The Walton Centre NHS
NHS Foundation Trust

Digital First 2020

Digital Transformation

THE RIGHT INFORMATION,
TO THE RIGHT PERSON, AT THE
RIGHT TIME, FOR THE RIGHT
DECISIONS.

Executive Summary

Digital records must support the delivery of care in the community as much as in the hospital – their mobility, extensibility and interoperability is fundamental.

Personalised health and care 2020

The pressures, both internal and external for the Walton Centre Foundation Trust to undergo a digital transformation are immense. The NHS is undergoing major changes; NHS England's vision for care in 2020 both concentrates specialist services and sees local provision of services in partnerships.

On a regional basis, the Cheshire & Merseyside NHS is looking at consolidation of patient information available across the region no matter which care provider they originated from.

Patients, too, are expecting new digital relationships. People's interaction with technology is very much mobile and their anticipation is that services and information can be accessed on demand, whenever, and wherever they are required.

This digital strategy covers 2017 to 2020 and is based on an honest assessment of areas for further development for the trust whilst also taking account of weaknesses in information technology. It also takes account of its strengths and provides pragmatic solutions which will allow the Walton Centre to respond to the pressures it currently faces.

There is acknowledgement of the cost pressures that the trust faces and the initiatives described in this document have been designed, in part to improve efficiency of the trust's operations, whilst others are focussed on income generation. However, to produce an honest and fair strategy it cannot be constrained by current known funding levels. The initiatives proposed are identified through our clinical services by illustrating objectively their needs in order for the trust to prioritise its commitments, both in terms of investment and to become a functioning member of national and regional health economies.

The initiatives proposed here cover a spectrum of subjects which underline the need to keep patients safe, support patient care and open opportunities to empower patients to take more control of their own health. In doing this we will be opening the digital doors of the Walton Centre to:

- Patients
- Clinicians
- GPs
- Universities and Research institutions
- Other care providers, both regional and national

The trust needs to improve the quality and completeness of the rich data that it captures and its own internal use of this richdata. But at the same time it also needs to make data available to others where consent and governance arrangements are in place to bring together data with efficiency regardless of where the data source originated from.

The Journey so far and the future

The trust has invested resources into providing in-house software solutions. This originally came from an organisational need to produce software that was fit for The Walton Centre's needs. This originated from the (then) constraints of commercial software not being available to sufficiently deliver the service, e.g. Neurophysiology, Nursing Risk Assessments.

Given this, the in-house software developed by the IM&T function has provided a tailored solution to the organisation ensuring that clinical needs of the patients are met without the often compromise and slowness of change requests that come with an 'off the shelf' package of software from large suppliers.

The theatre software was an example of this, where no software viewed offered enough flexibility to fit into the patient flow that the organisation utilised in its theatres. It was therefore felt a bespoke solution should be created in-house.

The current in-house developments in 2017 now cover a range of solutions:

- Inpatients
- Outpatients
- Self Check-in
- Neurophysiology
- Theatres
- Document Management
- Referrals
- Risk Assessments
- Information Assets
- eOBs
- Order Communications and Reporting

All the above systems are being further enhanced as the Trust moves through its Service Improvement Programme and it is acknowledged that during this programme the current software may have to be redesigned or that a commercial alternative would be appropriate once service redesign has been completed.

The Trust also acknowledges that all patient data must be shared with other service providers not just in North Mersey and Cheshire but further afield throughout the UK. Therefore it has always been a focus of software development to ensure that all in-house developed systems have the ability to share and receive any data from any external/internal system in a healthcare recognised interoperability format.

This approach has been shared with the larger Merseyside Digital Roadmap 2016-2021 (appendix B) and currently with the interoperability work stream within the Cheshire and Mersey NHS leads. This ensures that data of a high quality is able to be exchanged between systems to ensure patient centric care at the point of care within any organisation, no matter what system is being used.

The Case for Change

External Pressure

NHS England has set out its vision for the delivery of health care in its Five Year Forward View. The following have particular significance for the future of the digital agenda at the Walton Centre.

- **Joined-Up Care**
  There is a strong emphasis on joining-up care across different care providers with the implication that interactions between providers will have much greater digital content and that records held by providers will become more transparent. Whilst joining-up care may be interpreted in different ways, it poses particular challenges for a national specialist provider.

  At the Walton Centre, patient contact is not just within the footprint of North Merseyside. The Walton Centre has touch-points with many organisations and GPs throughout the UK and whatever technical approach the organisation takes to sharing and retrieving digital records from others it must be compatible, not only with the local community, but with all partners across the UK.

  For this to be a realistic ambition, the Walton Centre must control how it shares data with others. It must be a leader and devise a schema which allows others to comply in joined-up care without needing to invent digital touch-points for each scenario.

- **Structured Coding**
  Interoperability is more than sharing data. NHS England has dictated the adoption of the SNOMED CT terminology. This will not only allow data to travel across boundaries but also improve the data's use in research environments. Research depends upon data that is comparable whatever its source.

- **New Models for Providing Care**
  NHS England also proposes new models of care and is considering new ways of funding which favour, for instance, consolidation of services. The Walton Centre is well placed to offer services outside of Merseyside, having already been a beacon site through Vanguard at a national level, and delivering specific projects such as Tele-Neurology. However, if the model at the Countess of Chester Tele-Neurology pilot site is to be replicated in other locations then the organisation will need to increase its tele-conferencing capacity and build on its own EPR functionality to allow remote services to be more effectively managed.

- **Clinical Pathways**
  New models of care not only provide a future state for services but also allow a review of existing pathways bringing, new ideas to improve patient care through the provision of questionnaires and surveys to understand how patients feel about specific services. This is a a key component of the Vanguard model. Delving into pathways further will bring opportunities to pre-populate data fields in our clinical documentation with more profound confidence that the right information is available

to our users. This brings efficiencies into digital systems, minimising the number of occasions a patient is asked for the same information.

