

Sandwell and West Birmingham Hospitals NHS Trust
Midland Metropolitan Hospital Project
Outline Business Case

Appendix 7d Informatics Strategy

Sandwell and West Birmingham Hospital NHS Trust Informatics Strategy 2012-2017

Version 3.0 Final



Health Informatics Service Strategy

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1 Executive Summary

The Sandwell and West Birmingham Hospitals NHS Trust (The Trust) Informatics Strategy sets a five-year framework for transforming the Trusts capability and capacity for informatics. It aims to harness information and new technologies to achieve higher quality and safer patient care that will improve outcomes for patients and service users. This strategy aims to lever information and new technologies to support the Trust becoming an integrated care provider.

The Informatics Strategy is aligned with the national directives such as the Health and Social Care Act 2012 and the Information Strategy and it also supports the Trust's Integrated Business Plan, Transformation Plan and our Foundation Trust application.

This strategy sets out how we will continue to build upon our investment in technology and how our approach to information and IT across the Trust can lead to more joined up, safer, better care for us. The strategy spans information for patients, service users, clinicians and other care professionals. The strategy covers the requirements of clinical and non-clinical users and embraces the challenge of integrated care pathways across our local health community. The NHS Information Strategy 2012 states that "Information can bring enormous benefits. It is the lifeblood of good health and wellbeing, and is pivotal to good quality care."¹

The benefits of information to clinical practice are understood, however all too often, the information picture is disjointed. The Trust's recent experience with data quality and validation of the 18 week referral to treatment (RTT) target has highlighted that the information needed, such recorded outcomes are incompletely recorded or recorded outside of the case note in locally held systems.

This informatics strategy does not advocate the introduction of large-scale information systems or set down detailed mechanisms for delivery. It provides a framework and a route map to lead a transformation in the way we use our information systems and the latest technologies to deliver changes and efficiencies in the delivery of safe, high quality patient care. This strategy addresses the needs of both clinical and non-clinical systems. It recognises the importance of technical and telecommunications infrastructure in the delivery of patient care.

The previous strategy was produced in 2008; the 2008 strategy has informed the development of the 2012 strategy however the strategy has been refreshed to reflect

¹ NHS Information Strategy, April 2012, Page 6

the changes in both the NHS landscape and the strategic priorities of the Trust and the emerging informatics strategies of our local Clinical Commissioning Groups. This document, reflects fundamental changes following the Trust's Health Informatics Review, the cessation of the NPfIT programme, and the initiation of the Transformation Plan which articulates the Trust's cost savings in 2012/13, 2013/14 and 2014/15.

This strategy recognises that technology alone will not resolve the problems that already exist in process and procedures. Delivering the infrastructure and systems to support the delivery of patient care is not enough on its own. It will require us as users of the systems to work in different ways to lever the advantages offered by the new capabilities.

Importantly this strategy recognises that informatics is always advancing and therefore demands upon the solutions in place will need to evolve to meet the needs of users. To address the changes in our operation and clinical environments we will review our strategy annually to ensure continued alignment with national and local needs, clinical and patient need and the business objectives of the Trust and the Clinical Commissioning Groups.

1.1 Our Strategic Vision

Our vision for health informatics within the Trust to improve the quality, safety and consistency of the care that we deliver to our patients by realising the enormous potential of health informatics this strategy sets the following ambitions:

Sandwell and West Birmingham Hospitals NHS Trust Informatics Vision

The Trust will develop a connected and integrated healthcare system, supported across a modern and flexible infrastructure which will meet the needs of our local healthcare community and provide high quality patient information at the point of care. To achieve this we will:

- 1. Use technology and Information to drive integrated care across the entire health and social care sector, both within and between organisations;***
- 2. Recognise technology as an enabler for service transformation;***
- 3. Harness technology and information to improve the quality, safety and consistency of our patient care;***
- 4. Develop and strengthen the role of health informatics in clinical practise;***
- 5. Harness technology and information to develop a PaperLite environment;***
- 6. Change our organisational and professional behavioural mind-sets to recognise that information and technology can improve the quality and safety of patient care. We recognise that technology alone, will not resolve the procedural and operational challenges that already exist;***
- 7. Strive to ensure that patient information is recorded once, as a by-product of the delivery of patient care, and that this information is shared securely between those providing care within our local health community. We will ensure that this is supported by consistent use of information standards that enable data to flow (interoperability) between systems whilst keeping our confidential information safe and secure;***
- 8. Ensure that our electronic care records evolve and mature in line with the needs of patient care and our objectives and become the source for core information used to improve our care, improve services and to inform research and***
- 9. Develop an informatics culture where all health and care professionals take responsibility for recording, sharing and using information to improve the quality and safety of the patient care we deliver.***

1.2 Delivery of the Strategy

Historically, the Trust's IM&T strategy was based upon the deployment of NHS Connecting for Health national application and associated health systems. The Trust's EPR is comprised of the CSC iPM PAS solution with iCM providing clinical functionality. Various departmental and other services have stand-alone systems which have been installed as part of the National Programme; these also contribute to the EPR e.g. Radiology, Maternity and Theatres. The Trust has also developed the Clinical Data Archive (CDA) which is a repository of clinical reports, letters and clinical results. The EPR has been closely integrated with other key systems, such as radiology and pathology and the clinical letters system. This has been crucial to supporting improved working practices and greater efficiencies.

As a result of the Trust's alignment with the then national policy, the change in central funding and organisation and the expiry of a number of core systems the Trust is now in a position to refresh and agree its own strategic direction which meets patient, clinical and business needs. Whilst this provides a number of opportunities and significant benefits for the Trust, it also produces a number of investment challenges that will be resolved by bolstering informatics in the Trust's long term financial model (LTFM)

The Trust has made a sustained investment into the deployment of an Electronic Patient Record (EPR) over the past 10 years. This has led to a steadily increasing level of IT support across care settings, with increasing use of the Trust's clinical and non-clinical systems and databases within the Trust. However the impact of changes in the availability and access to national funding are as yet unclear. In view of the current funding discussions the Trust is taking a pragmatic view to the delivery of the Informatics Strategy.

In order to deliver the Informatics Strategy within a climate of economic and financial uncertainty the Trust will approach the delivery of this strategy by the ***“aggregation of marginal gains”***² This approach will ensure that the Trust builds upon existing investment and knowledge and delivers the enhanced capability within capital and revenue targets. The overall delivery approach is summarised below.

² Dave Brailsford, Team GB Cycling Performance Director

***Sandwell and West Birmingham Hospitals NHS Trust
Informatics Delivery Approach***

The Trust will build upon the existing investment made by the Trust in informatics by:

- 1. Recognise that there is a Trust wide imperative to co-ordinate all investment and implementation to ensure compliance with the overall Trust vision.***
- 2. The Trust will “make better use of what we have” by leveraging the capabilities of current systems by optimising current functionality and process.***
- 3. The Trust will embark on incremental transformation, replacing priority systems first. By adopting this approach the Trust recognise that there will be a requirement to replace systems during the migration to the integrated solution in order to maintain patient services.***
- 4. The Trust will consolidate and integrate clinical and non-clinical systems to support the delivery of safe patient care and support the Trust meeting both clinical and strategic business objectives;***
- 5. The Trust recognise that there will always be a requirement to provide specialist departmental systems such as pathology, radiology, radiopharmacy and chemotherapy. These systems have specific clinical functionality. However these systems must be capable of integration in order to meet the overall Trust vision***
- 6. The Trust will initiate a number of transformation work streams which will drive out efficiencies and support innovative flexible service within our local health economy;***
- 7. The Trust’s strategy is to continue to consolidate the clinical systems into a single Electronic Patient Record (EPR) solution to enable better integrated care records and reduce the complexity of managing multiple systems and interfaces.***
- 8. The Trust will invest in new technologies and system capabilities that complement this approach***
- 9. The Trust will invest in a number of emerging informatics technologies to support the delivery of patient care.***

Whilst significant progress has already been made with the Trust's informatics agenda, there are substantial further steps which must be taken over the next 5 years to provide informatics capability that the Trust requires in order to deliver the improvement in efficiencies and innovation in patient care and meet the overall Trust business objectives.

1.3 Purpose of Document

This document provides an overview of the Trust's Informatics strategy. The previous strategy was produced in 2008; this strategy has been refreshed to reflect the changes in both the NHS landscape and the strategic priorities of the Trust. The development of this strategy draws upon the Trust's Health Informatics Review, the cessation of the NPfIT programme, and the initiation of the Transformation Plan which articulates the Trust's cost savings in 2012/13, 2013/14 and 2014/15. This document provides a Trust roadmap to achieve the informatics future operating model, as detailed in the schematic below:

Section 2 provides the strategic context outlining a number of business drivers and priorities.

Section 3 provides an overview of the current status of IT systems in the Trust and the plan for replacement, connection and/or integration to meet our vision;

Section 4 describes the role and importance of information services in the Trust and its importance in delivering our vision;

Section 5 describes the Trust's plans for infrastructure and telecommunications and how this will support our vision;

Section 6 outlines the Trust corporate systems and proposals for development of these systems;

Section 7 explains the structure of the Health Informatics Service, following the completion of the Health Informatics Review and the review of executive responsibilities by the Trust Board

Section 8 set out the approach that the Trust will take to the management, both delivery and on-going service provision of the Health Informatics Service.

Section 9 explains the governance structure and that will oversee the delivery of this strategy and ensure that it meets both clinical and business needs;

Section 10 identifies some of the key risks, it should be noted that this is not a definitive risk log and all transformation projects will be required to keep a project specific risk register;

Section 11 explains the approach the Trust will take to funding Informatics Strategy.

2 Strategic Context and the Trust's Strategy for the Health Informatics Service

The Trust is operating in an environment of unprecedented change both politically and economically. The NHS Health and Social Care Act 2012 puts clinicians at the centre of commissioning, and frees up providers to innovate, empowers patients and gives a new focus to public health. This combined with significant changes in legislation and central informatics policy has informed the development of our informatics strategy. Whilst there are a number of demands placed upon our informatics requirements, which are from seemingly disparate and conflicting sources it is clear from both local and national initiatives that informatics is placed firmly at the centre of patient care in the 21st Century. As a result, NHS Informatics is increasing in profile and now informatics and the use of the computer and high quality patient informatics is essential to the delivery of patient care. Our informatics Strategy has been developed to ensure that all informatics initiatives are geared towards support of the Trust's strategic direction and providing a platform for future development.

Used effectively Information and IT will facilitate and drive integration across care settings, however to achieve this and generate the greater efficiencies and productivity required the Trust will need to maximise the technology it already has and ensure a cohesive and cogent approach to the development of the Health Informatics Service. In developing our informatics strategy we have taken into consideration key national and local initiatives.

2.1 National Drivers

In developing our strategy we reviewed the following key national strategies:

"The Power of Information", the NHS information Strategy advocates joined up care and access to patient information for healthcare professionals, patients and carers in care settings.

"The NHS Mandate" published in November 2013, which is the first mandate between the Government and the NHS Commissioning Board, setting out the ambitions for the health service. The Trust's Informatics Strategy supports the NHS Commissioning Board Mandate for the NHS to be paper free by 2018 and for all communication between secondary and primary care to be digital by 2015.

"Quality, Innovation, Productivity and Prevention (QIPP) Programme" a large scale transformational programme for the NHS, that involves all NHS staff, clinicians, patients and the voluntary sector. It will improve the quality of care the NHS delivers while making

up to £20billion of efficiency savings by 2014-15, which will be reinvested in frontline care. Technology is a key enabler to QIPP.

“Transforming Community Services” the transfer of community services places additional demands on our informatics strategy. Whilst the programme concluded in April 2011, the requirements for care closer to home and joined up care informed the development of the Trust’s informatics strategy. In developing this strategy we took into consideration the six transformational attributes and subsequent guides. To meet the needs of clinicians in the community it is essential that we provide clinicians with appropriate technology and ensure that where safe and practical to do so clinical pathways are interlinked using shared records and joint care plans. In addition to application requirements we also need to provide a modern and mobile infrastructure including investment in mobile technology.

“National Programme for IT” - The dismantling of the National Programme for IT in September 2011 changed the informatics landscape and restored local control over decision-making and enabling greater choice for NHS organisations. In addition this change removed central procurement’s these are now the responsibility of the Trust. To date the Trust has committed to taking the IT solutions provided by NPfIT; this includes the Trust EPR solution, Radiology, PACS system, NHS Mail and the Electronic Staff Record. In September 2011, the Department of Health’s review of the NPfIT concluded that a centralised, national approach to information systems is no longer required and that a more locally-led plural system of procurement should operate. The Department of Health Informatics Directorate stated that a new approach to implementation will take a modular approach, allowing NHS organisations to introduce smaller, more manageable change, in line with their business requirements and capacity. This change in the national policy has further influenced the development of the Trust’s strategy. However at the time of production of this strategy the direction of centralised funding remains unclear. This uncertainty will have significant impact on the Trust’s investment case.

2.2 Local Drivers

The Trust is committed to *Right Here Right Care*, and is committed to improving health and the quality of health and social care services provided to local people in Sandwell and West Birmingham and bringing more health services to local community settings, so that elements of healthcare are closer to home. To meet our obligations to our patients and clinicians in the community it is essential that we provide clinicians with appropriate IT and ensure that where safe and practical to do so clinical pathways are interlinked using shared records and joint care plans. In addition to application requirements we also need to provide a modern and mobile infrastructure including investment in mobile technology.

