Delivering the benefits of Digital Healthcare within Hywel Dda University Health Board

2016 - 19

Contents

1. Executive Summary

High quality healthcare services depend on good information. The right person having the right information at the right time can make all the difference to the experience of a patient, service user or carer. Good information enables healthcare professionals to make the process of care safer and efficient. The role of IM&T is to be a key enabler in the NHS, which recognises the value and need to make information accessible via electronic means, update it in real time and manage the patient journey proactively.

Building on the foundation we already have on a National level, such as a single public sector broadband network and a national IM&T delivery organisation for the NHS: NHS Wales Informatics Service (NWIS), this strategy marks the next steps in the Hywel Dda journey to provide the information and modern digital services which enable:

- People to manage their wellbeing and connect with health and social care services efficiently, effectively and have the best possible experiences of healthcare
- Professionals to do their jobs and deliver safe, high quality services.
- The shaping of services to meet the needs of current and future generations.

This IM&T Strategy is designed to show the aspiration of the Health Board for IM&T being a key enabler. The Health Board is in the process of initiating its clinical strategy and a change programme founded in Quality, Innovation, Productivity, and Prudent (QIPP) principles. The organisation has, for some time, been implementing significant developments in IM&T systems in line with the national programme and it is these systems that will enable the transformation of how clinicians and patients work together to deliver positive health outcomes. The local challenge is to align the development of IM&T to support organisational and clinical priorities of the organisation as a whole to begin to realise the full benefits of how systems might be operationalised and support clinical service delivery, as well as users considering what might be required in next generation IM&T to transform service delivery.

This strategy therefore sets out a framework for how IM&T can support transformation within the organisation through a focus on IM&T that supports improvements in patient experience and communication, integration and modernisation and flow and productivity. This is supported by an approach that will ensure systems connect, are adopted and deliver benefits, there is a realistic approach to infrastructure investment and joint planning of IM&T with key stakeholders and governance of the strategy that builds assurance around delivery, resilience and information governance. A tactical, pragmatic investment approach will be taken that makes the best of existing systems and IT infrastructure wherever possible, and investing where there is a sound business case to do so. The opportunities for return on investment in terms of improved outcomes, reduced risks and clinical incidents and cashable savings are available, and through a clear strategic approach these opportunities can be captured and delivered.

The purpose of this document is then, to set out a three year strategy for IM&T that will build a vision for how IM&T can support the organisation in delivery of its three year Integrated Medium Term Plan, and is aligned to the Welsh Government National IM&T strategy (*Informed Health and Care – A Digital Health and Social Care Strategy for Wales)*[1] and delivery of the NWIS Integrated Medium Terms Plan 2016/19 which in turn provides the National Programme for IM&T for Wales.

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[1] http://gov.wales/docs/dhss/publications/151215reporten.pdf

2. Introduction

The Hywel Dda health system is having to deal with increasing cost and demand pressures and a shortage of skilled healthcare staff. Given this reality, there is a need for the system to move to a place where every interaction between citizens and healthcare professionals achieves maximum impact on health outcomes and scarce financial and human resources are deployed as effectively as possible. Most of all we must continue to draw upon the capacity in the system represented by citizens themselves playing a more active role in the protection and management of their personal health outcomes.

IM&T is defined as 'the combined use of electronic communication and information technology in the health sector.' IM&T is the means of ensuring that the right health information is provided to the right person at the right place and time in a secure, electronic form for the purpose of optimising the quality and efficiency of healthcare delivery. IM&T should be viewed as both the essential infrastructure underpinning information exchange and a key enabler and driver of improved health outcomes for all.

Digital Health represents a fundamental shift in the way information is accessed and shared across the health system. Whilst significant progress has been made to introduce digital systems, the NHS remains a long way from reaching the full potential of IM&T in supporting delivery of healthcare. National and local IM&T programmes have been implemented across Wales.

Considerable progress has already been made with the implementation of IM&T systems across the Health Board. Hywel Dda has a number of the nationally available systems implemented, however there requires improvements in the uptake of some of these systems. For instance, electronic test requesting which is an element of the Welsh Clinical Portal, has improved from 38% to 43% which means that 623,492 pathology results have been viewed via the Welsh Clinical Portal. During 2015/16. Notwithstanding this improvement there is still significant work required to enable the movement to a paperless pathology department.

Improved clinical engagement in development and adoption, a strategic and focussed approach to further implementation of existing and new systems, and investment in infrastructure will provide the platform for a revolution in how information can be captured, used and shared in decision making by both clinicians and patients.

We need to achieve an environment where the public, healthcare professionals and managers can reliably and securely access and share health information in real time across organisational, professional and geographic boundaries. The only way this can be achieved is through the full uptake of current IM&T functionality and a move to next stage digital capability.

2.1 What are the challenges?

Hywel Dda's healthcare system is currently delivered through four Acute Hospitals, seven Community Hospitals, eleven health centres, and numerous other locations and settings. Primary Care Services are delivered by 56 GP Practices some on multiple sites, 67 Dental Practices, 99 Community Pharmacies; and 52 Optometry premises. By far the majority of patient contacts are provided in these community settings and in patient's own homes, with links to critical clinical and diagnostic services in the main hospital sites, and outside the Health Board boundaries. This complexity requires dynamic and agile digital capability to meet the needs of a rapidly changing health service. The Health Board, faces a set of increasingly significant challenges in continuing to deliver high standards of health outcomes, which present the first set of challenges.

These include:
- A large and growing ageing population
- An increasing incidence of chronic disease
- Increasing consumer demand for more costly, complex and technologically advanced procedures
- Significant differences in health outcomes between the advantaged and disadvantaged,
- The supply and deployment of skilled health and social care staff
- The challenge of ensuring service delivery across a highly rural geography

Together these challenges are driving increased demands upon healthcare services, costs and complexity, and are already testing the limits of the financial, physical and human resources of the Hywel Dda health system. The second set of challenges relates to the way information is stored, shared and used across the Hywel Dda health system. Healthcare is fundamentally a knowledge based activity with information being central to all aspects of patient care planning, management and delivery. Despite this, and with significant progress in digital implementation, healthcare remains heavily reliant on paper based systems.

A number of national systems have been implemented over the last ten years including;

- unique electronic patient identifiers (Master Patient Index),
- electronic recognition of staff (National Active Directory Exchange (NADEX)),
- discrete record systems in a number of clinical and support areas and system portals that enable both communication between data systems (via the adoption of the NHS Number),
- a summary of all electronic patient records to be available in a single view (adoption of the Welsh GP Record)
- Critically the capability of e-communication between primary care, the part of the system that currently holds the closest approximation to a single patient record, and hospital based systems has been incrementally implemented (Welsh Clinical Communications Gateway)

There remain challenges with the understanding, uptake and utilisation of these systems by both health professionals and the public due to multiple factors including lack of knowledge, training, system problems and perceived and real resilience challenges.

In a complex service delivery environment with annual numbers of contacts in the millions, reliance on manual processes and information flows, and the duality of paper and electronic systems creates the potential for significant errors and inefficiencies. However, a significant proportion of medical errors are due to the inadequate availability of patient information and account for significant cost to the NHS each year.

The third challenge for the Health Board is the infrastructure requirements to support the scale and pace of implementation of a digital NHS. The service has been grown from systems implemented in three previous organisations that have merged. Considerable progress has been made to deliver single, consistent systems across the Health Board since 2010. The service remains reliant on a potentially fragile server and end user hardware system, with challenging prospects for both capital and revenue investment. New investment will need to demonstrate benefits across the domains of improved outcomes for patients, patient safety, efficiency, cost effectiveness and resilience.

As the Health Board covers a mainly rural geography with significant urban areas in the counties of Carmarthenshire, Ceredigion and Pembrokeshire, there are a number of issues that affect the

deployment of IM&T services. For instance the lack of a mobile phone signal will provide a challenge for the deployment of a community recording system for district nurses. Notwithstanding this we are committed to developing solutions that are able to work off-line as well as on-line.

Our responsibilities are to commission and provide healthcare for our resident population and this involves a full range of services from prevention, primary care, community, mental health and long-term care (continuing healthcare), hospital and very specialist care.

In November 2015 the Wales Audit Office undertook a Diagnostic Review of IM&T Capacity and Resources and whilst recognising many of the strengths of IM&T in Hywel Dda, helpfully summarised the challenges for the organisation.

Commitment to clinical IM&T	The Health Board needs to improve the corporate commitment to clinical IM&T, by ensuring that: • the strategy for IM&T is up-to-date and supported by staff; • the profile of IM&T is raised at the Executive Management Team; • a clinical IM&T user group is established to improve engagement with clinicians; • and a clear IM&T benefits management programme is set out.
Central management of IM&T staff	To ensure that the totality of IM&T resources within the Health Board are used effectively, the Health Board needs to understand the roles and responsibility of IM&T staff managed outside of the IM&T department to ensure that these roles are aligned with those within the central managed team and that they are used to their full potential.
Training of staff	To ensure that staff are proficient in the use of the clinical systems, the Health Board needs to ensure that appropriate and timely training is in place. This is particularly important in relation to new starters in order to prevent them from accessing the systems without having the appropriate training.
Negative perceptions of medical staff	The Health Board needs to understand and address the negative perceptions from medical staff in relation to access, reliability and inability to use the clinical information systems that currently exist within the Health Board to ensure that the systems potential is maximised.
Reliability of IM&T equipment	To minimise the extent to which there is lost time due to system failures, the Health Board needs to ensure that the extent to which IM&T equipment is classed as 'out-of-life' reduces

2.2 What will be our response?

The challenges and issues facing the Health Board will not be solved by doing more of the same, particularly given the limited nature of available human and financial resources. Our strategy is based around setting a new vision for IM&T in the Health Board through meaningful engagement with clinicians and patients, and also accelerating the pace of implementation and uptake of existing and new systems. We will be creative in seeking to invest in modern, agile, resilient IM&T infrastructure and put in place governance arrangements that both safeguards information and provides assurance to the Board in delivery.

The Hywel Dda response to these challenges is set within a national context for IM&T that drives the national programme, and the work of the NHS Wales Informatics Service. In December 2015 Welsh Government published a new IM&T strategy, which sets out to build on the achievement of

the previous Informing Healthcare Strategy, and provides a national context and framework for the Health Board response for the foreseeable future.

The Welsh Government vision is set out in four areas, and the high level vision for Hywel Dda has been matched against the national context;

National Informed Health and Care Strategy	Hywel Dda IM&T Strategy
Information for you People will be able to look after their own well-being and connect with health and social care more efficiently and effectively, with online access to information and their own records; undertaking a variety of health transactions directly, using technology, and using digital tools and apps to support self-care, health monitoring and maintain independent living.	• Providing patients with electronic access to the information needed to better manage and control their personal health outcomes • Providing patients with confidence that their personal health information is managed in a secure, confidential and tightly controlled manner
Improvement and innovation The health and social care system in Wales will make better use of available data and information to improve decision making, plan service change and drive improvement in quality and performance. Collaboration across the whole system, and with partners in industry and academia, will ensure digital advances and innovation is harnessed and by opening up the 'once for Wales' technical platform allow greater flexibility and agility in the development of new services and applications.	• Ensuring the right patient health information is electronically made available to the right person at the right place and time to enable informed care and treatment decisions
Supporting professionals Health and social care professionals will use digital tools and have improved access to information to do their jobs more effectively with improvements in quality, safety and efficiency. A 'once for Wales' approach will create a solid platform for common standards and interoperability between systems and access to structured, electronic records in all care settings to join up and co-ordinate care for service users, patients and carers.	• Ensuring that the IM&T digital strategy is an integral part of the transformation agenda in order to assist operational improvement.
A planned future Digital health and social care will be a key enabler of transformed service in Wales. Joint planning, partnership working and stakeholder engagement at local, regional and national level will ensure that the opportunities and ambitions outlined in this strategy are prioritised, with planning guidance issued by Welsh Government in 2015.	• Enabling electronic access to appropriate health care services for consumers within remote, rural and disadvantaged communities

The NHS Wales Informatics Services (NWIS) supports NHS Wales' organisations to improve care through high quality information systems and technologies. Their mission is to support the improvement of patient care through the collaborative provision of high quality information, systems and technologies, "Once for Wales". Their aim is to modernise Health and Care service delivery, promote new ways of working through better access to information and knowledge for shared decision making. The resources that the Health Board invests in IM&T, and any new investment secured, will increasingly need to align to the strategic direction of the organisation as defined in the Integrated Medium Term Plan 2016-19. This plan outlines ten strategic objectives:

1. To reduce overweight and obesity in our local population	7. To improve community based support for patients with respiratory illness and reducing the need for hospital based care
2. To reduce the number of people who engage in risky behaviours and improve access to local support services	8. To improve the care and management of patients with frailty and/or dementia by being more proactive and consistent in our approach to care aimed at maintaining health and independence
3. To improve the mental health and wellbeing of our local population through improved prevention and early intervention	
4. To improve the prevention and management of cardiovascular disease in the local population	9. To improve productivity and quality of services using the principles of prudency and opportunities to innovate
5. To increase survival rates for cancer through the earlier diagnosis, faster access to treatment, and improved survivorship programmes	10. To deliver, as a minimum requirement, Outcome and Delivery Framework Targets and return the organisation to a sound financial footing
6. To improve the management of patients with diabetes, reducing acute exacerbations and long term health and wellness increasing	

These last two objectives encompass ten sub-programmes that will form the basis of a programme of change that reflects the principles of Quality, Innovation, Productivity, and Prudent healthcare;

- Referral management
- Acute care productivity and efficiency
- Medicines optimisation
- Learning disability – shifts to community settings
- Unscheduled care – improved flow
- Waiting lists management
- Patient care focus for clinicians
- Improved workforce planning to match forecasted demand
- Continuing healthcare
- Improved procurement.