- **Data Management**
  NHS Digital Health identifies the diverse range of maturity in analytics across the NHS, from sophisticated capabilities to those starting off with an enterprise wide model. The challenge for many is retrieving data out of systems in order to map them to intelligent and real-time reporting. Our in-house built systems have the database architecture built with this in mind, though challenges remain where data is required to cross boundaries with legacy or other 3rd party systems.

- **Local Delivery**
  The North Mersey Local Digital Roadmap is an important guide for the Walton Centre, though the organisation needs to comply in a way which facilitates interactions with all peers whatever their geographical location. The Walton Centre needs to improve the efficiency of interactions with social care, particularly involving patients with long term conditions. However, sharing data with councils outside of the NHS comes with its own challenges which the Walton Centre must engage with through the North Mersey LDS or any future successor.

- **Empowering Patients**
  Patients will take more control over their own treatment and wellbeing if they have access to their own medical record. Currently there is no documentation from NHS Digital that it will provide a national infrastructure for the population to access medical records, therefore, the Walton Centre itself will need to provide local patient access.

  There is also a move to see the patient themselves as a source of data. Consideration is to be given to enabling certain cohorts of patients to capture relevant information about their condition on their own devices (including wearables) through a series of apps developed by the Walton Centre and third parties. In addition, directing the most vulnerable of our patients to web based technology to support improvements to their health.

- **Drive for Paperless**
  The Five Year Forward View has the vision for the NHS to be paperless at the point of care. Whilst the Walton Centre's investment in IT to date has placed itself in good standing to meet this target, there is still a major drive needed to be pro-active in eradicating its remaining use of paper. This includes not only the digitisation of clinical or corporate documentation but also the literature provided to patients at point of care.

Internal Pressure

- **Pressure on Costs**
  Cost improvement has been and will be a continuous requirement. There is an expectation from the organisation that investments in information technology will lead to efficiencies and improvements elsewhere in the organisation whilst cutting its own departments budgetary requirements. Yet the 'productivity paradox' of IT is well recognised throughout the world, including the recent Wachter report on NHS IT. Capital investments often have revenue consequences when projects become "business as usual" which increases pressure on the service.

  Cost pressures can clearly be relieved if income can be generated from IT services. The Walton Centre has set a precedent for this with our self check-in system which is now in use at Liverpool Heart & Chest hospital and we will pursue other income sources as part of this strategy. In addition, the Trust should recognise the enormous 'cost avoidance' of developing an in-house EPR rather than tendering to implement a bespokee off the shelf solution with little flexibility which is likely to cost the Trust several million pounds.

- **Demand for IT Services**
  The evolution of the digital programme in the current climate has propelled into a number of reporting channels for the IT service including the;

  - Service Improvement Programme;
  - Value Improvement Programme;
  - Vanguard;
  - Local Delivery System (LDS);
  - Sustainability & Transformation Plan (STP) and;
  - Clinical areas.

  This will require resource planning and demand management within its current infrastructure in an attempt to align them with the Trusts business needs.

- **Recruitment Costs**
  The cost of IT staff is rising fuelled by economic recovery in the private sector. We have been successful in taking on university sandwich students and need to look at expanding this source of resource. Building relationships with universities is an important objective for this period, partially to improve access to skills and help build our reputation.

Environmental Pressure

- **Expectation of Digital Contact**
  Patients are increasingly being encouraged to take an active interest and involvement in their own healthcare. The plethora of mobile health apps and affordable wearables show the enthusiasm for patients to take control over their own health and health plans.

It is intended that the strategy, through the availability and accessibility of care information, will provide patients and their carers with an awareness of their conditions as well as an awareness of the care that will be provided by the Trust and its partners. By working with providers from across the country, as well as the local innovation agency, it is believed that the use of self-help apps can be used to link into the organisations current system for direct patient care.

- **Technological Advancement**
  In September 2016, for the first time, the number of websites being accessed by mobile devices exceeded those from traditional computers. Our patients expect to be able to access systems from their mobile devices and receive alerts on their phone wherever they happen to be. The dominance of mobile computing is changing the way that software is developed and this is reflected in this digital strategy.

  Technology is also changing rapidly, new databases and storage models are allowing vast amounts of data to be collected and processed. Multimedia data such as voice recordings and videos should be as much part of the medical record as written notes. An obvious source of video data is from mobile devices which are supplied by patients and their carers showing particular conditions in the home environment. If this is to be relied upon for clinical decisions, then it must form part of the patient record.

  Collecting multi-media data puts pressure on our infrastructure and data extraction which will require us to adopt cutting edge technology.

- **Transitional State**
  Our clinical users, more predominantly in the past 18 months, have had more exposure to digital systems with the introduction of eP2 and e-observation. Whilst there is recognition our workforce is reliant upon both paper and digital in parallel, a paradigm is being seen with the latter. By underpinning the Service Improvement programme it is envisaged that the Digital function will be the enabler and the advisor for creating more digital touch points and encouraging digital adaptation.

- **Expectations of 24x7 Access**
  The push for seven day services along with the increased provision of digitally dependant clinical care brings into play the need for 24-hour access to systems which places demands on IT as well as front-line clinical staff. Systems must be available and functionally supported whenever people are using them. Therefore the 24x7 support can no longer be solely focussed on keeping the infrastructure running but now also requires the full spectrum of IT skills available during traditional working hours to be available out of hours.

  We need to look to new ways of staffing these out of hours roles and our vision for creating digital champions among administrative staff is starting to support this.

Where We Are Now

Areas for Further Development

- **Paper Dependent**
  eP2 has been instrumental in removing paper from many clinical settings. The release of the Clinical Notes module later this year will eradicate the "last known" major clinical source.