Informatics and technology is a key enabler for the Trust's Transformation Plan. As the Trust initiates the enabling projects identified within the strategy, the Trust's capacity to enable service transformation will also increase. The informatics delivery programme directly supports the following transformation programme work streams are enabled by the following informatics projects:

- I. Patient Flow work stream is enabled by project 02 the eBMS
- II. Theatre work stream is enabled by project 07 Theatres
- III. Outpatient work stream is enabled by project 01 EPR
- IV. Community work stream is enabled by project 014 Community
- V. Urgent Care work stream is enabled by project 09 ED and project 01 EPR

As can be seen from the national and local drivers NHS Informatics is increasing in profile and now informatics and the use of the computer and high quality patient informatics is essential to the delivery of patient care. Used effectively Information and IT will facilitate and drive integration across care settings, however to achieve this and generate the greater efficiencies and productivity required the Trust will need to maximise the technology it already has and ensure a cohesive and cogent approach to the development of the Health Informatics Service.

In order to support both the strategic and local requirements, the Trust must look at the informatics systems which are installed and establish a coherent and rolling improvement plan to meet the strategic needs of the Trust and migration to the future operating model.

We recognise that significant improvements to the quality of patient care and the needs of our community will be met by the provision **of “connected and integrated healthcare information and systems”** where we provide high quality clinical information to support the delivery of high quality safe patient care across a high quality and sustainable infrastructure.

To deliver our vision of a **“connected and integrated healthcare system”** to our local healthcare community we must balance competing needs, making the best use of limited resources and develop the optimum solution which builds on existing investments and provides a coherent road map for development of our vision. To deliver our vision we have identified primary infrastructure and application projects that will enable service transformation within our local health community. These guiding principles are detailed in section 2.1.

2.3 Guiding Principles

The vision for informatics in the Trust is to ***“develop a connected and integrated healthcare system, supported across a modern and flexible infrastructure which will meet the needs of our local healthcare community and provide high quality patient information at the point of care.”***

We will use health informatics to achieve operational efficiencies, tangible cost savings and improved patient outcomes. We will achieve this by providing a collaborative and integrated environment, where critical patient and business information is available to employees and healthcare professionals. In order to provide this environment we will apply nine guiding principles:

Sandwell and West Birmingham Hospitals NHS Trust Informatics Guiding Principles

- 1. The Trust will build on existing investment to achieve a connected and integrated electronic patient record which will operate in a PaperLite environment;***
- 2. The Trust will develop an incremental improvement plan that will result in the development of an integrated solution for the Trust. The Trust will not embark up a “rip and replace” system replacement approach;***
- 3. Our procurements and deployments will be clinically led to ensure that the technology deployed enables service transformation;***
- 4. The Trust will maintain the existing level of functionality within core systems. It should be noted that a number of core systems will reach their contract expiry date in 2013 and will need to be re-procured, the Trust will procure those systems in line with the overarching principles;***
- 5. Certain core systems are not considered fit for purpose, these will be replaced in line with the core principles;***
- 6. The Trust will endeavour to reduce the number of standalone departmental systems and focus on the integration and/or replacement for these systems via the EPR solution;***
- 7. The Trust recognises that some specialist departmental systems will be retained and these have been identified as part of this of strategy. Given the evolving nature of service and systems this will continue to be reviewed;***
- 8. Any systems outside of the core EPR, whether existing or new, must comply with interoperability standards;***
- 9. All systems outside of the core EPR solution must be support timely data accessibility.***

In sections 3, 4 and 5 we have outlined the enabling projects which will support the delivery of the Trust's vision. Section 3 deals with system replacements and developments, section 4 deals with information services and section 5 deals with infrastructure and telecommunications.

3 Health System Projects

Our vision to develop and deliver ***“a connected and integrated healthcare system, supported across a modern and flexible infrastructure which will meet the needs of our local healthcare community and provide high quality patient information at the point of care”*** is dependent upon us delivering an integrated EPR solution. To achieve this and remain aligned with both our delivery approach and guiding principles the Trust must look at the informatics systems which are installed and establish a coherent and rolling improvement plan to meet the strategic needs of the Trust and migration to the future operating model.

To deliver our vision of a ***“connected and integrated healthcare system”*** to our local healthcare community we must balance competing needs, making the best use of limited resources and develop the optimum solution which builds on existing investments and provides a coherent road map for development of our vision. To deliver our vision we have identified application projects that will enable service transformation within our local health community and are aligned with guiding principles as detailed in section 2.3.

The following section describes the position with regard to a number of key Trust applications and also a number of applications that have previously been provided by the NPfIT. It also provides an emerging strategic direction in response to the Trust's on-going demand for modern health informatics solutions.

As stated in section 2.2 the Trust has previously committed to taking the NPfIT EPR solutions. As a result of the delays associated with the NPfIT, a number of departments have legacy systems, which are now approaching contract end dates. As part the system replacements plans the Health Informatics Strategy will co-ordinate and manage the replacement of every solution to ensure that it meets our vision for delivering ***“a connected and integrated healthcare system, supported across a modern and flexible infrastructure which will meet the needs of our local healthcare community and provide high quality patient information at the point of care”***.

- 1 Support the Trust's strategic vision for the delivery of digital care
- 2 Are fit for purpose,
- 3 Meet the operational requirements of the service and are properly managed in line with NHS health informatics guidance.

3.1 The Electronic Patient Record

Project 1	High Level Requirements	Benefits
EPR replacement		
Cost: To be confirmed Funded: Via the LTFM Subject to outline business case Year: 2013/14	Replacement of existing clinical systems with a single user interfacing solution Integrated multi-resource scheduling Integration with medical devices Intelligent patient management & escalation workflow process	Integrated patient care in the hospital and across the health system Safer patient care Smarter decision making Single access to all patient information Improved efficiency and productivity Responsive and agile organisation Paper lite organisation Improved business intelligence

The National Programme for IT (NPfIT), delivered by NHS Connecting for Health (NHS CfH) agency was expected to provide some early benefits, and the Trust had planned to take the CSC Lorenzo product as replacement for its legacy EPR solution set. However, significant slippage in the programme and the change in national direction, allow providers to “buy and implement their own IT services and solutions”.

The Trust is currently running on a PAS (iPM, iSoft) as delivered and supported by Computer Sciences Corporation (CSC), the NPfIT local Service Provider. This system is provided to the Trust through the NPfIT and it is currently nationally funded and therefore provided at “no cost” to the Trust until the contract ceases in 2016.

In late 2002, the Trust procured an electronic patient record system (iCM supported by iSoft); iCM at that time was the main EPR product offering from iSoft until the adoption of Lorenzo in 2004. iCM at that time was a well-established advanced EPR with full functionality. However, with the cessation of the partnership with Eclipsys, iSOFT froze development until 2009.

In 2007, following the merger of the City and Sandwell Hospitals in 2002, the Trust developed a Clinical Data Archive (CDA) the primary purpose of which was to store the historical data from the two legacy PAS solutions in the Trust. These PAS systems held traditional PAS data, results, clinical letters, clinical alerts, allergies and some other clinical documents. The CDA, which uses modern web-based technology, was designed as a historical Trust-wide archive for patient administrative and clinical data. As a result of the delay with Lorenzo, and with increasing demand from clinicians for better functionality than was available from iCM to view clinical data, the CDA has been enhanced and is now the main data warehouse for the storage of all clinical information which is either imported from legacy systems or sent via HL7 messaging via the Trust Interface Engine (TIE).

In summary the iPM, iCM, CDA and TIE solutions have developed organically and have been adapted and developed in response to clinical and Trust needs, pending the stabilisation and implementation of the Lorenzo position (through the NPfIT).

The initial plan, as part of the rollout of NPfIT applications to the North, Midlands and East cluster, was that the CSC iPM PAS, eVolution Maternity, ORMIS Theatres and the local iSoft iCM system would migrate to the CSC/iSoft Lorenzo Regional Care Solutions.

The Trust however, had been concerned over the functionality and quality of systems provided by the Local Service Provider and in March 2010 the Trust advised the SHA that they would not commit to any implementation timeframes for the year 2010/11 and until:

1. Implementation and evaluation of Lorenzo at University Hospital Morecambe Bay NHS Trust.
2. The final scope of Lorenzo Regional Care is agreed and its formal signing off under the Memorandum of Understanding (MOU) between CSC Alliance and NHS Connecting for Health.
3. Until Care Pathways, Guidelines, Protocols and Advanced Clinical Decision Support are put back into the contract, even if it means they are at a reduced level of functionality from the original OBS/Contract.

As of December 2011, the current status of these conditions was:

- 1. Implementation and evaluation of Lorenzo at University Hospital Morecambe Bay NHS Trust (UHMB).**
-

The UHMB went live on Lorenzo 1.9 in June 2010 and the Trust reported that it planned to go live with the pathology requesting and reporting module of the iSOFT electronic patient in the autumn 2011. A deployment lessons learned report was released in February 2012; however there is no formal evaluation report available. It should be noted that a number of Trusts have shelved implementation plans for Lorenzo as it is still not considered to be stable in a number of areas.

2. The final scope of Lorenzo Regional Care is agreed and its formal signing off under the Memorandum of Understanding (MOU) between CSC Alliance and NHS Connecting for Health.

The current position regarding the contract extension remains unclear. As of January 2012, it is expected that the CSC contract will not be renewed and no new sites will be added to the current implementation schedules. The Trust is waiting for confirmation of the position from the SHA.

3. The Trust will not consider an implementation date until Care Pathways, Guidelines, Protocols and Advanced Clinical Decision Support are put back into the contract, even if it means they are at a reduced level of functionality from the original OBS/Contract.

With regard to care pathways, guidelines, protocols and advanced decision support. These were scheduled for delivery in release 4 of Lorenzo Regional Care. In light of the current status of the contract extension it is anticipated that the planned de-scoping of the release will remain. This has major implications for the Trust's HI plan.

The position of negotiations between the Department of Health and the CSC remains unchanged and the planned agreement of the Letter of Agreement between the parties, initially planned for June 2012, remains unsigned however it is believed that there is an emerging agreement between CSC and the Department of Health. In effect, the Trust has delayed decisions regarding system re-procurements until the position on both NPfIT and specifically the iSoft Lorenzo product were clearer.

As of December 2011, 21 months after the original communication and given the impending re-procurement challenges, the Trust must now make decision regarding the future of EPR, its replacement and implementation of the paper light delivery model.

Clinicians are increasingly frustrated with the number of applications they need to access and also the amount of information held in silos within the Trust and across the health community. Integrated care beyond the boundaries of the Trust is becoming the accepted service model and this needs to be supported by the IT and governance arrangements over the sharing of patient records.

Workflow is a key component to ensure that clinicians are presented with the right information at the right time to make effective clinical decisions enabling patients to receive appropriate treatment. It also leads to improved team work across the clinical domains reducing delays in each handover process and ultimately reduced length of stay prior to discharge from the Trust. Patient scheduling is carried out across multiple systems so there is no holistic view of the patient journey and a number of manual processes are in place to ensure the Trust delivers on key operational targets

Retention of the current solution and the planned de-scoping of the CSC Lorenzo solution will leave the Trust without a viable solution to meet its objectives and will also see a reduction in current functionality. In the light of this intelligence and recognising that the Trust will bear significant costs once the NPfIT contract ceases the Trust has now embarked upon an options appraisal to determine the future of the EPR solution.

3.1.1 Options Appraisal

In 2012, taking into consideration the Trust's vision and the change in national informatics strategy, the Trust embarked upon a review of the options available. Taking into consideration the Trust's emerging requirements from the Transformation Plan, the objective of improving the use of health informatics in clinical practise and also the requirement for systems replacement the Trust's options were reviewed in light of the **NPfIT's "Clinical 5 Model"**. **NPfIT's "Clinical 5 Model"** outlines the minimum level of EPR functionality that all secondary care Trusts should attain, and also reflects the migration path. This is referenced in the diagram below.