The Health Board will seek to increasingly influence the national programme, particularly through strengthening the clinical user voice in the development and deployment of information systems and technologies, both in the current and future generations.

3. Vision

This strategy is based on an initial vision for IM&T in the Health Board that takes account of the current position and future potential of IM&T in the organisation and the national strategy and IM&T programme in Wales

The diagram below illustrates the functions at a patient, profession and organisation level, and the interaction between them is at the heart of the Health Board's Vision.
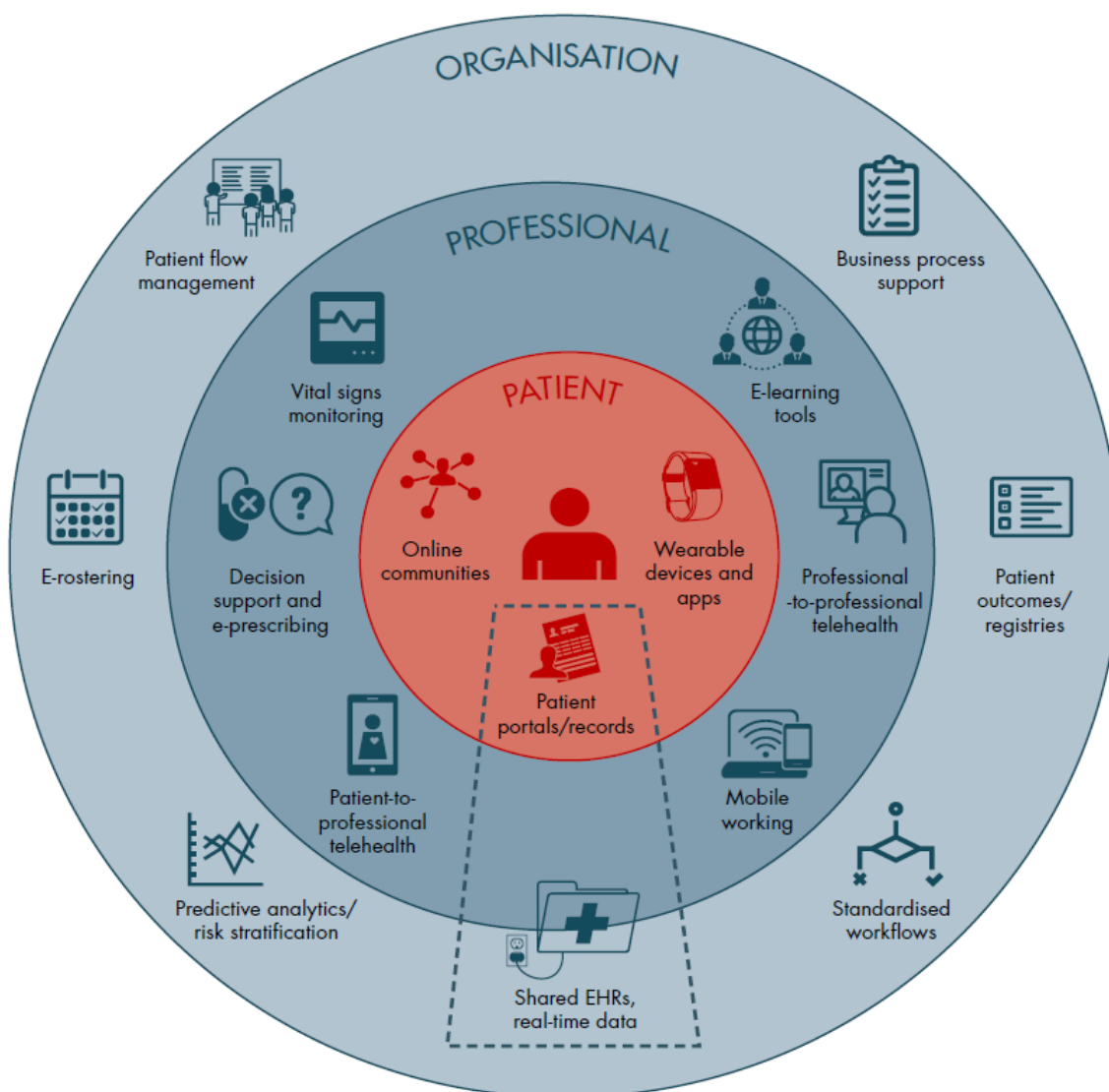
Nuffield 2016

The above framework outlines the future development of the strategy in that we will allow for the a greater level of dialogue across the organisation of how the IM&T Strategy can be shaped as a key enabler to the delivery of the emerging Clinical Strategy. Also how IM&T will need to support the organisation with the delivery of IMTP Programmes, particularly high priority programmes delivered through the proposed Programme Management Office.

3.1 Five key areas of Opportunity

In initiating the dialogue within the organisation we can set out 5 areas of opportunity for the Health Board

Key Opportunity		Examples
1. **More systematic, high-quality care**	Improve the use of clinical information to support decision making, to deliver high-quality care.	The implementation of MTeD (Medicines Transcription and eDischarge) will improve clinical decision making. *– Pilot already underway, further roll out 2016-18*
2. **More proactive and targeted care**	Use real-time patient monitoring to deliver more proactive and targeted care, reducing costs and improving outcomes.	Bed side observations, electronic patient flow systems *– Pilot already underway, further roll out following an assessment of the pilot. If approved implementation 2016-19*
3. **Better coordinated care**	Reduce the cost and harm that come from poor communication and fragmented care by developing information technology systems to integrate and coordinate care.	Improved use of WCCG (Welsh Clinical Communications Gateway) and advice emails between Primary and Secondary Care *– Anticipated during 2016/17* GP Test requesting improving the quality of the test request, and the results going directly back to the GP system. *– Completion date Dec 2016* Welsh Community Care Information Solution (WCCIS). The integration of Primary / Secondary / Mental Health and Adult / child service through WCCIS. *– No date agreed. Ceredigion LA going live in July 2016, discussions underway with all parties (Local Authority / Health Board) to bring forward the proposed date of 2018*
4. **Improved resource management**	Improved resource management to plan staff rosters and patient flow, match capacity to demand and improve scheduling.	Outpatient Modernisation, Service level reporting, improved budget management, eRostering, etc *– Work to begin during 2016/17, however this will span a number of years.*
5. **Improved access to specialist expertise**	Use telehealth to reduce costly referrals, avoid admissions and unnecessary appointments, and improve the ability of professionals to get things right first time by providing access to specialist expertise and advice easily and in real time.	Extending the use of telehealth and Skype within the Health Board *– Anticipated during 2016/17* Improvements in direct diagnostics (Pathology / Radiology) removing the need for possible duplication of tests *– Work to begin during 2016/17*

Strategically the above will need to be supported by

1. Culture change and new ways of working to connect, adopt and deliver change
2. User-centred design to shift the focus from delivery of national systems to the needs and requirements of patients and professional users
3. Support interoperability both within Hywel Dda and across organisational and geographical borders through shared planning
4. Strong information governance

Operationally the above will be supported by embracing the following as key enablers of the strategy delivery;

3.2 Transformation and Culture Change

Transformation comes from new ways of working, not the technology itself. A transformation programme supported by technology is needed.

How – Using the QIPP process to drive change in working practices which in turn utilises technology as the enabler.

How – Improvements in engagement with clinicians (Drs / Nurses / Therapists) as well as patients.

How – The IM&T Strategic Outline Programme (SOP)

3.3 Investment in analytics

Improving productivity requires extensive redesign of work processes, the use of predictive models to reduce variation, allocate resources, and anticipate demand. None of this is achievable without analytical tools available to clinicians in real time and sophisticated support for planning, performance management and improvement.

How – Investment within the Information analytical function

3.4 Strong information governance

Data sharing requires strong data governance and security, particularly in the face of a growing threat from cyber-attacks. Action is required at national and local levels to help us hold and share data safely, and also to enable citizens to own and share information if they choose to.

How – Improved Information Governance presence, use of such tools like WIIAS (Welsh Intelligent Integrated Audit Solution).

How – Using Information Governance to drive clinical change and behaviours

How – Adoption of the latest Information Governance Toolkit, ISO 27001 etc in order to embed best practice

The vision therefore outlined in this chapter is designed to give the overall sense of direction, but also recognises that any IM&T strategy needs to be dynamic and agile to respond to the rapidly changing clinical and technological environment.

Benefits
Patient: Professional: Organisational

Connect, Adopt, Deliver

Joint Planning

Patient Experience and Communication

Integration and Modernisation

Flow and Productivity

Governance

Enabling Infrastructure Investment
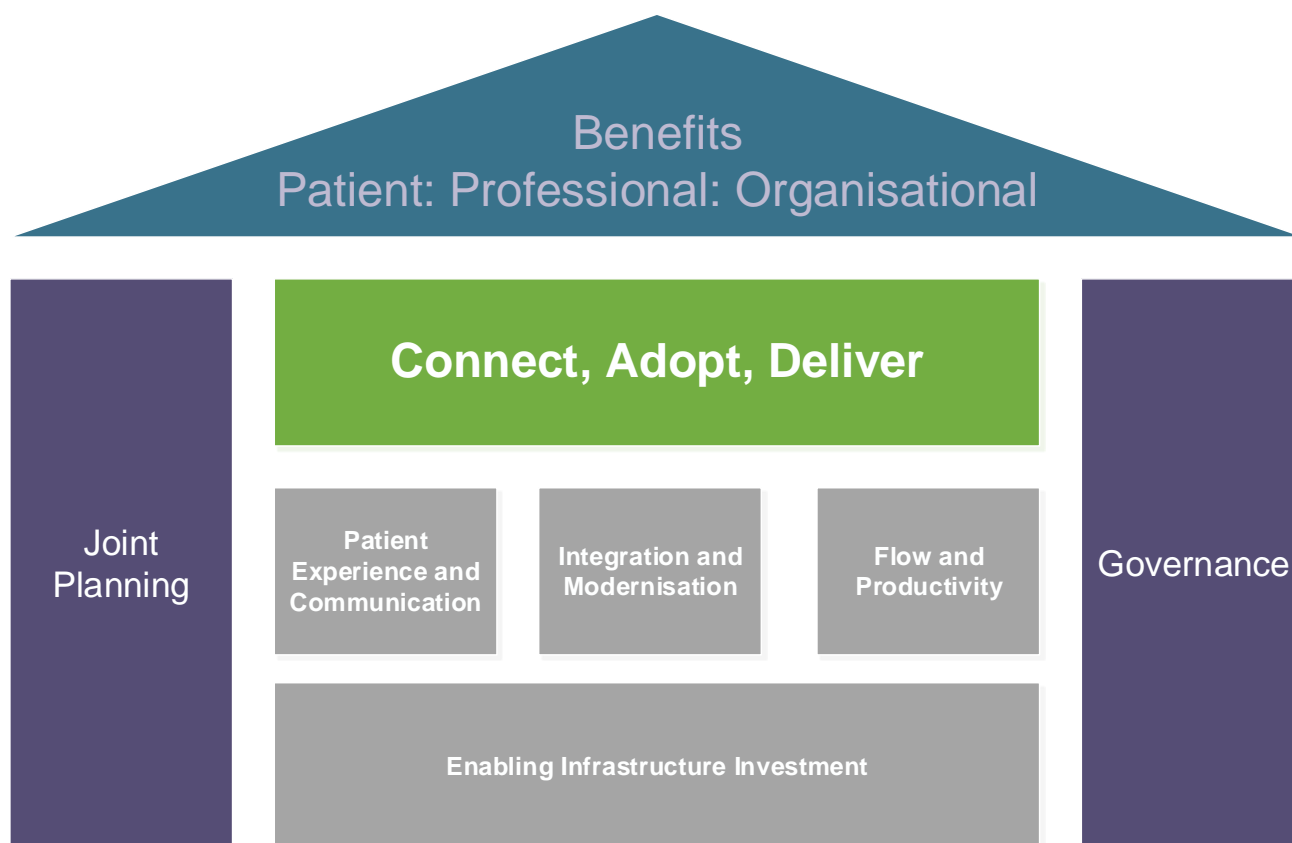
The scenarios below are designed to help illustrate what this vision might mean in practice.