  Corporate areas remain very heavily dependent on paper. Whilst much investment has been made in implementing integrated clinical systems and moving through HIMMS, corporate systems have received less scrutiny. Large savings can be made with corporate digitisation.

- **Data domains**
  eP2 has successfully centralised much of the patient record but there remain many instances of spread-sheets and databases used in silos. These might duplicate data maintained by eP2 and in some cases may be contradictory.

  We must remove the need for keeping data outside of centrally maintained systems. If the external data is richer than that in eP2, then eP2 must be enhanced to meet the clinician's need. If it is because data in eP2 cannot be presented back to the clinician in a manner that is fit for purpose, then we need to focus on our presentation through Digital/Business Intelligence. One focus will be to develop dashboards and other data visualisation tools that present data in an accurate and user friendly way to those who need it.

- **Intelligent forms**
  With the introduction of scheduled monthly upgrades to in-house systems both in terms of performance and new requirements, the opportunity to transform our digital forms into smarter intelligent ones will continue on a monthly basis. We will engage with our staff through the digital user groups to improve templates for ease of use and speed of completion. Document owners of digitised forms need to become leaders in bringing forward ideas for reporting mechanisms as we move away from retrospective data analysis to real-time sophisticated intelligence.

- **Digital contact with patients**
  SMS text notifications of appointments are currently sent to patients with the facility to text back to cancel/change appointments.

  Patients also send emails into the Trust; however these are mostly sent directly to clinicians and may not be logged in the patient case-note. To assist with patient communication the patient portal has been partially developed but is not yet live due to the re-prioritisation of funding for digital projects.

Social media is currently only used to promote Walton Centre events and although opportunities for using it to publish pain management material and running self-help groups is acknowledged, these have not yet been adopted.

- **Disjointed business processes**
  We have yet to formally map the digital patient journey. We are aware of instances where patients' have had contact with Walton Centre services but there is no record in PAS or EPR. We are also aware that handover notes across our staffing groups are managed locally on paper, understandably for convenience, but technology must play its part if these handover notes are to form part of the patient record and inform better patient care.

  This strategy builds upon a dedicated business intelligence function and includes provisions for applying business intelligence technology to measure the efficiency of our business processes from an enterprise-wide perspective. Firstly though, we must document the possible routes through the Walton Centre from referral to discharge to ensure all processes are incorporated into the patient record.

- **Digital touchpoints with partner organisations**
  Other than data flows needed to support shared services, there is no fully co-operative sharing of data as envisaged by the North Mersey LDS, Cheshire and Mersey NHS or NHS England's Five Year Forward View. The Trust must work with partners to rectify this where possible.

- **Desk bound technology**
  We are still dependent upon physical computer drives. This potentially hinders mobile working. Working from home has become a useful tool for certain tasks and areas. Staff being able to respond to email, complete tasks or to respond to patient needs out of hours sustains business momentum.

  We will complete our rollout of SharePoint which will give 'work from anywhere' capabilities with complete document retrieval. We will also continue with our rollout of mobile devices and laptops.

- **Non-real time**
  Most data is captured real-time but play-back is often on historic data. This is symptomatic of a data-warehousing culture that collects data in batch and periodically extracts data to prepare reports and visualisations.

  Technology allows for real-time aggregation and reporting of data and with the right tools we can automate its presentation, improving the quality of decisions and reducing the need for manual manipulation of information.

- **Gaps in the EPR**
  We are still some way from a single system view of the patient record. Gaps of note include:

  - order communications
  - inpatient clinical noting for medics
  - data from devices
  - patient captured data
  - links to e-Observation (EWS system)
  - links to e-Prescribing (JAC system)

  During the lifetime of this strategy we will need to examine options for e-Prescribing and to question whether the Patient Administration System offers enough functionality to justify maintaining it as an independent system or if further integration is required.

Our Strengths

- **Internal Development Skills**
  The Walton Centre has a strong blend of development skills, which makes us largely self-sufficient from a systems development perspective. We have pursued a strategy of self-build which has proven to be successful and cost-effective: neighbouring trusts are investing tens of millions in off-the-shelf systems whereas the Walton Centre has achieved close to full EPR functionality with the staff cost of 3 developers and 2 students. Given the build-up of skills and knowledge of our employees we are able to be flexible in adapting and responding to requests for system changes and have developed good working relationships and an understanding of clinician and nurses requirements. This adaptability and responsiveness would not be able to be achieved through an 'off the shelf' solution.

  It is acknowledged that the Trust must not be an island within the community when it comes to clinical systems, and we have worked hard with both the North Mersey Digital Roadmap and the North Mersey and Cheshire Interoperability work stream to ensure connectivity and interoperability with all systems, by adopting internal healthcare messaging standards. This enables the organisation to adopt a more agile model of in-house development without losing the ability to connect to any healthcare system in the local and wider community.

  We are also delivering services to other trusts which provides us with a revenue stream and should continue to do so to offset the impact of the cost improvement programme.

- **Clinical System Coverage**
  All major clinical functions are supported by integrated systems. eP2 has been designed for ease of use and its flexibility. As further interoperability is established

with other trust and external systems, the only point of call for most users will be eP2 where the data from disparate systems will be incorporated.

Some interoperability between our own systems already exists. TIMS, Carestream PACS and the CG Gold scanned case-note archive system now all share information direct with eP2 allowing rich data to reside in one location with one password. Further interoperability will include primary care records, Hospital Information Exchanges (e.g. Cheshire care record), pharmacy information and Pathology information all within the single eP2 environment.

- **Digital Maturity**

The trust has recently completed the latest national NHS Digital Maturity questionnaire; and the benchmarking results are expected from all NHS organisations in early 2018.

The trusts current standing in the NHS Digital Maturity which can be seen on the next page shows that the Trust is performing well, if not significantly stronger than other organisations when compared against the average NHS England score.