UK – Clinical 5 for Secondary Care	
Level	Cumulative Capabilities
Level 5	e-prescribing (including 'To Take Out' medicines)
Level 4	scheduling (for beds, tests, theatres, etc)
Level 3	letters with coding (discharge summaries, clinic and Accident and Emergency letters)
Level 2	order communications and diagnostics reporting (including all pathology and radiology tests and tests ordered in primary care)
Level 1	a patient administration system with integration with other systems and sophisticated reporting

The Trust is currently working around Levels 2/3. As a result of the requirements that have emerged from the Transformation Plan and feedback from clinical colleagues, the Trust must look to procure a system that reaches the level 5 solution. In order for the Trust to come to a decision on the best way forward over the next 5 years, a number of options were considered these are:

- A. **Do Minimum** – Stay with iCM and iSoft solution set
- B. **Lorenzo Regional Care** – Take the previous NPfIT solution from CSC Alliance
- C. **Best of Breed** – Procure the best solutions for each area and integrate through inter-operability
- D. **Integrated EPR** – Procure a fully integrated EPR which could include a mix of supplier options and varying degrees of ROI depending on how advanced functionality is.
- E. **Develop In-House** – develop the Clinical Data Archive (CDA) and eBMS to become a bespoke active Electronic Patient Record.
- F. **UHB Solution** – Procure or outsource the Trust's Health Informatics Solution to University Hospital Birmingham

Option	Positive	Negative
Option 1 Do Minimum – Stay with iCM and iSoft solution set	1. Established system 2. No training or re-implementation costs 3. Annual support costs within current budget	1. Poor levels of service delivery 2. Poor levels of support. 3. Antiquated system and architecture. 4. iCM product set is scheduled for “sunset” strategy. The timescales for this have yet to be confirmed 5. Does not include advanced decision support or protocol driven pathways, and clinical guidelines. 6. The products do not currently support prescribing or enterprise wide scheduling as an integrated product set. 7. The Trust will still be required to re-procure at the end of the contract in 2016 8. Trust will still be required to procure a number of core systems
Option 2 Lorenzo Regional Care – Take the previous NPfIT solution from CSC Alliance	1. Significant financial incentives 2. Maintenance does not commence until 12 months after the implementation does not occur until 5 years after	3. Poor levels of service delivery , though improved in past 2 years 4. Products not officially signed off at pilot sites 5. Poor levels of support, though improved in past 2 years

Option	Positive	Negative
	start of 1 st implementation	<p>6. Does not include advanced decision support or Protocol driven pathways, and clinical guidelines. The products do not currently support prescribing & medicines administration or enterprise wide scheduling.</p> <p>7. Trust will still be required to procure a number of core systems to meet the overall vision</p>
Option 3 Best of Breed – Procure the best solutions for each area and integrate through inter-operability	<p>1. Functional rich solutions</p> <p>2. Highly interoperable and some solutions are more advanced in patient – context integration.</p>	<p>1. Significant costs associated with interoperability and integration.</p> <p>2. Level of integration required prevents enterprise wide scheduling.</p> <p>3. Does not include advanced decision support or Protocol driven pathways, and clinical guidelines.</p> <p>4. Annual maintenance costs could be higher for multiple systems</p> <p>5. Lower ROI than for fully integrated systems</p>
Option 4 Integrated EPR – Procure a fully integrated EPR which	<p>1. Significant evidence for Return on Investment</p>	<p>1. Cost</p> <p>2. Operational impact during transition.</p>

Option	Positive	Negative
could include a mix of supplier options and varying degrees of ROI depending on how advanced functionality is.	<ol style="list-style-type: none"> 2. Meets needs of Transformation programme now & in future 3. Integration of Enterprise wide scheduling with beds, Theatres, and resources for staff, equipment & locations. 4. Integration of ePrescribing, results reporting & full clinical decision support 5. Sound Implementation methodology and capacity to deliver 	
Option 5 Develop In-House – develop the Clinical Data Archive (CDA) and eBMS to become a bespoke active Electronic Patient Record.	<ol style="list-style-type: none"> 1. Cost 2. Clinicians get the functionality they want, relatively when they want 	<ol style="list-style-type: none"> 1. Requires significant in house development resource. 2. Will still be required to develop a procure a number of commercial solutions 3. Sustainability over long term keeping abreast with changes in health care – becomes too bespoke
Option 6 UHB Solution – Procure or outsource the Trust's Health	<ol style="list-style-type: none"> 1. Established solution liked by clinicians at UHB 	<ol style="list-style-type: none"> 1. Strategic direction driven by UHB. 2. Solution based upon the CSC iPM

Option	Positive	Negative
Informatics Solution to University Hospital Birmingham	<ol style="list-style-type: none"> 2. Relatively low cost compared to more advanced fully integrated solutions 3. Junior Doctors & Consultants move between SWBH & UHB – same system, easier training, though they have to learn different systems at HEFT. 4. More cost effective than some other options on the market. 5. Could be a more attainable model in terms of affordability 6. Would not have to procure as many separate systems as some other “best of breed” offerings, which would reduce the annual support costs and technical infrastructure that could be incurred. 7. Could realize some key benefits such as drug savings 	<ol style="list-style-type: none"> solution, already installed at SWBH NHS Trust 3. Does not support outpatient prescribing 4. Requirement to maintain and procure department systems 5. Does not support order entry, which is a core requirement for service departments 6. Does not support enterprise wide scheduling. 7. ROI far lesser degree than fully integrated solution 8. Product now with commercial supplier – competing priorities with other Trusts for development 9. Older architecture which is not supported on modern mobile devices such as iPADS

Given the current operational and strategic needs identified within the Trust it is proposed that a blend of option 4 and 3 needs is progressed. In a blended approach the Trust will proceed to market test for an integrated EPR solution with best of breed functionality retained for core departmental systems. Retained departmental systems would be radiology, PACS, pathology, maternity and identified specialist departmental systems such as chemotherapy and radio pharmacy.

By taking a blended approach to the replacement of the EPR system, would support

- I. Clinical effectiveness and efficiencies - NHSLA premiums, savings from reduction in adverse drug events, unnecessary tests in particular MRI scans, spend on medication, reduced length of stay;
- II. Operational efficiencies – reduced administrative posts and improved commissioning payments.

The value of these savings will be developed further through the development of the business case to procure an EPR and indicative costs and ROI will be identified in the Strategic Outline Case (SOC).

3.1.2 Procurement

The Trust will commence procurement planning in October 2013, with a view to a contract award in Q2 2015. The Trust will define the procurement strategy by Q3 2013 and will establish a procurement team to manage the procurement of the EPR solution for the Trust. The Trust anticipates that the Trust will employ competitive dialogue for the procurement.

3.1.3 Approach to Transition

The Trust will adopt an incremental approach to transition. Transition to a single integrated solution would occur over the medium and longer term. This would include core clinical, diagnostic, scheduling and non-clinical functionality. Our plan, over the next 2-4 years will be to rationalize, and where supportive to the Trust vision, replace existing solutions. The objective being to reduce the number of systems and the complexity of managing those systems and ensure that system replacement supports the overall Trust vision.

The Trust would transition from the current systems to the new integrated solution at a pace that fits with the clinical and organisational requirements as well as the Trust's own capacity to change. Under this model, the Trust would only retain those specialist systems that cannot be delivered effectively through an EPR.

Based on best practice a typical implementation would take some 3 – 4 years from contract signing to being fully implemented. Although timescales can be altered, it highlights the need to commence market testing for integrated solutions and for the Trust to commence planning for the replacement of the current EPR.

Once such a solution is fully deployed it is anticipated that it would be our primary clinical platform for the next 10 – 15 years, and would enable the Trust to drive workflow and pathway redesign across departments and the wider healthcare community.

3.1.4 The Pan Birmingham Central Care Record

The Trust is one of the Seventeen health and social care organisations across Birmingham, Sandwell and Solihull that will participate in the tender for a joint central care record system.

NHS Central Midlands Commissioning Support Unit is leading the tender on behalf of local clinical commissioning groups, mental health, acute, community and ambulance trusts as well as local councils.

The objective of the Central Care Record is to make information for an initial 1.6m people available to health and social care staff, wherever the patient is being treated. The Trust is supportive of the Central Care Record Initiative and sees this as a major enabling solution that will integrate care across our local health community.

3.2 Electronic Bed Management System

Project 2 eBMS	High Level Requirements	Benefits
Cost: To be estimated Funded: Yes, from HIS resources	Real time patient tracking High level view of patient pathway Interactive whiteboard to view patient status Patient status at a glance e.g. diagnostic results, prescribing, therapy treatments, social services referrals,	Reduction in patient LOS Better bed utilisation and availability Reduce number of wards and staffing Reduction / elimination of outlying patients Legible whiteboard From board round Clinical coding

Year:	TTOs	
2012/13	Escalation of patients outside of care plan	

The patient journey through the hospital is a complex multi-disciplinary process from the point a patient is admitted to the point a patient is discharged there are multiple points in the process where errors, inefficiencies and mis-communications can occur which cumulatively can result in the patient discharge being delayed. Often discharges are delayed through situations such as:

- not knowing accurately where patients are in the process;
- waiting for diagnostic results and not knowing when these are available;
- unavailability of equipment or not knowing the exact location of equipment;
- not knowing the exact location of patients in a ward – time can be spent trying to hunt down patients unnecessarily;
- waiting for beds to be cleaned and turned prior to being made available for a new patient.

All of these create bottlenecks in the discharge process and delay the availability of beds within the Trust. Generally, much of the data and information relating to the patient journey is known but is not readily available or systematically recorded. This often delays the commencement of procedures or delays in discharges.

The Trust has developed in house and implemented a bed management tool that provides clinicians with a real-time view of patients on the ward and the discharge planning. This tool has become an essential tool and supports the daily board round

This system facilitates the better co-ordination of information and help to manage patient flows by consolidating real time information from a variety of sources. Additionally, this information should be made available to staff with the minimum of interaction so that information can be made available ideally “at a glance”. This not only supports patient management at a local clinical level but also via organisation wide views such as those required to manage capacity issue from a central point.

3.2.1 Electronic Bed Management System Product Plan

It is the intention that further enhancements will be made to the electronic bed management systems to further support patient flow processes and efficiencies in the total admission to discharge flow process. It is also intended to rename the eBed Management system to reflect this totality of patient flow and the development of an intelligent tool to support planning and delivery of patient care and safety. The proposed product plan has been scoped, though as it is supporting a fast-moving Transformation programme, it will be a continuous development cycle. The functionality will be able to be integrated with an EPR or if it provides the required level of functionality or supplier willing to develop, will at some point in the future be fully integrated with the EPR.

The proposed development will be over the next 3-6 months and will include:

- links to Theatre work stream with wider roll-out of eWhiteboard to all surgical wards to track patients and the development of functionality to support pre-operative assessment
- Launch of the electronic Board Round
- Development of functionality to support Consultant ward rounds (eWard Round) and also Post-Take and MDT ward rounds
- Development of electronic handovers – both medical and nursing with perhaps a standard clinical eHandover. This will also link into the Safety briefing and Safety Thermometer
- Various workflow dashboards to support key stakeholders in the Patient Flow process e.g. Transport, Pharmacy, Therapists, Ward Manager/Matrons
- Pilot of clerking in for nurses and medical staff.

3.3 Pathology

Project 3 Pathology Business Continuity	High Level Requirements	Benefits
Cost: TBC Funded: Yes, from HIS Capital Year: 2012/13	Installation of business continuity and disaster recovery solution Upgrade of hardware Provision of storage and backup capability to provide a fully redundant, high availability cluster across the Sandwell and City sites	A fault tolerant and a fail over solution to maintain service levels

The Trust's Pathology Department currently uses the iLab™ Pathology system provided and supported by iSOFT. There are no immediate performance issues with the Pathology system, however it is overdue for a hardware refresh, this should be scheduled in 2012 and at the same time disaster recovery options should be reviewed.

A proposal from CSC is due which will utilise the existing Trust storage infrastructure (SAN) implemented in 2012/13 for storage and backup of the iLab data. The proposed configuration will be for a single server on each site connected to the SAN to provide primary data storage and replication and for backups of the data to be configured on the Trust centralised backup solution. This will minimise the cost of the upgrade to the Trust whilst significantly improving the fault tolerance of the iLab system over the current single site solution.

The upgrade will require a staged approach as the hardware and software will be refreshed which will entail revised testing for MHRA compliance. Anticipated completion of this project is end March 2013.

Costs for this upgrade are currently awaited.

It should be noted, that whilst the iLab™ is a mature system supported by iSoft, it is considered to be functionally rich. Any decisions to replace the system are currently on hold until a decision is made regarding a Cluster wide pathology system.

3.4 Radiology Information System (RIS)

Project 4 RIS Refresh	High Level Requirements	Benefits
RIS refresh Cost: Estimated cost £200K Funded: Yes Year: 2016/17 2013/14	Procurement and implementation of the Radiology Information System disaster recovery solution that was completed in 2013. Planned refresh is 2016/17	Providing a fail over solution to maintain service levels Supports the migration to RIS following expiration of the CSC contract

The Trust Imaging Department is a mature and informed user of technology, and is a leader in innovation and service re-design. The Department is a major stakeholder of HIS, this combined with its innovation and leadership gives the department a unique position in service redesign and the transformation programme. Current intelligence suggests that the demands for service redesign will accelerate in line with the transformation plan and in preparation for the move to the Midland Metropolitan. Within the next 18 months, the Trust will be heavily dependent upon Imaging and HIS to support the following re-configurations:

1. Stroke Services
2. Breast Services

3. Vascular Services
4. Radio pharmacy
5. Nuclear Medicine
6. Neurophysiology
7. Radiology
8. Fluoroscopy
9. Cardiac Imaging

Clearly, with the demand for imaging services increasing, combined with the departments innovation and leadership, if service re-configurations are to be optimised and the Trust to maximise the benefits of such re-configurations, a long term investment and action plan is required. There are some key decision points for the Trust in 2012 which include introduction of business continuity and disaster recovery capabilities for radiology.

The Trust has successfully completed the deployment of a business continuity solution and completed the upgrade of the Radiology Information System. The Trust will plan for a further refresh of the radiology information system in 2017/18

The Trust uses the HSS CRIS Radiology™ Information System, which is currently provided by CSC. The contract for this system expires in 2013. The department is satisfied with the service provided by HSS.

The department has the opportunity to procure a second version of CRIS, which would provide a disaster recovery solution. This would allow the historical data to be migrated out of the CSC solution at a reduced cost and complexity over the traditional route.

