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Ymddiriedolaeth GIG
Gwasanaethau Ambiwllans Cymru
Welsh Ambulance Services
NHS Trust



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Foreword by the Chief Executive

Three million patients, 3,500 dedicated staff, plus hundreds of volunteers, all spread out over 8,000 square miles of varied terrain from busy cities to some of the most mountainous, remote locations in the UK. It's fair to say that the Welsh Ambulance Services NHS Trust (WAST) has always relied on technology and data to provide first class patient care, but as stated in our long-term strategy [Delivering Excellence - Our Vision for 2030](#), we want to do much more.

We interact with every other health and care provider in Wales and we will interact with every Welsh citizen at some point in their lifetime. We also partner beyond health with other emergency services, such as the police and fire service, through the All-Wales Joint Emergency Services Group (JESG). That puts WAST in a unique position as a national provider of unscheduled care and we want to use that position in partnership with the wider health and care system to transform the way that care is delivered to:

- Provide the right care in the right place, wherever and whenever it is needed; Help patients more easily access our services at the right time, and; Help patients and staff to stay healthy.

Technology and data are a game-changer with a huge amount of untapped potential which we are eager to exploit. I am delighted to introduce this, our first Digital Strategy, which outlines how we will take our digital services and data usage to the next level for our patients, people and the wider health and care system.



Jason Killens
Chief Executive
Welsh Ambulance Services NHS Trust



Foreword by the Director of Digital Services





Digital Technology and data already runs through much of our operations, but we want to harness it to disrupt the status quo and truly transform care delivery in Wales. Disruption has been traditionally seen as a negative term, but more recently it has been adopted by successful technology providers to describe the act of disrupting the established 'norm' to do something better in a different way. This willingness to focus on the outcome and do things differently is nothing new and it has been taken by key individuals throughout history from Aneurin Bevan to Florence Nightingale.

This strategy sets out five principles to guide how to deal with digital changes that happen to us; four missions to shape how we drive the digital change we want; and three phases of development to ensure we deliver sustainable change.




5 Principles

-  Empower all our users to do more of what's needed
-  Ensure Access for All
-  Deliver sustainable change
-  Respect and Deliver value from our Data
-  All Wales

4 Missions

-  Digital Patient
-  Digital Workplace
-  Intelligence through Data
-  Digital Foundations

3 Phases

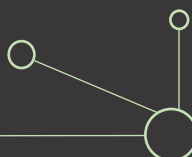
- Phase 1**  Stabilise
- Phase 2**  Optimise
- Phase 3**  Sustain

Together, they will give us the framework to deliver digital service transformation with the patient, our staff and the Welsh health and care system at its heart.



Andy Haywood
Director of Digital Services
Welsh Ambulance Services NHS Trust





If digital is the answer, what is the question?

Why does the Welsh Ambulance Service need a Digital Strategy? Technology is changing the world around us whether we agree to it or not. This strategy has been developed to ensure that WAST can deliver on its existing digital ambitions, whilst also creating the environment to embrace digital change and transform our services to deliver excellent patient care.

Successful digital transformation is about much more than just technology. It is about delivery of positive change to people's lives using digital tools, but it also recognises where those tools can't help. Seven out of 10 of the world's most valuable companies in 2020 are digital service providers, with the oldest of them being founded in 1975. Their success has come from understanding that digital transformation doesn't start with tech, it starts with people.

“There is no test for progress other than its impact on the individual.”

Aneurin Bevan

Positive transformation is rooted in solving a need for **people**, even if it's one they don't yet know they have. Change has to deliver value for people or 'users' and so does the technology that enables it. That is why 'user need' and 'user experience' is at the heart of the world's most successful digital providers.

The next element of answering the need of the person is identifying the **process** to deliver it by. Process is key because it describes the journey a person goes on to get what they need and what they want. By understanding this journey, it is possible to understand what is valuable to the person or group and what is a waste of either their time or effort.

Finally, once the person's need and the process to answer it is understood, we can begin to look at where **technology** can be brought in to reduce the waste of answering that need and delivering any additional value. **Data** is critical along every part of that journey to understand the scale of the need at the outset, then to measure progress and continuously identify new areas for improvement. The relationship between **people, process, technology** and **data** is critical to successful digital change.

So why is a strategy required? The strategy looks at all the aspects of the journey, telling us where to go and keeping us on track while we get there. Next we need to understand who is embarking on the journey and why.

Who is the Digital Strategy for? – Our service users

WAST is a team of 3,500 people that deliver services to a nation of 3.1 million. That's nearly a 1,000 people each. We deliver those services on behalf of NHS Wales, and technology and data have been enabling this since we were established. Users of WAST's digital services can be broadly broken into three main groups, all of whom have different needs.

Our People – WAST has thousands of dedicated staff that work hard to ensure we deliver the best service. In turn, these staff both clinical and non-clinical need the best tools and the best data in order to do their job now and in the future.



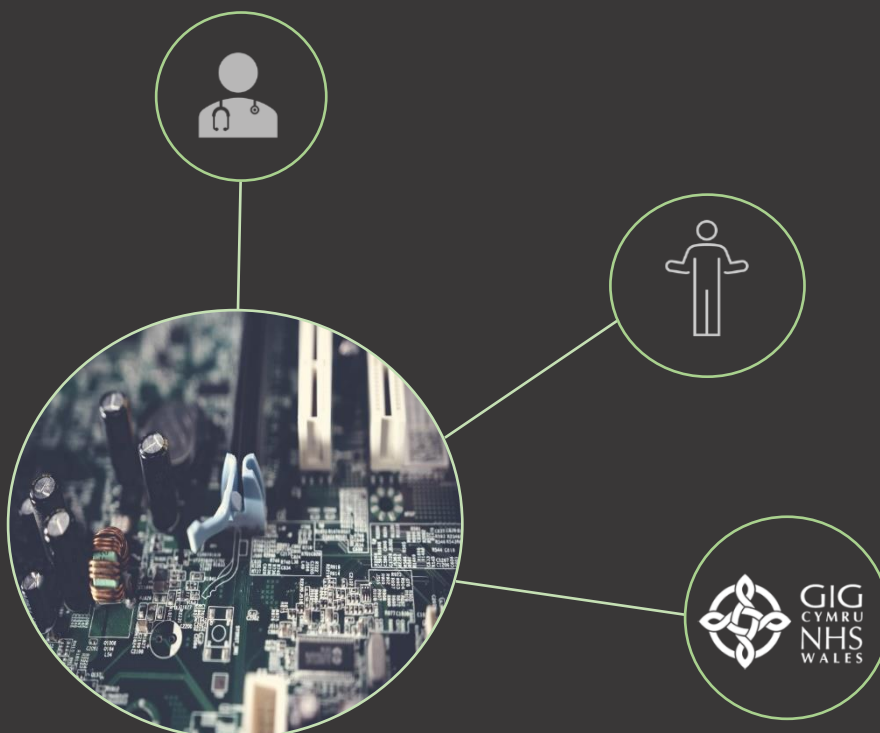
Welsh Health and Care – WAST is uniquely placed as a national service provider to deliver tools and services to the wider Welsh Health and Care system. We also partner with other Emergency Services through the Joint Emergency Services Group (JESG).

The Patient

Over 3.1 million people, over 400,000 treatment episodes, all with different and complex needs.