Question	National (Dataset)	The Walton Centre Foundation
	Average	Score
Strategic	76	100
Leadership	77	100
Resourcing	66	90
Governance	74	100
Information	73	100
Records, Assessments & Plans	44	62
Transfers of Care	48	57
Orders & Results	55	63
Meds Management	30	54
Decision Support	36	60
Remote & Assistive	32	50
Asset & Resource	42	65
Standards	41	50
Enabling Infrastructure	68	82

- **Information Governance**.

Information Governance and Freedom of Information department has continued to excel even under increasing pressures.

Main points to note include:

- The Organisation achieved the3rd best IG toolkit scores in the Northwest and is one of the top 20 nationally.

- The mandatory IG training achieved 95.31% of all staff trained which is well above national average and achieves the national target.

- Freedom of Information (FOI) has seen a continual increase year on year with a 31% increase in requests and no breaches 2016/2017.

A major external pressure that will be occurring during the life of this strategy is the new General Data Protection Regulations (GDPR) will take effect in May 2018. All businesses that control or process personal data relating to EU subjects will be required to comply with the new regulations. This includes much larger fines for organisations failing to comply with the new law by the ICO, as well as the need for each organisation to have either a dedicated Data Protection Office or direct access to one.

The trust is currently carrying out an external GDPR gap report which will be presented to Trust Board in 2018, mapping out how the organisation will deal with the upcoming regulation.

The Information Governance department has been heavily involved in the development of our Information Asset Register software which is currently being deployed, not only within the Walton Centre but also to external organisations generating a further revenue stream.

Strategic Themes

Weaknesses and pressures on our business tell us what we need to do.
Understanding our strengths informs us how we should do it.

Here we identify the major projects which are drawn together within the digital strategy. Whilst they cover a breadth of subjects they can be drawn together into 5 main themes:

- Improving Our Infrastructure
- Expanding Our EPR
- Clinical Risk Management
- Community Interoperability
- Patient Centric Technologies

Improving Our Infrastructure

- **Aligning Technical Capacity with Demand**
  The constant expansion of digitised records and multi-media being part of the record. Infrastructure will need to be expanded to ensure uptimes are maintained and digital space is always available.
- **Growth and Improvements in Virtualisation**
  Ensuring cutting edge technologies are in place to allow connection anywhere, cloud based and virtual desktops would allow computing access from anywhere.
- **Mobile Working Adoption**
  Moving away from desktop based computing and allowing increased mobile device access to systems, moving away from conventional computing of the past
- **Resiliency Improvements**
  Resiliency improvements are on-going and as systems expand we must ensure we have the correct architecture in place to increase redundancy, both in the servers and network, and to ensure everything is auto-replicating. Downtime must be minimised as paper reliance declines and digital reliance increases.
- **Security Initiatives**
  Following recent incidents we must ensure that the organisation can defend itself against cyber threats as they evolve. There will be a separate Cyber-Security Strategy developed which will highlight our plans to continue to defend patient's data from malicious attacks.
- **Tele-Medicine and Telehealth**
  We will expand Tele-Neurology after the successful Vanguard pilot in the Countess of Chester to other satellite sites.

Expanding Our EPR

We will continue the self-build strategy and aim to unify the EPR into a single system.

The components below illustrate the expansion of our current system.

- **Clinical Noting**
  eP2 has given the organisation a strong digital system that can be built upon and expanded. eP2 will cover registered nurses, allied health professionals, specialist nurses and medics across the trust. We will develop inpatient clinical noting functionality for medical staff and an enhanced task reminder system to allow clinicians to delegate tasks or for own personal reminders.

- **Patient Markers**
  As we expand our xMPI the reliance on using additional HL7 messages from PAS will grow. More importantly, we need to work closely with our PAS supplier to push for bi-directional feeds for a more sophisticated architecture.

- **Electronic Ordering**
  Electronic ordering and results viewing is currently operational for all radiology requests only. The future state will allow both the ordering and viewing capabilities to further expand into Neurophysiology and Pathology by mirroring the radiology functionality into the eP2 system over the time of this strategy.

- **Theatres**
  Our Theatre Information Management System (TIMS) has predominantly been used with good effect for list planning and theatre journey data collection. As a central service to our inpatient activity and same day admission program the importance to accommodate theatre functionality into our core eP2 system is an essential requirement. The ability for staff in all areas to view patient history in one central system means that all documentation, other than that pertinent to Theatres which will remain within the current TIMS system, will be developed into the eP2 system.

- **Alerting and Visual Graphical Displays**
  Automated alerting and visual graphical displays for instant reading are a key for the strategy allowing information relating to a change in a patient's condition necessitating additional care to trigger an alert to the appropriate person. These alerts can be used within any part of the eP2 solution.

  These alerts will focus on rich data information management in the shape of live digital dashboards.

- **Monitoring Devices**
  As new monitoring devices are procured across the trust, and with new technologies, data outputs will allow us to capture more real-time data to inform patient care.

- **Patient Related Outcome Measures**
  eP2 will expand its collection of patient outcomes as they become significant markers to show good clinical practice and indicators for service improvement. This will include both local and national outcomes and form part of the future data analysis

mechanisms.

- **Patient Administration Functionality**

  During the lifetime of the strategy we will evaluate the value of maintaining a separate PAS system. At £200k per year maintenance cost we currently believe that the equivalent functionality could be subsumed by eP2 with a considerable saving. However this will be discussed at the programme board in the future to ascertain whether it would be wise to create a fully in-house developed system or whether reliance on a global healthcare, at the core of the EPR, provides a more realistic and sound EPR and allows a smoother interchange with software providers in the future

  The transition to a paperless environment should be a natural evolution to the completing of the strategy. Level 7 of Electronic Medical Record Adoption Model (EMRAM) is the gold standard to achieve.