A number of options for continuation of the HSS solution at the end of the contract with CSC are currently being investigated including locally hosting the live service and continuing the service arrangements with CSC. The benefits of each approach are being looked at carefully by imaging however the preference would be to retain a cluster wide service as this enables more seamless communication of images with other Trusts.

3.5 PACS

Project 5	High Level Requirements	Benefits
PACS Replacement		
<p>Cost: £890K</p> <p>Funded:</p> <p>Subject to business case approval.</p> <p>Proposed use of HIS Capital 2013/14</p> <p>Year: 2013/14</p>	Provision of storage and exchange of mechanism for DiCOM images	<p>Site wide access to images</p> <p>Improved access to images by clinicians and subsequent improvement to patient care.</p>

The Trust is currently uses the MERGE PACS solution, this application is out of contract in September 2013 and the Trust has obtained IAP approval. As part of the replacement of PACS the Trust will also evaluate the vendor neutral archive (VNA) solutions which will provide a scalable image and information management platform for the storage of medical imaging from other clinical departments (ophthalmology, neurophysiology, cardiology etc.) A VNA solution serves as the foundation for an overall enterprise imaging strategy.

3.6 Pharmacy

Project 6 Pharmacy	High Level Requirements	Benefits
<p>Cost:</p> <p>TBC</p> <p>Funded:</p> <p>Business case developed as part of the EPR solution</p> <p>Year:</p> <p>2013/14</p>	<p>Integration of Pharmacy System into EPR</p> <p>Availability of inpatient and outpatient prescribing.</p>	<p>Reduction in drug budget</p> <p>Increased patient safety</p>

The Trust uses JAC Pharmacy, one of two pharmacy information systems in common use in the NHS. JAC provides both a stock control and dispensing. The JAC Pharmacy system does include a prescribing module but does not support prescribing messaging. To achieve full benefits from ePrescribing, and higher ROI, ideally both the dispensing and prescribing components should be integrated with full clinical decision support, results reporting, and eRequesting of tests and investigations. It is therefore proposed that the procurement of pharmacy is included in the EPR procurement.

3.7 Theatres

Project 7 Theatre Integration	High Level Requirements	Benefits
Cost: TBC Funded: Business case developed as part of the EPR solution Year: 2013/14	Integration of Theatre System into EPR	Overview of Trust capacity Integrated reporting and scheduling

The Ormis theatre system is provided as part of the CSC solution set and is provided at no cost to the Trust until 2016. No issues have been identified with the Trust's theatre system, and therefore there no immediate requirement to replace the theatre system. It should be noted that it is anticipated that the Theatre systems will be incorporated into the EPR replacement solution. Incorporation into the EPR solution is a requirement support integrated enterprise scheduling and the support of operative and anaesthetic documentation and processes.

3.8 Maternity

Project 8 Maternity Replacement	High Level Requirements	Benefits
Cost: £360K Funded: Yes, HIS Capital Year: 2012/13 Planned refresh 2017/18	Procurement of a fit for purpose maternity system which supports community contacts	Integration of the Maternity record within EPR Availability of community record

The Trust currently uses the eVolution maternity system and the Trust recognises that that the system is not fit for purpose and presents significant operational risk to the specialty.

The Trust has procured the BadgerNet Maternity Solution provided by Clever Med Ltd. The BadgerNet Platform offers users the ability to create a seamless patient record across Maternity Units as well as Neonatal, Paediatric intensive care and Transport. The software is typically provided as a high quality managed to meet the on-going needs of the clinical community. The BadgerNet Platform can interface with all existing local, regional, and national patient data systems and bedside medical devices which support

As part of the delivery programme for the maternity system the Trust will also evaluate agile working technologies in order to secure and improve information governance and

security and prove the capability of our technical infrastructure within local health community.

It is anticipated that BadgerNet will continue to be the Trust's preferred solution, however this will be reviewed in the context of the EPR solution as part of the planned refresh in 2017/18.

3.9 Emergency Department

Project 9 ED Integration	High Level Requirements	Benefits
Cost: 150K Funded: Business case developed as part of the EPR solution Year: 2012/13 Planned refresh: To be incorporated within EPR	Scanned records (indexed) Electronic docs and forms Central repository for all documents Workflow process	Real time access to patient records Reduced storage costs Reduced clerical effort with filing, retrieving and transportation

The Emergency Department (ED) is an important health informatics system for the Trust. The Trust completed the phase 1 consolidation of solutions and has established a Trust wide A&E solution based on the MSS Ltd patient first solution and decommissioned the System C Sigma ED system and the CSC solution. The Trust plans to incorporate the A&E/ED solution in within the planned EPR procurement.

1. As an interim solution, the Trust will consolidate on to one product set. This solution will be integrated with the EPR utilising either presentational level integration. This will be known as the interim solution.
2. ED the interim solution will be included in the EPR procurement
3. Full ED integration with the EPR solution

3.10 Radiopharmacy

Project 10 Radiopharmacy replacement	High Level Requirements	Benefits
Cost: Estimated £80K Funded: HIS Capital Year 2012/13	Accurate measurement of radiotherapy materials. Production of supporting documentation.	Maintenance of Trust's license and ability to produce radio therapy products.

The Trust's radiopharmacy system was built in-house and is now unsupported. It is used to produce documents which the Trust needs to legally transport radioactive materials. If the system is unavailable there are significant delays to supplying our external customers. The department have expressed concerns over the systems processing of data particularly in relationship to the measuring of radioactive content and management of units of measurement and document production.

The new system will support compliance with quality standards, and if networked to the rear clean room, will support the department achieve a paper free operation and improve levels of microbes within the clean area. Failure to address the deficiencies in the system will compromise the Trust's license to produce radiopharmaceuticals.

Given the specialist requirements for both nuclear medicine and radiopharmacy the Trust will consider a joint procurement for an information system.

3.11 Chemotherapy prescribing

Project 11 Chemotherapy prescribing	High Level Requirements	Benefits
Cost: Estimated 200K Funded: Yes, HIS Capital Year: 2012/13	Electronic chemotherapy prescribing. Interoperability to ePrescribing/EPR solution	The risks include for example the potential for delivery of inadvertent and potentially fatal overdoses of cytotoxic drugs, or of inappropriate or mistimed chemotherapy agents and treatment protocols. It facilitates standardised protocol based prescribing and reduced the risk of errors, and improves patients safety It facilitates monitoring of the use of chemotherapy

The Trust has IAP approval for the procurement of an industry standard Chemotherapy solution. Chemotherapy prescriptions are complex. A cycle of treatment often consists of a number of different chemo-therapeutic agents administered on a different day of the cycle, via different routes of administration and over different time periods. The regimen may include a period of pre and /or post treatment hydration and prophylactic anti-emetics. The prescriptions are therefore time consuming to write and a potential source of error.

The full introduction of electronic prescribing will improve standards of clinical governance and facilitate risk management by providing a fully auditable record of all chemotherapy prescribed and administered. To meet this requirement the Trust will evaluate the solutions available for chemotherapy prescribing and their integration with the ePrescribing/EPR solution.

3.12 Nuclear Medicine

Project 12 Nuclear Medicine	High Level Requirements	Benefits
Cost: Estimated 150K Funded: Yes, HIS Capital Year: 2012/13	Nuclear medicine information system This system has been developed internally and needs to be placed on a sustainable platform. Failure to do so will compromise the Trust's service capability	It facilitates standardised protocol based prescribing and reduced the risk of errors, and improves patients safety It facilitates monitoring of the use of nuclear medicine

The Trust has developed the Nuclear Medicine Information system in-house and this now needs to be placed on a sustainable support platform and replaced with a commercially sustainable product. This will maintain and improve the tracking, dosing and quality control records associated with nuclear medicine doses and drugs. Given the specialist requirements for both nuclear medicine and radiopharmacy the Trust will consider a joint procurement for an information system.

3.13 Electronic Document Management

Project 13 EDM	High Level Requirements	Benefits
Cost: TBC Funded: Yes Year: 2015/16	Scanned records (indexed) Electronic docs and forms Central repository for all documents Workflow process	Real time access to patient records Reduced storage costs Reduced clerical effort with filing, retrieving and transportation

The Trust maintains paper records through the Medical Records service, 100 staff are involved in the distribution and collection of these documents. To support the moving to electronic documents and to support the development of the PaperLite environment the Trust has developed the Clinical Data Archive which is a store of electronic clinical records.

The Trust currently runs 6500 clinics per month. Documents are collated and distributed to the clinical areas up to 4 days prior to the clinic date. Additionally, with 4,400 events in A&E per week there are a number of ad hoc requests also to be dealt with. There approximately 2 million case notes in the Trust with the majority held off-site. Although the medical records are barcoded and tracked, in some cases records become displaced for a period of time and therefore are not available for clinical colleagues. In an instance such as this a duplicate temporary paper record is compiled. When the original case notes are located the two records are then merged and updated.

Much of the information held on paper is duplicated on many of the clinical systems or on shared network drives across the organisation. Leaving in the main ward and clinic based clinical notes that are handwritten and external referral letters that are the sole copy in the patient based paper record.

In addition many departments hold their own paper based records for patient care including services such as A&E and maternity. This is due to the need for records to be accessible, for specialist care and for confidentiality.

The scanning and indexing of selected paper based records (new and historic) enables immediate retrieval of those electronic records at the point of need – this is referred to as Electronic Document and Records Management (EDRM). EDRM ensures a single view of all records (paper and electronic) associated with a patient as well as other Trust documentation.

Robust indexing of records ensures that they are securely linked to a patient where applicable and full audit capabilities are available to ensure that data security breaches and errors are mitigated. Electronic records are retrieved via a search interface in real time; physical records are tracked and the paper assets are “sweated” to provide greatest value.

A document management solution that combines data held electronically across multiple systems and supplemented by an electronic view of paper based records will provide significant benefit. By maintaining a mixed economy of paper and electronic documentation the need for paper records is reduced over time which will provide savings for the Trust and support the migration to a PaperLite Operating model.

The introduction of electronic document management must be supported by the creation of a central repository for all clinical notations to enable the migration from handwritten, paper based systems to a solution that enables real time data capture of patient documentation.

The system must enable form type data entry and workflow processes, standardising where possible the hundreds of forms and templates currently in circulation. The Trust is currently looking at voice recognition and the reconfiguration medical typing services. In addition a central repository for certain documents such as ward round notes, theatre notes, and discharge summaries. A number of these documents need to be shared with other healthcare professionals within and external to the Trust to maintain continuity of care plus copies to the patients.

EDRM benefits the Trust by supporting the Transformation Plan, by embedding the use and management of electronic records. Its adoption also reduces the amount of data digitization and migration to the EPR and supports the Trust’s migration to a PaperLite operating model.

It is proposed that the Trust proceeds to evaluate further the EDRM market leaders and options appraisal. The implementation of an EDRM solution compliments and enhances the Trust’s migration to integration EPR and supports the Trust’s migration to a PaperLite operating model.

3.14 Community Systems

Project 14 SystemOne	High Level Requirements	Benefits
Cost: TBC Funded: Yes Year: 2013/14	Review of existing functionality and modules with planned rollout to community and palliative care. SystemOne in the Community, with increased use of SystemOne over mobile devices	Real time access to patient records Improved information governance and security Real-time data access at the point of care Completeness of the patient record.

The Trust has deployed SystemOne developed by TPP. This solution is implemented within the CCG and also within our Community and Therapy Services. The solution was inherited by the Trust as a result of the TCS project, it has a flexible capability and can be implemented as part of a fully integrated system across an entire CCG or as individual solutions for Community, Child Health, Prison, Urgent Care, Palliative and General Practice.

The Trust has yet to fully exploit this capability; however the solution is seen as fundamental to supporting the integrated care pathway. As part of the development of the EPR requirements the Trust will evaluate the needs of community to ensure that the Trust procures a solution that meets our future operating model and also the service needs of our local health community. The Trust will also evaluate the integration of the Central Care record and its deployment in this service environment.

3.14.1 Agile Working in Community

SystemOne offer a variety of mobile solutions including use of SystemOne via laptops and PDAs. The Trust has deployed the SystemOne Briefcase solution which the Trust has deployed to support agile and mobile working in the community project.

4 Information Services

Information Services are essential in the delivery of our vision. The provision of “... **high quality patient information at the point of care**” is essential in the delivery of patient care. The Information Services team provide information to meet the operational needs of the Trust; this includes but is not limited to:

1. All National Commissioning datasets to the secondary user service (SUS)
2. National dataset submission to a variety of destinations
3. National Unify Submissions
4. National/SHA/Local Returns
5. Operational Reporting within the Trust
6. Management Reporting for the Trust
7. Data Quality Improvement in the areas of NHS number, GP Practice, DOB, Ethnic Origin
8. Provides feedback on data quality to the operational services and the Trust Board.

The Trust has placed significant focus on meeting its regulatory and performance obligations over the past few years. This has required effective information management to provide the Trust with accurate, timely and relevant information reporting that provides a true picture of the performance of the Trust services across a range of parameters. The demand for information is growing at an unprecedented rate as a result of more complex commissioning rules, greater regulatory requirements and the drive for quality and efficiency.