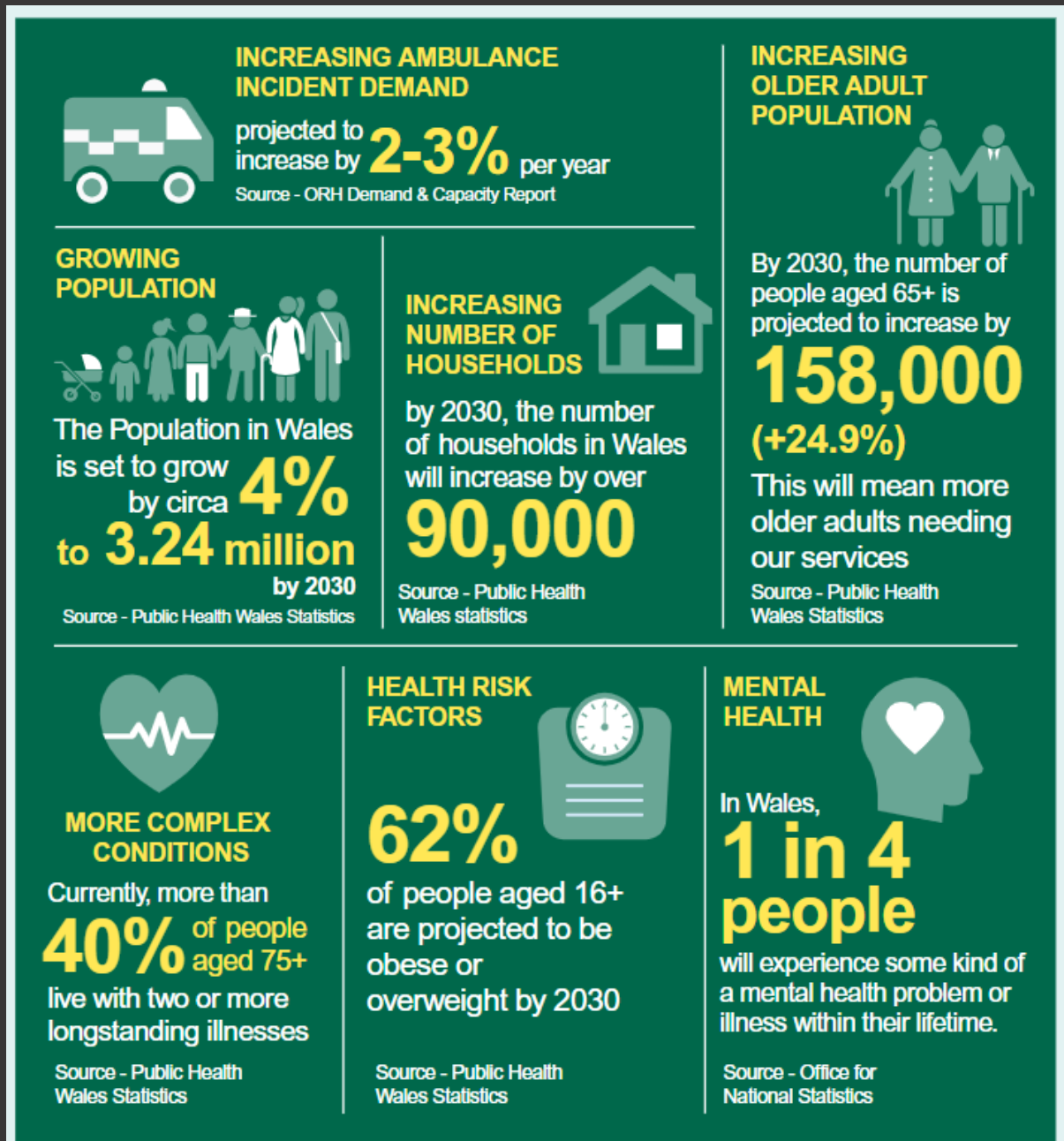
As we mature as a digital service provider, we will need to work hard to understand and service the needs of each of these groups and the individuals within them. We will also need to understand that this understanding is not a one-off process, but a continual cycle of engagement and improvement.

We also need to be clear that delivery of 'digital' change is not purely the remit of an Information and Communications Technology (ICT) or Informatics department; it is a fundamental part of WAST's journey as an organisation and the whole team is involved. As a result, our Digital Strategy should enable and empower all of our existing visions, strategies and plans, ensuring that they are successful and that where possible, we exceed them on behalf of our patients above all others.



The shifting landscape – Welsh health and care

The landscape of health and care across Wales and the wider UK is becoming increasingly complex, creating an increased demand on our existing services and a requirement for new services. In a post-COVID landscape, the long-term system impacts will only increase the challenges we face and we will need to be flexible and agile in our ability to respond. We also need to ensure that demand is directed to the most appropriate place, so that we can make best use of our resources.

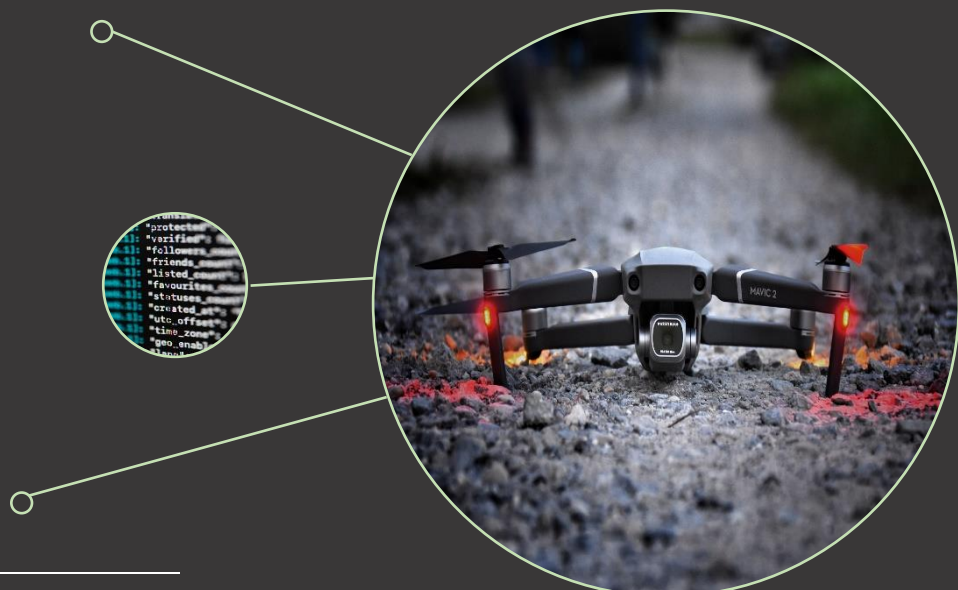
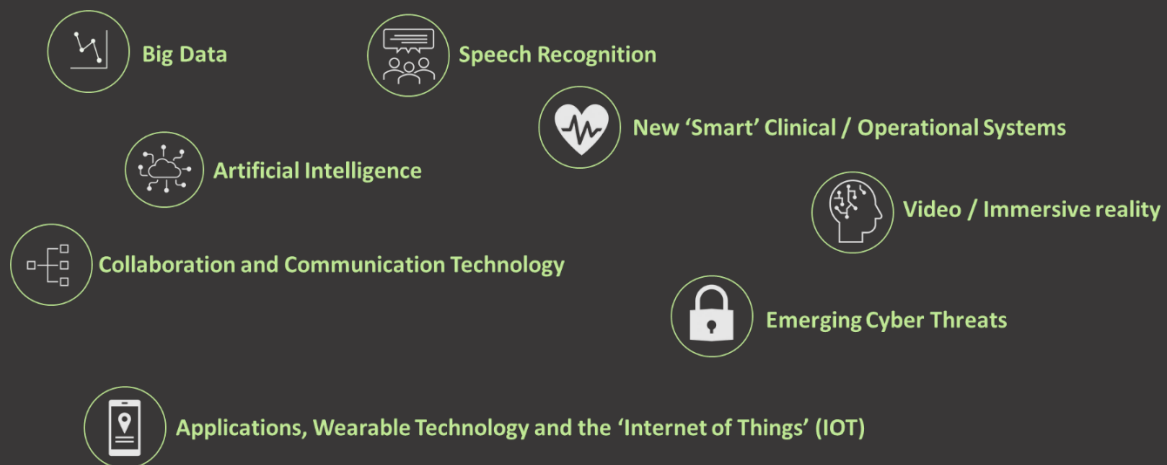


The shifting landscape – New technology

Moore's Law¹ predicted that processing power in computers would double every two years and whilst debated, it has largely rung true since first being stated in the 1970s. This means that a modern smart watch has more computing power than a CRAY-2 supercomputer from 1985, and millions of times more computing power than the guidance computer that took Apollo 11 to the Moon.

