Meeting Date	28 May 2020	Agenda Item	2.1 (iii)
Report Title	**COVID-19 Response: Digital and Health Intelligence**		
Report Author	Sian Richards, Deputy Chief Digital Officer		
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Presented by	Matthew John, Associate Director of Digital Services		
Freedom of Information	Open		
Purpose of the Report	The paper provides an update on the digital transformation progress across the Health Board, in support of the organisation's response to COVID-19		
Key Issues	The Health Board's digital response to: - the need for increased remote and virtual working - supporting patients communicate with their families and friends - the need for health intelligence to provide situation awareness and enable data informed planning - the establishment of field hospitals		

Specific Action Required *(please choose one only)*	**Information**	**Discussion**	**Assurance**	**Approval**
	☐	☐	☒	☐

Recommendations	Members are asked to: **NOTE** the progress that has been made in accelerating the rollout of digital infrastructure, devices and solutions to support the Health Board's response to COVID-19 **NOTE** the delivery of health intelligence dashboards and data modelling to enable a data informed response to COVID-19

COVID-19 RESPONSE: DIGITAL TRANSFORMATION

1. INTRODUCTION

The paper provides an update on the digital transformation progress across the Health Board, in support of the organisation's response to COVID-19. The purpose being to assure Board Members and the public that the Health Board has accelerated the use of digital technology to:

- facilitate large scale remote and virtual working;
- enable patients to communicate with their families and friends;
- provide data rich situation awareness and enable data informed planning;
- enable efficient and effective healthcare at the field hospitals if and when they are required.

2. BACKGROUND

SBUHB organisational strategy 'Better health, better care, better lives' states that the organisation will maximise digital opportunities and use it to transform how people's health is improved and how care is delivered. The Health Board envisages that health, care and wellbeing activities carried out by everyone in our Health Board will be enabled using digital technology wherever optimal including ensuring care, quality and service plans and operations are data driven and maximise opportunities to improve efficiency and quality through use of digital technology.

As previously reported the delivery of the Digital Strategy is being organised through six main programmes of work. The priorities and plans for each programme has been revised to support the health board in the response to COVID-19. The COVID-19 pandemic has proved to be an accelerant for the Health Board's digital transformation, which has been a major contributor to the organisation's response.

3. ACHIEVEMENTS IN SUPPORT OF THE COVID-19 RESPONSE

The progress made over the last two months across our 6 Digital Programmes is presented below.

3.1 Hospital Patient Safety and Flow - Transforming the patient's journey through the inpatient setting by providing clinicians with electronic systems and tools designed with the patient's care co-ordination and communication at the centre. Optimising inpatient flow will improve the safety and quality of care for our patients and ensure better outcomes by reducing the harm, waste and clinical variation inherent in current paper based systems.

E-Whiteboard Solution (Signal) - An in-house developed system that has replaced physical whiteboards to ensure live information is available for every patient in our hospitals. The Signal Solution has proved to be hugely beneficial in the Health Board's response to COVID-19. It has provided the SDUs with an invaluable operational tool

for managing the situation as it has emerged. Elements of the project plan were accelerated and implemented sooner in order to assist with recording of COVID-19 patient data and associated patient flow. The most significant changes were:

- Significant upgrade including integration of demographics with WPAS. This has enabled hospital site transfers and will allow transfers to the field hospitals.
- Roll out to Neath Port Talbot Hospital and Gorseinon hospital
- Upgrade of the Singleton instance of the system to establish consistency across sites
- COVID-19 data capture and monitoring of confirmed and suspected cases
- Creation of many new hospital wards and areas on the system as the configuration of the hospital changed, including field hospital and surge capacity
- Acceleration of Hospital to Home usage
- Mortuary view created and implemented
- Full transfer of SIGNAL information into the Health Board Health Intelligence dashboard which is used in all Gold meeting

Virtual Ward Rounds – Virtual ward rounds have enabled shielding consultants, who are unable to physically visit patients, to lead ward rounds. Thus enabling a more resilient workforce, allowing clinical teams to work effectively. A pilot went live on the 20th April in NPTH using Microsoft Teams. The participants of the ward round were able to access several clinical systems to inform clinical decision making and agree on care plans. This was used by other teams across NPTH and now wider roll out across all sites and departments is being planned. A local video of the approach is also being developed. The feedback from the first Consultant to take part was as follows:

"Many thanks for your help and the help of the IT department they made it very easy to connect to my team in the ward round, I was able to see my team and the patients, as if I was physically in the ward round, I was able to see medication charts and observation charts, I was also able to see the radiological investigation and discuss these with my team. I think this has been very successful although I need to practice more in the next few days with the help of your excellent team and colleagues from the IT department. I thinks this would be the way forward at least in the next few months during this difficult time and, if I am able to manage with this new way of working I believe any other colleague can do the same."