Information Services are the conduit for information flows in support of the business. As the focus turns to implementing clinical information systems, the Trust will see an increased demand for data to support the performance management, QIPP and Transformation programme. This will place further demands on Information Services to support care and capacity planning. The Trust will therefore require Information Services to change and modernise to meet these challenges. Investment in training to use additional products will need to be increased to help realise some of the benefits that can be realised with better analysis of the available data to provide better information. The Trust when purchasing new systems must take into consideration the ability of any system purchased to integrate with existing systems and also in the system's ability to allow interrogation to allow for clinical reporting and analysis.

Information is a vital asset for the Trust, supporting both day to day clinical operations and the effective management of services and resources. The Trust requires accurate, timely

and relevant information to enable it to deliver the highest quality health care and to operate effectively. Having accurate relevant information available at the time and place where it is needed, is critical in all areas of the Trust's business and plays a key part in corporate and clinical governance, strategic risk, service and workforce planning and performance management.

The introduction of Clinical Commissioning Groups (CCGs) will result in commissioning decisions and budgets being amended across the local health economy.

Trusts' use of resources is assessed by the Audit Commission's ALE assessment which is based on financial reporting, management and standing as well as internal controls and value for money.

These two assessments provide an integrated approach is more stringent than that previously adopted and requires robust, consistent reporting across all areas of activity and performance. The current infrastructure needs strengthening to ensure accurate and timely data recording and collation in all areas.

The HIS is a key component to the Performance Management Framework (PMF), both as holders of the data held in operational systems and as developers and publishers of performance indicators. This involvement is expected to increase during the life time of this strategy particularly when the Trust achieves Foundation status.

The Information department have developed a Quality Management Framework (QMF) System around Key Performance Indicators produced as a by-product of other information processes. This will mean that the KPIs will be available as soon as the data is available from any daily or automatic downloads from the IT systems.

4.1 Data Quality

Project 15 DQ Managed Service	High Level Requirements	Benefits
Cost: £60K Funded: Provisionally Year: 2012/13	Managed service that provides real time data quality updates	Improved data quality Preparation for data migration

The Trust is aware of the need to maintain and improve data quality. Data quality is a known issue within the Trust and currently has a direct impact upon the Trust's operational systems. Data quality is essential to the current operations within the Trust and is also essential in supporting data migration to the new integrated EPR

Information is a vital asset, both in terms of clinical management of individual patients and the efficient and effective management of services and resources. It plays a key part in clinical governance, service planning and performance management and is crucial to support Payment by Results (PbR).

The increasing demand for the provision of information within shorter timescales and the support of the 18 week patient pathway means the Trusts no longer have the luxury of being able to perform extensive data quality checks before information is released. Consequently, it is more important than ever that information is recorded promptly and accurately at source, and is 'fit for purpose'.

The structural changes outlined in Shifting the Balance of Power mean that a large number of commissioners will be looking for more information including service quality. With the disappearance of health authorities and regional offices there may be fewer external checks on the integrity of trust-generated information.

Since 1989 comprehensive national data has been collected in the form of HES. The Kennedy Report recognised that HES data will only be used if it is reliable. At national level HES data has been considered fit for purpose: accurate and timely enough for epidemiologists and planners. However, there are widespread doubts as to whether HES data is fit for all purposes. A higher standard of accuracy is required if decisions are to be based on information from local data sets which can be distorted by a few significant errors.

Models of care are changing. Single episodes of treatment within a single specialty at a particular trust are not relevant. Information needs to follow the patient journey. Different people will be making use of data with different assumptions, this can and will cross-organisational boundaries. Data must be collected in a consistent manner. Clinical networks are becoming increasingly important and these networks will play a vital role in developing good practice. Clinical data sets are becoming the norm and this is widening the range of patient information that can be made available. Clinical governance demands better-quality data.

Improving data quality is more about encouraging positive attitudes than installing the best IT systems. The delivery of Electronic Patient Records will ensure comprehensive patient-based health care records are delivered and this certainly widens the scope of what information is currently available to support the delivery of patient care.

Internal validation is a pre-requisite of any modern IT solution and should be an essential feature. In addition, the greater the integration of systems to support the EPR, the more likely it will be to support data quality and reconciliation of information.

The current Data Quality policy has been reviewed and updated. A detailed data quality and reporting plan will be developed to ensure accuracy of data from all major IT systems to support trust performance targets. A major focus will be on achieving robust real-time data input by users of IT systems and operational ownership and clear understanding about the data staff key into systems and how that can impact on patient care delivery and the Trust's Quality accounts, performance targets and financial systems. As part of the involving needs of the Service the Trust will review the role of data quality and embed the responsibility and teams within the Clinical Groups.

4.2 Business Intelligence

Project 16 Business Intelligence	High Level Requirements	Benefits
Cost: TBC Funded: HIS Establishment Year: 2013/14	Integrated dashboard on all key metrics (clinical quality, finance & productivity, patient & customer experience; workforce & learning) Real time transactional updates to extract, load and transform data Toolsets appropriate to the roles accessing, analysing and acting on the data	Improved insight Improved operational efficiency and productivity Improved performance management through robust and transparent data Better use of national bench marking data

The Trust is dependent on high quality data, and it is essential that the Information Services function develops to a business intelligence function which is established to target, gather, deliver and analyse data, to support the Trust objectives. A business intelligence (BI) function is at the centre of informed and precise decision-making that will improve patient and service outcomes in addition to ensuring the Trust's future.

Access to relevant and timely information enables rapid decision making ensuring the Trust is making the right strategic decisions either for long term planning purposes and operational decisions ensuring that patients are receiving the right care at the right time. Both would improve the effectiveness and efficiencies in the management of our services and resources.

To achieve the full benefits of BI, the Trust must take an enterprise wide, strategic approach to BI rather than an ad hoc tactical approach to information management. The greatest efficiencies come from integrating data historically siloed in financial, operational and clinical systems. A strategic approach to BI, which cuts across the organisation, requires buy-in from not only Trust executives but also corporate and clinical staff.

Finally, it is important to ensure that the Business Intelligence Platform is underpinned by a robust and managed technology platform. The physical infrastructure drives performance, reliability, flexibility and integration of the system and must be considered as part of the wider Service Management and Infrastructure strategy at the Trust.

The delivery of a business intelligence function within the Trust which has the capability and capacity to support operational data quality, performance management and capacity planning is a priority for the Trust in 203. As part of the involving needs of the Service the Trust will review the role of Business Intelligence and its position in the organisation.

4.3 Clinical Coding

Clinical Coding has become a critical function for the Trust following the introduction of Payment by Results. Coding is currently carried out using ICD-10 and OPCS-4. It is likely that the standard of SNOMED-CT will be adopted in the future with the implementation of Electronic Patient Records and clinical documentation. This is unlikely to replace clinical coders; however roles are likely to change, as they will be required to work more closely with clinical staff and provide a high degree of audit and training. In addition, there are many other codes which will be unlikely to be collected as a by-product of clinical practice, but are required for epidemiology and research at both national and local level e.g. accident and morphology codes.

Applications, such as SimpleCode (clinical encoder) will be increasingly used to monitor the Trust's performance of coding, whereby codes are loaded into the application to make suggestions to the coding staff of coding alterations, which in turn also highlights areas of training required.

Electronic Discharge Summaries are currently created by clinicians from iCM in real time and the introduction of electronic board rounds will assist in the improvement of accuracy of this data.

In 2011 a review of the clinical coding service was carried out by CHKS and that review identified some key changes that are needed to improve the service delivery and accuracy of clinical coding. As part of the planned improvements in coding the Trust will be the first of type for CSC which will support the deployment of a bidirectional interface between an encoder and the iPM solution. In addition the Trust will review the evolving needs of the Service and look to embed coding with in the Clinical Groups.

5 Infrastructure and Telecommunications

The Trust have a mature and well developed IT and telecommunications infrastructure that supports the delivery of IT systems to departments across the main sites and also to community sites and staff homes. A maturing and flexible infrastructure is essential to the Trust achieving its vision of our vision to develop and delivering ***“a connected and integrated healthcare system, supported across a modern and flexible infrastructure which will meet the needs of our local healthcare community and provide high quality patient information at the point of care”***

Investment in this core infrastructure is essential to allow rapid and reliable deployment of existing and new systems but extend our services into our local health community. Demand for access to systems and adequate resources to allow those systems to expand (storage capacity etc.) is continually increasing and the Trust must ensure that there is planned growth of all the key areas so that the reliability and resilience of these systems is not reduced or compromised and that we meet the needs of our local health care community. Our approach to this is outlined in section 5.1 to 5.8.

5.1 Network Infrastructure

Project 17	High Level Requirements	Benefits
Infrastructure		
Cost: TBC	Completion of migration to new core network 2013-14	Improvement in performance/capacity and resilience of the IT network
Funded: HIS Capital Year: 2012-2017	Establishment of Triangulation 2013-14	Improved access to network for mobile devices
	Network Infrastructure Review 2013-14	Improvement in Patient/public satisfaction
	Completion of rollout of new Wireless network services 2014-15	Ensure access to Trust VPN for remote users is secure and robust
	Development of Public Wi-Fi Access	Improve capability for supporting mobile devices. Information governance

Project 17	High Level Requirements	Benefits
Infrastructure		
	<p>capability 2014-15</p> <p>Expansion of capacity of Trust VPN 2013-14</p> <p>Development of mobile device 2013-14 2013-14 management capability and services 2013-14</p> <p>Cabinet upgrades 2013-14</p>	improvements.

The Trust IT network is absolutely fundamental to the use of systems, communications and the future operation of the Trust. The use of modern Storage Area Networks (SANs) and replication/backup of data between data centres is dependent on fast dependable network links. The demand for mobile access to IT through the use of campus wide Wi-Fi networks requires a robust network infrastructure to deliver.

All of the services in this strategy are dependent on the Trust IT network to deliver them.

The development and rollout of the network on both sites will continue to enable the delivery of these services.

Outside of the Trust the network now extends into a range of community sites that were previously managed by Sandwell PCT. In addition the move towards agile is driving the demand for connectivity to the Trust network at an increasing number of sites that either have limited or no N3 connectivity available. A review of the solution in place will be undertaken to understand the limitations of the services being provided and to provide a plan for replacement/upgrade of the service where possible/appropriate.

With the movement towards “agile” working there is also a rapid increase in demand for access to systems from outside of the Trust network, specifically from staff in their homes etc. The provision of robust access to the Trust network through the use of Virtual Private Networks (VPN’s) is essential.

A project to develop a “public” Wi-Fi network within the Trust for patients/visitors to access will be established with pilot areas setup in the restaurant/café facilities within the Trust. If successful this pilot may then be rolled out more widely to other areas of the hospital

To support the development of the use of mobile devices (iPads etc.) within the Trust a mobile device management (MDM) service will be setup and deployed to the existing devices in use within the Trust (iPhones).

5.2 Data Centres

Project 18 Data Centre	High Level Requirements	Benefits
Cost: TBC Funded: HIS Capital Year: 2014/15	Upgrade and relocation of the City Computer room to the retained estate.	Improvement in service availability and reduction in impact of major infrastructure failures (power etc.)

The Trust has three data centres that house the local server/network facilities, two at Sandwell and one at City. A new data centre was procured and installed at Sandwell in 2010 and services have been transferred from the legacy room over the last couple of years. A small number of services remain in the old room (core network switches, backup facility) but all the essential servers are now located in the new custom built facility (located in the site of the old mortuary).

The new Sandwell data centre was built to a high specification and has robust air conditioning and UPS protection in place.

The existing centre at City is around 30 years old and whilst it was a custom built computer room it is currently located on the part of the estate earmarked for disposal. As part of the transition planning for MMH the Trust will relocate the City computer room and telephone exchange to a location on the retained estate.

5.3 Server Infrastructure

Project 19 Server Infrastructure	High Level Requirements	Benefits
Cost: TBC Funded: HIS Capital Year: 2014/15	<p>Continue to transition physical servers into virtual environment (VMware)</p> <p>Continue consolidation of server infrastructure towards establishing a primary and secondary data centre model</p>	<p>Improved DR capability.</p> <p>Improvement in time to deploy new services, reduction in resource required to deploy.</p> <p>Reduction in heat/power requirements (cost saving in electricity)</p>

The Trust strategy for the server infrastructure is to move towards a “virtual” environment. Virtual server technology allows many servers to be run on a small number of high powered physical servers. This has many benefits including reduction in power/heat/cooling requirements, improvements in the actual utilisation of the server infrastructure (typical standalone servers operate at very low levels of utilisation, virtual servers reduce this inefficiency by compressing many servers onto one physical server), improvement in ability to recover from server failures etc.

The Trust virtual server platform is VMWare and there are currently two VMWare clusters (four servers in each cluster) in operation, one at City and one at Sandwell.

These cluster currently run around 120 servers. The remaining physical servers on each site that can be virtualised are planned to be migrated into these environments.

The current work to transfer legacy physical servers to the virtual environment will continue and new servers will be provisioned in this way also unless the requirements of the solution preclude the use of VMWare (few systems fall into this category).

5.4 Storage Area Network Infrastructure

Project 20 SAN	High Level Requirements	Benefits
Cost: TBC Funded: HIS Capital Year: Planned refresh 2017-18	Continue development of new SAN infrastructure Complete migration of data and infrastructure from legacy SAN's on both sites to new SAN	

Modern data centres have moved away from the traditional model of each server having its own local data storage (hard drives) towards the concept of shared storage. In this model all the servers are connected to a separate network by high speed adapters that allow storage space on a large central pool of hard drives to be configured as if it was local to that server. This pool of storage is known as a Storage Area Network or SAN for short.

