Health Board will communicate with patients. ***(2022)*** Optometrists – improvements in the way that Optometrists are able to refer into secondary care. Providing a direct link into NHS systems. ***(Available Year 3 – 2022/23)*** New Eye Electronic Patient Record – will store all the information about Alun's care and provide a direct link to the optometrists. ***(Available Year 2 – 2021/22)***

On one occasion he was able to access an on-line Cognitive Behavioural Therapy course.	

Living and Working Well	How the Digital Response will make improvements
Inpatient – Elective Orthopaedic Surgery	
Gareth, whilst enjoying cycling in the beautiful countryside of West Wales, had an unfortunate accident that required surgery on his ankle. On the day of his admission to Prince Philip Hospital, a virtual inpatient receptionist console welcomes Gareth and provides information on his admission, the clinician he will be seeing and shows directions to his inpatient room / ward. Gareth is automatically admitted to the hospital and a notification is sent to the ward staff to let them know he has arrived. This information is also "pushed" to his Hywel Dda app on his smartphone and using the pervasive Wi-Fi / 5G, the navigation features in his app directs Gareth through the hospital to get to where he needs to go, via Patient Wayfinding. When he arrives at his room and settles in, he is given a tablet so he can login and view his personal health record and the hospital facilities e.g. hospital menus etc.. This information is stored securely on a cloud-based service and on his record, he can find out more about the professionals providing his care and when they will be visiting him, as well as the procedure he is having. He can also order his meals during his stay (which are delivered via the hospitals robotic infrastructure)and he can use his tablet to keep in touch with family and friends on social media and video apps and use it to complete any information required for his stay in hospital such as updating his general health. Gareth's vital signs are automatically taken by sensors and others collected electronically by the nurses providing his care and this is used to automatically determine his current health status and notify the clinical team of any abnormalities or concerns that need to be addressed. Various investigations, such as Radiology tests, are ordered electronically by the clinical staff using voice recognition and the results are automatically populated in both the hospital's record and Gareth's personal record. When Gareth had a query about a particular issue that was concerning him, he could use the chat feature on his tablet and automated 'chat-bots' would answer the most common concerns about his procedure and ensure his clinical	Patient check-in kiosks ***(implemented within Cardigan and Aberaeron ICC)*** Virtual patient kiosks ***(A pilot will be undertaken in 2021/22)***. Patient Wayfinding – helping the patient to navigate our hospitals. ***(A pilot will be undertaken in Prince Philip Hospital in 2020/2021).*** Electronic Observation - facilitate robust and effective management of hospital at night priorities, and to provide electronic observation recording and management. ***(An outline business case has been submitted to Welsh Government for funding)*** Patient Communications – improvements in the way in which the Health Board will communicate with patients. ***(2022)***

Living and Working Well	How the Digital Response will make improvements
Inpatient – Elective Orthopaedic Surgery	
team were notified of concerns that could not be answered. He could also watch a 3-D video of his ankle surgery to provide further information.	

Scenario	How the Digital Response will make improvements
Our Community Staff	
A district nursing team make a follow up visit to see how Gareth is getting on and using the community care system, they are able to see all the information about Gareth's stay in hospital and using this system they capture post-operative assessments, images and videos, all of which are reviewed by Gareth's consultant. Spotting an area of concern, his consultant arranges a video consultation with Mr Jones to discuss this and advise on suitable courses of action without the need for Mr Jones to travel and visit the hospital. Prescription medicine prescribed by the consultant is automatically delivered to Mr Jones' house and his signature or biometrics are captured to ensure he has received the medication. His personal health record and Hywel Dda app will notify Mr Jones when he needs to take his tablets so he doesn't forget.	**WCCIS –** implementation in Ceredigion currently underway as part of a pilot of the community teams. This is an integrated system for health and social care and will be pivotal to enabling care to be provided closer to home and modernising community services. **Supporting Agile Working** - based on a secure and resilient digital infrastructure and using modern and relevant digital systems that will support clinicians and enable them to provide high quality services to patients regardless of the care setting and location in which they are treated. Agile working will be underpinned by mobile, wireless technology to improve timeliness, patient safety and efficiency. **Mobilisation of community staff** - community staff communicating in real time using their device of choice from a list of standard equipment including smartphones, tablets and laptops. This access will work over mobile networks, public Wi-Fi and from home broadband. **(First phase deliver for Cardigan and Aberaeron by December 2022)**.
The community integrated team of district nurses and health visitors arrange a video call to discuss the care of Mr Jones. In this call a team manager joins from a hot desk she has booked in a community integrated care centre, the social worker joins from home and the district nurse joins from her tablet while she stops in a laybay inbetween patient visits. On this call they can all view Mr Jones' information on WCCIS on a shared screen and agree the most appropriate next steps updating Mr Jones record as the meeting progressed.	**Office 365** - will be fully deployed across the Health Board by 2022/2023 and will provide a platform for collaboration and communication for the Health Board. Electronic Desk and Room Booking ***(being implemented currently in Cardigan and Aberaeron ICC)***

Stakeholder Requirements

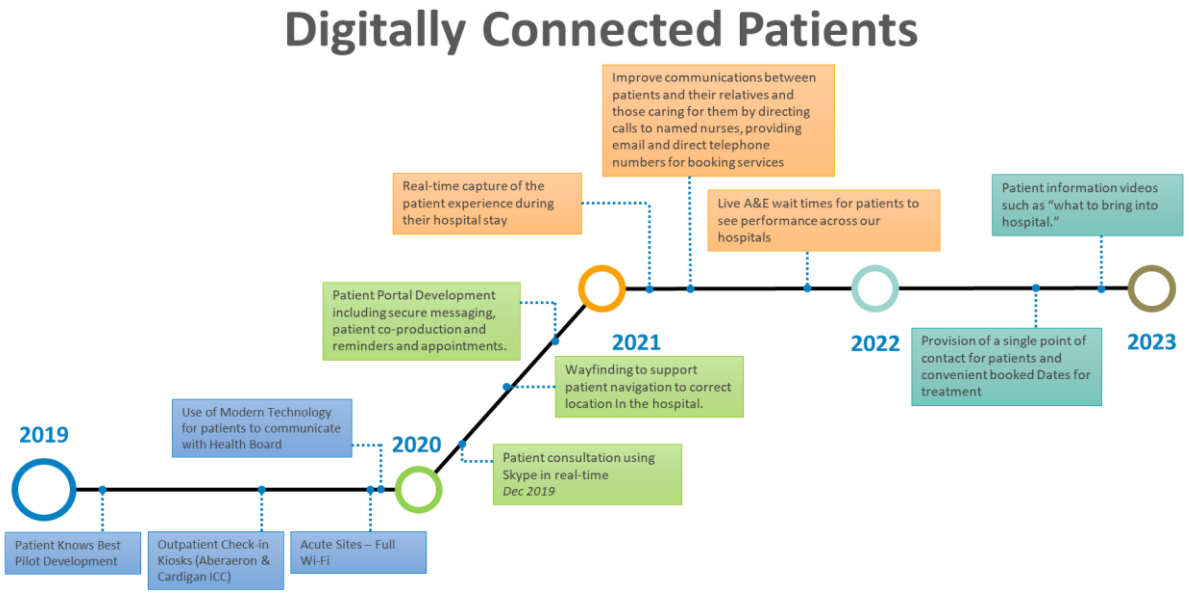
In this section, the information requirements of each stakeholder group are identified and a brief analysis of the current situation and opportunities for the future are outlined.

Digitally Connected Patients

In line with current Welsh Government vision of empowering patients and also the digital inclusion agenda, patients will be placed at the centre of their care. The expectation is that they will be active participants and in control of their care.

Patients want:

- To know how to access NHS services, find their way and contact those involved in their care
- To learn about their condition, treatment and outcomes
- Online access to their health records, including clinical letters; laboratory results; centrally held patient-identifiable data; community services information; personal care plans for people with long term conditions and needs assessments and care plans relating to social care services
- Access to patient information sources, including Health Board internet sites containing information on health and lifestyle to help them take care of their own health
- To make informed decisions about their treatment, appointments and admission dates etc.
- To have confidence in those caring for them and reassurance that they are fully informed about their history, condition and treatment to date
- Information about them to be accurate, complete, secure and shared as appropriate
- To know where they are in the healthcare journey and have full knowledge and transparency about timescales for next steps and to be able to make informed choices about their care options



Digitally Enabled Workforce

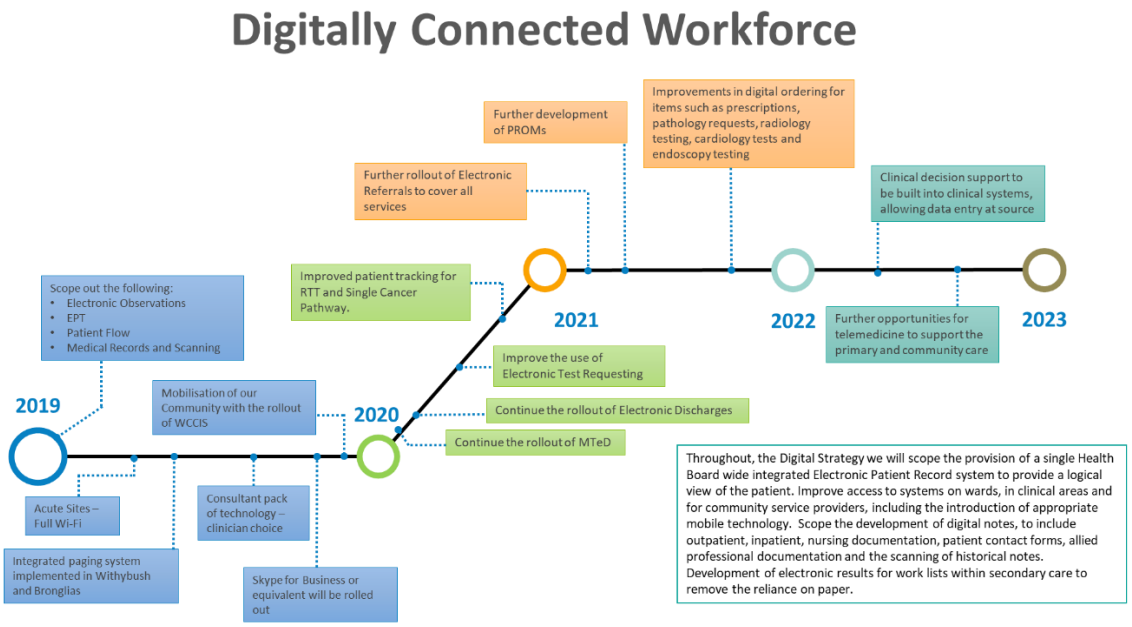
The following highlights some of the benefits for professionals that will be recognised from the introduction of the solutions outlined within this document.

Professionals want:

- Access to a single, integrated patient record via a single username and password, giving accurate, complete and immediately available information on history, attendances, clinical

correspondence, investigations and interventions, across all agencies, centred on identifiable patients, and available from all clinical locations, within and outside the hospital

- Access to guidelines and knowledge which will support decision making about patients' treatment and care and to support life-long learning including best-practice, evidence and access to on-line databases
- Access to information to evaluate the effectiveness of the treatment and care that they give patients, including clinical outcome indicators, such as rates of preoperative deaths, complications, complexity of case-mix etc.
- Provision of hardware (PCs, laptops, printers, mobile devices) of sufficient quantity and quality so that clinical time is not wasted looking for an available PC on a ward, waiting for a laptop to be available for use at a patient appointment or finding a working printer
- Clinical systems that can be accessed remotely wherever care is provided to patients, without the need to return to a base location to download or upload information
- Communication with and access to information from other specialists, including support for direct booking, electronic referrals and telemedicine, and inter-agency communication (e.g. social care). GPs and other care professionals outside the hospital also want electronic transmission of all discharge and clinic letters
- Clinicians want to be able to communicate rapidly with each other within the hospital setting, as well as across organisational boundaries. This could include forwarding results or documents to clinical colleagues for advice or an opinion



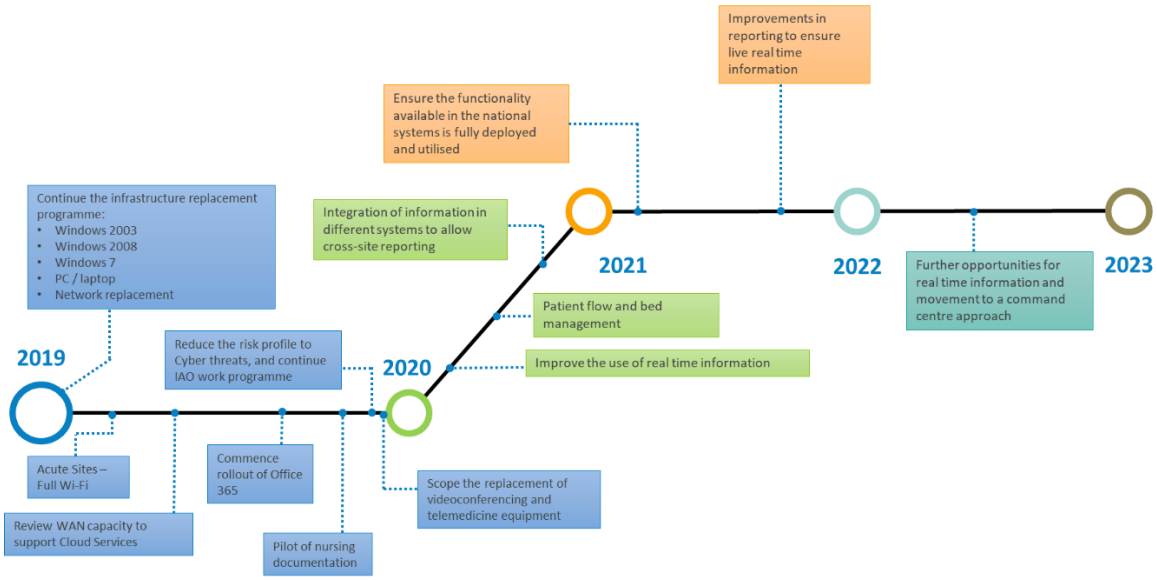
Digital Infrastructure

Hywel Dda will also look to ensure that staff have the required technology to undertake their role either within the community or in hospital.

Managers / Decision Makers want:

- Better information for monitoring and managing performance of the Health Board
- Better information to determine what works and what does not, including efficiency indicators – average length of stay, delayed discharges and cancelled operations
- Real-time, high quality data at ward level to enhance ward efficiency and assist bed management. Real-time, high quality data at caseload level to enhance efficiency, improve standards of care and assist caseload management
- Relevant and reliable information to assess the health of the population and meet priorities in healthcare
- Accurate information to support the most effective targeting and use of resources, including bed availability, clinic lists, transport lists, theatre lists, etc.
- Sophisticated resource modelling and what-if scenario planning with forecast information based on historic trends and external predictors such as weather forecasting, scheduled events, that could have an effect on the Emergency Department
- Facilities for the electronic storage of documents to reduce paper and hence the cost of storage and processing

Digital Infrastructure



In Conclusion

By pursuing our vision we will build solutions where the core aim is to benefit our citizens ahead of the Health Board.

We will act with the interest of the local health economy at the centre of everything we do and ensure collaboration is built into our digital solutions from the outset rather than added as an afterthought. Collaboration will not stop at the technology as we will share our resources and learning to ensure that as a community we are not re-inventing solutions.

We will accelerate our digital transformation by assimilating existing best practice solutions into our organisation. As a Health Board we will learn from implementations elsewhere in the NHS and beyond, recognising that others also have the skills and ability to create transformational solutions which we can assimilate into our operations.

Executing our Response means quality, safety and patient experience will improve by using our digital solutions to create an environment in which the right information is available to our staff at the right time. By listening and co-designing our solutions with all stakeholders, we will provide innovative, intuitive and vastly improved ways of interacting with the NHS.

Our success to date is due in part to having a clear sense of purpose, strong and committed leadership combined with appropriate financial and human resource investments, but fundamentally our "can do attitude" is the reason we do what we do.

Delivering our ambitions will also require different ways of working and culture change within the organisation, and we will build provision for that into our approach to project implementation. After two years, given the rapidly changing external environment, we will review this Response and consider whether it requires a refresh.