Scenario	How the Digital IM&T Strategy will make improvements
Young Child	
Seven year old Tom injured his arm in a game of football and was in pain. His mother 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 Tom's pain. When Tom was discharged, an electronic discharge summary was sent to his regular GP with information about when Tom was admitted and discharged, the nature and treatment of the injury, and the recommended follow-up. A text was sent to Tom and his parents about caring for his cast, and what to do if there were problems. Tom'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 Tom. This meant that Tom 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 ED system across the organisation which will improve patient flow through the emergency department *(Available Year 2 – 2017/18 of the NWIS IMTP)* MTeD (Medicines Transcribing and e-Discharge) Outpatient Modernisation – will improve the flow of the discharge summary back to the GP in the timely fashion *(Currently Available – pilot underway in 3 sites, with further rollout during 2016/17)* Patient Communications – improvements with the way in which the Health Board will communicate with patients. *(Available Year 1 – & 2 of the NWIS IMTP)* 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 2016/17 of the NWIS IMTP, with all Wales implementation in Year 2 &3)*

Scenario	How the Digital IM&T Strategy will make improvements
	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 business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)*

Chronic Disease

Scenario	How the Digital IM&T Strategy will make improvements
Mrs Jones is a 68 year old lady who has been newly diagnosed with a chronic illness. Her GP determines that she would benefit from attending sessions with allied health professionals and take part in an education programme to assist her manage her condition. Her GP uses an electronic care planning system which assists in development of a team care plan tailored to her specific needs. Through this plan he is able to electronically refer Mrs Jones to each of the appropriate services, including a referral to a hospital specialist for assessment. When Mrs Jones' arrives for her appointments she is not required to repeat her basic information, or medical history as her most recent test results are immediately available. Each care provider has been able to update her information electronically, and can view the most recent position on Mrs Jones' care. Mrs Jones is also able to electronically view her medical record held by her GP. For some of Mrs Jones future appointments, she will be able to attend a virtual clinic, conducted through video-conferencing supported by the specialist nurse at her GP practice, as the consultant has access to her latest information.	Welsh Community Care Information Solution (WCCIS) – will be integral to ensuring that health and social care professionals can communicate effectively about patients. *(Available Year 1 – 2016/17 of the NWIS IMTP, No date agreed. Ceredigion LA going live in July 2016, discussions underway with all parties (Local Authority / Health Board) to bring forward the proposed date of 2018)* Outpatient Modernisation - Provide patients with electronic interfaces with the OPD service to include appointment booking and reminders and provide information and general communications. *(The business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* Patient Communications – improvements with the way in which the Health Board will communicate with patients. *(Available Year 1 – & 2 of the NWIS IMTP)* 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) *(Available Year 1 –& 2 of the NWIS IMTP)* 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 business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* Community Technology Project (inc Telehealth) *(Improvements in the availability of Telehealth within the Health Board will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* Virtual Clinics via Skype / MS Lync *(Available Year 2 – 2017/18 of the NWIS IMTP)*

Scenario	How the Digital IM&T Strategy will make improvements
	Home monitoring *(Available Year 2 – 2017/18 of the NWIS IMTP)*

Communication

Scenario	How the Digital IM&T Strategy will make improvements
Mr Williams lives at home and receives regular home visits from different members of the Community Resource Team, including social care. Mr Williams wears an alarm system around his neck, that in an emergency he can press. This alerts his family and neighbours direct, via text message, that he is requesting help. His home is also equipped with sensors that can alert his family of out of the ordinary changes in his circumstances. All of the professionals involved in his care update his care record through the Community Care Information System, and every member of the team is alerted to any changes in his care. When his GP changes his medication, this is communicated to the team when they next view his electronic record. When Mr Williams decides to go to stay with relatives for Christmas he first tells the District Nurse who is able to electronically suspend his home care package on her tablet so that Mr Williams does not need to remember to tell everyone who visits him. She also agrees with him a date for it to re-start. If he needs care while staying with relatives, the local team will be able to access to his medical history. Mr Williams became particularly unwell on one occasion, and his family took him to hospital. The hospital team were able to see his clinical history, current care arrangements, and what medicines were prescribed. They were able to electronically alert the community team that Mr Williams had been admitted to hospital.	Welsh Community Care Information Solution (WCCIS) – will be integral to ensuring that health and social care professionals can communicate effectively about patients. *(Available Year 1 – 2016/17 of the NWIS IMTP, No date agreed. Ceredigion LA going live in July 2016, discussions underway with all parties (Local Authority / Health Board) to bring forward the proposed date of 2018)* Home monitoring *(Available Year 2 – 2017/18 of the NWIS IMTP)* 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 business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* Welsh Summary Care Record (Individual Health Record) *(Available Year 1 –& 2 of the NWIS IMTP)*

Age Care

Scenario	How the Digital IM&T Strategy will make improvements
Mrs Bradley's sight has been deteriorating for a number of years, and she now finds it difficult to read anything but the largest text. Mrs Bradley now receives all of her communication about her GP and hospital appointments via text and e-mail. An app on her tablet is able to read these documents aloud to her. Through her tablet she can add appointments to her electronic diary that speaks to her to remind her when she needs to attend. She uses an app that reads her electronic communication aloud to her in her first language which is Welsh. Mrs Bradley sees her optometrist regularly to check the condition of her sight. If she is sufficiently concerned the optometrist is able to make an immediate electronic referral to the Ophthalmology team at the hospital for Mrs Bradley. Because of her failing sight Mrs Bradley sometimes feels a bit down. Each day she records her mood on an app on her tablet that her GP told her about. This helps her track her mood, and if she feels low for an extended period she is able to recognise	Outpatient Modernisation - Provide patients with electronic interfaces with the OPD service to include appointment booking and reminders and provide information and general communications. *(The business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* Patient Communications – improvements with the way in which the Health Board will communicate with patients. *(Available Year 1 – & 2 of the NWIS IMTP)*

Scenario	How the Digital IM&T Strategy will make improvements
this and has been told to then contact the primary care mental health worker at the GP practice for advice and help. On one occasion she was able to access an on-line Cognitive Behavioural Therapy course	
Inpatient	
Mr Raynor was admitted to Bronglais Hospital as an emergency. He is 82 and has a number of chronic conditions, which he generally manages at home. When he was admitted the emergency team were able to access to most recent medical record and list of medications from the Individual Health Record. His full hospital medical history was also available electronically as it had been scanned and linked to his records through his NHS number. Mr Raynor is being closely monitored while he is in hospital as his poor health has meant that his The readings taken by a number of pieces of equipment on the ward are able to automatically update his electronic patient record through a blue tooth connection. So when his 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 him are able to see at a glance, including at the bedside through the use of tablet devices.	Welsh Summary Care Record (Individual Health Record) *(Available Year 1 –& 2 of the NWIS IMTP)* 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 business case will be developed during 2017/18 in line with the Hywel Dda Strategic Outline Programme)* National Health Records Repository (Welsh Care Record Service) 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 *(The business case will be developed during 2016/17 in line with the Hywel Dda Strategic Outline Programme)* Electronic Observation - facilitate robust and effective management of hospital at night priorities, and to provide electronic observation recording and management. *(The business case will be developed during 2016/17 in line with the Hywel Dda Strategic Outline Programme)* Provide better information through the use of digital dashboards *(The business case will be developed during 2016/17 in line with the Hywel Dda Strategic Outline Programme))* Enhanced quality performance and benchmarking, computer-assisted coding, real time clinical analysis *(The business case will be developed during 2016/17 in line with the Hywel Dda Strategic Outline Programme)*

4. Clinical & Patients Benefits

There are a suite of clinical and patient benefits that will be realised over a number of years, and cannot always be directly attributed to individual schemes or projects. Benefits tracking and realisation are crucial to determining return on investment in IM&T so a suite of benefits are identified here to be applied to the strategy as a whole.

4.1 Patients

- Empowering patients to better manage their own health
- As real time information becomes more accessible to clinicians, patients will benefit in the quality and timeliness of their care.
- Increase inpatient safety through patient access to the electronic record.
- Improved information available to patients regarding the status of a referral through the electronic referral process.
- Providing patients with better visibility of the location of care providers and services offered

4.2 Professionals

- Promote and facilitate better clinical judgement, allowing comparisons to be made between present care and past history in real time.
- Ability to automatically monitor individual care plans and health status
- Access to better quality datasets of treatment effectiveness
- Access to decision support tools and up to date patient information and knowledge sources at the point of care
- Improvements in data quality will give confidence to clinicians to interpret data both for clinical practice and performance management of services
- Increase in-patient safety through access to the electronic record.
- Cut delays in treatment and decision to treat which involve old technologies
- Improvement of electronic correspondence will enable greater sharing capabilities for patients and clinicians alike.
- Allowing professionals to readily know who and where other providers are located and facilitate referrals and timely access to care
- Providing rural, remote and disadvantaged communities with better access to a range of healthcare services through telehealth technologies

4.3 Organisation

- Supporting healthcare managers with access to quality data to inform service and workforce planning
- Encouraging optimisation of time, allowing clinical time to be used efficiently.
- Mobile working will increase capacity to treat patients outside traditional settings.
- Opportunity to go 'paper light'.
- Reduce the number of medically avoidable adverse events
- Provide access to timely and comprehensive data to enable the more effective surveillance and management of public health.
- Reduce the time patients and professionals spend manually booking appointments, ordering treatments, and repeating and sharing information across the health and social care sector
- Reduce the time and cost spent undertaking unnecessary or duplicated treatment activities such as diagnostic tests

- Reduce the time and cost spent addressing avoidable medical errors or avoidable degradation of chronic conditions
- Reduce the amount of required travel to / from rural and remote communities
- Enable healthcare managers to more effectively identify and address system inefficiencies.

4.4 Approach to Benefits Management

The purpose behind any benefits management methodology is to identify, quantify, prioritise and manage business benefits from the change programmes and projects. In essence it is the choosing the right thing to do, for the right reasons and them doing them.

As Hywel Dda is entering into a large strategic change programme for IM&T, we will look to ensure that all investments, programmes and projects are required to map their outcomes and benefits to a consistent set of strategic benefits that are;

- Clearly and succinctly defined
- Embrace the scope of "Once for Wales", link to the NWIS IMTP, and Hywel Dda's IMTP
- Focused on patient, clinician and service benefits

The following table illustrates six strategic benefits that Hywel Dda will adopt for the IM&T programme, along with some generic types of outcomes;

Hywel Dda Strategic Benefits	Examples of types of outcomes and benefits
Patient Safety increased	Increased timeliness and availability of relevant clinical information decreased transcription errors and decreases risk to patients' safety
Positive patient outcomes increased	Easy access to relevant clinical information increases speed and relevance of diagnosis, care, treatment plan and onward referral
Patient confidence increased	The availability and targeting of accurate and relevant information at the patients point of contact
Legal compliance maintained	Requirement to comply with policy, legislation and standards
Healthcare system efficiency increased	Processes are faster, or wasteful processes can be decreased or eliminated to improve productivity
Overall healthcare system costs decreased	IM&T improvements eliminate wasteful processes and reduce expenditure

Along with the strategic benefits above, a number of principles will be utilised across the strategic outline programme;

- Principle 1 – Benefits are realised over time
- Principle 2 – Constraints will impact the realisation of the benefit, and these should be made available upfront
- Principle 3 – Benefit measures are crucial for measuring progress

- Principle 4 – Outcomes support benefits
- Principle 5 – Benefits management should be integrated within programme and project management
- Principle 6 – All members of the programme or project are responsible for the realisation of the benefits

4.5 Realisation Benefits Methodology

In order to ensure that benefits are collected during the strategic outline programme and projects the following benefits activities will be utilised;
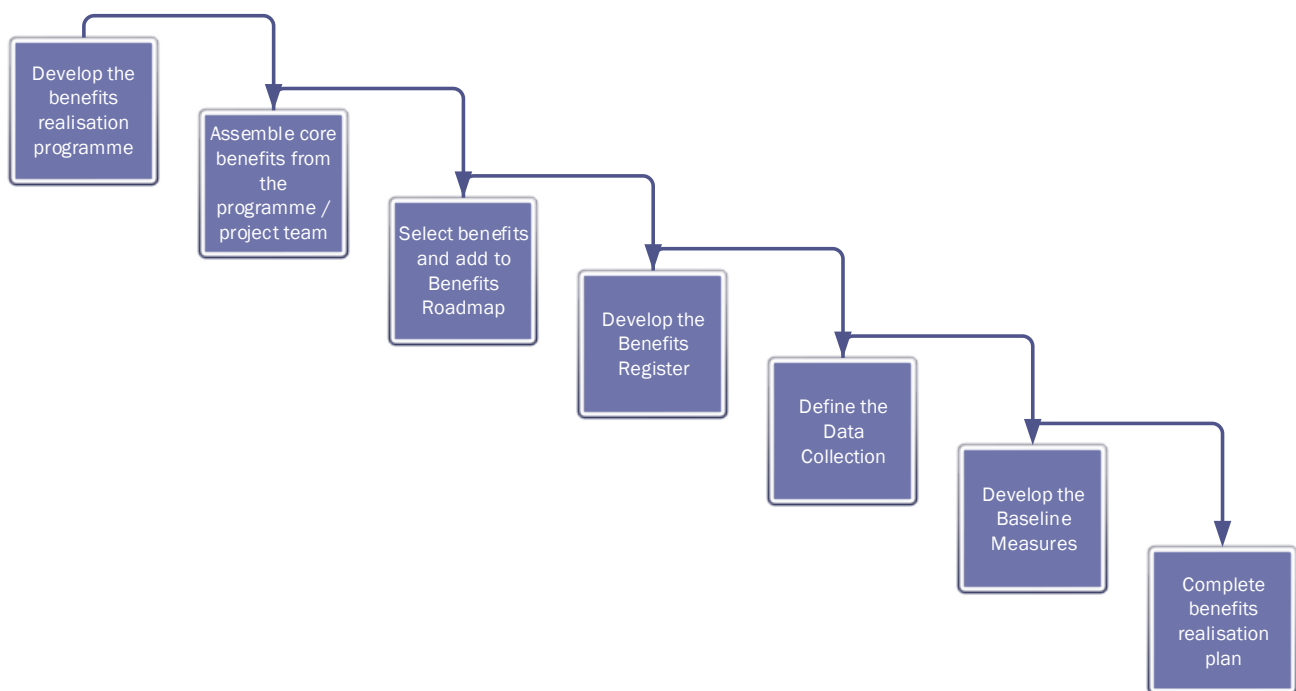
The diagram above emphasis the need to ensure that benefits are recorded throughout the programme. This also includes the ongoing collection of data to ensure that benefits can be measured against the baseline. Having created and updated the benefits realisation plan throughout the project we will look to review it at agreed points once it has been completed. This will then allow the IM&T Steering Group decide whether the changes made are still delivering the original desired benefits. If not, then corrective action will be considered.