The investment in upgrade to the Trust Storage Area Network (SAN) in 2012 will support the virtualisation of physical servers as well as the transition towards the use of Sandwell as the primary Data Centre and City as a secondary disaster recovery site.

The new SAN was designed to support replication of data between the Sandwell and City data centres by default. This replication ensures that in the event of failure of a data centre the data held on corporate servers is not lost and can be provided from the recovery site in a short space of time.

The use of SAN technologies is also key to providing the rapid, on-demand availability of storage demanded by modern IT systems and the continued investment in and development of the SAN is crucial to supporting the Trusts IT systems now and in the future.

Demand for storage is constantly increasing and whilst the capacity purchased in 2012 was planned to provide growth for a number of years the expansion of this service must be planned and budgeted for going forward.

5.5 Agile Working

Project 21 Agile Working	High Level Requirements	Benefits
Cost: Funded: Yes Year: 2012/13	User virtualisation profile management Application virtualisation Desktop virtualisation VPN solutions / BYOD / Cloud based systems and data Fax server Centralized print management services Standardized Multi-Functional Devices Follow me print capability	Improved desk/space utilisation Flexibility Enhanced team working PaperLite working Reduced IT support required

The delivery of high quality healthcare is increasingly dependent upon technology, both within the Trust and within the local health care community. Today's workplace is no longer a static physical place and a variety of devices from laptop to tablet to smartphone are in use within the Trust. The objective of Agile working is to bring people, processes, connectivity and technology, time and place together to find the most appropriate and effective way of working to carry out a particular task. It is working within guidelines (of the task) but without boundaries (of how you achieve it).

The Trust's approach to agile working has been piloted with the development of the Management suite, the objective being to embrace both the physical and digital "workplace" by empowering and supporting people to work where, when and how they choose to maximise their productivity, innovation and ultimately to deliver best value to the organisation. The Trust's approach to agile working will underpin the development of service delivery and the future operating model of the Trust the objective is to "develop an approach to enable the Trust to deliver safe, high quality patient care to meet the needs of the local health community care with maximum flexibility and minimum constraints. It goes beyond just flexible working or telecommuting and focuses on eliminating the barriers to getting work done efficiently.

The Trust has already embarked upon an agile working pilot as part of the Trust's Transformation plan. The Executive Team have already moved to an agile working mode. This includes the deployment of "follow me" print services enabling users to retrieve printouts previously sent from any PC in an agile working area from any printer configured in an agile working area and a user profile management (user virtualisation) solution so a user's personal configuration settings follows them to any computer they log on to in an agile working area resulting in no system configuration being required before they are able to start working at the computer they are using. Further work is required to manage the large number of software applications (application virtualisation) to be used in agile working areas to enable applications to follow users to whichever PC they are currently logged onto and eventually to provide a hosted and/or virtual desktop (desktop virtualisation) solution to enable simple agile working from any network connected location either at a Trust site or over the internet using VPN. A planned future development is to introduce a fax server to remove the need for the large number of physical fax machines used across the Trust to receive faxes while using NHSmail to send faxes having scanned any documents required using standardized multi-function devices already in place to provide copying and printing facilities.

5.5 Active Directory

Project 22 Active Directory	High Level Requirements	Benefits
Cost: TBC Funded: HIS Capital Year: 2013/14	Upgrade Active Directory to Windows Server 2008 Domains Decommission link to Sandwell PCT AD Decommission SWELLHOT domain	Enhancements in granularity of AD tools for restoring/rollback of changes Enhanced security through fine grained password policy etc.

The Trust Active Directory (AD) service underpins almost all of the existing IT systems by providing a single directory of staff and devices. This directory is used by many of the Trust IT systems to validate and authenticate users.

The AD users database is integrated with the NHS ESR through the use of a third party tool (Directory Manager from BDS) which provides for the automatic creation of new user accounts when staff are added to ESR, and also the automatic removal of accounts when staff are removed (leave the organisation).

The current AD environment was setup in 2004 through the merger of the existing City and Sandwell directories (NT Domains). Subsequently a link to Sandwell PCT domain was created in 2011 for the transfer of community services.

The Trust will upgrade the current Active Directory environment from the existing Windows Server 2003 servers to Windows Server 2008. This upgrade will help to provide a more

robust service through the enhancements in the latest software through better security facilities, improved controls and capabilities.

5.6 Clinical Back Office Programme

Project 23 Voice Recognition	High Level Requirements	Benefits
Cost: Subject to options appraisal Funded: Subject to business case Year: 2013-14	Integration with diagnostic reporting and clinical documentation Voice recognition eReferral PAYM/Print Bureaux Services Follow me printing/Multi function devices	Improved turnaround time for reporting and communications Rationalisation of secretarial services

The delivery of the Trust's Informatics Strategy supports the Trust's migration to a paper free operating model an essential component of the delivery of both the informatics strategy and the building of the electronic health record is the use of automated data capture technologies by clinicians. This allows rapid information capture, workflow and data sharing between clinicians.

The Clinical Back Office Project (CBOP) combines digital technologies to support the capture of patient information and the recording of outcomes. The aim of CBOP

1. Digitises the referral process by capturing referral information from multiple entry points.

2. Supports the introduction of a digital work flow management system.
3. Supports the digital build of the electronic patient record from the point of referral;
4. Improves paper free communication between secondary and primary care.
5. Supports the mobility of the clinical workforce by the utilisation of mobile technologies.

To deliver the CBOP the Trust will build upon the current infrastructure investment and deploy three industry standard technologies:

1. Electronic document management and transfer functionality including messaging and workflow solution

This will build upon the Trust's clinical letters platform and improve the communication between the Trust and Primary care.

2. Voice recognition technologies.
3. Print bureaux

The components of this solution that form the foundations of CBOP will deliver the following benefits to the Trust:

Patient's perspective

1. Patient Safety: Real-time referral management
2. Communication: Improved turnaround and efficiencies in the management of referrals and the communication

Clinicians' perspective

1. Seamless clinical system integration of documents with the Trust's Clinical Data Archive
2. Supports mobile and community working
3. Risk management: Complete audit record of all user interactions

Efficiencies

1. Reduction in the administrative establishment.
2. Reduction in postage and print costs. It should be noted that letters will still be generated for patient communications.

5.7 Clinical Back Office Programme Managed Print Services

Project 24 Managed Print Services	High Level Requirements	Benefits
Cost: Subject to options appraisal Funded: Subject to business case Year: 2012-13	Centralized print management services Standardized Multi-Functional Devices Follow me print capability	Reduced paper Increased information security Remote printer diagnostics and support SLA for printer fixes and replacement programme Reduced environmental impact

Currently the Trust maintains a significant network of colour copiers, printers and multi-functional devices (MFDs) throughout the three sites. A significant number of these are stand-alone printers. They also cover a number of manufacturers, including Ricoh (predominantly system printers) and Hewlett Packard (local printers). The equipment base is diverse comprising both owned and leased equipment. A significant number of these are approaching end of life. Maintenance of these devices come under the HIS service desk and second line technical support or through a managed service contract for the MFDs. This leads to in-effective use of technical resources, re-active approach to print repairs, poor user experience, poor utilisation of printers and expensive commodities.

The Trust requires the managed print service to provide:

- all print equipment required to support printing across the Trust (including multi-functional devices);

- proactive maintenance of all printing equipment including the use of devices that automatically alert a central server to any printer problems;
- monitor usage of printing devices, providing intelligence to the Trust on who is printing and at what volume, as well as the rate of use of printing supplies to support more efficient purchasing;
- centrally co-ordinate and support print related policies, such as black & white duplex printing by default, ensuring policies are adhered to throughout the Trust;
- support the trust in meeting its environmental and sustainability obligations and act as an environmentally responsible organisation;
- optimisation of print service over time to support on-going cost savings and delivery of service that supports the differing print needs across the Trust.

Use of multi-functional devices which are networked and support *'follow-me'* printing and capabilities is key to the implementation of agile working and to an efficient and effective print service. Multi-functional devices provide faxing and scanning capabilities in addition to printing. Therefore, reducing the number of devices required across the Trust.

The Trust, as part of the agile working pilot has enabled *'follow-me'* capability of a number of devices which enables users to securely print anywhere in the Trust as prints are queued and only output when the legitimate user swipes a SMART card or enters a personal code at the printer device. This addresses issues with data security and patient confidentiality where confidential information could be left on a printer for unauthorised users to access or view as well as avoiding print jobs that are not collected.

A managed print service will also develop custom interfaces as required for legacy systems that cannot connect to networked printers and for future systems. Interfaces will mimic a connection to a desktop printer and therefore enable fully centralised printing. These interfaces will be supported and maintained in the same way as printing equipment.

These printers hold data and are subject to the same policies around information governance and security and will be subject to the same legal and security requirements as other electronic devices.

The Trust would expect to develop a print reduction strategy that aligns the incentives across the different operational and transformation projects. This strategy will also need to link and align with the EDM.

5.8 Unified Comms/Location Based Services/Patient Services Access

Project 25 Unified Comms	High Level Requirements	Benefits
<p>Cost:</p> <p>Subject to options appraisal</p> <p>Funded:</p> <p>Subject to business case</p> <p>Year:</p> <p>2012-13</p>	<p>Continued rollout of IP Telephony services where possible.</p> <p>Single number ID</p> <p>Hybrid of IP / smart phones and other mobile devices</p> <p>Integration with clinical apps and medical devices</p> <p>Bedside communications and multi-media devices</p>	<p>Real-time alerting and communications</p> <p>Presence awareness based on rosters and availability</p> <p>Geographic tracking and logistics management</p> <p>Removal of bleeps / pagers</p> <p>Improved access and communications for patients and carers</p> <p>Real-time asset management</p> <p>Real-time location services</p>

5.8.1 Unified Communications

Unified communications (UC) is the integration of real-time communication services such as instant messaging (chat), presence information, telephony (including IP telephony), video conferencing, data sharing (including web connected electronic whiteboards aka IWB's or Interactive White Boards), call control and speech recognition with non-real-time communication services such as unified messaging (integrated voicemail, e-mail, SMS and fax). UC is not necessarily a single product, but a set of products that provides a consistent unified user interface and user experience across multiple devices and media types. There have been attempts at creating a single product solution however the most popular solution is dependent on multiple products.

The Trust has already started the implementation of an IP telephony solution as a result of the introduction of agile working and has other UC elements in place (voice messaging, video conferencing) in certain areas, however the major benefits of UC are dependent on wide scale adoption and availability of these new solutions which to date has been limited due to the legacy infrastructure in place.

Migration from the existing PABX solutions to IP telephony can be achieved through a gradual transfer over a number of years. This would reduce the risk of implementation in critical locations and enable the embedding of solutions in safer environments such as office locations initially and in parallel in clinical areas so there is a backup solution.

The move to IP Telephony provides a potential platform for tighter integration of IT systems and improvements in communications flow as a result. Some areas of improvement are highlighted below:

1. **Presence awareness** – IP Phones can be integrated with systems to determine if a particular member of staff is available (by virtue of the fact that they have logged into their phone), and potentially route calls to the most effective type of connection (voice, video, instant message).
 2. **Single number ID** – individuals could be contacted using a single number incorporating multiple devices e.g. office number, mobile numbers, off-site numbers, home numbers (setup by the user and hidden to callers with rules supporting routing preferences). This supports the removal of multiple portable devices (mobile, Good technology, bleeps and pagers) carried by doctors, other clinicians and on-call teams. It would facilitate flexible working arrangements, reduce delays in routing calls and also re-route calls back through the Trust for charging and quality monitoring.
 3. **Reduction of bleep/pager and directory services** - will reduce the demand for switchboard services and realise consequent savings, whilst reducing risk through
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minimising delays in contacting the right clinical support team, on-call managers or individuals. This will require a change in current processes and working practices, including users more effectively managing their own call rosters.

4. ***Integration with medical devices and clinical applications*** will support the provision of key data and clinical alerts to clinicians to improve clinical decision making and the patient care experience.

The move from standalone telephony solutions to Unified Communications solutions will typically entail integration of telephony with desktop PC's and laptops to deliver seamless connection between voice, data and video. The Trust will need to evaluate the most appropriate way to manage this transition to determine the best fit for our existing solutions.

5.8.2 Location Based Services

Location based services covers the use of IT networks and software in conjunction with wireless positioning (either by GPS or by Wi-Fi network triangulation techniques) to identify the position of an asset. This positioning information can be used to locate people/equipment within the hospital environment and communicate this to anyone who might need it. Simple examples might be to locate the nearest member of staff to an event (cardiac arrest) and to alert them or to find an item of equipment in the hospital to prevent wasted time in searching departments.

The use of Wi-Fi to provide positioning information necessary requires a very high density of wireless access points to be installed. The current Trust wireless network would not support accurate positioning of devices; however in defined areas (A&E etc.) suitable network upgrades to allow the implementation of location based services may be possible.

This may for example provide the ability to know in real time who is on duty, their location and be able to contact the appropriate clinician to discuss patient conditions and results. The impact of such a solution would be particularly advantageous in managing emergency care flow where poor communications are directly impacting our ability to deliver timely care and meet national ED targets.