However, it is the development of software, notably applications, to support this improved hardware that has changed the way we live our lives. As with the advent of the internet, developments like Artificial Intelligence and 'smart' devices will change our lives whether we embrace them or not.

The graphic below illustrates some of the technologies that are already changing the way we live whether we know it or not. Technologies that have the potential to allow us to transform our clinical model and the way in which we deliver care. Ctrl + click the graphic for more detail at Appendix B.



¹ <http://www.moorelaw.org/>

What is the existing vision this strategy must enable?

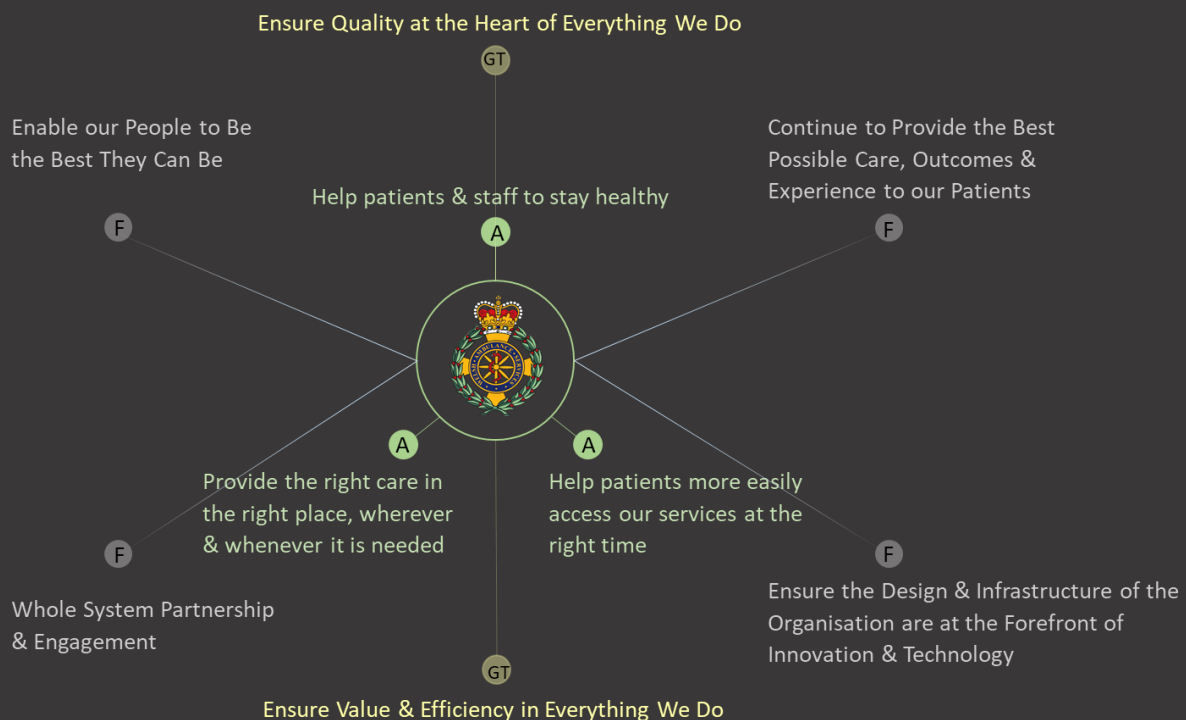
Delivering Excellence - Our Vision for 2030 sets out a bold plan for how we want to transform over the next decade. This in turn supports the wider strategy of NHS Wales 'A Healthier Wales' with a 'Quadruple Aim' to deliver

- Improved population health and wellbeing;
- Better quality and more accessible health and social care services;
- Higher value health and social care; and
- A motivated and sustainable health and social care workforce.

In turn, as part of the commitment to digital advances in healthcare, Welsh Government also committed to five strategic digital change programmes;

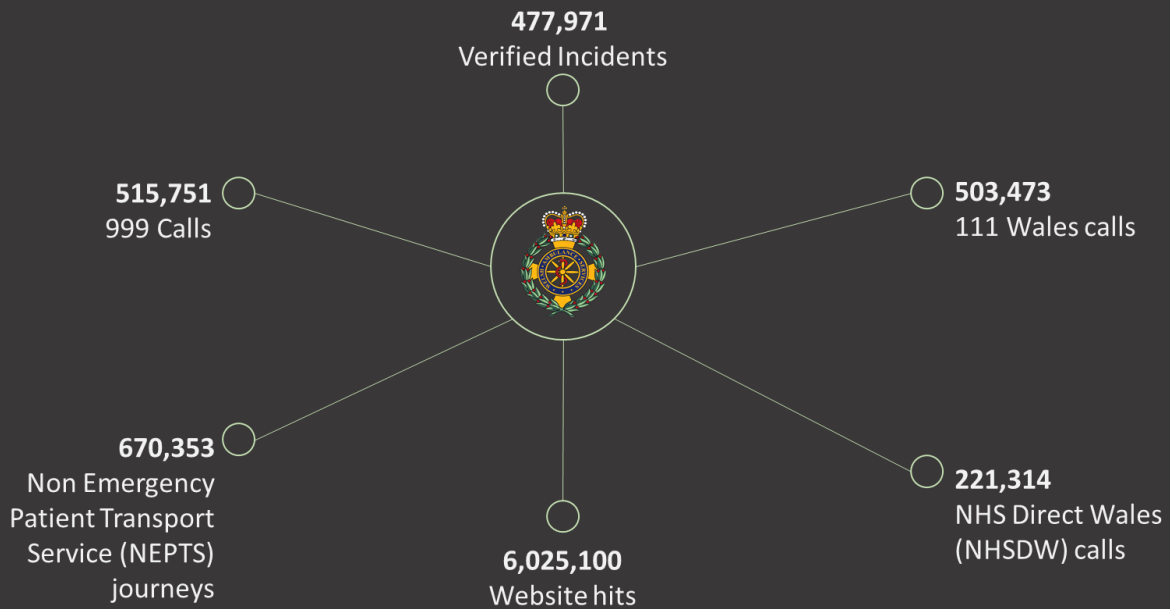
- Transforming digital services for patients and public
- Transforming digital services for professionals
- Investing in data and intelligent information
- Modernising devices and moving to cloud services
- Cyber-security and resilience

Delivering Excellence builds on this and the intentions of those who commission our services through the Emergency Ambulance Services Committee (EASC) to detail three clear aims, that are underpinned by four strong foundations, with two golden threads running through everything we do. These are shown in the graphic below:

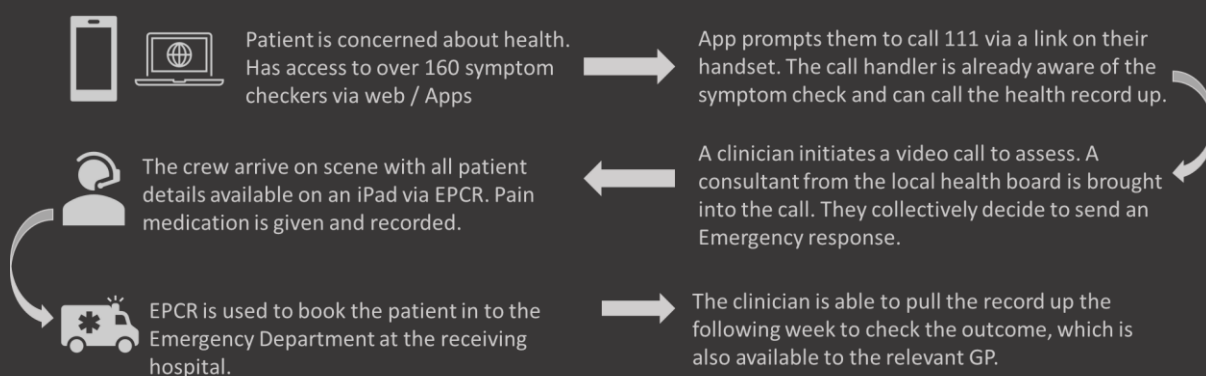


Further detail on the strategic drivers used to develop this document is included at [Appendix A](#).

WAST has already set in motion an ambitious programme of digital change, which has been further accelerated by the COVID-19 pandemic, with new and innovative initiatives like **'Contact First'** where our 111 service will begin to assist health boards in scheduling unscheduled care, and provision of **mobile COVID-19 testing units**. Our core services are all supported by data and technology and an example of the activity we see across these services in a year is highlighted below²;



A significant part of our early digital journey will be to ensure that existing digital programmes are delivered successfully, as they will dramatically change the experience for our patients within the next three years. The journey below illustrates how the delivery of our **Electronic Patient Care Record (EPCR)**, the new **111 Integrated Information Solution (IIS)** and the **Emergency Services Mobile Communications Programme (ESMCP)** will change the way in which patients and staff interact with technology and each other.



² Figures from 2019/20 Trust Annual Report



It is also important to acknowledge that any digital change will have to operate within the five-step models of both our emergency and non-emergency services, which are shown below:

Emergency / Unscheduled Care

Where is the value? What is the waste that digital can reduce?

Help me choose



Come and see me



Answer my call



Give me treatment

Take me to Hospital



Non-Emergency Patient Transport Service

Where is the value? What is the waste that digital can reduce?

Help me choose



Coordinate my journey



Answer my request



Take me to my Destination



Pick me up



Key programmes like EPCR, 111 Wales and the ESMCP are already set to transform the lives of all our service users, so how do we ensure that they and the rest of our current digital activity is delivered successfully?



Reacting to change effectively – Our digital principles

Everything we do is defined by decisions. How we make those decisions is defined by the principles we've learned and adopted throughout our lives, from 'Stop, Look and Listen' before we cross the road, to complex clinical care algorithms. Digital activity is no different and to deliver successfully, we have defined five clear principles that can be applied to any new or existing activity to ensure it aligns with our wider strategy and is capable of delivering sustainable change.

These digital principles allow us to quickly assess anything new to keep us on the road to success.



Empower people to do more of what's needed

Whilst it may sound obvious, technological change can quickly become complicated and we need to ensure it remains rooted in the reason it was required in the first place. Everything we do digitally should be to fulfil a need that our service users have, whether it be reducing waiting times, enabling the capability to book patient transport journeys more easily, or for our staff to have faster Wi-Fi. When we make a change or do something new with technology or data, we should be asking ourselves;

- Who is this for?
- What is the need that it addresses?
- How will it address that need and have I checked with the user?
- Can I empower the user to service this need themselves?



Ensure access for all

Not everyone knows how to work a smartphone. Not everyone owns one in the first place. If WAST is going to deliver successful digital change, we can't assume the same level of digital literacy amongst everyone. A critical user need is the ability to be able to understand and use the service provided. This also needs to take accessibility needs from the whole spectrum of ability into account across our patients, staff and wider Wales. When we consider access, we should ask;

- Do the people who are meant to use this know it exists?
- Have I given them the training and information required to use it properly?
- Have I considered the accessibility requirements of everyone?
- Does this work on the devices and services that my users understand?



Respect and deliver value from our data

Data is one of our most valuable assets, whether as an individual or as a group. It is critical to understanding and transforming our services. We need to ensure we respect and safeguard it as such whilst also recognising that it is worthless if it can't be used.

We should also be aware that others may want to use our data either legitimately or illegitimately, so we need to ensure we aren't unknowingly giving data away through new applications, systems or processes. The process for assessing this is already well defined³ but we need to ensure we continually apply it properly and use it. When considering our data, we should ask ourselves;

- What is the question or need I am trying to answer and who for?
- Is the quality of the data good enough to use?
- Is the data presented in a manner that is easy to understand?
- Who owns the data and do I have consent to share it?

It is worth noting that just as we have a finance directorate for control of our fiscal assets, we have a Data Protection and Information Governance team for protection of our information assets. They are our specialists and should be the first point of contact when considering any change or new implementation involving WAST or patient data.



All Wales

As a national provider of patient care, WAST interacts with every health provider in Wales. We also work in partnership with multiple care organisations, from local government, other emergency services to charities and third-sector organisations. Collaboration is key to the transformation of our services and we need to ensure any technological change makes this easier rather than limiting or preventing it now, or in the future. In addition, we shouldn't duplicate effort and deliver systems locally that already exist elsewhere nationally.

Therefore, we need to consider:

- Can any new development be shared with others?
- Will it operate with other systems we have now or may have in the future?
- Could it be more capable if it was linked to other systems?
- Does similar capability exist elsewhere in Wales or wider?



Deliver sustainable change

There are multiple reasons why technology programmes fail. Aside from not properly considering user need, the main reason tends to be a lack of planning for how things will work or be supported after the new product or service is delivered. This needs to be considered from the outset by asking the following questions:

- Who will be responsible for the product or service once it is delivered?
- Does WAST have enough people and capability to support the service once it's live?
- How will the product or service affect other technology that we have?
- Have I considered the risks of failure and planned how to mitigate them?
- Have I considered the Cyber-Security and Data Protection implications?

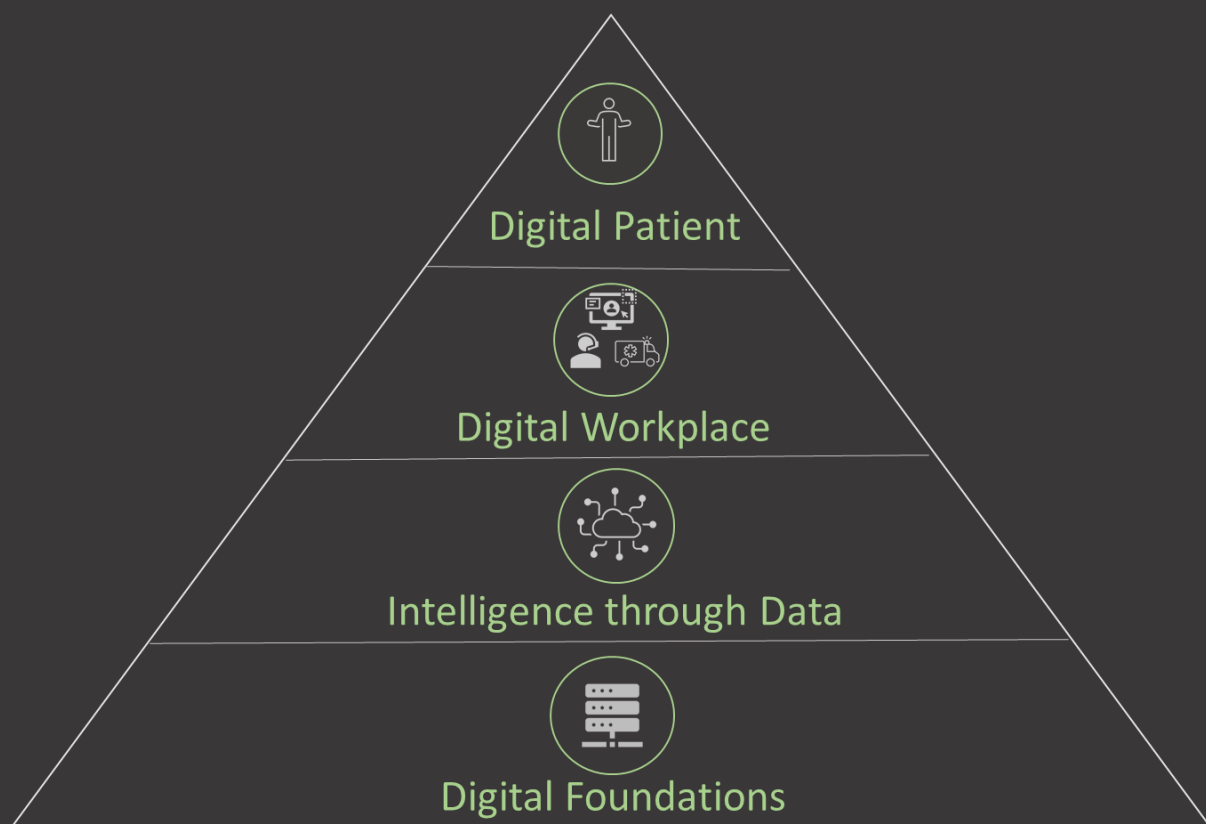
By following these five principles as an organisation, we can react effectively to existing or short-notice digital change to deliver value to our users, primarily our patients.

³ General Data Protection Regulations (GDPR), The Data Protection Act 2018 and the Caldicott Principles

Driving Change – Our digital missions

WAST has millions of patients, thousands of staff and significant number of 'digital' systems. The potential for complexity or confusion when it comes to our data and technology is huge and whilst the five principles above give us a framework to judge change at an individual level, we need to simplify the journey ahead. That starts by identifying our patients as the focal point for everything we do. Next come our people who answer that need, followed by the data and technology they require. This forms a supporting structure (below) where we understand that we can't deliver anything effectively to our patients without considering and investing in all the increased layers of support beneath them.

In order to ensure we do this, we have defined four 'digital missions,' each with a vision for what they will provide to support our wider organisational goals. These are:



The pyramid structure above highlights the reality that to make a difference at the patient or staff level requires significant investment in the supporting levels below. Where this isn't the case, the load at the top becomes imbalanced and unsustainable.





Mission 1 – Empower the digital patient

"It is more important to know the person who has the condition, than it is to know the condition the person has."

Hippocrates (460-370 BC)

Vision

Patients will have all the skills, information and tools required to manage their own care, but know exactly where to go for help and what to expect when that's no longer possible.

The digital patient mission will look at where value exists for the patient across all of WAST's services, utilizing the patient voice and the knowledge and experience of our clinical and operational colleagues. The intent will be to identify challenges across our emergency, urgent and non-emergency pathways and reduce unnecessary waste through innovative uses of data and technology and support to our people providing the services in order to give our patients the best possible standard of care.

We will also work with other healthcare providers across Wales to look at the whole patient pathway to reduce unnecessary conveyance to hospital and empower more of our patients and their carers independently manage their own care.

Key objectives:

- Deliver new pathways and care frameworks that are digital by design, making the most of advances in data and technology, including EPCR and the 111 IIS.
- Build a single point of access for our services. Development of the 111.wales.nhs website and applications to improve patient choice, including signposting to the most appropriate care setting.
- Collaborate with the national 'Digital Services for the Patients and Public (DSPP)' Programme.
- Improve data and tools available to our clinicians and operational staff (see Digital Workplace mission below).
- Collaborate with other care providers such as local government, third-sector and charities to explore digital solutions for care closer to home⁴.

How we will measure success

- Track patient feedback from engagement surveys, using present day as a baseline.
- Evidence that website and application usage by our patients is reducing unnecessary conveyance to hospital.
- Evidence delivery and utilisation of pathway wide reporting on patient outcomes through successful integration of EPCR and 111 IIS with other national systems.

⁴ <https://heiw.nhs.wales/files/delegation-guidelines/>

- Explore implementation of a Digital Patient and Clinical Forum to hold digital service provision to account and prioritise new developments.
- Agree metrics and a transparent reporting route to our Trust Board on progress.



Mission 2 – Build the digital workplace

“The best work arrangements come out of seeking a match between technical and social elements of the modern day workplace.”

Bamforth and Trist

WAST’s people are its most valuable asset. Technology is changing rapidly, but the fundamentals of successful team delivery are constant. The Bamforth and Trist quote sounds current but was as a result of a study of rapid improvement through successful implementation of new coal mining technology in Yorkshire in 1951. It recognised that there was a clear vision and mandate understood by all and that people were trained and empowered to use new equipment, with a clear understanding of what they were meant to achieve. As a result the study is still quoted today, by the National Cyber Security Centre (NCSC)⁵ and others.

Vision

Our people have all the training, tools, support and information required to perform their role to the highest level, anywhere, anytime, from any device.

The digital workplace will look at the digital tools and data required by all our different teams to allow them to be the best they can be. This will align with key studies such as the Topol Review which examine training the healthcare workforce of the future to use new digital tools.

Key objectives:

- Review any wellbeing, cultural or organisational development considerations that arise through uses of new technology, such as prolonged moves to remote working in line with our wellbeing strategy.
- Consider and deliver training and skills development to adopt new technology.
- Expand the role of ‘Digital Champions’ within our workforce.
- Improve remote working experience through systems such as Remote Virtual Desktop (VDI) and Single Sign On (SSO).
- Contribute to wider organisational change requirements brought about by new models of working (i.e. reconfiguration of core office space)
- Reduce the number of visible workforce systems and the number of different steps required to access them.
- Make WAST the employer of choice for digital healthcare professionals, graduates and apprentices, supporting the vision for Wales 4.0.

⁵ <https://www.ncsc.gov.uk/blog-post/a-sociotechnical-approach-to-cyber-security>

How we will measure success:

- Track and measure workforce feedback on our digital services using the present as a baseline.
- Develop metrics to be reported to our People and Culture Committee on progress.
- Demonstrate increased digital innovation from the frontline that is supported and taken forward in a sustainable manner by WAST as a whole.
- Monitor retention and recruitment rates for digital staff. Demonstrate significantly increased numbers of apprentice, undergraduate and graduate opportunities.





Mission 3 – Intelligence through data

“You can only analyse the data you have. Be strategic about what to gather and how to store it”

Marie Curie

Data has been described as ‘the new gold’ based on how companies such as Google, have amassed a \$1 trillion valuation without charging users for their services, provided they can use their data. Without quality data, technologies such as Artificial Intelligence and Predictive Analytics cannot be deployed. However, the use of data in a care delivery setting is nothing new, as it is the foundation of clinical research. WAST interacts with every person in Wales as a national service provider. We have millions of touch points, therefore millions of potential data points.

“To understand God's thoughts we must study statistics, for these are the measure of his purpose.”

Florence Nightingale

Vision

To provide the best data, at the best time, presented in the best manner to drive the best decision.

It is critical that we use our data for maximum value to deliver intelligence and insights, whilst ensuring it is of the best possible quality. We are already working proactively with the National Data Resource (NDR) programme to pilot new ways of handling, storing and securely sharing data across NHS Wales in close to real time. In parallel, we will look at the architecture of our data, together with international standards, such as [SNOMED-CT](#) to make it more accessible and understandable, to drive meaningful decisions as soon as it is available.

Key objectives:

- Gain maximum insight and value from all our data, across all sources whether clinical, non-clinical, structured or unstructured.
- Scale and skill our data teams and supporting technology appropriately to provide first class, near to real time delivery of insights and intelligence. Explore the model for how each directorate and the patient can interact with data and request further analysis.
- Transform our data architecture in partnership with, and as a pilot for the NDR programme, building the foundations to access and share data in close to real time.

- Reduce the number of different systems and terminology required to access and analyse our data.
- Where funding is available, work with 'best of breed' data and analytics providers to rapidly refine and develop our service offer.

How we will measure success:

- Track and measure user feedback on our data services using the present day as a baseline.
- Implement a 'user forum,' to hold data services to account for performance and prioritise new works requests.
- Report progress on modernising our services through Strategic Transformation Board as part of the IMTP. Data Protection and Information Governance performance will continue to be reported through our QUEST committee.
- Demonstrate and use a common architecture for all our data services.
- Demonstrate the improved availability and quality of data across all existing services.
- Demonstrate a greater number of services that allow users to 'own' their own data and interrogate it independently.



Mission 4 - Digital foundations

“Quality means doing it right when no one is looking.”

Henry Ford

Our digital ambitions will fail, if we in turn fail to invest in the foundations and the people that enable them. Much of our digital success will hang on activity ‘below the waterline.’ This doesn’t just mean investing in servers, networks and firewalls.

To coordinate digital activity on the scale we have already set in motion, we must ensure we have a digital team scaled and trained to deliver our ambitions; we also need to procure services in the best way, considering managed services where appropriate; have appropriate technological and information governance rooted in our structures up to an including our Trust Board; and ensure that every single one of our people understands their role in key areas such as cyber security.

Vision

Flexible, resilient, secure digital infrastructure fit to carry our ambition

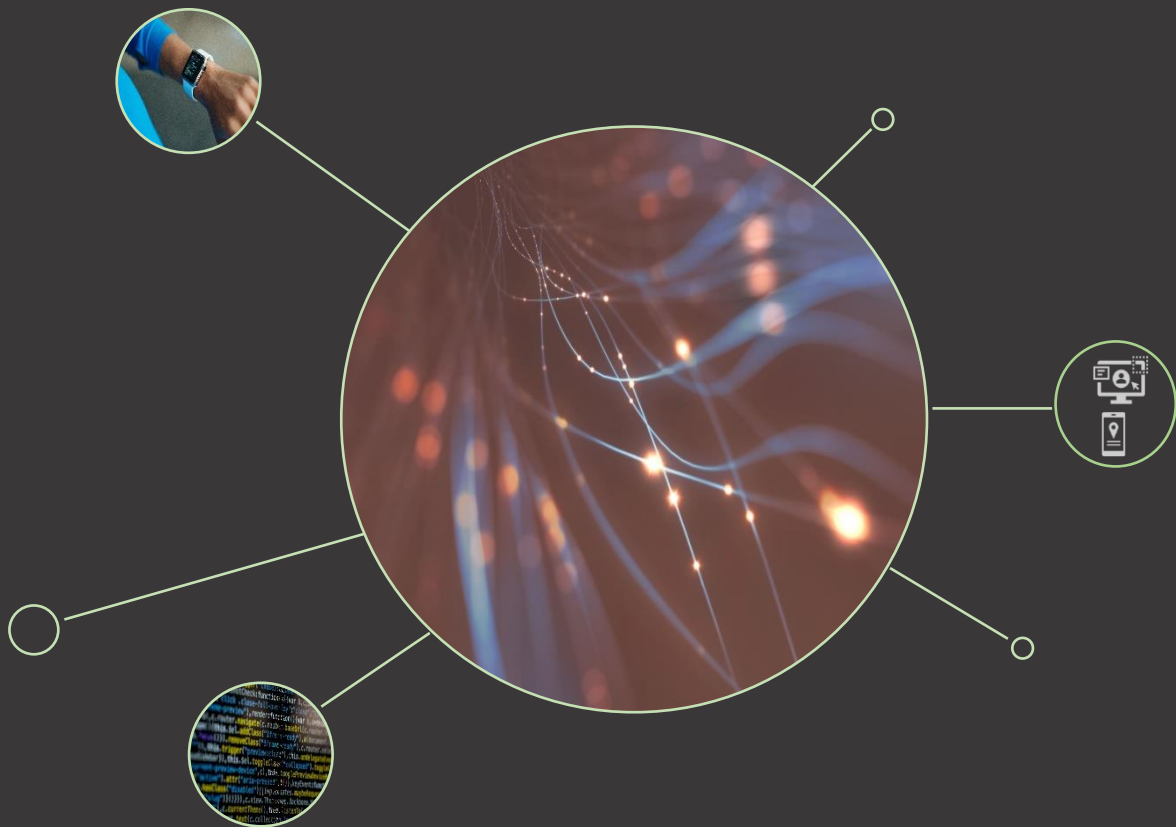
We will align the future of our infrastructure with the principles outlined in the All Wales Infrastructure Review, moving away from overly complex, bespoke systems to more standardised architecture that can be easily understood, adapted and scaled out when our needs, or the needs of our users change.

Key objectives:

- Review whether our service support is fit for increased reliance on Digital Services 24/7/365 through the design of a Target Operating Model (TOM – See ‘Successful Delivery’ for detail).
- Review the digital risks to service provision inclusive of technology, systems, processes, support and workforce requirement, then deliver an Infrastructure Improvement Plan as part of the IMTP to modernise any legacy areas of our digital foundations.
- Consider the support, skills, training and qualification (with associated funding) required by our digital teams as the organisation rapidly transforms.
- Develop and deliver a Service Improvement Plan, to understand what is required to provide the best possible user experience, together with robust and well understood service continuity and recover plans.
- Develop the investment proposal to support the Infrastructure and Service Improvement Plans.

How we will measure success:

- Through our Audit Committee, assess the availability of clearly defined and understood risk, support and recovery profiles for all our critical systems that are shared by both the user and supporting services.
- Reduced number of service calls, turnaround times and incidents, using the present as a baseline.
- Track the implementation and delivery of improvement plans through our IMTP and Strategic Transformation Board.
- Develop a 'user forum' to properly assess the impact of infrastructure changes or developments, whilst also helping prioritise new work.

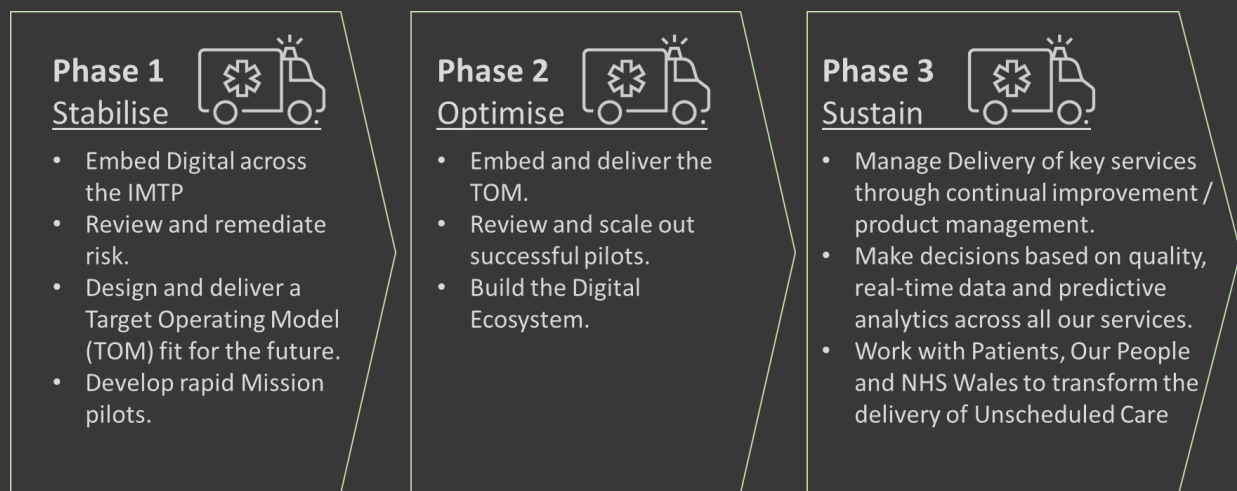




Successful delivery

To achieve the missions we have set ourselves, we need to acknowledge that success won't be delivered overnight. However, we also need to ensure that we continually deliver value and improvement through continual, iterative development, rather than waiting for perfection.

The final stage of the three phase model below describes a point where our digital maturity is such, that any new developments are identified and delivered through a continual cycle of service improvement with the patient at its heart. Phases one and two iteratively create the conditions where this can be achieved and are outlined below;



Phase 1 Stabilise

This initial phase concentrates on two key activities, remediating any residual risks, whilst also defining how WAST needs to operate to deliver its digital ambitions successfully now, and in the future. This includes looking at governance, contracts and crucially the shape, size, skillset and tools provided to teams involved in our digital transformation. Key activities include:

Risk Review – We will look at the digital risks across all our key service areas (EMS, 111, NEPTS, etc.) together with service providers and where appropriate, and users of the service to prioritise areas for remediation, investment and development. The review will also consider these against existing digital commitments in the IMTP. This is essential to ensure we have a stable platform to build on, now and in the future.

Target Operating Model (TOM) – A Target Operating Model, or TOM describes how we want the future to look. It looks at what is needed by the organisation and its users and then describes how that need is best fulfilled through processes, governance and the future Digital Directorate. We will design the model for how WAST needs to operate and be structured to deliver ambitious digital change. The TOM will give us a blueprint for what WAST and the Digital Directorate need to look like to deliver excellence on a sustainable footing.

Develop and embed the strategy in the IMTP – Whilst this strategy identifies where we want to go, phase one will incorporate further work to define the organisation-wide detail and develop any new investment requests that arise as a result. These will all be defined and tracked as part of our IMTP, through our Strategic Transformation Board.

Define Mission Pilots – We will identify a series of rapid pilots aligned to each of the Digital Missions to trial the potential benefits of new technology in each area. The intent for each will be to meet a specific need, delivering early value with an assessment after a short period to assess whether the activity can be scaled out. Examples could include; the use of wearable technology to detect falls as part of our falls framework; and, live data streaming using new techniques as part of the National Data Resource (NDR) programme.

Phase 2 - Optimise

With residual risks remediated and the future more clearly defined, phase 2 will commence the organisational change to get there. This will involve making the TOM a reality, whilst designing and embedding the processes to deliver a continuous cycle of service improvement at phase 3. Key activities include;

Embed and deliver the TOM – In phase 2, we will make the changes necessary to deliver the operating model defined in phase 1. This may involve changes in governance and potentially organisational structures, therefore it will be done in partnership with all involved from the outset. Once delivered, it will take time to establish any new processes through a cycle of continuous improvement.

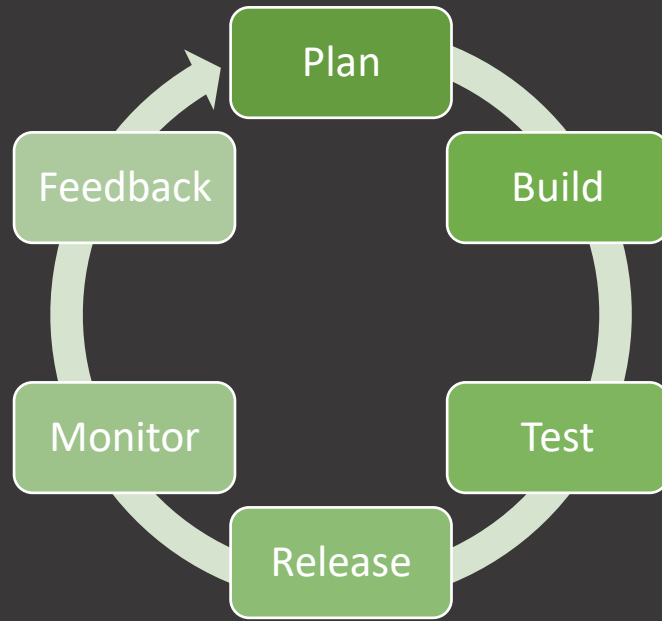
Review and scale out pilots – Any pilots aligned to the 4 missions that were deemed successful will be identified for development into wider schemes with an associated investment proposal. Where possible, we will look to partner with other organisations, academia and potentially key suppliers under an ‘accelerator’ model for any pilots of potential national significance.

Build the Digital Ecosystem – Successful digital change comes about through culture shift. Efforts in phase 1 should start to build a cultural change in this phase, where innovation is increasingly driven by the front-line or through data-driven challenges. Through further developing our Digital Champions, we will start to see independent digital innovation that can be supported and scaled out to the wider organisation where successful.

Phase 3 – Sustain

In phase 3, we will have a clearly defined set of Digital products and services that are commonly understood by the providers and service users, whether they be our patients, staff or wider Wales. These services will be supported by multi-disciplinary teams that include user representatives, including patients working within a constant cycle of service improvement under the most suitable model for that particular service ([ITIL](#), [Agile](#), [Scrum](#), [Kanban](#) etc.)

Change will be delivered in a constant, well defined cycle with continual review of our 4 missions aligned to our overall corporate strategy. This aligns to the continual service improvement cycles, based upon products and services that are employed by all successful technology companies.



Example service delivery lifecycle

How we will take this Strategy forward





Our Digital Principles can be used to help guide our decisions immediately. Our missions and phases of delivery will be developed and included as part of our IMTP and tracked at the WAST Strategic Transformation Board. We will also review and update this overall Strategy on an annual basis to ensure it remains relevant and fit for purpose.

In addition, through our Patient Experience and Community Involvement team, Workforce and Organisational Development teams and Digital Champions, we will significantly expand our communications and engagement activity to ensure the voice of the service user remains firmly at the heart of everything we do.




5 Principles

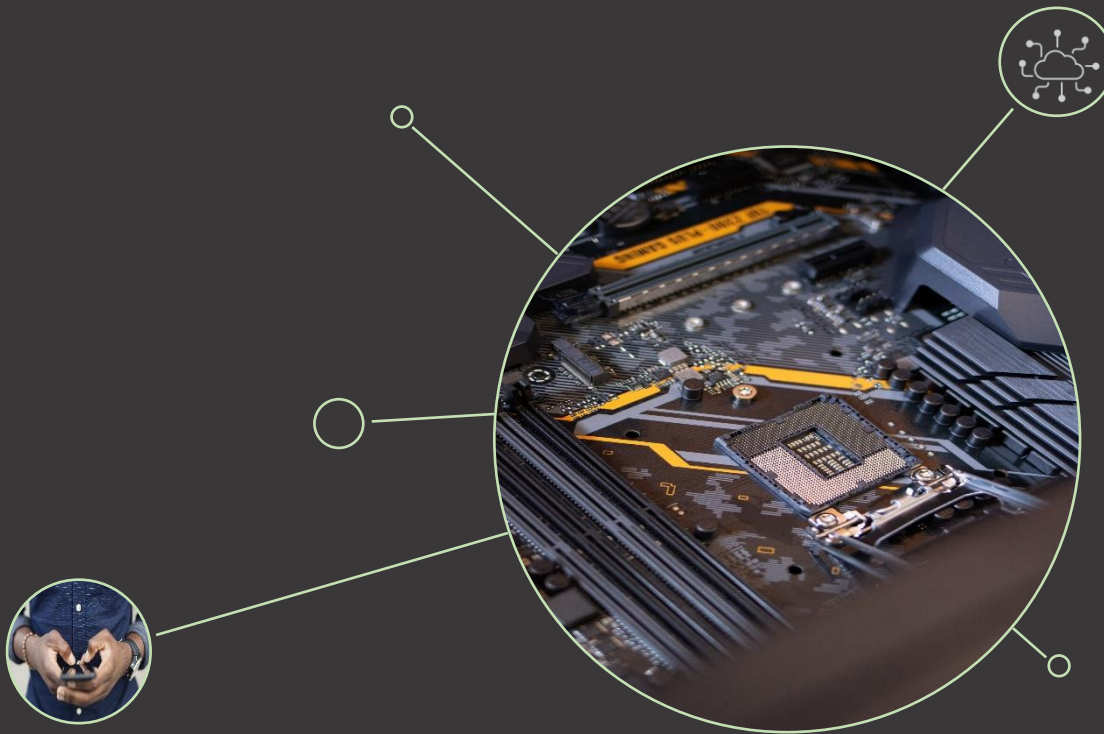
-  Empower all our users to do more of what's needed
-  Ensure Access for All
-  Deliver sustainable change
-  Respect and Deliver value from our Data
-  All Wales

4 Missions

-  Digital Patient
-  Digital Workplace
-  Intelligence through Data
-  Digital Foundations

3 Phases

- Phase 1**
Stabilise 
- Phase 2**
Optimise 
- Phase 3**
Sustain 



Appendix A – Strategic alignment and references



Digital Patient

- **Welsh Government** - A Healthier Wales – Strategic Digital Aim *‘Transform Digital Services for the Patient and Public’*
- **Welsh Government** - Informed Health and Care – *Information for you.*
- **Welsh Government / NWIS** - *All Wales Digital Services for the Patient and Public Programme (DSPP)*
- **WAST** – Delivering Excellence: Our Vision for 2030
 - Help patients & staff to stay healthy
 - Provide the right care in the right place, wherever & whenever it is needed
 - Help patients more easily access our services at the right time
 - Continue to Provide the Best Possible Care, Outcomes & Experience to our Patients
- **WAST** – Clinical Strategy – *Delivering Clinical Excellence*
 - To respond to our population’s changing care needs using evidence-based findings
 - To make the best use of our resources by embedding Value Based Healthcare



Digital Workplace

- **Welsh Government** - A Healthier Wales – Strategic Digital Aim *‘Transform digital services for professionals’*
- **Welsh Government** - Informed Health and Care – *Supporting Professionals.*
- **Welsh Government** – Wales 4.0 – *Workstream 4 – Delivering Education and Skills for the future of work.*
- **UK Government** – The Topol Review; Principles 2 & 3 –
 2. *The healthcare workforce needs expertise and guidance to evaluate new technologies, using processes grounded in real-world evidence.*
 3. *The gift of time: wherever possible the adoption of new technologies should enable staff to gain more time to care, promoting deeper interaction with patients.*
- **WAST** – Delivering Excellence: Our Vision for 2030
 - Help patients & staff to stay healthy
 - Enable our People to Be the Best They Can Be
- **WAST** – Clinical Strategy – *Delivering Clinical Excellence*
 - to use excellent clinical leadership to deliver high quality, safe care closer to home.
- **WAST** – Wellbeing Strategy



Intelligence through Data

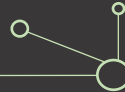
- **Welsh Government** - A Healthier Wales – Strategic Digital Aim *‘Invest in data and intelligent information.’*
- **Welsh Government** - Informed Health and Care – *‘Improvement and Innovation : Better use of Data.’*
- **Welsh Government / NWIS** – *National Data Resource Programme.*
- **UK Government** – National Data Strategy.
- **WAST** – Delivering Excellence: Our Vision for 2030
 - Whole System Partnership & Engagement.
 - Ensure Quality at the Heart of Everything We Do .
 - Ensure Value & Efficiency in Everything We Do.
- **WAST** – Clinical Strategy – *Delivering Clinical Excellence*
 - Use clinical data effectively to provide more informed care.



Digital Foundations

- **Welsh Government** - A Healthier Wales – Strategic Themes;
 - *Modernising devices and moving to cloud services*
 - *Cyber-security and resilience*
- **Welsh Government** - Informed Health and Care – ‘Once for Wales, create solid platforms between systems.’
- **Welsh Government / NWIS** - *All Wales Infrastructure Review*
- **The Wachter Review** : *Making IT Work*
- **WAST** – Delivering Excellence: Our Vision for 2030
 - Ensure the Design & Infrastructure of the Organisation are at the Forefront of Innovation & Technology

References



[A Healthier Wales: long term plan for health and social care](#)

[Ministerial statement on digital health and care - strategic themes](#)

[Informed Health and Care: A Digital Health and Social Care Strategy for Wales](#)

[UK Government Technology Innovation Strategy](#)

[UK Government National Data Strategy](#)

[Making IT Work: Harnessing the Power of Health Information Technology to Improve Care in England](#) *The Wachter Review*

[The Topol Review - Preparing the healthcare workforce to deliver the digital future](#)

[Wales 4.0 Delivering Economic Transformation for a Better Future of Work](#)

[Operational productivity and performance in English NHS ambulance trusts: unwarranted variations](#) *The Lord Carter Ambulance Review*

[The lives we want to lead - The Local Government Association green paper for adult social care and wellbeing](#)

[Integrated Urgent and Emergency Care: The ambulance service response to Covid-19 - Association of Ambulance Chief Executives \(AACE\)](#)

National Programmes

[The National Data Resource \(NDR\) Programme](#)

[The Digital Services for the Patient and Public \(DSPP\) Programme](#)

[Digital Health Ecosystem Wales](#)

WAST Strategies

Delivering Excellence – Our Vision for 2030

Clinical Strategy

Health and Wellbeing Strategy

Environmental Strategy

Appendix B – New and emerging technologies



Artificial Intelligence

Artificial Intelligence (AI) is a term that can be used to refer to a broad spectrum of technology from simple automation of basic processes, referred to as Robotic Process Automation (RPA) through to Deep Learning Algorithms that are able to absorb huge amounts of data across millions of potential outcomes to deliver entirely new solutions to problems, not possible with a human mind.

AI is already in use in people's homes and across multiple industries. It blurs your background on Teams or Zoom calls and decides what content to provide you with on social media. It is also live in healthcare, particularly in fields like Pathology where large amounts of data already exist to train the technology. Moorfields Eye Hospital, in collaboration with University College London and DeepMind Health proved this by training AI to detect serious eye conditions and recommend referral pathways at a 94% level of accuracy that matched leading eye experts across the globe.

AI presents an opportunity to completely transform care delivery across all sectors including unscheduled care; however, it also presents fundamental challenges in terms of ethics and accountability.

Potential use cases – Decision support; Predictive alerting and analytics

<https://www.moorfields.nhs.uk/landing-page/deepmind-health-research-partnership>

Emerging Cyber Threats

The landscape of potential threats from cyber criminals is constantly shifting. The 'Wannacry' attack of May 2017 highlighted the devastating impact cyber-crime can have on the health service and its patients. What was particularly devastating about Wannacry was that it wasn't a targeted attack. The nature of cyber-crime is such that whatever we do will be shaped by remaining alert to new and existing threat vectors. Just as we have learned to live with locking our car and wearing a seatbelt, there will be digital practices that will need to be continually introduced to keep us safe.

Speech Recognition

Whilst driven by AI, speech recognition presents a particularly unique opportunity for transformation. For the patient, it can break down language barriers through translation and transcription for the deaf and hard of hearing. For the clinician, it presents an opportunity to move to 'hands free' operation where notes can be transcribed automatically. Beyond just recognition of speech, it can also analyse speech to potentially detect underlying stress or health conditions which could be of particular use to support our call handlers.

Potential use cases – Patient access to web services, clinical dictation, assistance in the clinical contact centre (CCC) environment.

<https://www.bbc.co.uk/news/health-48925345>

Big Data

Data collation and analysis predates the computer, but modern technology allows it to be handled and stored in a manner that does not conform to traditional information management principles. This allows 'structured data' such as tables and spreadsheets to be combined with 'unstructured data' such as information flowing from machines and applications to deliver new insights. The more data we have, the more we can learn and the more we can begin to predict challenges or opportunities.

Applications, Wearable Technology and the 'Internet of Things' (IOT)

With the advent of the smartphone, large numbers of people now carry a computer with sensors capable of monitoring multiple events as part of their daily routine. All major technology suppliers now embed a variety of health applications within their software, with some being developed to allow direct connection to an electronic health record (EHR). Beyond the smartphone, smart watches and other wearable technology allow further monitoring of heartrate, movement (including gait) and other factors that offer the ability to improve care at home and provide more instant alerting of episodes such as falls and heart attacks.

<https://www.himss.org/resources/wearable-technology-applications-healthcare-literature-review>

<https://support.apple.com/en-us/HT208944>

Video / Immersive reality

Video conferencing is a mature technology that is already in use across NHS Wales on platforms such as Microsoft Teams and Attend Anywhere. However, advances in virtual and augmented reality literally provide a new dimension to the technology where it is possible to virtually place someone in another setting, such as a hospital stroke specialist in the back of an ambulance prior to handover. Additionally, a number of systems now allow live information to be streamed into a headset or glasses without removing the ability to view your own surroundings, 'augmenting' the reality to provide guidance or instructions. This technology is routinely available in smartphone and tablet technology via the built in camera where additional objects such as direction arrows can be placed within a live image.

<https://news.microsoft.com/en-gb/2018/02/08/surgeons-use-microsoft-hololens-to-see-inside-patients-before-they-operate-on-them/>

<https://newsroom.bt.com/uhb-and-bt-demonstrate-uks-first-remote-diagnostic-procedure-using-a-5g-connected-ambulance/>

New 'Smart' Clinical / Operational Systems

As technology progresses, more and more systems and products are joining the internet of things. More and more of our clinical and operational technology is becoming 'smart' with the ability to be connected to other systems, providing new options to be controlled remotely; operate autonomously, and flow new data to help us drive decisions. We need to ensure that wherever these developments arrive, we are operating to the common standards and communicating internally to ensure we can use them to deliver maximum benefit, avoiding 'black box' standalone technology.