5. Strategy for Delivery

As we have explored the delivery of a strategic and tactical approach to IM&T in the Health Board that delivers real benefits, which will require much more than the simple delivery of new systems, and involve stakeholders both within and outside the Health Board, much wider than the resource dedicated to IM&T. This chapter provides more detail on each of the components of the strategy and the direction of travel that is required.

5.1 Connect, Adopt and Deliver

Where IM&T strategies have been successfully implemented it has typically been led by healthcare professionals, clinicians, therapists, and nurses. In the majority of cases, however, there has been a tendency to focus on the implementation of the system itself and a significant underestimation of the effort required to engage with professionals in their adoption. This is particularly evident in primary care, where the primary driver for successful implementation of systems has been business process and delivery, and payment systems. Based on this experience, there is a need to fully engage with healthcare professionals at the earliest opportunity, both at local and national levels.

5.1.1   Strengthening Clinical Leadership

During 2016/17 along with the Medical Director a new clinical leadership model for IM&T will be developed that is able to ensure a two way dialogue between clinicians and IM&T professionals to enable a co-designed approach to the development of IM&T, meeting the needs of clinical users, and recognising the new opportunities afforded by national systems and limitations of current infrastructure and resources. There is a need for a shift for clinicians to become advocates and champions for the development of IM&T to support innovative modern clinical practice. Each Clinical Directorate will be required to consider their modernisation plans in the light of existing and new systems and functionalities that are being implemented nationally and across the Health Board. For example how will video-conferencing be integrated into the outpatient pathways to reduce travel by both staff and patients. Hywel Dda will look to adopt the chief clinical information officer (CCIO) ethos. The CCIO represents the interests of all clinical staff groups on IM&T projects. At the simplest level, the CCIO will provide clinical leadership and input on IM&T projects. Their presence will ensure that informatics and IT projects are designed with users firmly in mind.

Clinical leaders will also be able to identify local barriers to uptake of systems to enable the organisation to develop a programme, with NWIS where appropriate, to design these barriers out of the system.

5.1.2   Space for Innovation

The Health Board will develop both the physical and intellectual space to enable the rapid testing and adoption of technology. A physical space for innovation will be created on a single ward as a test bed to connect existing technologies in use that have the ability to communicate with each other. A ward based 'internet of things' will connect ward based monitoring equipment, and other technologies and provide the test bed from which, through continuous evaluation, technology can be rolled out to all clinical areas. These are frequently already tested solutions from other health systems, and the purpose for piloting will be to understand the implementation challenges for Hywel Dda specifically.

As part of the strengthening of the clinical leadership the second element of innovation will be to establish a Technology Innovation Forum. Many clinicians have ideas for the development or adoption of new technologies. The forum will set simple ground rules for innovation such as

ensuring compatibility / interoperability with current systems and meeting standards for information governance and data quality. The purpose of the forum will be to enable, rather than stifle, innovation for example in developing new applications or adopting applications that have been proven elsewhere. The Health Board will encourage this through a fast track process that enables people to "just do it" including "fail fast" methodology.

5.1.3 Communications

One of the barriers to adoption of technology in the Health Board is the limited communication of the national and local vision for IM&T. Often people are not aware of the full picture of the technologies that being implemented, and the potential they hold for the future. During 2016/17 a structured communication plan will be developed and will be a key aspect of delivery of this strategy to raise awareness of the future role of technology in the organisation.

5.1.4 Training and Support

A training and support plan will also be developed in 2016/17 through Workforce and Organisation and Development in support of technology adoption – this will need to range from key skills in using technology in the workplace that may be a barrier to adoption, to specialist skills required to development and implementation.

5.2 Patient Experience and Communication

There is enormous potential to build the level of communication that takes place between the patients and the healthcare system through digital means, providing patients with more rapid access to services, and aiding efficiency within the organisation. Patients will be able to add to their information and their records, feeding in details they may have gathered from digital apps and wearable devices where appropriate, to play an active part in developing and improving the quality of the information held about them. We will routinely use information gathered by patients from trusted information sources, digital apps, wearable devices and other online resources as patients will be well informed and active participants in their care, able to make informed decisions and lifestyle choices to maintain their wellbeing. Although the Health Board is committed to this direction of travel, the rurality of Hywel Dda means that improvements in ensuring patients are integrated in their own healthcare will prove challenging due to mobile phone coverage, limited access to fast consumer broadband.

As part of the patient experience and communications agenda, Hywel Dda staff, patients and the organisation will, over the next 3 years, be able to:

- Connect online with health and care services in the same way that they can with other aspects of their life. They will be able to book appointments online, order repeat prescriptions and expect to be able to use the internet, email and video conferencing to connect with clinicians and care professionals in a way that suits them, reducing cost and potential delays. *– During 2016/17 as per the NWIS IMTP they will be developing this functionality within My Health Online*
- Use digitally-enabled services routinely to monitor long term conditions and daily tasks to support independent living for those individuals and families where this is required. *– During 2018/19 as per the NWIS IMTP they will be developing this functionality*
- Be skilled to work well within a digitally-enabled environment.
- Deliver IT systems that focus on quality and safety – "do no harm".

5.3 Integration and Modernisation

A single Electronic Patient Record (EPR) is the ultimate goal of many NHS organisations, and there is also a desire in Wales that this record is also compatible for social care systems, and will operate across organisational boundaries in the NHS. Considerable progress has been made through a national incremental approach to systems development to enable these compatibility and connectivity, and the ability for staff to gain secure access, though many challenges remain.

The basic concept of the electronic patient record is to make medical records easier to share and integrate across multiple sites. The electronic patient record encompasses the full range of capabilities and information of a patient record. The following table illustrates the core elements of an EPR and the national systems that will in turn link to provide this ultimate functionality;

Core Elements of an EPR	National System
Patient demographics	These will be provided by the Enterprise Master Patient Index (EMPI). The Master Patient Index (MPI) is a system that makes it easier to ensure patients are correctly identified and minimises the number of duplicate health records held for each patient. It will reduce the number of patient search results returned for clinicians using the Welsh Clinical Portal and ensure the correct patient is identified.
Progress notes / Handover Notes	Included within the paper record, however progress will be made during 2016/17 to implement the Welsh Care Record Service (WCRS), which will provide a records management system via the Welsh Clinical Portal
Diagnosis, symptoms, and complaints	Available either via the Welsh Clinical Portal or Welsh Patient Administration System (Myrddin (CiS))
Vital signs	Partial. This information is collected upon the Critical Care System, however, most vital signs information is still in paper form, but Hywel Dda is investing in an electronic bed side observations which will enable integration with Welsh PAS and Welsh Clinical Portal
Prescriptions, medications and immunizations	MTeD (Medical Transcriptions and e-Discharge) system, currently being rolled out and an electronic prescribing system. An all Wales business case is under development as part of the NWIS IMTP 2016/17, with proposed implementation 2017-19
Medical History	Included within the paper record
Laboratory and radiology reports	Available via the Welsh Laboratory Information Management System (WLIMS), the Welsh Imaging Archive Service (WIAS) and the Welsh Radiology Information System (WRIS). All of these systems with be available within the Welsh Clinical Portal.
Scheduling and appointments	Available via the Welsh PAS
Procedure and office visit level coding	Available via the Welsh PAS

As you are able to see from the table above NHS Wales has made a strategic decision to develop and adopt a number of systems which have the ability to interact with each other giving the effect of an EPR. Having an up-to-date Electronic Patient Record will greatly enhance the care patients receive every time they have treatment at the hospital, with benefits including:

- All hospital staff who are directly involved within the treatment of patients will be able to share important information quickly, such as test results and diagnoses, giving an accurate picture of the patient medical health history.

- By having quicker access to records, including any prescriptions or allergies, hospital staff will be able to provide more effective care.

An essential element of EPR is the need to have the medical history which is currently paper based. We will consider the scanning of paper records where there are clear benefits in doing so and when this will not compromise the direction of travel to a truly electronic patient record. Notwithstanding the need to supply a solution for the historic medical notes, we wish to capture information electronically at the point of care delivery, in a structured format, so that it can be used to provide a common information base and integrated records, use information and electronic care records to collaborate fully with healthcare colleagues and use technology routinely in all care settings to support staff to do their jobs effectively, with online decision support, electronic records and automated ways of working.

As part of the integration and modernisation agenda, Hywel Dda staff, patients and the organisation will, over the next 3 years, be able to:
- Be able to capture information electronically at the point of care delivery, in a structured format, so that it can be used to provide a common information base and integrated records.
- Use information and electronic care records to collaborate fully with healthcare colleagues.
- Use technology routinely in all care settings to support them to do their jobs effectively, with online decision support, electronic records and automated ways of working such as the Welsh Clinical Portal, and the GP Health Record, to focus on improving quality, safety and reducing risk.
- Use data and information to understand the outcomes they are achieving, to support research and carry out audit, learn from incidents and drive improvements in performance.

5.4 Flow and Productivity
As part of the flow and productivity agenda, Hywel Dda staff, patients and the organisation will, use data and information to understand the outcomes they are achieving, to support research and carry out audit, learn from incidents and drive improvements in performance and focus on making better use of the national data sources and local information we have available to provide service intelligence capacity and capability to support informed decision making and improve service planning, population health, research and development.

In greater detail, Hywel Dda staff, patients and the organisation will, over the next 3 years, be able to:
- View their information through online access to their records, supporting them to make better decisions about their health and care and take more control of their wellbeing, in line with principles of Prudent Healthcare and sustainable social services.
- Add to their information and their records, feeding in details they may have gathered from digital apps and wearable devices where appropriate, to play an active part in developing and improving the quality of the information held about them and their health and wellbeing.
- Routinely use trusted information sources, digital apps, wearable devices and other online resources to be well informed and active participants in their care, able to make informed decisions and lifestyle choices to maintain their wellbeing.
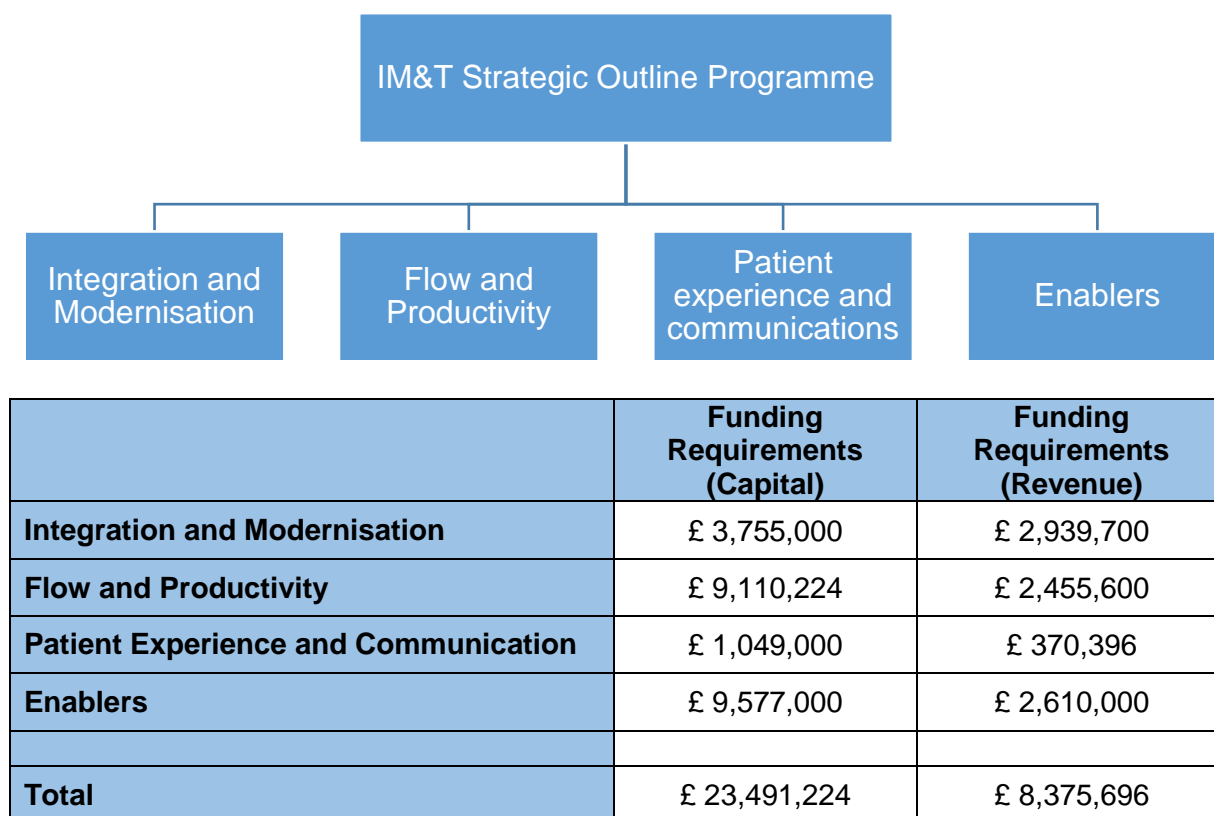
5.5 Investment in a resilient IT Infrastructure
The Health Board currently spends between 0.9% - 1.1% of its budget on IM&T, when compared to industry this is a low percentage, reflected in the relative lack of pace in adoption of IT. There is

also a considerable backlog in investment that is demonstrated by the lack of resilience in the IT infrastructure and ageing end user terminals.

As identified in the strategy the Health Board is faced with very significant risk in resourcing it's infrastructure on a sustainable basis. The infrastructure has seen a significant increase in recent years with no increase in support resources and no planned replacement programme. This places the Health Board at severe risk, as highlighted on the IM&T Risk Register, despite the best efforts of the IM&T Department to continually modernise and improve processes. In order to successfully take forward the IM&T Strategic Programme we must first invest in the sustainability of our infrastructure and secondly, in the revenue resource it assigns to IM&T development.

It is recognised that funding is a restrictive barrier for delivery of the IM&T strategy. Work is being undertaken to complete the documentation for the Welsh Government IM&T Strategic Outline Programme (SOP), which will request significant capital from Welsh Government to support the delivery of projects. Capital funding will be used to acquire staffing resources to deliver projects.

To deal with all the current backlog issues and progress with this development work, the Health Board will require around £23.4m of capital and £8.4 of revenue over the next 5 years, which will be the subject of a Strategic Outline Programme. The organigram below illustrates how the proposed programmes will be delivered, and the respective capital and revenue commitments;

	Funding Requirements (Capital)	Funding Requirements (Revenue)
Integration and Modernisation	£ 3,755,000	£ 2,939,700
Flow and Productivity	£ 9,110,224	£ 2,455,600
Patient Experience and Communication	£ 1,049,000	£ 370,396
Enablers	£ 9,577,000	£ 2,610,000
Total	£ 23,491,224	£ 8,375,696

A full breakdown of the schemes and their respective costs can be found in Appendix 1. A pragmatic and innovative approach to stimulating investment in high priority computer systems and tools that can deliver tangible benefits to Hywel Dda consumers, care providers and healthcare managers will be required that at the end of five years will see a 3% spend of revenue on IM&T.

The approach to be taken will need to include:

- Recognising the capacity constraints within the current IM&T infrastructure, the level of capacity required for 'business as usual' and clearly defining developmental capacity
- Clear prioritisation processes for IM&T investment with outcomes that are corporately supported and communicated across the organisation
- Development of business cases for new business, that map out the full costs of implementation, alongside any associated revenue savings
- Working with NWIS to ensure that new developments proposed for implementation are fully prioritised and costed
- Developing a more robust approach to securing capital from both the Discretionary Capital Allocation and the All Wales Capital Programme, for strategic investment, including the submission of a Strategic Outline Programme for Capital Investment to help the shift away from use of end of year finance to more strategic investment in IM&T
- Clear consideration of capital vs revenue based solutions for investment
- Securing business partners for IM&T development from the commercial sector to support specific projects
- Ensuring the IM&T investment requirements are considered in all business cases submitted internally and Welsh Government.
- European Funding

5.6 Governance of the IM&T Strategy

Strengthening the IM&T governance regime will enable effective coordination, oversight and delivery of IM&T activities. There is therefore an implicit requirement to ensure there is effective leadership, coordination and oversight of the national digital health work program ran by NWIS. This section of the strategy focuses on the establishment of appropriate governance structures and mechanisms based on the following principles.

Governance Principle	Description
Clarity of accountability	Ensure clear decision making accountability and provide all stakeholders with clarity regarding their roles and responsibilities
Transparency	Provide widespread visibility of the progress of Hywel Dda IM&T activities
Appropriate stakeholder representation	Provide a forum for representation across all key stakeholder groups. Ensure broad ownership and a balanced approach to the delivery of IM&T
Sustainability	Implement a governance model that will not be unduly impacted by changes to the political or stakeholder environment
Support for activity at multiple levels	Recognise that IM&T governance will need to support initiatives that deliver IM&T capability at differing levels of granularity
Effective leadership and coordination	Effective leadership and coordination of the range of activities that need to occur across all national IM&T work streams
Balance local innovation and national outcomes	Continue to encourage local innovation while ensuring that the development of IM&T solutions supports national IM&T outcomes

The new arrangements will mean that the projects and programmes for IM&T will directly report into the IM&T Steering Group which in turn report to the Executive Team.

The full governance structure is highlighted below;
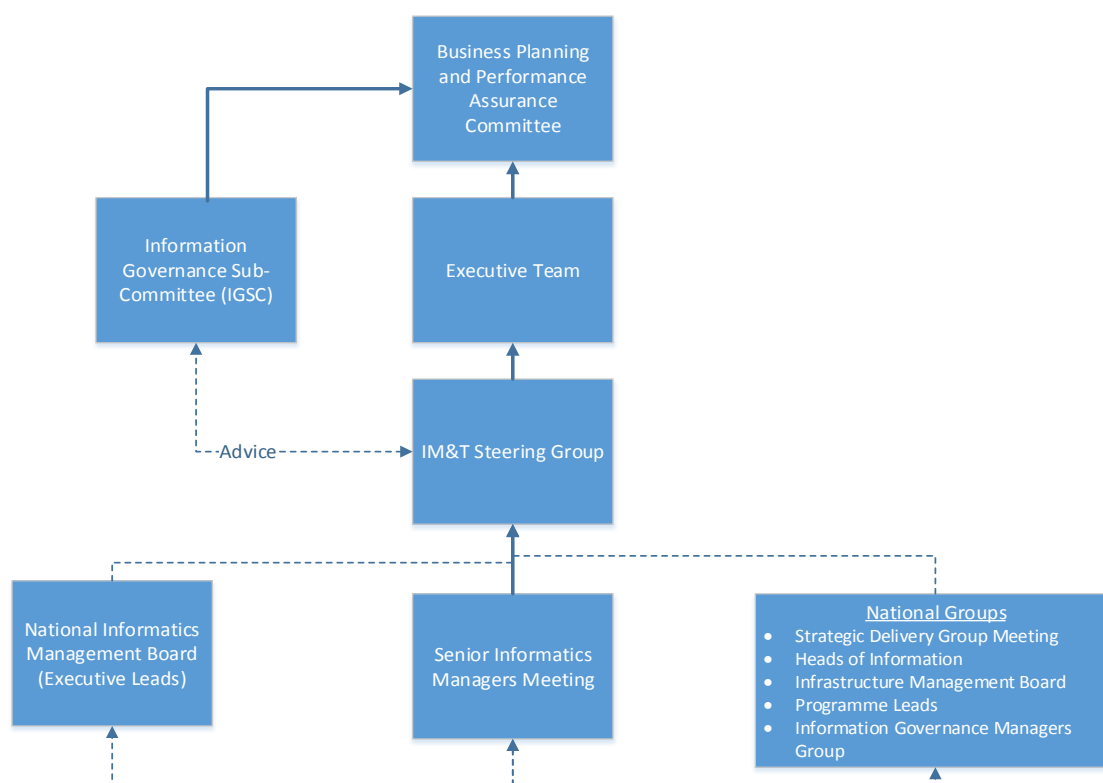
The IM&T resources will be assigned to individual large scale and minor projects, with associated documentation completed at key stages. Regular updates using the agreed highlight report template will be presented and discussed at the Senior IM&T Managers meeting and any exception reporting escalated as necessary.

5.6.1   Mapping of IM&T Resources

The Health Board has a dedicated IM&T function, but also a number of discrete IM&T systems are managed outside of direct management of the IM&T department. This requires review to ensure that resources are used to their best effect and support overall organisational resilience, but also to ensure that where responsibilities may remain in a devolved environment, accountabilities for information governance and data quality are clearly mapped out and allocated.

5.6.2   Implementation of Change Management Procedures

A structured approach to implementing this strategy will be introduced. This will ensure that best management change management procedures are followed across IM&T, particularly high risk projects, so that changes to systems and infrastructure follow a process where the business need, impact, resource requirements, risks and plans are mapped out and that proper approval is sought before any changes are implemented. This will be able to link to the Programme Office structure in the Health Board as it develops to both align to strategic priorities.

5.7 Joint Planning

The Social Services and Well-being (Wales) Act 2014 and The Well-being of Future Generations (Wales) Act 2015 place a statutory responsibility on the NHS and local authorities to plan services

jointly. These planning and partnership mechanisms across the Health and Social Care sector will be used to develop and implement delivery plans to operationalise this strategy taking account of the developing approach to a public sector digital strategy to ensure consistent approaches, standards and interoperability to provide seamless public service delivery.

There will be a requirement for a Digital Health and Social Care (DHSC) delivery plans. The delivery plans will require a consistent, incremental approach which accelerates the benefits of having a national "once for Wales" infrastructure whilst supporting local development and implementation of planned and agreed solutions to allow agile and responsive approaches to digitally-enabled service improvement and workforce change. NHS and local authorities will agree three year rolling local DHSC delivery plans in response to this strategy.

Annual planning guidance issued by Welsh Government to support the integrated planning cycle for health and care organisations in Wales will be updated to reflect the new requirements for local and national DHSC delivery plans in 2016/17.

5.7.1 NHS Wales Informatics Service (NWIS)

The National Wales Informatics Service (NWIS) is taking ownership and responsibility for the procurement or development of all National Information Systems, enabling standardisation on an all Wales basis.   These systems are being delivered through a jointly agreed plan that enables incremental migration from the current local legacy position to deliver the Information services described in the various NHS Wales' Application, Infrastructure, Security and Service Management strategies.   A 'Route Map' for NHS Wales has been jointly developed between NWIS and healthcare organisations in Wales, listing the development and implementation priorities over the next few years.

The NWIS National Strategy includes the development of key systems. Locally, all Health Boards have their own development programmes. These are aligned with and have been agreed within the national Route Map in respect of the national systems.

5.7.2 A Regional Collaboration for Health (ARCH)

A Regional Collaboration for Health (ARCH) will deliver a holistic regional model for health built on the principles of collaboration across Hywel Dda HB, ABMU HB and Swansea University. The core of this model is based upon establishing a relationship with our citizens, working together to develop local values, focused on the health and wellbeing of our communities.

ARCH will develop and implement new service models based on the principle of care being provided closer to home. Expanding access through the development of new infrastructure and redeveloping and redefining the use of existing infrastructure will radically transform patient pathways across the region.   Within this new model our Hospitals will be dedicated to those who are acutely unwell and require specialist care. When required, this will be delivered in environments which are comparable with the best in the world delivering improved patient outcomes within this holistic model, always supporting improved health and enabling care closer to home.

As part of the ARCH programme, there is a need to develop an integrated Digital Health Strategy between all parties which will maximise the benefits of research and development with Health Boards and Swansea University. This document will be used to inform the regional strategy going forward.

6. Implementation Route Map

The Strategy will be delivered through four main routes:

- IM&T Annual Operational Plan. This will deliver those operational services which aid the delivery of this strategy and which are already funded within operational IM&T budgets. Appendix 1 which outlines the proposed ambition of the five year Strategic Outline Programme (SOP) also includes indicative costs.

- IM&T Strategic Projects. These are projects which have been through the IM&T Steering Group and funded by capital allocation and via the SOP.

- Health Board Strategic Projects. Those projects which are essential to the operation of the Health Board which are not solely within the control of IM&T. Typically these will be projects which are approved via the capital planning group.

- National projects driven by NWIS. The Health Board is committed to making sure that it levers the benefits of national projects where possible. Key examples of such projects would be the implementation of the Welsh Clinical Portal (WCP), GP Out of Hours, Individual Health Records (IHR) and Medical Transcribing and e-Discharge (MTeD). A full list of the Projects and proposed implementation dates as per the NWIS IMTP 16/19 are detailed in Appendix 2.

The Strategy is intrinsically linked to the three year Health Board IMTP, although the SOP will be phased over five years due to the capital allocations, key projects will be delivered within the duration of the IMTP. The following table summarises, the Hywel Dda projects that will be delivered during this period;

Strategic Change Programme	Programme of Work	Proposed Implementation Plan												
		2016/17				2017/18				2018/19				2019 - 2021
		Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	Qtr. 1	Qtr. 2	Qtr. 3	Qtr. 4	
Integration and Modernisation	Community Technology Project - inc Telehealth													
	MTeD													
	Community Care Information Solution													
	Implement Clinical Portal to provide patient flow management, single view of patient records and enable electronic ways of working such as ePrescribing, test requesting and electronic observations	Subject to a further business case and benefits realisation												
	Implement Transactional Infrastructure - Portal, Forms, Workflow, Document Management and Intranet Replacement.													
	Outpatients Modernisation													
	Workflow Automation	Subject to a further business case and benefits realisation												
	Provide better information through the use of digital dashboards													
	Electronic prescribing and Medicines Administration	Subject to a further business case and benefits realisation												
Flow and Productivity	Electronic White Boards/ Patient Flow. Wireless & Integrated Communications. Patient Flow management across three major hospital sites	Pilot in 2 sites - Bronglais / Glangwili			Draft Business Case		Implementation within all Wards							
	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													
	Electronic Observations	Pilot in Withybush			Draft Business Case		Implementation within all Wards							
	Roll out of wireless devices to support clinical care													
	Procure and implement a single ED system across the organisation													

Category	Item	Timeline
	National Health Records Repository (Welsh Care Record Service)	
	Patient Feedback System Capturing patient information built on the implementation of surveys and the provision of free Wi-Fi in Hospitals.	
	Research and Development and Innovation	
	Expansion of data warehousing, infrastructure and capacity	
	Enhanced quality performance and benchmarking, computer-assisted coding, real time clinical analysis	
	Improved Clinical Coding timeliness	Subject to a further business case and benefits realisation
Patient Experience & Communication	Sensory Loss	
	Wi-Fi Expansion	
	Switchboard Consolidation	Development of Business Case / Implementation
	Telemedicine	Improvements in Bronglais / Improvements in Withybush / Improvements in peripheral sites
	Bring Your Own Device (BYOD) system to improve access to clinical information, clinical resources and administrative systems. Enabling 1500 devices to access email and web based applications.	
Enablers	Data Centres	Development of Business Case / Implementation
	Infrastructure / Telecommunications Refresh	
	Network Refresh	Development of Business Case / Implementation
	Equipment End User Replacement - Procurement of PCs, Laptops, and Printers	
	Single Sign On & Context Sharing	Pilot in A&E / Draft Business Case
	Implement Microsoft SharePoint - Portal, Forms, Workflow, Document Management and Intranet Replacement.	Subject to a further business case and benefits realisation

7. The NHS in 2030 – IM&T View

Most discussions of the future of the NHS have at most a five–year horizon. They generally begin with a familiar list of challenges. An older population with more long–term illnesses and increasing expectations will be expensive to look after. Healthcare productivity has stagnated and further efficiency savings are hard to find. Drug costs are rising. Public funding for health is under more pressure than ever.

These are all serious challenges for the near future. The NHS has the opportunity to take advantage of two powerful and under–exploited sources of innovation that have the potential to make care better and, under the right circumstances, cheaper. These are the rapidly accelerating pace of digital technology, and the power of social innovation.

In order for Hywel Dda to progress towards 2030 it must focuses on four specific changes. Two developments involve harnessing the power of knowledge to improve care.

1. Improvements in digital technologies to enable the use of personalised medicine.
2. New digital technologies also allow people to track and analyse their own health data, and to share this and other health knowledge with others in ways that will aid prevention and management of long–term illnesses.

Two developments making better use of the power of people.
3. Social innovation is the key to a revolution in how people are involved in their own care and that of others, improving the quality of care.
4. New insights into human behaviour will improve clinical quality and make it easier for people to lead healthy lifestyles.

This is not to say that there will not be other innovations in healthcare in the coming 15 years: medical science will of course advance, new drugs and devices will be developed, and management practices will evolve. Any future strategy for the health service will need to make the most of these too. It will also need to address head–on issues like the relationship between how services are designed and inequalities in the health of the Hywel Dda population. Tackling public health issues like obesity will need sustained engagement with the food and drink industry and new approaches to regulation.

Below is a diagram that provides a glimpse into the new wave of medical technologies starting to become mainstream, which in turn provides a vision of portable digital health in the future.
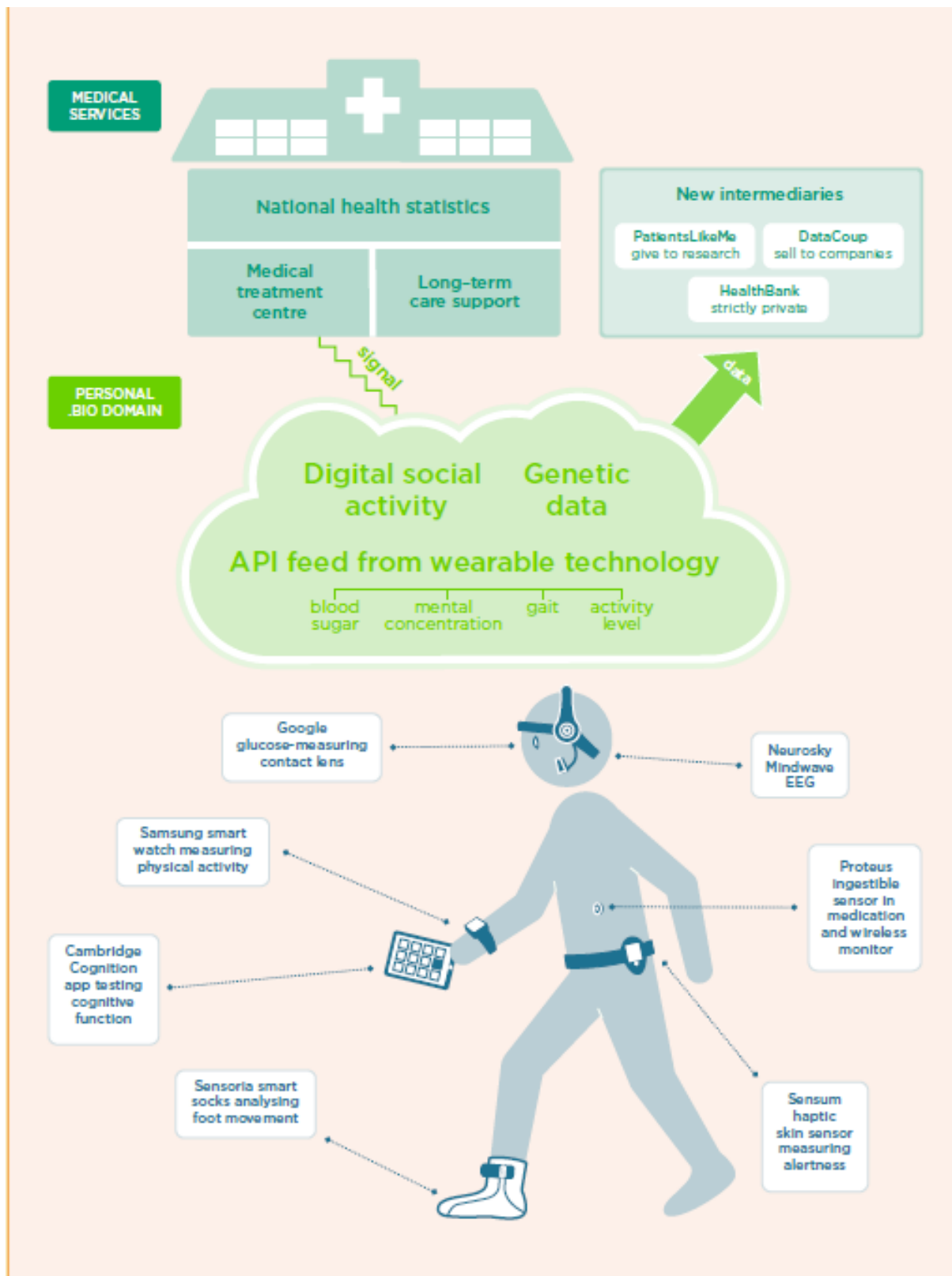
Nesta 2015

In summary, the following will change the face of technology and interoperability with the patient and clinician,

- Wearable Technology

- Google glucose-measuring contact lens
- Smart watches measuring activity
- Smart socks that analyse foot movements
- Skin sensor that measure alertness
- Ingestible sensors that confirms you have taken your medication

- New kinds of consultations
  - Further developments of technology using Skype / Microsoft Lync
  - The above wearable technology
  - Virtual clinicians

- Health knowledge used differently
  - People managing their own health information, personalising their care.

- Mobilised communities
  - The use of social media / blogs by healthcare professionals could improve the experience of care provided to stop people going to hospital reducing the demands on hospital care

8. Information Governance – The future

Every citizen should feel confident that information about their health is securely safeguarded and shared appropriately when that is in their interest. 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, or nurse without fear that the information may be improperly disclosed. These services cannot work effectively without trust and trust depends on 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 strategy'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.

8.1 Information Governance Framework

There is a need to develop the current arrangements for Information Governance into a framework that clearly identifies how Information will be governed across the organisation to include:

- Key organisational roles and associated accountabilities to include Information Champion, CIO, SIRO and Caldicott Guardian
- Board level accountabilities and reporting
- Scope of data owners and associated responsibilities for Data Quality across the organisation, including any required realignment of responsibilities.

In essence Information Governance can be summarised as below;

In the Information Governance Toolkit different types of information are covered: corporate, personal staff, users and patients etc

Data Protection, Privacy and Confidentiality

Freedom of Information and EIR

Information Security

Records and Information Management

Data Quality (Clinical Records and Secondary Uses)

Information Governance Management

Improved Incident Reporting and development of an Information Security Management System

Dilys Jones Associates Ltd - 2016

8.2 Direct care of individuals

When it comes to sharing information, a culture of anxiety permeates the healthcare sector. Managers, who are fearful that their organisations may be fined for breaching data protection laws, are inclined to set unduly restrictive rules for information governance. Front-line professionals, who are fearful of breaking those rules, do not co-operate with each other as much as they would like by sharing information in the interests of patients and service users. There is also a lack of trust between the NHS and local authorities and between public and private providers due to perceived and actual differences in information governance practice. This state of affairs is profoundly unsatisfactory and needs to change.

8.3 Personal data breaches

This strategy along with the revised Information Governance Framework will ensure that there is a standard severity scale for breaches agreed across Health Board. The Board should publish all such data breaches, as part of the Information Governance Annual Report.

8.4 Education and training

Across the healthcare system, most staff are required to undertake annual training in information governance. The commitment to training is important. However, the Health Board and managers must note 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.

8.5 Improved Incident Management

There is a requirement to ensuring that there are effective mechanisms in place for reporting and managing Serious Incidents Requiring Investigation (SIRIs), which in turn are reported to the Board and where applicable to the Information Commissioner Office (ICO).

Each breach or incident should have a lessons learned document which will include any technical and or procedural improvements required to ensure that where possible the situation does not occur again. Where such an incident reoccurs then the link into improved training will become essential.

8.6 Improved Information Security Management System (ISMS)

It is imperative that the Health Board provides assurance that information is secure (personal data and important corporate information), therefore the IM&T Strategy will;

- Provide assurance information is available (and disruption is minimised)
- Provide assurance that information is usable (Accurate and up to date)
- Components of the ISMS include;
  - Information Asset Registers, Data flow maps, risk assessments and reporting processes
  - Continuity plans, resilience statements and recovery processes
  - Information Risk and Forensic Reediness policies, along with a review of all information governance policies

9. Next Steps

The IM&T team, under the guidance of the Director of Finance, Planning & Performance, will:

- Review the IM&T Operational Plan against Hywel Dda Health Board Strategy to ensure full alignment as the foundation for the development of the IM&T Strategy.

- Use the local and national planning process (IMTP) to develop more robust capital plans. The result of this will be a Strategic Outline Programme for IM&T that will be presented to Welsh Government in 2016/17.

- Develop a three-year rolling IM&T plan that links to national plans and ensures that the IMTP is delivered.

- Engage with stakeholders, particularly clinical staff, and service users to understand requirements and the needs for information and technology.

- Agree and align the delivery of local Department of Health & Social Care (DHSC) plans with local plans to ensure that the Community Care Information Solution is delivered during 2017/18.

10. Appendix 1 – Five year Strategic Outline Programme for Hywel Dda

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
Integration and Modernisation	Community Technology Project - inc Telehealth	Provide improvements to community and social care services through the use of technology. The aim of the proposed project is to improve health and social care for older people by: • sharing information in order to better coordinate care and utilise resources more effectively • providing support and active monitoring that allows clients to remain in their own home or care setting and reduce the need for admission to hospital • enabling earlier intervention to support and maintain health and well being • supporting carers to manage clients effectively within existing settings without the need to admit to hospital	Support the implementation of an integrated service model for health & social care - Enables detailed record of community intervention to link to Primary and secondary care events and systems. • Community Information available at hospital admission sites offers alternative care option and facilitates earlier discharge. • Maximising staff time for direct care and removing duplication and travel reduces costs and increases capacity. • Standardised electronic information enables outcome and performance reporting. • Referral to assessment pathway electronically tracked.	£175,000	£28,000	Start Date – 2016/17 End Date – 2020/21
	MTeD	MTeD (Medicines Transcribing and e-Discharge) is an electronic way of recording a list of medications for a patient and adding them to an electronic discharge advice letter (e-DAL). The e-DAL is then sent to the patient's GP as soon as they leave the ward, via the Welsh Clinical Communications Gateway.	Medicines Transcribing (MT) will improve medicines management by allowing hospital pharmacists to transcribe patient medications electronically. This will support the patients from admission to discharge. e-Discharge (eD) will enable clinicians to record a summary about a patients hospital stay. The DAL (Discharge	£450,000	£155,000	Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
			Advice Letter) will then be transmitted electronically to GPs via the Welsh Clinical Communications Gateway (WCCG). MTeD will help to establish a consistency in discharge communication from secondary to primary care			
	Community Care Information Solution	Implementation of the community care solution across Health and Social care.	Health and social care practitioners will be able to make more informed, appropriate and timely decisions regarding patient's treatment and care. The increasing availability of patient / client information will allow practitioners to provide services to a greater proportion of their patients / clients - safely and confidently. A consistent method for creating or viewing data and common administrative processes will increase the overall speed and efficiency of information processing within health and social care services.	£1,500,000	£2,000,000	Start Date – 2016/17 End Date – 2020/21
	Implement Clinical Portal to provide patient flow management, single view of patient records and enable electronic ways of working such as ePrescribing, test	Development, integration and implementation of the National Clinical Portal to provide patient flow management, single view of patient records and enable electronic ways of working such as ePrescribing, test requesting, electronic observations, digital dictation, live ward management across Hywel Dda, and improve	Patient safety – Doctors will have more information when they are treating the patient. This will support decisions and reduce the chance of inappropriate treatment or error. Patient focused care – information from a variety of systems and sources are brought together.	£0	£0	To be confirmed

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
	requesting and electronic observations	discharge summary timeliness and quality.	Increased efficiency - Clinicians working in different hospitals will be able to undertake clinical processes in the same way where ever they work. For example, requesting a blood test for a patient will follow the same online process in all hospitals. Single log-on – clinicians will only need to log on once to access information taken from a number of clinical systems. Positive patient outcomes increased - Easy access to relevant clinical information increases speed and relevance of diagnosis, care treatment planning and onward referral.			
	Implement Transactional Infrastructure - Portal, Forms, Workflow, Document Management and Intranet Replacement.	Enterprise Content Management will form the basis of collecting clinical and administrative data in a structured format enabled by rapid forms development with workflow for assigning tasks or sign off.	A dedicated infrastructure will provide a platform for access to and input of information on mobile devices and fits in with the Health Board's strategy on mobility which will bring huge change to the way we deliver healthcare services. This will also provide collaborative opportunities by using Knowledge gathered through experience and shared through the social platforms in order to improve decision making and reducing chances of committing errors. Uses will include: supporting direct patient care such as the Pre-	Costs included within other Projects	Costs included within other Projects	Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
			Assessment process; and also in non-clinical areas such as human resource workflows.			
	Outpatients Modernisation	Reduce paper-based working by introducing across the HB electronic patient check in services, electronic recording of patient information and outcomes. Develop electronic workflow and clinic views between clinicians and admin support. Provide patients with electronic interfaces with the OPD service to include appointment booking and reminders and provide information and general communications. Investment in equipment in years 2 and 3.	Make doctors start sessions on time. Do not create a pool of patients at the start of the clinic. Ensure that doctors are not disturbed during sessions. Improve appointment/patient scheduling. Educate doctors and others about effective operation of the system. Provide better facilities for waiting patients.	£1,480,000	£400,000	Start Date – 2017/18 End Date – 2019/20
	Workflow Automation	Development of linked processes, push data updating and intermediary applications to iteratively improve the workflows across the whole health sector use of automation software to codify manual transactions and support using virtual 'robots'		Costs included within other Projects	Costs included within other Projects	Start Date – 2017/18 End Date – 2019/20
	Provide better information through the use of digital dashboards	Development of digital Dashboards to support automated information delivery for Patient Flow, Unscheduled Care, Planned Care, Maternity Services, Theatres, etc.	The benefits of a digital dashboard custom built for the Health Board can provide a live stream of information to top level personnel. A dashboard will allow end users to work with complex data relationships and monitor key performance indicators even if they are not trained data analysts. Immediate, critical awareness of essential company information gives a distinct edge in the	£150,000	£356,700	Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
			decision making and management process. All of the data that goes into a digital dashboard is already available through other tools and reports. The advantage of using a Digital Dashboard is that even immensely complex information collected across multiple sources can be evaluated and digested quickly.			
	Electronic prescribing and Medicines Administration	Implementation of Electronic Prescribing and Medicines Administration (EPMA) across Hywel Dda. EMPA replaces the current paper prescription and administration record chart normally completed for every in-patient, as well as discharge and outpatient prescription forms.	Strategic reasons for undertaking an EPMA implementation are mostly around patient safety: • Improving the quality of prescribing and medicines administration processes and records. • Reducing some of the risks associated with prescribing and medicines administration process • Reducing the occurrence of adverse events associated with prescribing and medicines administration.	£0 Costs of National Programme not available	£0 Costs of National Programme not available	Start Date – 2019/20 End Date – 2020/21
Flow and Productivity	Electronic White Boards/ Patient Flow Wireless & Integrated Communications. Patient Flow management across three major hospital sites	Procurement and implementation of patient observation & flow management solution, to facilitate robust and effective management of hospital at night priorities, and to provide electronic observation recording and management. It is recognised that patients flow through different settings within the	The electronic boards are "a bed management solution; its core functionality compliments and 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.	£918,451	£150,000	Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
		Health Board and the data collected at each part of their journey does not always flow seamlessly with them. The need for accurate and real time data has been identified and one way of achieving this is electronic patient's boards that not only link the wards, but feedback live data into the clinical systems.				
	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	Develop and implement a Clinical Electronic Records Management System, moving from a manual paper health records system to an electronic scanning viewing and creating of records system.	The aim is to provide assurance for Information Governance around record storage by scanning and also bringing back records to Health Board bases (or electronically via scanning) that are currently held (and financed) off site. The benefits can be noted as • Improving Accessibility • Improvement in the tracking of records. • Audit trail. • Cannot be mislaid. • Paper Light. • Effective use of staff.	£6,300,000	£450,000	Start Date – 2017/18 End Date – 2020/21
	Electronic Observations	Procurement and implementation of patient observation management solution, to facilitate robust and effective management of hospital at night priorities, and to provide electronic observation recording and management.	Research has shown that the benefits of electronic observations at the bedside have been noted as; • All patients in the trial had their bedside observations performed in a timely fashion • Patients recovered their health faster than previously • There was a 20% reduction in	£306,773	£1,441,600	Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
			• hospital length of stay • The use of critical care was less • No patient had a cardiac arrest in the intervention phase of the trial • There was a reduction in mortality of 2%			
	Roll out of wireless devices to support clinical care	The upgrades will enable staff to become more efficient and effective and ultimately help to improve patient care. The new infrastructure will increase wireless access points and enable staff greater choice on mobile devices – laptops, tablets and windows based mobile devices. It will also support a planned rollout of mobile, clinical applications across the Health Board.	The benefit will be seen by clinicians that need smart, portable, point-of-care solutions for capturing and transmitting data, as well as routine communication. They also want technology to reduce demand on nursing time by eliminating waste in care resulting from inefficient workflows.	£525,000	£210,000	Start Date – 2016/17 End Date – 2020/21
	Procure and implement a single ED system across the organisation	The implementation of a single emergency department clinical information system across South Wales. The system has been identified by a National competitive dialogue procurement process.		Not known at present	Costs not known at present but circa £170k	Start Date – 2018/19 End Date – 2020/21
	National Health Records Repository (Welsh Care Record Service)	The WCRS will enable the creation and storing of a wide range of documents in the Welsh Clinical Portal including letters, referrals, discharges, assessments and case notes.	The benefits of the WRCS include the standardisation of documentation and establishing a Welsh Records Service is therefore the key to enabling the quality agenda, reconfigurations and the transformation of services closer to home.	£0 Costs of National Programme not available	£0 Costs of National Programme not available	Start Date – 2017/18 End Date – 2020/21
	Patient Feedback	This provide instant feedback on	To enable proactive feedback to be	£650,000	£74,000	Start Date –

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
	System Capturing patient information built on the implementation of surveys and the provision of free Wi-Fi in Hospitals.	healthcare and services provided by the Health Board and will link to the SBR initiative. Initially the feedback will be completed on patient owned devices (smartphones and tablets). Investment in devices in 2016/17 will provide access to surveys on Health Board owned equipment for patients that would not have access to personal devices. Investment in 2016/17 is for large screens on wards to display live reporting from surveys and complaints to provide an instant view on ward performance based on feedback.	captured, processed at scale and in real time as well as ensuring that the information is provided to the service area in which relates to. Enabling improved transparency of feedback on experience received by the Health Board enabling uploads of regular summaries and feedback on line to promote inclusion and improvements in service provision.			2017/18

End Date – 2019/20 |
| | Research and Development | To integrate the strands of work emanating from Clinical Trials, research contracts, implementation of academic recommendations. | | £300,000 | £120,000 | Start Date – 2016/17

End Date – 2020/21 |
| | Expansion of data warehousing, infrastructure and capacity | To extend the current data warehousing and place it into a more accessible format utilising current approaches to support all staff in their day to day role. | | £75,000 | £0 | Start Date – 2017/18

End Date – 2017/18 |
| | Enhanced quality performance and benchmarking, computer-assisted coding, real time clinical analysis | To increasingly support busy clinicians undertake better data capture whilst generating clinical audit data, clinical history summaries and contribute towards the R&D strategy. | | £35,000 | £10,000 | Start Date – 2016/17

End Date – 2017/18 |
| | Improved Clinical Coding timeliness | Provide more timely clinical information to support monitoring and flagging of key patient safety indicators to support | | Subject to a further Business | Subject to a further Business | Subject to a further Business Case |

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
		service improvement. Use of Natural Language Processing.		Case	Case	
Patient Experience & Communication	Sensory Loss	Several of the projects detailed in this plan have an element of sensory impairment considerations (central contact centre booking systems, text messaging, Wi-Fi expansion etc), as such IM&T are looking at possible developments we can support to enable those with sensory impairment to access information that can support them and their care journey.	Enabling those with sensory loss to access information that can support them on their care journey. Providing additional channels of communication to support care.	£11,000	£5,000	Start Date – 2016/17 End Date – 2017/18
	Wi-Fi Expansion	We currently have some wireless access in Withybush, Prince Philip, Bronglais and Glangwili General Hospitals but it is not pervasive and there are some major gaps. This project will replace our end of life central wireless infrastructure (controls access, security and manages the wireless access points) and funding permitting will enable a complete wireless network in Bronglais and some mental health areas across the Health Board. To expand across the whole Health Board this project would have to be repeated for a number of years	A pervasive wireless network across the organisation will become more critical to support our mobile workforce, bring your own device scheme and a proliferation of mobile devices (carts, tablets etc.) to support bedside access to information and clinical systems (ePrescribing, Test Requesting, Welsh Care Records Service). A pervasive wireless network would also deliver "The Cloud" for patient / guest access across the whole Health Board.	£332,000	£66,396	Start Date – 2016/17 End Date – 2020/21
	Switchboard Consolidation	The Health Board currently has 4 switchboard operator locations in service (Glangwili, Prince Philip, Bronglais and Withybush (provide by Welsh Ambulance Service)). This project is to review the switchboard	These include:- • Reduction in WTE releasing revenue savings to the Health Board. • Standardisation of working practices	£250,000		Start Date – 2016/17 End Date – 2020/21

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
		functions across the Health Board and deliver a paper of options to the Board with recommendations on how the switchboard service should be structured to deliver the best service to our staff and patients but also to deliver the best value for money.	• Reduction in training requirements • Implementation of new technology with the potential to improve contacts with patients			
	Telemedicine	The various telemedicine projects provide advice and support to develop and establish innovative approaches to the delivery of healthcare services across the Health Board using videoconferencing and 'store and forward' technologies. Enabling consultations between a patient and a clinician at different locations saving travel costs and time.	These include:- • Enables remote measuring and monitoring of vital signs parameters • Provide health information to patients to encourage increased self-management • Remind patients of upcoming appointments or medications due. • The clinician is able to undertake patient review at a remote location.	£456,000	£119,000	Start Date – 2016/17 End Date – 2018/19
	Bring Your Own Device (BYOD) system to improve access to clinical information, clinical resources and administrative systems. Enabling 1500 devices to access email and web based applications.	Building on the investment of wireless access within the Health Board. Procurement of software and licences to provide access to email, clinical and administrative web based systems on personally owned devices. Based on growth of 500 devices per annum to 1500 devices within 3 years. Mobile devices provide the basis for transforming healthcare and improving patient outcomes.		£0	£180,000	Start Date – 2016/17 End Date – 2018/19
Enablers	Data Centres	Movement to a Co-located Data Centre, either private or public sector	Provide Tier 2 standards which could not be done internally. Uptime guaranteed by SLA's. In line	£70,000	£1,150,000	Start Date – 2016/17

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
			with Welsh Government Data Centre strategies. Reduction in ongoing capital outlay Opportunities to adopt Private / Public Cloud technologies Reduction in power consumption at our main acute hospitals			End Date – 2020/21
	Infrastructure / Telecommunications Refresh	Hywel Dda has a large and complex infrastructure containing servers, videoconferencing and telemedicine equipment. This is of varying age, with some now end of life and support, which increases risks to the organisation. Telephony services are critical to the daily operations of the Health Board and investment is required to leverage modern advances in communications such as the use of Apps and ensuring old and legacy equipment is replaced. Telemedicine and Videoconferencing is used extensively throughout the Health Board supporting MDT's for Cancer, remote patient consultations and various meetings. In addition this technology is a key enabler for the Health Boards IMTP.	Reduction in risks associated with our Infrastructure. 5 year investment plan for our infrastructure Improved resilience off IT services.	£1,872,000	£0	Start Date – 2016/17 End Date – 2020/21
	Network Refresh	Our network supports 6,500 active Hywel Dda users across all our 60 sites and is in some places 10+ years old. This project is to put in place a new	Reduction in risks associated with parts of the network. 5 year investment plan for our network services.	£3,200,000	£0	Start Date – 2016/17 End Date –

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
		design for our 4 acute hospitals and a 5 year framework in place to refresh our network (will require significant funding). It is envisaged the 2015/2016 discretionary capital programme will enable us to start work at Glangwili General Hospital. This will be critical development for our users, the network is fundamental for delivery of critical clinical services and as we move towards digitisation of health records, ePrescribing and electronic discharge it will only become more so.	Improved resilience on the network. The network is critical for the delivery of new and upcoming services such as electronic observations, mobile computing and monitoring and alerting of patients.			2020/21
	Equipment End User Replacement - Procurement of PCs, Laptops, and Printers	Timely replacement of personal computers, mobile devices, laptops and printers is essential to providing robust and reliable access to computer systems which the heath board is becoming increasingly reliant on in order to deliver first class patient care. Failure to replace this equipment will cause major disruption to patient and administrative services.	Reduction in risks associated with old equipment. Ensuring end user productivity is not impacted by slower devices which require replacement. Reduction in support costs. Ensures equipment is fit for purpose as the use of IT services increase	£3,530,000	£250,000	Start Date – 2016/17 End Date – 2020/21
	Single Sign On & Context Sharing	implementation of single sign on toolset to enable clinicians to maximise their working time at commencement of sessions In addition the context sharing will facilitate a smoother work flow between solution islands prior to the WCP being sufficiently developed to accommodate this visual data normalisation	Time savings for frontline staff (previous studies have shown 45 minutes a day) Reduction in IT support calls for password resets. Reduction in password sharing leading to improvements in Information Governance compliance.	£105,000	£840,000	Start Date – 2016/17 End Date – 2018/19
	Implement Microsoft	Enterprise Content Management will		Subject to a	Subject to a	Subject to a

Strategic Change Programme	Programme of Work	Service Improvements / Requirements	Benefits	Capital Commitment	Revenue Commitment	Proposed Implementation Year
	SharePoint - Portal, Forms, Workflow, Document Management and Intranet Replacement.	form the basis of collecting clinical and administrative data in a structured format enabled by rapid forms development with workflow for assigning tasks or sign off. SharePoint 2013 will provide a platform for access to and input of information on mobile devices and fits in with the Health Board's strategy on mobility which will bring huge change to the way we deliver healthcare services. SharePoint will also provide collaborative opportunities by using Knowledge gathered through experience and shared through the social platforms within SharePoint in order to improve decision making and reducing chances of committing errors. Uses will include: supporting direct patient care such as the pre-assessment process; and also in non-clinical areas such as human resource workflows.		further Business Case	further Business Case	further Business Case

11. Appendix 2 – NWIS Implementation Plan for National Projects as per their IMTP 16/19

NWIS IMTP Objective	NWIS Main Projects	Description	NWIS Proposed Available Dates for Implementation		
			Year 1 2016-2017	Year 2 2017-2018	Year 3 2018-2019
Promoting Wellbeing	Web Information Portals	The aim is to make it easier for people to access information that will help them make informed decisions about their health, care and wellbeing, preferably preventative.			
	Supporting the 111 Initiative	111 is a new all-Wales 24/7 telephone support service for urgent health care advice and information, incorporating patient access to other local services, particularly GP Out of Hours services.			
	Screening Services	Screening services identify apparently healthy people who may be at increased risk of a disease or condition. It is about using that information to help prevent illness where possible with the aim of keeping the person well.			
Co-Production – Joint Care Plan	Patient Reported Outcome Measures (PROMS) & Patient Reported Expectation Measures (PREMS)	Patient Reported Outcome Measures relate to the Prudent Agenda. Outcomes reported by patients, carers and families present an opportunity to understand both an individual and macro perspective whether the patient feels "better off" as a consequence of an investment made to help them. This can be used then to understand which services or interventions present evidence of good outcomes, and provides insights for providers at individual and organisational levels on what works and doesn't work from the persons perspectives.			
	My Health On-Line (MHOL)	MHOL Is a patient facing website linked to General Practice systems that provide a degree of self-service for the individual thereby relieving some of the pressure on GP Surgeries.	Increase uptake and utilisation by GP Practices and patients		
Access to the Single Record	The Welsh Clinical Portal (WCP)	The Welsh Clinical Portal is the centre piece for Secondary Care Professionals. It is a secure portal that brings together information about the patient that enables good decisions to be made. As new databases, applications or services are introduced these will be manifested in the WCP as enhanced functionality. It provides more comprehensive information about the patient and enables	Implement Allergies & Warnings	Develop "My View"	Implement "My View"
			Implement eForms Capability		

NWIS IMTP Objective	NWIS Main Projects	Description	NWIS Proposed Available Dates for Implementation		
			Year 1 2016-2017	Year 2 2017-2018	Year 3 2018-2019
		communication with other professionals involved in delivering their care, putting the patient at the centre of care.	Patient flow integration		
			Complete Phlebotomy module		
			Implement Phlebotomy module		
			WCP mobile strategy & user Interface	WCP mobile strategy & user Interface Development	
	Welsh GP Record (WGPR)	The Welsh GP Record provides a summary of GP information available to out of hours care providers.			
	The Welsh Care Records Service (WCRS)	The WCRS is an electronic records and management system accessed via the Welsh Clinical Portal. It includes indexing services to provide an integrated document solution enabling the appropriate sharing of Health and Social Care information regardless of organisational boundary.			
	Welsh Emergency Departments System (WEDS)	WEDS will provide a consistent approach in emergency care management across Wales.			
	Cancer Information System (Canisc)	Canisc is a national system used to manage the cancer specialty across Wales.			
	The Welsh Information System for Diabetes Management (WISDM)	The aim is to address the need for supporting the care professional in managing diabetes			
	Master Patient Index (MPI)	The MPI enables an individual to be uniquely identified and cross referenced with their IDs in other systems. It facilitates the ability to link together the relevant information about an individual across any number of systems.	The system is live for a number of core services within Health such as WPAS, WRIS and WLIMS.		

NWIS IMTP Objective	NWIS Main Projects	Description	NWIS Proposed Available Dates for Implementation		
			Year 1 2016-2017	Year 2 2017-2018	Year 3 2018-2019
	The Welsh Demographic Service (WDS)	The WDS is the master source of NHS number for an individual. It also provides demographic details for the person as well as what GP and surgery with whom they are registered.	This is a mature service used across Health in Wales that takes feeds from the English equivalent service. It recently introduced Welsh Birth Notification System (WBNS)		
	National Address Matching Service (NAMS)	Address matching and look-up is a frequently used functionality within many systems. By automating, it reduces the chance of manual errors leading to duplicate records, missed home visits or letters not being received.			
Plan & Enact Care – Community & Primary Care	Welsh Community Care Information System (WCCIS)	WCCIS is a solution that will be nationally hosted and made available to all Health Boards and Local Authorities in Wales. The solution is intended for use by Adult Social Services, Children Social Services, Community and hospital mental health clinicians, community and hospital allied health professionals, community nurses and health visitors. The solution will bring together care professionals who would otherwise be providing care independently of each other.			
	Community Optometry and Dental Referrals	As a result of HTTF funding last year, Optometry and Dental Practices in Wales are now able to connect to the NHS network to access the appropriate systems and information.			
	Child Health	The current Child Health System (CCH2000) is live across Wales and 30 sites in England.			
	GP Systems Framework	The framework has delivered the ability for General Practices to migrate onto new hosted systems on nationally supported infrastructure with service desk support.			
	GP to GP Electronic Transfer of Records (GP2GP)	This enables the movement of electronic patient records between GP Practices in a secure and timely manner.			

NWIS IMTP Objective	NWIS Main Projects	Description	NWIS Proposed Available Dates for Implementation		
			Year 1 2016-2017	Year 2 2017-2018	Year 3 2018-2019
	"Single Sign On" for GP Systems – (Active Directory Integration)	This provides functionality for GP Practice users to sign into GP Systems using their all Wales NADEX user credentials – based upon the principle of "Single Sign On"			
	2D Barcode Prescription Management	This provides functionality for GP Practices and pharmacies to exchange prescription information accurately using 2D barcodes.	Pilot		
Plan & Enact Care – Diagnostics	The Welsh Laboratory Information Management System (WLIMS)	WLIMS is a nationally hosted system that provides diagnostic services to primary and secondary care settings.	Histology / Mortuary	Other improvements include the availability of Cytology / Blood Tracking	
	Point of Care Testing (POCT)	POCT is a solution to manage all connectable Pathology Point of Care Testing devices in primary, community and secondary care.			
	Welsh Imaging Archive Service (WIAS)	The Welsh Imaging Archive Service provides image sharing capabilities on an all Wales basis. This will provide images more quickly and securely across Health Board boundaries, avoiding the need send images on CD by couriers between organisations in some cases.			
	Welsh Radiology Information System (WRIS)	The Welsh Radiology Information System facilitates management of Radiology Services.			
	Welsh Results and Reporting Services (WRRS)	The Welsh Results & Reporting Service enables clinicians to view diagnostic information about their patients regardless of where those tests were taken.			
	GP Test Requesting & Reporting (GPTR)	GPTR enables GPs across Wales to request tests and receive reports. It is a two way service between primary and secondary care.	Increase uptake and utilisation by GP within the Health Board		
	National GP Links	GP Links provides a solution to send all GP related Pathology and Radiology messages to GP Systems from secondary care and screening services. It is a one way service sending results from secondary care into the GP systems.	Increase uptake and utilisation by Clinicians within the Health Board		

NWIS IMTP Objective	NWIS Main Projects	Description	NWIS Proposed Available Dates for Implementation		
			Year 1 2016-2017	Year 2 2017-2018	Year 3 2018-2019
Medicines Management	Electronic Prescribing	Electronic prescribing supports clinicians through providing decision support and rapid transmission of prescriptions to pharmacy. There is strong evidence that ePrescribing reduces cost, variation and harm.	Business Case, Procure and Pilot	Implement across Wales	
	Medicines Transcribing and e-Discharge (MTED)	MTED automates the transcribing and e-discharge details when prescribing medicines thereby reducing the time to dispense and the risk of errors.	Increase uptake and utilisation by Clinicians within the Health Board		
	Choose Pharmacy	Choose Pharmacy is an over-arching platform including Discharge Medicine Review (DMR) and Common Ailments Service (CAS) and will soon include the Emergency Medicines System (EMS). The aim is to support the extra services for the patient in the primary care and community settings around medicines advice and provision to alleviate pressures on GP surgeries.	Pilot within 2 Health Boards	Rollout across other Health Boards	
Care Coordination	Welsh Patient Administration System (WPAS)	The WPAS is the system that provides the efficient management of people and resources in health care settings. It has around 24,000 users and in a typical day will process 5,250 new referrals and handle 15,000 clinic attendances.	Continual rollout program of new versions of software when available. It is anticipated that there will be 3 releases per year		
	Welsh Clinical Communication Gateway (WCCG)	The Welsh Clinical Communication Gateway enables Electronic messages to be sent from any accredited location to another.	Continual rollout program of new versions of software when available. It is anticipated that there will be 3 releases per year		
	Welsh Patient Referral System (WPRS)	The Welsh Patient Referral System enables the electronic clinical prioritisation of GP referrals by secondary care clinicians across all hospitals. It makes use of WCCG to receive the referrals.	Continual rollout program of new versions of software when available. It is anticipated that there will be 3 releases per year		
Information Governance	Welsh Intelligent Integrated Audit Service (WIIAS)	WIIAS is a solution to proactively audit access to the electronic patient record via national products.	Continual rollout program of new versions of software when available. It is anticipated that there will be 3 releases per year		