Modern and effective communications between clinicians, staff and patients is critical to the delivery of effective modern healthcare. A solution that enables effective and timely communication across care settings and sites is a key enabler for safe and efficient clinical care and enabling many of the transformation challenges that we face.

5.8.3 Patient Bedside Devices/Patient Access

Patient access to communications is an important aspect of the care provided during stay in hospital. Access to the Internet, TV/Video, telephony, patient call is all vital services which are currently not integrated and consistently delivered.

The Trust should develop a solution that enables patients to access these services through the use of an integrated solution at the bedside. Such a service could also provide easy access to patient health information, communications with clinicians and other interactive services such as meal booking/surveys etc.

All of the above services are underpinned by a robust and scalable wireless network infrastructure. Provision of wireless networks can allow much more rapid deployment of communication services than has been possible in the past. As a result development and expansion of the current wireless network is key to the rollout of all of these facilities.

5.8.4 Mobile Devices

Mobile devices such as Smartphones and other handheld devices are now in common use within society and within the Trust. The Trust already uses the smart phones (iPhone) as part of our Telephony solution. There are increasing demands to use mobile devices within the Trust, however this represents a number of challenges to the organisation in terms of licensing, information security and information governance. In addition a number of core Trust applications are not optimised for use with mobile devices. As part of the development of the HIS strategy and the development of agile working within the Trust we will establish a mobile device group and establish a mobile device policy which will support our strategic informatics vision.

5.8.5 Bring Your Own Device Policy

Bring your own device (BYOD) is a business policy of employees bringing personally owned mobile devices to their place of work and using those devices to access privileged Trust resources such as email, file servers and databases as well as their personal applications and data. This is an increasing trend and offers a number of advantages and disadvantages to the Trust. If left unmanaged the Trust runs the risk of data breaches and risks to information governance and security. In addition licensing and developing and enforcing policies on acceptable use and behaviour offer a number of challenges.

However there is a positive aspect, which sees users change their behaviour and there is a benefit to the organisation in that high-priced devices that the Trust would normally be required to purchase for employees are purchased by employees who then have control on the type of technology that they wish to use. Employees may take better care of devices that they view as their own property. This allows the Trust to take advantage of newer technology faster.

As part of the Trust's evaluation of mobile devices the Trust will also evaluate BYOD policies.

5.8.6 Telehealth

The development and delivery of a unified communications structure within the Trust will support the use of Telehealth and Telemedicine within the Trust. Telehealth encompasses preventative, promotive and curative aspects. Originally used to describe administrative or educational functions related to telemedicine, today telehealth stresses a myriad of technology solutions. For example, physicians use email to communicate with patients, order drug prescriptions and provide other health services. One of the most significant increases in telehealth usage is the home monitoring of conditions by patients.

The benefits case for telehealth is still being actively debated and as yet there is still a limited evidence base. However with an aging population and also a focus on the preventative medicine this is a natural development within the Trust's Service delivery model.

6 Corporate Systems

6.1 Electronic Staff Record

The Electronic Staff Record (ESR) programme is a Department of Health (England) led initiative, providing an integrated HR and Payroll system across the whole of the NHS in England and Wales. The current contract for the provision of the ESR will come to an end on 31 August 2014.

In May 2011 the Department of Health announced its commitment to ESR after August 2014 and that a feasibility study would be conducted to scope out the requirement of retaining ESR as a central Workforce Solution for the NHS.

That feasibility study is now complete and the Department of Health has concluded that there is a clear economic case for on-going central payment of ESR, and this is now being taken forward as the preferred option for the business case.

The NHS ESR Central Team is committed to ensuring that users and stakeholders are kept informed as key decisions are made and the process gathers pace.

6.2 Enterprise Resource Planning

Project 26 ERP	High Level Requirements	Benefits
Cost: Subject to options appraisal Funded: Subject to business case Year:	Financial Management Procurement Human Resources Customer relationship management	Improved alignment between strategy and operations Reduced back office costs through increased flexibility and automation Process standardisation Integrated of end-to-end processes Reduced risk Improved financial management and

Project 26 ERP	High Level Requirements	Benefits
2012-13		<p>corporate governance</p> <p>Enables strategic and tactical planning of resources</p> <p>Better utilisation of stock and less waste</p> <p>Supports a commercial approach</p>

The Trust currently uses a number of systems for our finance/procurement and HR functions. A number of these are stand-alone solutions and include XX financials and procurement, patient level information costing system (PLICS) and the national ESR system managed by McKesson within HR. It should be noted that the national ESR system is scheduled for procurement by the Department of Health Informatics Directorate in 2013/14. The systems still require manual processes of form filling and paper chasing prior to data entry due to lack of electronic form and workflow processes. The systems are unwieldy and do not provide management information to assist the Trust Executive Team in a timely manner. Forecasting is a time consuming and a problematic area resulting in significant staff time being deployed on a monthly basis, both within the corporate areas as well as the clinical divisions.

The Trust requires a single central ERP solution to support all aspects of resource planning across the areas described below. The key being that intelligence will be gathered such that strategic decision making can be supported and business processes streamlined with the end goal of reducing cost and increasing efficiency.

In the first instance the Trust must develop an ERP strategy that optimises the solutions in place until the end of the contract period, provides solutions to plug the gaps and assists the Trust with the replacement of these business solutions which would include, but not exclusively, the following requirements:

Financial Management

- Budget planning and forecasting at both Trust, Divisional and Service levels including a combination of bottom-up budgeting and day to day process management and delivery, with top-down strategic planning;
- Recording of financial information for cost/revenue related reporting – money coming in and money going out of the Trust and each individual Division, and Service Line;

- Self-service data entry and reporting capabilities, with the flexibility to address the needs of different user groups with drill-down through layers of data; and efficient invoicing, procurement, cash-management and account payable capabilities.

Procurement

- Recording material consumption down to the individual patient and episode level;
- Understanding where objects/assets are and the demand for those materials based on the needs of patients as well as associated impacts on storage, distribution, replenishment and inventory control;
- Self-service ability to procure objects/assets at departmental level with Trust level pricing of the objects.

HR

- Integrated payroll including self-service HR capabilities such as expenses, time reporting, absence reporting and training;
- Capabilities for speedy management of bank, agency and fixed term staff with processes for requisition and approval of staff requests linked to time reports and invoicing from agencies.

CRM

- Contact management functions allowing the Trust to proactively manage patients, commissioners, tariffs and costs;
- Proactively manage our patients to reduce DNA rates and manage rebooking;
- Meet the key target of reduce admissions through preventative measures prior to onset of chronic disease.

6.3 Email (NHSMail)

Project 27 NHSMail	High Level Requirements	Benefits
Cost: Funded: Year: 2012-13	<p>Continue to utilise the centrally funded NHSMail service</p> <p>Potentially develop local archive solution</p> <p>Evaluate options for integration with Unified Comms solutions</p> <p>Evaluate options for migrating from PST files to centralised managed email archive</p>	

The Trust migrated from a locally managed email infrastructure to the central NHSMail service during the Autumn of 2010. This migration transferred the risk and costs of managing the Trusts email to NHS Connecting for Health.

There have been rumours that the central funding for NHSMail may be withdrawn but so far there are no firm plans to do this and as such the Trust strategy is to continue to utilise the service and all the associated benefits of free fax/mobile access etc.

There are a number of areas of development that impact or depend on email services that the Trust should plan to develop. Section 5.8.1 of this strategy refers to Unified Communications. One of the central elements of UC solutions is typically the email service which integrates to provide voicemail/chat services and presence information. It is not clear if being an NHSMail site will prevent the development of this sort of capability. The Trust should ensure that plans to develop UC capabilities integrate with NHSMail.

One capability that was lost when the Trust migrated to NHSMail was in the area of email archiving. Previously the Trust had a local service that archived user's emails for search/long term storage and provided a Trust wide journal which could be used for investigations where access to historical emails was required. This facility was lost in the migration to NHSMail

and the Trust had to return to utilising Personal Folders Files (PST) as a means of email archiving. PST files present a number of issues to users and the Trust and an alternative solution to the issue of email archiving should be considered as part of the strategic use of NHSmail as the Trust email platform.

7 The Health Informatics Service

The Trust must have a robust Health Informatics Service which has both the capability and capacity to respond to both national and local changes and support the Trust achieving its strategic and business objectives. In addition the Trust faces a number of key decisions related to the overall vision for health informatics and core system replacements over the next 4 years. In order to support these changes a new organisational structure is proposed for the Health Informatics Service. It should be noted that this is a re-configuration of the HIS, and is funded from within the existing establishment.

7.1 Organisational roles

In order to support the Trust in delivering the Health Informatics Service, it is proposed that a number of key posts be re-configured to reflect the need for a customer services function (business as usual functions) and programme and project delivery functions.

As a result of this reconfiguration, there will be 6 direct reports to the Chief Information Officer, as can be seen the organisation chart in section 4. This organisation chart shows the reporting lines and with reconfigured posts detailed in red. As can be seen above the future organisation structure of the HIS includes 3 new posts:

- I. Chief Information Officer
- II. Head of Health Systems
- III. Head of Customer Services

7.2 Chief Information Officer

A common theme throughout this strategic review is the requirement for senior strategic leadership and direction; someone who can take control of the health informatics agenda and make the service work for the Trust. The HI Service is an important contributor and enabler to the Trust achieving its strategic objectives, implementing revised model of cares and achieving efficiencies. In view of the strategic HI agenda the Trust was advised to appoint a Chief Information Officer (CIO), this is a new post and is a cost pressure on the Chief Executives cost centre.

In order to maintain momentum the Trust has appointed an interim Chief Information Officer. The position of CIO would usually be a board position however; it is not uncommon for the CIO to report to the Chief Executive Officer, and the interim CIO reports to the Chief Executive Officer. The CIO is responsible for leading the development and delivery of the HI service and strategy and is responsible for providing board assurance.

The CIO is has overall delivery responsibility for both the HI portfolio, HI Strategy, the Improvement Pan and is SRO for the IT enablement in the Transformation Plan.

7.3 Head of Information Technology

The Head of Information Technology is already identified in the current establishment. The Trust must ensure that the infrastructure meets the current and future needs of the organisation. The initial review established that there were a number of areas where the infrastructure was causing operational problems to departments and clinical users.

The Trust will maintain the role of Head of Information Technology to manage the Trust's information technologies infrastructure, set the technology direction for the Trust's infrastructure and consider the investment case for insource and outsource activities. The Head of Information Technology will set technology standards appropriate to the Trust's needs, taking into account national standards and guidance; to manage the service level agreement with suppliers, ensuring that the Trust gets maximum value from the service level agreement; and that suppliers are held to account for the services they provide and to manage the services to the end users.

7.4 Head of Telecommunications

It should be noted that Telecommunications is not a function of the HIS, however the dependencies upon telecommunications for on-going service delivery and the implementation of digital care within the Trust are significant, and therefore the organisational position of telecommunications has been reviewed by the Trust Executive and this function will now report into the Chief Information officer. The Head of Telecommunications is already identified in the current establishment, but currently reports into the Chief Operating Officer.

7.5 Head of Health Systems

It is proposed that the Trust create the post of Head of Health Systems, this is a new post, but it is already identified in the current establishment. It is proposed that an experienced Health Informatics professional is recruited to the post. The Head of Health Systems will be responsible for:

- I. The development of the vision and strategy for the EPR and subsequent requirements and procurement activity
- II. Be responsible for HIS integration strategy.
- III. Ensure compliance with the Trusts PPM standards
- IV. Run the Trust's Health Informatics Programme Office, to plan and control all HI PPM activities ensuring compliance and integration with the TSO.

- V. Be responsible for the development of the business case and OBS for the EPR replacement
- VI. Lead the procurement of the EPR system
- VII. Lead the transition and transformation to the new EPR and the paper light care model.

7.6 Head of Information Services

The Head of Information Services is already identified in the current establishment. Currently the Head of Information Services includes responsibility for all HI development. This portfolio is too large and complex for one individual and therefore the portfolio will be reviewed with the potential for the portfolio being reconfigured. The Trust will strengthen Information Services through the appointment of a senior and experienced full time information services professional. The Head of Information Services will lead on the development of a customer facing Information Services to meet the Trusts corporate and operational needs. Currently all commissioning information, the majority of performance information and all patient flows are processed by Information Services. Health Informatics is responsible for the delivery of systems implementations to support the development and delivery of the electronic patient record.

7.7 Head of Customer Services

The Trust will strengthen the HI service and support function by integrating the information, infrastructure and application support functions. The Trust will create the post of Head of Customer Services and appoint an experienced customer services practitioner to the role. This integration will be supported by the implementation of ITIL™ standards and led by a senior and experienced full time information services professional. The role of Head of Head Customer Services will be created from the reconfiguration and integration of the support functions within HIS. This role is already identified in the current establishment.

7.8 Information Governance

Following a review of the executive portfolios, the Information Governance Function will be transferred to the Director of Risk and Governance.

8 Management Approach

Delivery of the HI Strategy will initiate a number of programmes, which will also be enablers to the Transformation Plan. This will require robust management and the use of industry best practice to ensure delivery and mitigate risk. The Strategy and Transformation Plan will place a significant demand upon the Trust and the service.