Virtual Social Worker Assessments – SDU and social care leads supported by the Digital Services Teams have worked together to develop a virtual way of working to enable remote Social Worker assessments. All wards have received dedicated devices and Microsoft Teams is being used to conduct the assessments. This development is being further enhanced to allow social workers to attend more board rounds as part of the new rapid discharge process.
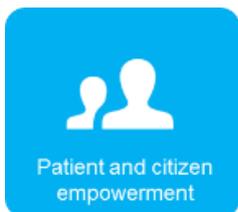
COVID-19 Testing Process - During the period the COVID-19 community testing sites have taken advantage of the electronic test requesting (ETR) processes in the Welsh Clinical Portal (WCP). This has allowed for seamless requesting of tests from community sites to hospitals. In addition to this, the test results were integrated with

the text messaging service locally, providing results (negative only) to staff via text. SBUHB were one of the first in Wales to provide COVID-19 results in this way.

Medicine Transcription and electronic Discharge (MTeD) – on April 28th the WCP MTeD was rolled out across Morriston Hospital. This provided a single way of producing discharge letter to GPs via a Discharge Advice Letter (DAL) in WCP. The implementation was supported by medical students on the wards with the Digital Services Team supporting remotely. Despite the pressures in the hospital at the time, the site achieved 64% DAL compliance in first 24 hours.

Access to All Wales Radiology Images and Reports (PACs Mobility) – PACS Mobility in WCP is being implemented in SBUHB. This provides clinicians with access to radiology images and reports for patients across Wales, enabling all Wales image sharing and improving ability to make clinical decisions and reducing the number of unnecessary tests.

Hospital Electronic Prescribing and Medicines Administration (HEPMA) – SBUHB was the first Health Board in Wales to introduce Hospital Electronic Prescribing and Medicines Management (HEPMA). As a result of COVID-19, the use of HEPMA in NPTH was paused temporarily, however, plans are now being finalised to achieve the roll out of HEPMA across NPTH during Q2, followed by Singleton. There is significant interest in extending the rollout to Morriston, as the solution will provide a range of clinical safety benefits associated with the prescribing and administering of medicines, as well as facilitating remote working and better social distancing. Implementation across Morriston is not included in the current contract and resource allocation, and will require additional funding. The way forward for Morriston is currently being considered.

3.2 Patient and Citizen Empowerment - Enabling the citizen to take responsibility and play an active role in their care is critical to the delivery of sustainable NHS services. Allowing citizens to manage their condition themselves through the co-development of condition-customised care programmes, access to self-help resources, virtual health coaching and monitoring of health status and outcomes, will promote self-management and lead to improved patient outcomes.

The Swansea Bay Patient Portal (SBPP) – During this very challenging time, clinical teams within the health board are being encouraged to use digital solution to manage their patients virtually. The SBPP provides patients with access to their information online, including laboratory results and clinic letters. Patients can also add health and wellbeing information in order to manage their records and share securely with their carers and clinicians within the portal.

Clinical teams are able to message patients securely, and more recently add important information relating to COVID-19 which will be relevant to the ongoing health and wellbeing of the patients. Clinicians are using SBPP to share targeted information with patients to support their wellbeing during and post COVID-19, services undertaking

this include Chronic Pain Services and Cancer Services. This is helping patients better understand their condition and the risks and precautions required during the pandemic. Oncology clinicians have been using the tool to share library links and helpful documentation to support patients during this unsettling time.

As a result of COVID-19, the vast majority of traditional outpatient clinic appointments have been cancelled. As a result, clinicians are required to review their lists and identify patients who fall within the criteria of See on Symptom (SoS). SBPP has functionality which allows the clinical teams to identify symptoms they wish the patient to monitor and feedback on at agreed regular intervals in a completely secure environment. This enables the potential need for a follow-up appointment to be identified.

The SBPP also allows a patient to consent to allow someone else to manage their record on their behalf. A legal representative can also request a record to manage on behalf of another that is unable to consent to have a record. E.g. a minor or a patient that lacks the capacity to consent. The patient can invite healthcare professionals, GPs, family, friends and carers to view or add information to their record. This functionality is particularly helpful during times of social distancing.

Enabling Patient and Family Contact – During the COVID-19 pandemic, additional digital devices have been provided to wards, departments and the field hospitals to enable patients to communicate with their friends and families. To date, 134 iPADs have been deployed specifically for this purpose, with further devices in the process of being built or awaiting deployment. These devices proving to be very beneficial, enabling patients and their families and friends to stay connected via FaceTime and WhatsApp throughout the pandemic. The team have received excellent feedback, including:-

> Sharron Price (Swansea Bay UHB - NPTH Delivery Unit): *"As you know the tablets are used for virtual visiting and this contact is lovely, I think the most impact is with our patients who are end of life in the hospital, having the tablets have enabled us to be able to spend time with the families virtually and for the families to say goodbye, and tell their loved ones how much they mean and how loved they are. It is this type of interaction that would not have been possible, and is allowing us to help the families find some closure and comfort at such a difficult time".*

> A Patient's family member: *"We were able to speak to my mother in law on a ward in the hospital. All of the family were able to speak to her and we were able to give her a tour of the garden".*

This initiative demonstrates the direct impact that digital solutions can have in the most difficult times.

Virtual Outpatients - SBUHB was one of the first Health Boards in Wales to offer virtual appointments through the deployment of CISCO Webex. This enabled clinicians to conduct virtual OPD appointments as early as the 16th of March. Over 500 people registered to use the system and over 1000 consultations have been held.

In parallel, a national plan led by Welsh Government (WG) was developed, to enable the deployment of the Attend Anywhere virtual consultation platform. There is now a national commitment to fund the use of Attend Anywhere for an initial 12 months.

The Attend Anywhere implementation for secondary care commenced at the end of April. The first pilot sites in SBUHB, were Dermatology, Physiotherapy and Rheumatology. Following this initial pilot, the Digital Services Team are now rolling out the solution across the Health Board at pace and scale. As of the 15th of May, 151 consultations have been held, 42 services have been set up with virtual waiting rooms. A further 25 waiting rooms will be created for use the week commencing the 18th of May. The current project plan is working towards complete roll out by the end of June.

Attend Anywhere is being evaluated nationally by an external company. The outcome of which will feed into the business case post April 2021. Initial feedback has been very positive with patients and staff saving time and traveling and still being able to deliver effective patient consultations.

The Welsh Clinical Portal (WCP) has been used in conjunction with video consultations, providing clinicians with access to electronically held records. This has included the introduction of the Electronic Outpatient Continuation Sheet which enables clinicians to record appointment narrative and the appointment outcome digitally. 235 electronic outpatient continuation sheets have been created since go live at the end of April.

3.3 Integrated Health and Care - *This programme focuses on enabling staff across Secondary care, Primary Care, Community, Mental Health, Learning Disabilities, Social Care and other partners to be able to share information knowledge and expertise.*

Digitally Enabled Primary Care - Digital enabled ways of working have allowed GP Practices to remain open, operating behind 'Closed Doors'. Practices have been providing initial access via telephone and digital online services. The rollout of the 'Ask My GP' practice management solution, following a successful pilot in Cwmtawe since late 2019, has enabled SBUHB practices to virtually manage and prioritise their workload, ensuring patients are assessed and treated by the appropriate professional in an appropriate timescale. So far 14 of the SBUHB practices have adopted the solution. Another 14 will follow imminently and 7 others have expressed interest.

Furthermore, during the pandemic WG invested in the Attend Anywhere virtual consultation solution for deployment across practices in Wales. As at the 15th of May

71% of GP practice in SBUHB have had the product implemented and can use it for video appointments as required. The focus has been for those practices not ready for the wholescale operational change approach of Ask My GP, to take advantage of the Attend Anywhere virtual consultations offering in the first instance.

Specialist Advice Service – during the pandemic SBUHB became the first HB in Wales to launch a specialist advice service for GPs, paramedics and other healthcare professionals caring for patients in the community. Consultant Connect is an innovative phone app which allows these clinicians to obtain advice rapidly from a range of hospital consultants.

The solution, funded by WG, which usually takes six to eight weeks to implement, was launched by SBUHB clinical leads after just 72 hours. Initially, the service is focussing on COVID-19 inquiries, along with others relating to four medical specialties, but this will be expanded in time.

3.4 Streamlining Business Processes Progress and Plans
Enabling staff across the Health Board to reduce the time spent on administrative processes, providing more time for value added activities. This ranges across all clinical and administrative functions of the Health Board. Key progress areas and plans are presented below.

Collaborative and Virtual Working (Microsoft Office 365) – The Health Board has taken the opportunity to capitalise on the functionality offered by O365, by accelerating the pace of delivery across the organisation during April.

The first part of the plan was to migrate all email accounts from the old platform to the new cloud based one. As at May 15th, NPT, Singleton, Morriston and corporate mail boxes have been migrated. The final areas to migrate are Community and MH/LD.

In parallel Microsoft Teams has been enabled for all staff that have access to a work or home device. Microsoft Teams is the ultimate collaboration app, it provides a workspace for real-time joint working and communication, meetings, file and app sharing - all in one place, all in the open, all accessible to everyone. For the Health Board, this provides a means of mass communication across the organisation. Teams has been used to run virtual ward rounds, virtual social worker assessments and enabled disparate co-worker to participate in meetings seamlessly and share information and plans. Essentially, the introduction of Teams has already made a significant impact in how we do business across the organisation and will become the Health Board's fundamental collaboration tool moving forward in the "new normal".

3.5 Business Intelligence and Analytics - *Enabling the utilisation of the data we capture within our digital solutions to support evidence based decision making is key.*

Health Intelligence Dashboard - Analysts across the Health Board were brought together to develop a Health Intelligence Dashboard for COVID-19 and to focus on the national predictions by interpreting what this meant for SBUHB.

The Dashboard is reviewed at every Gold Meeting and has been an important tool in the Health Boards COVID-19 response. It provides the evidence base to support the short term actions that need to be taken to address emerging issues as well as informing longer term planning decisions. As the Dashboard provides a "live" position across the Health Board it is also used in the various COVID-19 Silver and Bronze Meetings across the Service Delivery Units and support services work streams. The data is captured from our hospital systems that include SIGNAL, WPAS, LIMS and DATIX, along with specialised web forms to capture data from other key areas. It continues to be enhanced on a regularly basis as new information becomes available. The dashboard brings together information across all sites and includes

- Admissions data and trend
- Bed occupancy and trends
- Modelling and predictions in line with national approaches and local intelligence
- Discharge and transfers
- Positive COVID-19 cases including downgrades and suspected cases
- ITU capacity and demands

- PPE availability
- Workforce data
- Occupational Health
- Pathology testing rates
- Oxygen flows
- Mortuary space
- Critical medicines
- Deaths current and predicted

The dashboard provides operational situational awareness, allowing the monitoring of key risks and real time ability to respond to SITREP reporting and monitoring of hot spots. It is important that the Health Board continues to employ this data driven approach as we move forward. Specifically, it will be advantageous in operational patient flow management in the short-medium term COVID-19 response and beneficial in the future for the purpose of responding to major and mass casualty incidents.

COVID-19 Modelling – At the start of the pandemic, the impact of COVID-19 on services across Swansea Bay was relatively unknown. Early models were created to show the peak / reasonable worst case scenario. These models were created by Imperial College London and subsequently released by Public Health Wales and demonstrated the effect of COVID-19. The model was adapted locally to demonstrate what this meant for SBUHB and to understand the pressure it would have on our Services. Several scenarios were created and then analysed, to inform clinically led discussions of services which should be stood down in order to protect our patients and staff. This modelling continues to be refined as new information becomes

available and is a valuable source to inform decision making at every level of the organisation.

3.6 Enabling Digital Infrastructure

Digital transformation cannot be realised without firm digital foundations. Clinicians are becoming more and more reliant on digital solutions to facilitate the provision of high quality care and this dependency will only increase. SBU are therefore focussing on ensuring our digital services are resilient and secure.

The complexity and scale of the operation of enabling change by providing the supporting digital infrastructure during COVID-19 has been unprecedented. Since the beginning of March more than 30 different clinical areas have been reconfigured, which has required provision of hardware, network connectivity and telephony. New stock control procedures have been developed within Digital Services, to ensure that supply and demand are in balance to ensure a timely response to the needs of the organisation.

During this time, the telephony system was upgraded and the telephone network capacity was doubled to cope with the increase in telephone calls to the Health Board. This included ten additional call centres being configured for teams across the HB, including, Occupational Health and a Workforce Helpline.

The following additional equipment has been issued since the start of the pandemic:

- 586 laptops
- 1055 VPN tokens activated
- 256 ipads, of which 77 tablets have been donated by charity organisations and the general public
- 234 mobile phones

This has enabled full departments to work remotely or from home and enabled people who are shielding from Covid to still work effectively. For example, during this time the ICT service desk demand has been at its highest level ever, but the team has managed the demand and embraced a new way of working. Most of the service desk have worked at home answering the Service Desk number since HQ reduced numbers on site. This has opened new opportunities for the team to work differently in the future. This example and many others will be evaluated over the next period to determine new models of working as we move forward.

Arguably the biggest challenge for the Digital Services Team was delivering 2 digitally enabled field hospitals within 8 weeks from start to finish. Both sites have fully wireless enabled networks on site, crash call systems, telephony, network to support all Health Board clinical systems, mobile carts and fixed devices, printing solutions and electronic whiteboards to support Signal. This will give clinicians at field hospitals access to all systems as if they were on a main hospital site.

Digitally enabled services have also been implemented at the Liberty Stadium Community Testing Unit (CTU) and the community testing site at Margam. This again required innovative and timely infrastructure to be deployed.

The next period will see more remote working support as we adhere to isolation, shielding and social distancing requirements, which will include delivering WIFI requirements for remaining community, MH and LD sites.

Throughout the period there has been a local and national focus on appropriate Information Governance guidance, to ensure the safe and effective use and sharing of information in a very quick and responsive manner. Guided by the Information Governance Team, the Health Board has adopted a practical approach during this period, based on the advice issued from the Information Commissioner's office, in order to support the timely deployment of new ways of working during the emergency response.

Also during the pandemic there has been an increased cyber security threat, with the NHS being targeted by fraud and other scams. Health Board cyber security leads, in collaboration with national colleagues, have utilised the tools invested in to combat any risk.

GOVERNANCE AND RISK ISSUES

Governance
In order to deliver the significant digital response to COVID-19 in SBUHB, a Digital Bronze cell was established at the end of March to coordinate and manage the response. The meetings were held three times a week initially. The structure and outputs of the meeting were delivered using the 'planner' function in Microsoft Teams. The meeting has maintained excellent engagement and attendance and proved essential in communicating progress and required action. Bronze meetings have reported into the Central Command Centre and Gold meetings, escalating issues and reporting progress as required.

Digital Services have embraced the use of technology to enable remote working. As a result, the majority of Digital Services staff have been given the opportunity to work from home to ensure social distancing measures are in place. The Senior Team have taken proactive measures to ensure all staff remain in contact and feel included during this time. Microsoft Teams has been used to hold directorate wide meetings with over 100 participants taking part on a fortnightly basis. These meeting have been important to keep everyone updated on developments and to thank staff for their hard work and effort during unprecedented times. The use of these meetings will now continue as a part of the directorate's ongoing communication and governance framework.

Risks
A significant amount of progress has been made, during the COVID-19 period. However this is not without some risk. Some solutions have been provided at no cost to the Health Board, however associated ongoing costs and funding will need to be considered. In addition, solutions have been deployed at speed and there will need to

be a period of consolidation to complete the necessary business change and ensure new ways of working are sustained and expanded. To achieve this, appropriate levels of business change and support resources will need to be sustained.

During the COVID-19 period so far, the organisation has benefited from live data reporting. It is imperative that all users of clinical systems continue to update systems in a timely and accurate manner for the organisation to continue to be data driven in its decision making. This requires every member of administrative and clinical staff to recognise information recording as a key responsibility of their role and ways of working.

During COVID-19, the Health Board has taken the opportunity to expand and maximise the in-house developed system SIGNAL. The system has grown organically from its initial beginnings in Singleton Assessment Unit to be an organisation wide solution. Without this system the Health Board would not have such detailed and granular information available. However the system is built on a technical platform with limitations. The platform will require a significant redesign and upgrade to ensure that it can be maintained and continue to grow and respond to new requirements.

4. FINANCIAL IMPLICATIONS

The COVID-19 Digital response has required significant investment into the provision of devices, infrastructure and peripherals to enable remote working and the establishment of the Field Hospitals, Critical Care Unit expansion and the COVID-19 Testing units. SBU Digital Services and Capital Finance have been working with WG to secure funding for these investments. The table below summarises the anticipated expenditure in these areas.

Expenditure type	Total
Devices *	£1,799,674
Network	£157,807
Peripherals	£417,843
Total	£2,375,325
Funding Provided	-£1,598,492
Balance required	£776,833

*includes carts, PCs, laptops, screens, tablets etc.

The table shows a total anticipated spend on procurement of equipment of £2.375m. The majority of this expenditure has already been committed. It should be noted that this figure is based on what is known at this point in time and does not include additional cost requirements for items such as Test, Trace and Protect for example. It also does not reflect the cost implication for other potential priority projects, such as the wide scale implementation of digital dictation and ePrecribing (HEPMA) in Morriston Hospital.

To date SBUHB have been issued funding from WG to offset the cost above of £1.598m and have requested the additional £0.777m.

In addition to the capital costs above there have been non-recurring revenue commitments made for items not associated with equipment. These include agency costs, overtime and costs for VPN tokens etc. and have been fed into SBUHB's financial process for revenue costs associated with COVID-19.

During the response to COVID-19, SBUHB has been able to utilise solutions that have been provided free of charge, either through our suppliers or through Welsh Government. These solutions include Cisco WebEx and VPN services and Attend Anywhere. The potential long term financial implications of these solutions will need to be understood over the coming months.

The increase in the volumes of infrastructure and software solutions, will result in an increase in the levels of support required to maintain them moving forward. These ongoing revenue implications will be worked through during the next period.

5. RECOMMENDATIONS

Members are asked to:

- **NOTE** the progress that has been made in accelerating the rollout of digital infrastructure, devices and solutions to support the Health Board's response to COVID-19
NOTE the delivery of health intelligence dashboards and data modelling to enable a data informed response to COVID-19

Governance and Assurance		
Link to Enabling Objectives *(please choose)*	**Supporting better health and wellbeing by actively promoting and empowering people to live well in resilient communities**	
	Partnerships for Improving Health and Wellbeing	☒
	Co-Production and Health Literacy	☒
	Digitally Enabled Health and Wellbeing	☒
	Deliver better care through excellent health and care services achieving the outcomes that matter most to people	
	Best Value Outcomes and High Quality Care	☒
	Partnerships for Care	☒
	Excellent Staff	☒
	Digitally Enabled Care	☒
	Outstanding Research, Innovation, Education and Learning	☐
Health and Care Standards		
(please choose)	Staying Healthy	☒
	Safe Care	☒
	Effective Care	☒
	Dignified Care	☐
	Timely Care	☒
	Individual Care	☒
	Staff and Resources	☒
Quality, Safety and Patient Experience		
Implementation of digital systems in healthcare can have a significant positive impact on quality, safety and patient experience, this has been very evident during the COVID-19 pandemic. Critical to success is the wide scale adoption of an effective business change model, digital service team capacity and capability, workforce digital skills and clinical leadership		
Financial Implications		
Increased investment will be required to achieve digital transformation, the detailed cases for investment will be brought via IMTP, IBG and Welsh Government.		
Legal Implications (including equality and diversity assessment)		
No known legal considerations. The implementation does ensure the Health Boards complies with Welsh Government digital inclusion strategic framework and the recommendations of 'Digital Inclusion in Health and Social Care		
Staffing Implications		
Increasing numbers staff will be required to deliver the digital change programme in SBUHB. This will be detailed in the IMPT workforce plan, individual business cases and the digital priorities and plans.		
Report History	The paper is a culmination of other individual progress reported to the COVID-19 gold and CCC	
Appendices		