STAGE	HIMSS Analytics EMRAM EMR Adoption Model Cumulative Capabilities
7	Complete EMR, Data Analytics to improve care
6	Physician Documentation (templates), Full CDSS, Closed Loop Medication Administration
5	Full R-PACS
4	CPOE; Clinical Decision Support (clinical protocols)
3	Clinical Documentation, CDSS (error checking)
2	CDR, Controlled Medical Vocabulary, CDS, HIE Capable
1	All Three Ancillaries Installed — Lab, Rad, Pharmacy
0	All Three Ancillaries Not Installed

Clinical Risk Management

We will use risk management standards for patient safety in respect of the deployment, use and modification of Health IT Systems.

- **NHS Digital Clinical Safety**

Follow guidance illustrated within the approved publications by NHS England under section 250 of the Health and Social Care Act 2012:

  - Standardisation Committee for Care Information SCCI0129
  - Standardisation Committee for Care Information SCCI0160

- **Clinical Safety Group**

The Clinical Safety Group has a cross-disciplinary membership as a mandatory requirement for the review of patient safety for current and upcoming clinical IT systems, whether procured externally or in-house developed. Chaired by the Trust Clinical Safety Officer, the group has a focus on ensuring systems do not introduce any unnecessary clinical risk as they are implemented for use in clinical practice.

- **Document Repository**

Maintain a central management filing structure as part of the risk management plan including an established Hazard Log through effective use of a risk evaluation matrix standard.

Community Interoperability

The Health Secretary spelt out that organisations need to have plans in place to enable secure linking of electronic health and care records wherever they are held, to enable a complete record of the care someone receives. This system should be able to allow for those records to be able to follow individuals, with their consent, to any part of the NHS or social care system. We need to centralise health records throughout the NHS.

Within the lifetime of this strategy the Walton Centre will contribute to healthcare digital communities, both within and outside the Cheshire & Merseyside NHS.

Medical records which are created within the Walton Centre will be made available on demand to care workers from other organisations with a legitimate relationship to the patient, and will link with the North Mersey Digital Steering Group data sharing map.

The Walton Centre will receive data from other care providers and where possible this will be via an on-demand basis and will be presented in eP2.

Early priority will be given to EMIS and Cheshire Care Record;

- **Referrals, Discharges and GP Letters**

Referrals made through the e-Referral Service from GPs are already digitally processed. We are in the process of rolling out an electronic discharge dispatch

solution to send discharge summaries to GP's. The solution will be expanded to accommodate all correspondence with GPs and will be bi-directional.

Referrals received from other care providers are electronically triaged but are received in paper form.

Patient Centric Technologies

The development and expansion of the Trusts ePatient Web Portal both for data input and feedback is a major benefit for the patient as well as allowing the organisation to utilise data more effectively.

- **Patient Portal**
  We will develop a web based application, useable on both computers and hand-held devices, which gives the patient or carer access to their own medical record as it is known to the Walton Centre. The application will also explain the current care plans which are in place for the patient and allow the patient to add their own notes to their record.
- **Consent for Information Sharing**
  The portal will enable a patient to record their consent for information held by the Walton Centre to be shared with other care providers. We will work with the national bodies to ensure that our modelling of consent is consistent with national guidelines.

  An audit trail will be available with the patient portal of who, outside of the Walton Centre, has viewed parts of the patient's medical record.
- **Digital Communication with Patients and Carers**
  Patients will be able to express their preference for how to receive communications from the Walton Centre (email, SMS, social media). Patients will be sent appointment reminders and notifications that updates have been made to their record using the mechanism of choice.
- **Self-Care Applications**
  We will work with partners to develop applications targeted to the management of certain conditions. Data collected through applications will be uploaded to eP2.
- **Evaluation Assessments**
  Many of our services have a real synthesis of studies in the use of patient feedback and response across multiple visits to influence next stage planning. Whilst some of these questionnaires have been built and remain in our legacy systems, the future state will have these built and maintained within eP2 allowing quick and easy access to the information.

- **Telehealth**
  Remote monitoring of patients health issues and patient reported outcomes via digital devices (such as headache diary, pain diary etc.) to help support the vision of the Trust to "Develop a new model of neurology provision in GP services" and "piloting telemedicine and assessing suitability to further development"

People and Organisation

- **Monitoring business performance**
  We have recently instituted a dedicated business intelligence function which will be responsible for analysing our business's operational productivity. Our objective is to formally understand the factors which influence the efficiency of how we provide care and the correlation of that care with outcomes.

  We will use this understanding to develop KPIs and dashboards which will influence behaviour to promote practice which leads to both clinical and financial improvement.

- **Develop Symbiotic Relationships with Universities**
  Nearly a quarter of acute trusts in England are members of the association of UK university hospitals and like the rest of the NHS, their role is defined by the best interest of patients and the population served. As a specialist hospital we should mirror, where possible, such principals by creating an interdependent relationship with local universities and map to an academic interest.
  As a service we can provide our strategic goals and adapt further the foundations built to further identify new technologies and tools, solutions and evidence from high calibre applicants, professors and computer science leads in education. A movement of students both on and off campus would keep our organisation refreshed, bringing a niche area of expertise to the forefront for all involved.

- **Succession Planning**
  As part of on-going Trust plans, succession planning has been carried out over the last year and a more robust structure is currently being put into place to ensure that key dependencies and succession are taken into account. This will ensure the Walton Centre has the right mix of people and ensure the smooth running of the function in the future.

- **Staff Development**
  Within the succession plans, staff development and training have been highlighted to ensure that skill sets are in place, not only to keep up to date with emerging technologies, but also to ensure the staff who will be the organisations future have the required skills to move into roles within the organisation.

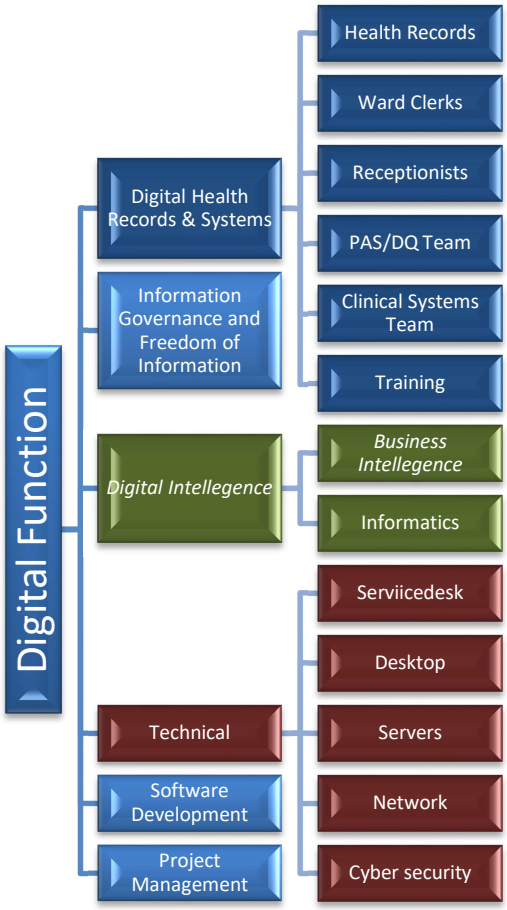
- **Digital Function**

The move towards a digital health organisation requires a strong link with health records management.

With that in mind it was approved this year to bring health records and IM&T together under a new title of Digital Services. This cohesion will allow a strong direction moving towards a paperless environment and will allow digital champions within the newly formed teams to help and hand-hold other staff groups i.e. the Ward Clerk role to help support and guide the nursing staff with any digital innovations as the trust moves forward, allowing them to concentrate on nursing care to the patient.

Given the need and the future requirement to produce large amounts of real time and meaningful data, the organisation is bringing together the pilot department of Business Intelligence and Corporate Information to provide a larger resource to concentrate on, not only day to day standard reporting but making this more of a real time dashboard reporting environment. Under the heading of Digital Intelligence, this service will provide cutting edge information helping to inform decision-makers in both our corporate and healthcare areas.

Below is the current Digital Services overview,



Digital Intelligence

Where are we now?

Business Intelligence is currently in its infancy within the trust, despite this work has already been produced and plans are in place to gather pace. Using learning from other trusts with more established teams along with innovative approaches, the trust will be able to accelerate its growth.

The team is in a knowledge building phase, establishing relationships with key stakeholders within the organisation to provide a more grounded foundation of where intelligent data is most critical. It is important we achieve a strong link with service leads who need to bring their knowledge and ideas in order to achieve the best outcomes.

Initial Projects

Some of the initial projects that have already been undertaken;

- Activity vs. Plan - on a daily basis included both activity and financial projection for the coming month
- Mapping of referrals – showing which areas in the U.K referrals are coming from
- Weighted risk management – showing risks with a confidence level made up several differing metrics providing an accurate view of major risks including individual breakdown.

Next Steps

- **Creation of BIE**

  For the Business Intelligences Team to be successful there is a need to build the Business Intelligence Exchange (BIE). Currently most of the electronic systems within the trust work in silo, it is the aim of the B.I Team to pull data from all of these systems into centralised areas and manipulate it in a way that provides continuity throughout.

  A lot of the data in these systems is "unclean" so a major part of the work will be to make sense of it by recognising patterns within 'messy data' and using them to provide clear data.

- **Self Service Data**

  The team will be releasing the Digital Intelligence Website where staff within the organisation can access data pertinent to their area of work. It is important that users of the system can access at the appropriate level, therefore a suite of reports from strategic to operational will be available which will allow senior managers to focus the work streams down to operational level by providing operational staff clear sight of their targets.

- **Proactive Analytics**
  The move from reactive analytics where historical data is examined to identify trends to a method of proactive analytics which displays alerts and real-time dashboards is critical to any organisation in the current economic climate.

  The B.I. Team will carry out initial validation exercises and monitor trend analysis which will then be discussed with department leads. This analysis is crucial in enabling the Trust to provide accurate prediction models, as the understanding of local intelligence of data is the only way to accurately model for prediction.

  An initial prediction phase will follow and prediction models will run through a series of tests before they are accepted. A percentage accuracy rating will be agreed with department leads which will be the fundamental KPI, leading to a 'cleansed' and customised data set designed for the organisation's needs.

Strategy Goals

- **Google Style Analytics**
  A move from traditional reporting tools to a web portal where staff can ask questions to the system on their own data and have a report returned in response.

- **Advanced Modelling**
  Using advanced modelling to give power to understand the full impact of decisions by pulling data from multiple systems we could allow senior managers to model their "what if" scenarios.

- **Aid Patient Care**
  Using internal trust data, mapping it to external source data in order to provide a complete picture of a patient's journey, and use this dataset to provide better care by understanding our patient population.

- **Eliminate waste**
  Using advanced stock management and activity predictions to better understand stock levels resulting in less waste, ultimately saving money.

Digital Health Records

NHS England has committed to making patient-facing digital services a requirement by 2020. The *Personalised Health and Care 2020* framework is a set of requirements, proposals and case studies intended to ensure the delivery of digital health and care information over the next six years.

The Walton Centre NHS Trust is committed to the delivery of a paper light NHS by 2020 on the route to paperless alongside the integration of clinical systems to ensure a seamless journey for the patient.

The Trust currently holds health records in both paper and electronic formats as we move towards the digital future.

Utilising our in-house development team, the Trust is developing a number of systems to enable the transfer from paper to digital keeping both patient and clinician requirements at the forefront.

Patient Benefits

- Health Records available and visible for our clinical workforce 24/7 from any location
- Clinical workforce has access to the full patient history including EMIS WEB (GP data)
- Centralised Portal to view letters and record condition specific information
- Acquire Clinical leaders in technology and transformation
- Self-improvement through visual displays of personal health data
- More efficient developments would bring fewer errors and even more accurate data
- Shift from pathway information to population information
- Improve patient outcomes through better intelligent health data collection
- Professionals spend more time on their core competencies of treating patients
- More visibility of real-time data resulting in reduced delays to action
- Reduced time in administrative duties as automated functions become commonplace
- Multi-disciplines acquire patient data simultaneously for more efficient treatment plans
- More responsive approach to sharing information with other organisations

This transfer is supported and overseen by the Digital Health Records Function which incorporates the following teams:

- Digital Health Records Department
- Clinical Systems Team
- PAS (Patient Administrative System) & Data Quality Team
- IT Training Team

The above will ensure that any changes made are in line with the Records Management Code of Practice for Health and Social Care 2016 and other associated legislation.

System development is overseen by the Clinical Safety Group chaired by the Trust CCIO/CSO (Chief Clinical Information Officer/Clinical Safety Officer) which is a mandatory requirement for the review of the safety of current and upcoming clinical IT systems (whether procured externally or developed in-house).

- **Digital Health Records**

  By 2020 the Trust will not hold any paper patient records.

  The current content of the case notes is being digitised with a view to removing paper notes in 2018.

  The current position can be viewed in Appendix A.

  Current case notes will be scanned prior to the patient attending for a clinic appointment and clinicians will view all records via eP2, including inpatients.

  In order to scan all records prior to patient attendance, significant investment will be required.

  There will always be some documentation that cannot be digitised either due to complexity or because of restrictions with copyright. These will remain as paper documents held within a temporary case note that will be scanned following the patient attendance.

  Patients attending Satellite clinics are seen using the external Trusts own Health Records. Due to the number of different IT solutions at the individual trusts, it will be an on-going challenge to access external patient records. To partially address this problem, the Trust has implemented a system whereby satellite secretaries can mail patient documents directly into EDMS at The Walton Centre where they can then be viewed by all clinicians and other staff as necessary.

  In addition, clinicians attending satellite sites have remote access to The Walton Centre. This allows clinicians to access systems including eP2 which enables them to request tests/admission etc. for Satellite patients whilst the patient is present.

- **Clinical Systems**

  There are many IT systems in place at the Trust which have been brought together to allow seamless access for clinicians. Further developments are on-going to ensure that all systems can be access via single sign on and via eP2. It is essential that as clinicians become dependent on clinical systems, full support is available.

  All systems will be supported from one central location and through one contact number.

  The Clinical Systems Team also monitor data quality and identify where additional user training or system development is required. This will be a key role as further systems are introduced and the trust relies more on technology to ensure that patient records are accurate and complete, providing both clinical and information governance assurance.

- **PAS Data Quality**

  The Patient Administration System remains the key system for recording patient demographic and activity details. This system feeds the XMPI (Extended Patient Master Index) which in turn feeds other systems via the TIE (Trust Interface Engine). It is therefore essential that data is entered timely and accurately by all trust admin & clerical staff. This is monitored by the PAS & Data Quality Team and

the trust KPI's are monitored via the data quality group which includes divisional representation.

The team will work closely with the Trust Patient Communications Group to ensure that appointment letters generated by the system are clear and easily understood by patients and that the AIR (Accessible Information Requirements) are met.

Future developments will allow patients to view appointment letters and clinical correspondence via the patient portal.

- **IT Training**

  The IT training team supports all staff to ensure system users are competent and comfortable with new systems/technology as they are rolled out throughout the Trust.

  A full package to support staff with system user guides along with trust procedures is being created and will be available for all staff via the Trust intranet in 2017/18. This will enable staff to go to one central point and access how and why systems are used.

Managing Risk

The IM&T function is certified in ISO27001 (information security) and has a robust risk framework in place in line with the Trusts policy. Software development is included within the ISO standard to ensure a comprehensive risk management platform through the function.

The main risks identified are

- **Loss of key staff members**

  There is always a risk of losing key personnel during a major piece of work. From the Developer's function we have adopted several methods to ensure continuation of services if any one individual leaves and this has occurred during the last strategy. These controls include full documentation of all system functions and the underlying architecture ongoing throughout the development.

  With the Project Management aspect there is a full Project library that has been built to ensure that any person qualified in Prince2 can pick up project packages.

- **Failure to deliver**

  Like the previous strategy this strategy will be reviewed every 6 months and if any of the 2 constraints of budget and time are highlighted as a concern then this will be escalated to the Programme Board and upwards to Business Performance Committee. If there is a major exception highlighted then this will be escalated to the Trust Board via Business Performance Committee. The plan of work doesn't allow major scope creep and this will need to be discussed at the Clinical Safety Group to ensure that, in approving any changes there will always be consequences to the programme of work due to finite resources.

- **Lack of resources**

  The 2 constraints to any programme of work are budget and time. The function of this strategy, by keeping it short in life cycle with regular 6 monthly reviews means the two constraints can be highlighted early and the strategy can either be reviewed and extended or have additional resource allocated to it to maintain its milestones.

- **System Resilience and Cyber threats**

  With two data centres within the organisation virtually all the systems have a mirrored server to minimise the disruption to any service. This mirroring ensures that system reliability and recovery are significantly improved. The trust has also put several systems in place to protect it from a cyber-security attack. Whilst processes and systems are in place, the changing landscape of cyber security attacks and the

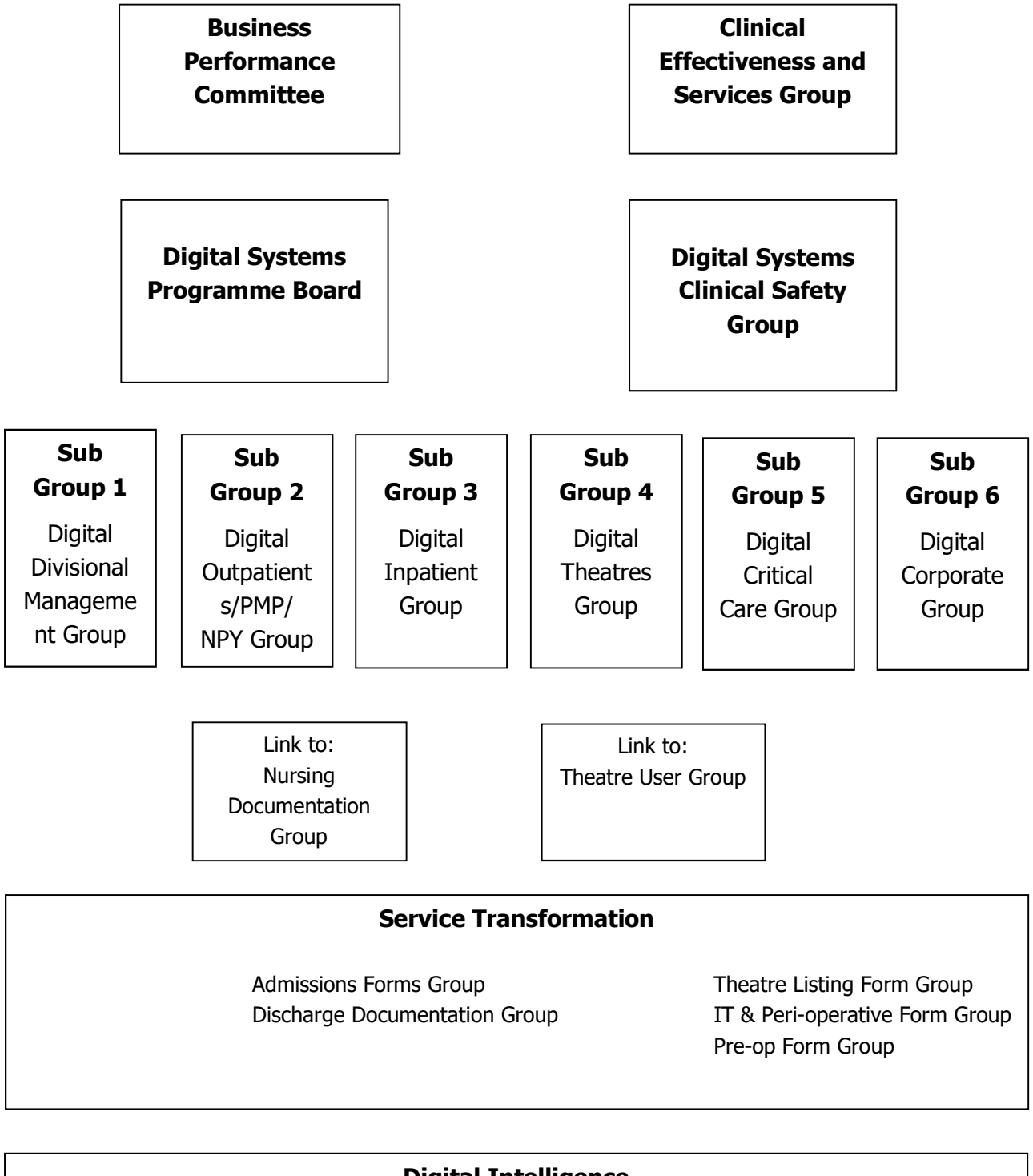
fact a hospital is a public facing organisation means the trust will always be vulnerable to cyber security incidents and it is always a case of "Not **if** you will have an attack but **when** you will have an attack."

- **Resources**

  Given the current economic climate, cost improvements and reducing budgets is showing no sign of easing. Lack of investment into digital transformation is always a risk to it being a success or a compromised end result. There has to be continued investment into this digital transformation to ensure it is not only a success, but has a solid deliverable with patient care at its centre.

Governance Structure

The effective use of information technology means that Digital Services has to be fully aligned to the Trusts strategy and objectives, key risks have to be identified and controlled, and legislative and regulatory compliance demonstrated. To ensure that this is maintained and has the correct governance arrangements the following structure has been put in place:



Appendix A

Case Note Section	Completed	Outstanding
Front Section		Patient Alert Record (including allergies)/DNAR forms/Advanced Directives
Case History Sheets	Outpatient eP2 Clinical notes available for all staff Inpatient eP2 Clinical notes available for nursing staff only Admission Assessment booklet	Inpatient Clinical notes for Doctors including dictation, free text type, medical forms, images, videos
Correspondence	Referral letters triaged via Trust eReferral system and viewable via EDMS in eP2 Verified clinical correspondence flows from WinVoice pro to EDMS and into eP2	External correspondence system to be developed
Theatre Documentation	Typed Operation Notes – MD Analyse Anaesthetic record in eP2 Pre/Post op check lists in eP2	Consent forms – may stay paper
Investigation Results	Radiology in PACS/CRIS including active link in eP2 TD Web laboratory results including active link in eP2 Neurophysiology in NPH ePatient and reports viewable in EDMS	ECG Doppler Audiograms Visual Field Tests
Nursing Record	Nursing notes in eP2 Discharge check list in eP2 Discharge transfer sheet in eP2 Ward transfer forms	e-Observation integration into eP2
Charts & Forms	Drug sheets & prescription forms in EPMA Social work forms in eP2 Risk assessments in EWS	Glasgow Coma chart Fluid balance charts Anti-coagulant charts Diabetic charts Discharge notification form (to GP in 24 hours)

Appendix B

Appendix B is created to allow compliance documentation to be added to ensure the development of the systems within the organisation are always following best practice in all areas.

MHRA Position Statement and Guidance Electronic Health Records

MHRAt.pdf

Merseyside Local Digital Roadmap

the_merseyside_digital_roadmap.pdf