The Health Informatics Review and subsequent Health Informatics Improvement Plan indicated that both the HIS and wider Trust needs to implement and ensure compliance with industry standard programme and project management methodologies. This will not only support the delivery of health informatics projects but also ensure that the Trust co-ordinates the direction and implementation of all projects and transformation activities that are dependent upon realising the benefits offered by the health informatics capability. It should be noted that these recommendations relate to the management and governance of the HIS projects. The Transformation Support Office (TSO) retains overall responsibility for the portfolio, programme and project management (PPM) capability within the Trust. In addition it provides a robust mechanism for handling the interface between businesses as usual (BAU) activities and programme and project delivery. To ensure that the Trust remains sighted on the importance of management and governance it is appropriate to reflect this in the Health Informatics Strategy, and clear set the expectations of the standards and processes required.

8.1 Portfolio Management

The delivery of the Health Informatics Strategy will require a management of the programme and project delivery environment, the business as usual environment and the change in the operational environment. Portfolio management is increasingly being applied to organisations and corporate functions which are undertaking large-scales corporate change. The portfolio management function is *“increasingly becoming established as the interface between organizational ownership and the delivery of that change”*³

The HIS operates in a complex environment. Given the scope of proposed changes within the HIS, the need to co-ordinate the deliverables within the Improvement Plan, maintain the business as usual functions of the HIS and support the IT enablement of the transformation plan; the Trust must ensure that the HIS operates a robust methodology and have the capability to advise senior stakeholders. It is therefore proposed that the HIS will adopt a portfolio management approach. This will ensure that the HIS remains

³ Page3, Managing Portfolios of Change, Chris Venning, TSO

aligned to the corporate objectives and the corporate, strategic-level processes operated by the TSO. The HIS portfolio management approach, represented in figure 4, represents the complete picture of the Trust's commitment of programme and project resources and investments to deliver its strategic objectives.

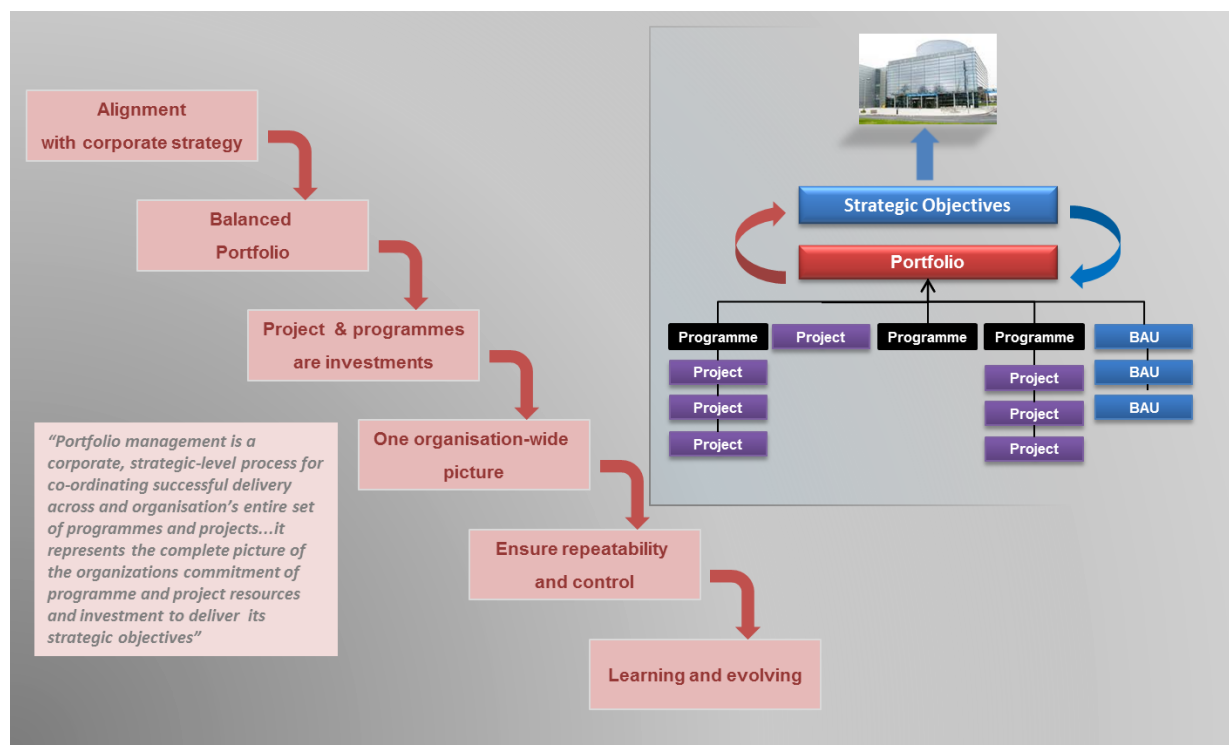


Figure 1 Portfolio Management

It should be noted that there is a clear distinction between **managing the portfolio** and **managing the programmes and projects** within the portfolio. Portfolio Management is an on-going business as usual function, like any corporate function, it is a permanent activity of the Trust. Programmes and projects are temporary activities, managed in line with best practice.

The objective of recommending a portfolio approach to the management of the HI Strategy is to ensure that there is an integrated process which links the Trust's strategic objectives with the delivery objectives of the HIS and effectively manages the interfaces between BAU and programme and project delivery.

8.2 Programme and Project Management

Implementing complex health informatics systems, such as a replacement of the electronic patient record and the replacement of operational systems, represent significant investment on the part of the Trust. As referenced in 3.1, the implementation of replacement systems has to occur in parallel to the delivery of services and patient care, with disruption to the operational and clinical environment kept to the minimum and risks proactively managed. The HIS portfolio will establish a structure for selecting the right projects and programmes and assessing whether those requirements can be accommodated within the existing organisational capability and capacity. However the programmes and projects must be managed by unified standards, governance, frameworks and control. With this in mind the Trust will adopt a formal programme and project management approach for all major HI and associated change programmes. The de-facto standards and methodologies for programme and project management are the OGC **Managing Successful Programmes**™ and the **PRINCE2**™ project management methodology.

8.3 Benefits Management

The Trust will adopt a structured approach to benefits management, which will be managed by the TSO. The Trust users in the clinical and operational environments will be responsible for taking advantage of the new capability delivered by the Health Informatics Service and the identification and realisation of the benefits.

8.4 Service Management

The delivery of the HI Strategy will place demands on the customer service. To ensure optimised customer service the Trust will implement the **ITIL**™ Service Management Framework. The objective of the **ITIL**™ service management framework is to provide end users with services that are fit for purpose, stable and reliable so the Trust recognises the HIS as a trusted provider.

Our objective is to deliver a business led service that is not driven by technical silo's but by the needs of the organisation as a whole. To achieve this objective the Trust will develop an IT service catalogue and associated service level agreements against which performance can be monitored and reported. Service levels will be aligned with the business to ensure that the service meets the needs of the Trust IT users in a reliable and consistent fashion.

We will agree a set of Key Performance Indicators (KPI's) which will be developed to measure the service provided these will include :-

- I. Customer satisfaction ratings
- II. Average time to resolve SLA requests
- III. Percentage of calls meeting SLA
- IV. Percentage of calls exceeding SLA
- V. Exception reporting
- VI. Percentage of HIS staff ITIL-aware
- VII. Percentage of HIS staff ITIL certified

9 Governance

The Trust is, dependent upon the HIS and the availability and accessibility of high quality information and services to ensure that the Trust meets its corporate objectives and achieves the economies and efficiencies that are required. Given the scope and during the delivery of the HI Strategy within the Trust. In order to mitigate this risk it is proposed that the existing HIS governance be used to oversee the delivery of the strategy. This structure is detailed below:

9.1 Health Informatics Steering Group

The Health Informatics Steering Group effectively oversees all HI activity within the Trust. It contains the investment decision makers and will include the Senior Responsible Officer (SRO) for the Improvement Plan. The Steering Group will be accountable for the success of the Health Informatics programmes, provides top level endorsement of rationale and objectives of the programme and prioritise resources. The Health Informatics Steering Group will be the ultimate arbitrator for priority and resource contention issues.

9.2 Health Informatics Programme Board

The Health Informatics Programme Board will provide overall management and guidance to HIS projects within the portfolio which **do not have a dedicated project board**. Projects that do require dedicated project boards will be decided on a case by case basis.

9.3 Clinical Assurance Group

The Clinical Assurance Group will provide overall assurance to informatics with a clinical component. They will be responsible for reviewing and prioritising clinical developments and for evaluating their clinical effectiveness thereby reducing costs associated with duplication and integration of heterogeneous HIS and TP developments. They will also be responsible for ensuring that the Informatics Strategy and associated deliverables remains aligned with the quality and safety objectives.

9.4 Informatics Futures Group

The futures group is responsible for reviewing the emerging technologies and assessing how these technologies can be incorporated and integrated within the Informatics Strategy and assessing their impact upon both the Informatics Strategy and delivery plan and also the transformation plan.

9.5 Health Informatics Programme Office

Health Informatics programme office function will provide the information hub for the HIS, and act as a single point of truth for the Trust. The programme support office will provide the following functions:

1. Tracking and reporting functions
2. Information Management
3. Financial accounting
4. Risk and issue monitoring
5. Quality and change control

10 Key Risks

Key risks, associated with the HIS strategy have been identified. Detailed risk and issues registers will be maintained within each project work stream.

No	Risk	Probability 1-Rare 2- Unlikely 3 – Possible 4 – Likely 5- Almost Certain	Severity 1 – Insignificant 2 – Minor 3 – Moderate 4 – Major 5 - Catastrophic	Mitigation
1	Sufficient project funds cannot be secured leading to delayed or abandoned projects.	3	4	Agree funding through this strategy. Agree external funding with PCT, SHA, CCG and DH Prepare contingency plans for funding shortfalls.
2	Project run late or over-budget, delaying delivery of benefits.	2	4	Use 'best practice' project management methods (PRINCE 2). Adopt a development methodology to ensure projects and developments are managed in a quality controlled and consistent manner.
3	Projects completed, but Benefits not fully realised.	3	3	Appoint Business Change managers from Operations to support the Trust take advantage of the new capability. Prepare and monitor Benefits Realisation plans for all major projects.
4	Loss of efficiencies and disruption to organisation arising from unreliable systems	3	4	Implement 'best practice' support structures (based on ITIL). Create highly resilient Data Centre. Strengthen Disaster Recovery capabilities as part of corporate Business Continuity plan.
5	Failure to attract and retain high quality staff leads to project failures and unreliable systems.	3	4	Develop HIS managers with strong focus on leadership and people management skills. Ensure effective communications with all HIS staff. Develop succession plans.

No	Risk	Probability 1-Rare 2- Unlikely 3 – Possible 4 – Likely 5- Almost Certain	Severity 1 – Insignificant 2 – Minor 3 – Moderate 4 – Major 5 - Catastrophic	Mitigation
6	Failure to identify project risks.	3	3	Ensure PRINCE 2 methodology is followed.
7	IM&T are not involved earlier enough in hospital projects.	3	4	Continually educate or reinforce that the business MUST involve IM&T at the outset.
8	Trust fails to change its organisational behaviour and working practices to take advantage of the new capability	3	4	Appoint Business Change managers from Operations to support the Trust take advantage of the new capability.

11 Costs

Provision of a detailed cost model for the Informatics Strategy is currently not possible due to the absence of confirmation regarding national funding, for the previously nationally funded and procured systems. Funding for the health informatics function in recent years has been from 3 main sources and it is envisaged that this will remain the main source of funding for delivery of the informatics strategy. Those sources of funding are as follows:

Recurring funding: from the SWBH NHS Trust baseline HIS budget. This is subject to the normal Trust budget setting process, with provision being made for salary awards but any other increases in spending being subject to justification in competition with other requirements across the organisation. Each year there is the obligation to achieve an agreed percentage saving in line with the Trust wide Transformation Plan. Health informatics is a major enabler to the Transformation Plan and in line with the LTFM; HIS would be expected to support the Trust in achieving a 20% drop in expenditure over the next 5 years.

It should be noted that the systems replacement plan and the proposed transformation projects will have implications for future recurring costs. This will require proactive management and prioritisation of maintenance contracts but realistically this result in additional cost pressures within the HIS budget. As a result the HIS will make an annual bid for cost pressure support into the annual business planning process.

Capital Programme: The Trust has committed £2,000,000 of operating capital for the financial year 2012/13. Funding for the projects identified in this project is subject to business case approval by SIRG. It is anticipated that the capital programme will be used to deliver the informatics strategy however additional capital funding may be required to support projects that have previously be funded nationally such as EPR, PACS and ESR replacement

National Programme Funding: Formerly known as NPfIT, funding has been made available centrally for a number of core systems. The availability of funding following the cessation of the National Programme has yet to be confirmed.

Until the outcome of discussions surrounding the central funding is agreed it is inappropriate to confirm the costs for this strategy. A number of projects can be funded from planned annually capital expenditure, however this will impact upon delivery.

Business Cases: Each of the identified transformation programmes will require the development of an options appraisal and business case which will submitted to the Health

Informatics Steering Group in the first instance and then to SIRG. It is proposed that each transformation work stream is aligned with both the transformation plan and that this is reflected in the annual integrated business plan.

12 Feedback

Should you wish to submit observations or feedback, please use this form.

Section:
Submitted by:
Please submit this form to the CIO by email: fjsanders@nhs.net
Date :
Observation: