

3Ts Hospital Redevelopment Programme

Full Business Case

Commercial Case: IM&T



February 2016

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Commercial Case: IM&T	Health Informatics Strategy

Information Management & Technology

Introduction

1. Good quality information underpins sound decision-making at every level of the organisation and most importantly contributes to best patient care. Health Informatics (HI) is an evolving specialisation that links Information Technology (IT), communications and healthcare to improve quality and safety.
2. Although the concept of health IT includes the use of technology in the healthcare field, Health Informatics is not synonymous with Health IT. Instead, informatics is ‘the science, the how and why, behind health IT’. Health Informatics applies informatics concepts, theories and practices to real-life situations to achieve better health outcomes. This includes collecting, storing, analysing, and presenting data in a digital format.

Policy Context

3. The critical role of Health Informatics is reflected in a range of national policy/strategy documents, including:
 - *Everyone Counts: Planning for Patients 2014/15 to 2018/19*¹;
 - *2014/15 NHS Standard Contract*;
 - *National Tariff Payment System 2014/15*;
 - *NHS Outcomes Framework 2014/15*²;
 - *Prescribed Specialised Services Commissioning Intentions 2014/15-2015/16*³;
 - *Securing Sustainability: Planning Guidance for NHS Trust Boards 2014/15 to 2018/19*⁴; and
 - Care Quality Commission Hospital Intelligent Monitoring.
4. In assessing the future direction of Health Informatics, the overarching themes from these documents include:
 - regulation and national standards;
 - increasing need for qualitative and quantitative information;
 - evidence of improved outcomes;
 - improved data quality;
 - tighter information governance;
 - appropriate data sharing;
 - benchmarking; and
 - increased use of standardised data flows, ie. Secondary Uses Service (SUS)⁵.

Trust Strategy

5. The move to a more information-focused healthcare system inevitably requires continuous improvement in Health Informatics, while recognising that there is unlikely to be significant additional investment available in infrastructure, applications or support staff.
6. The Trust’s ambition is to be at the forefront of technological development, both locally and nationally. The Trust Health Informatics Strategy (appended) was approved by the Trust Board in July 2010. This sets out a clear direction for investment and development to support of the Trust’s overall vision. In some cases this will require delivering services via non-traditional methods, changes to roles and responsibilities and the adoption of new models of working.
7. Significant work has been undertaken since the Health Informatics strategy was approved, including the Trust’s repatriating its Information Management & Technology service and staff from the Sussex-wide

¹ NHS England (2013) *Everyone Counts: Planning for Patients 2014/15 to 2018/19*

² Department of Health (2013) *NHS Outcomes Framework 2014/15*

³ NHS England (2013) *Prescribed Specialised Services Commissioning Intentions 2014/15-2015/16*

⁴ Trust Development Authority (2013) *Securing Sustainability: Planning Guidance for NHS Trust Boards 2014/15 to 2018/19*

⁵ The Secondary Uses Service (SUS) is the single, comprehensive repository for healthcare data in England which enables a range of reporting and analyses to support the NHS in the delivery of healthcare services.

Health Informatics Service (HIS) in April 2012. This programme of work has focused on creating a resilient and robust network infrastructure and enhancing the Trust's integration capabilities for information systems, including:

- designing and deploying a new, highly available domain infrastructure;
 - deploying encryption to all devices;
 - encouraging mobile working for Trust staff by enabling secure communications irrespective of end-use location;
 - deploying unified communication and collaborative working tools;
 - modernising Trust communication (Unified Communications Strategy) through the phased adoption of Internet Protocol (IP) telephony and Microsoft Lync, which enables flexible and remote access; and
 - deploying a multi-site storage solution to ensure the integrity and availability of clinical and corporate data.
8. In addition to enhancing network resilience, this programme has also generated significant productivity gains though, for example, deploying unified communications tools and flexible remote access to support flexible working policies.

Electronic Patient Record

9. In 2012 the Trust signed a strategic partnership with Alert Life Sciences to implement an Electronic Patient Record (EPR) system. The value of the investment is £25.3m, against which the refreshed business case now projects £25m (net) in cash-releasing benefits over the planning period, plus significant additional non-cash releasing efficiencies and other patient Quality & Safety benefits. The programme will be implemented over a five to six year period, with rollout structured to gradually 'layer' additional functionality across services.
10. An EPR is considered a critical element of the Information Technology required to underpin the Trust's strategic vision. It will support:
- the transformation of clinical services, enabling greater collaboration with the health community (through a health Information Exchange facility, which provides a shared record between primary, secondary and tertiary care services);
 - more efficient use of resources;
 - safer patient care; and
 - a professionally more fulfilled workforce by replacing the current inefficient and repetitive paper-based records systems.
11. The Alert EPR system also has the facility to include multi-professional, evidence-based clinical guidelines/protocols and Integrated Care Pathways (ICPs). ICPs have been shown to reduce/optimize inpatient length of stay, improve clinical outcomes and enhance quality of care.
12. 3Ts assumes many of the capabilities of EPR will be in place when it opens, to deliver efficient and effective clinical services supported by decision support and evidence based medicine enabled by order communications and electronic prescribing in the full patient context. Minimal space has been allocated for storage of hardcopy patient records and associated documentation as a result. However, design for future flexibility enables provision of notes storage if this is required when the development opens.

Health Informatics & 3Ts

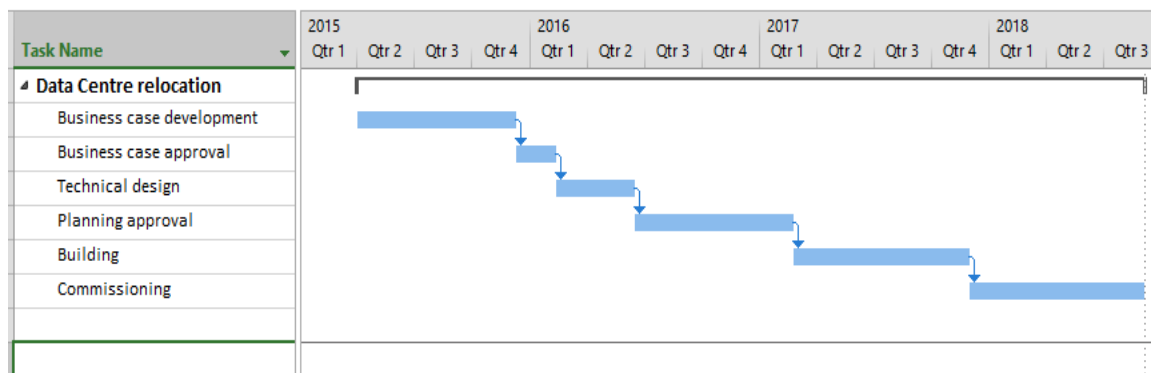
13. The potential impact and risks of the various stages of the 3Ts development (pre-construction/enabling works, decant, demolition, construction, commissioning/service transfers) on access to data and voice services has been thoroughly reviewed to ensure no loss of business continuity. Additionally, the resilience of the Trust's IT infrastructure has already been significantly enhanced by:

- commissioning a backup data centre at the Princess Royal Hospital site;
 - introducing highly available servers, storage, wired and wireless network, new multi-path inter-building and inter-site fibre optic cables;
 - ongoing upgrades to the 80 network hub locations; and
 - redesigning the data network, including telephony services, to provide both inter-site and local equipment redundancy – this ensures very high levels of availability as well as proactive monitoring and arrangements for automatic failover.
14. A regularly updated, comprehensive portfolio of end-user equipment, which is already in place, will be used to supply all areas of the 3Ts development, including both fixed and mobile computers and multi-function printing devices. Existing computer systems, which range from the Patient Administration System (PAS) to estates monitoring systems (see table below) will either be extended/interfaced or replaced, depending on the functionality, status of the associated contract and particular requirements.
15. Structured cabling has been designed and costed into all 3Ts decant and main scheme buildings, including connection to the campus fibre cabling infrastructure, to enable an integrated approach to a wide range of systems such as building management, security, wireless communications and data connections. It is envisaged that a structured cabling LED lighting system will also be deployed in 3Ts for the benefits of commissioning efficiency and reduced running costs.
16. In line with proven deployment across the campuses, Trust active network equipment (including Site Infrastructure and connection into the core network, building distribution rooms, hub rooms, wireless network and Internet Protocol (IP) telephony – all to current Trust high availability and resilience levels) will be installed in 3Ts Stage 1 and 2. Additional computer equipment and software will be provided to service the net additional rooms and facilities.
17. Patient Entertainment Systems are due for review Trust-wide in 2016, and this review will include planning for 3Ts. It is expected that the replacement for the current Hospedia system will be IP-based and distributed over the structured cabling rather than bespoke cabling.
18. IP television services (news, health channels etc.) and display screens for patient information and signage will be provided with distributed administration and interfaces to the PAS, eg. for Outpatient clinic management.
19. The original plan to relocate the legacy telecommunications equipment from the Barry Building into 3Ts has been superseded by the opportunity to advance the roll-out of the more modern IP telephony system. This removes the requirement for equipment space 3Ts. The associated cost of relocating the service has been included in the Trust's outline operational capital plan (in five phases of investment of £200k/year).

Data Centre

20. The primary Trust Data Centre is currently located behind the Barry Building on the Royal Sussex County Hospital site and is therefore in the 3Ts Stage 2 construction area. The Sussex-wide HIS had originally planned to relocate the Data Centre independently of the 3Ts redevelopment. With the repatriation of services from the HIS, this now falls to the Trust to progress, in advance of 3Ts Stage 2 construction.
21. An options appraisal was undertaken in 2011 and identified the St Mary's Hall site as the preferred option. Funding for the initial technical specifications and subsequent build/commissioning costs (c. £4m) has been included in the Trust's outline five year operational capital plan.

Timetable for Data Centre Relocation



Source & Application of Funding

22. The table below sets out the IT costs associated with the 3Ts redevelopment (Stage 1 and Stage 2 buildings). Of particular note:-

- It is assumed that all existing equipment due to transfer into the 3Ts building will continue to be maintained/replaced in the interim as part of the Trust’s operational capital replacement regime.
- The cost table includes both the commissioning of the net additional equipment and the transfer of existing equipment.
- The equipment schedule table following the application of funds expands on the previous headings, eg. additional licences covers EPR, Metavison (patient monitoring) and PAS whiteboards.
- All other software licences will be transferred and/or new business cases submitted for the expansion of existing systems such as the theatre system BlueSpier, should the EPR / PAS not have absorbed them by 2018.

Source of Funds

Source of funds	
3Ts equipping	£ 3,400,000
3T's commissioning	£ 750,000
Operational Capital	£ 5,803,000
Totals	£ 9,953,000

Application of Funds

3Ts IM&T Costs	Phase 1			Phase 2			Totals		
	Net	VAT	Total	Net	VAT	Total	Net	VAT	Total
June 2014									
Site Infrastructure / Core Network	£ 75,600	£ 15,120	£ 90,720	£ 75,600	£ 15,120	£ 90,720	£ 151,200	£ 30,240	£ 181,440
Building Distribution Rooms	£ 56,100	£ 11,220	£ 67,320	£ 56,100	£ 11,220	£ 67,320	£ 112,200	£ 22,440	£ 134,640
Hub Rooms	£ 586,847	£ 117,369	£ 704,216	£ 227,760	£ 45,552	£ 273,312	£ 814,607	£ 162,921	£ 977,528
Wireless Network	£ 201,350	£ 40,270	£ 241,620	£ 74,300	£ 14,860	£ 89,160	£ 275,650	£ 55,130	£ 330,780
Telephony	£ 315,000	£ 63,000	£ 378,000	£ 132,500	£ 26,500	£ 159,000	£ 447,500	£ 89,500	£ 537,000
Desktop IT equipment	£ 340,800	£ 68,160	£ 408,960	£ 255,600	£ 51,120	£ 306,720	£ 596,400	£ 119,280	£ 715,680
Application workstation / Software licences	£ 330,000	£ 66,000	£ 396,000	£ 275,000	£ 55,000	£ 330,000	£ 605,000	£ 121,000	£ 726,000
IP TV / Display Screens	£ 285,000	£ 57,000	£ 342,000	£ 210,000	£ 42,000	£ 252,000	£ 495,000	£ 99,000	£ 594,000
Data Centre relocation	£ 3,333,333	£ 666,667	£ 4,000,000	£ -	£ -	£ -	£ 3,333,333	£ 666,667	£ 4,000,000
Telephony equipment relocation	£ 833,333	£ 166,667	£ 1,000,000	£ -	£ -	£ -	£ 833,333	£ 166,667	£ 1,000,000
Commissioning	£ 460,200	£ -	£ 460,200	£ 295,350	£ -	£ 295,350	£ 755,550	£ -	£ 755,550
Totals	£ 6,817,563	£ 1,271,473	£ 8,089,035	£ 1,602,210	£ 261,372	£ 1,863,582	£ 8,419,773	£ 1,532,845	£ 9,952,617

Equipment schedule	
Site infrastructure / core network connections	Fibre cabling to/from distribution rooms to campus fibre / data centre 2 x Core network switches / 20 x 10gb fibre interfaces
Building distribution rooms (2 Phase 1 and 2 Phase 2)	4 x distribution network switches 40 x 10gb fibre interfaces 40 x Fibre and copper fly leads
Hub rooms (31 Phase 1 and 12 Phase 2)	86 x edge network switches (62P1 & 24P2) 57 x 10gb fibre modules 28 x RPS power backup units 172 x fibre fly leads 8256 x copper fly leads
Wireless	43 x IP CCTV monitoring cameras 1 x wireless controller 500 x internal Wi-Fi access points 30 x external Wi-Fi access points 530 x fly leads
IP Telephony	1 x core system upgrade 600 x standard desk phones & licences 150 x advanced desk phones & licences 150 x wall mounted phones & licences 150 x wireless phones & licences
Desktop equipment	175 x desktop computers 175 x laptop computers 175 x tablet computers
Software / EPR	160 x EPR clinical workstations 160 x Metavision licences 15 x PAS whiteboards
IP TV / Display screens	1 x core system 1 x display screen control module & configuration 50 x display screens

Commissioning costs	Phase 1					Phase 2						
	Staff	Duration		Day rate	Total	Staff	Duration		Day rate	Total		
Activity		Days	Total	£	£		Days	Total	£	£		
Site Infrastructure / Core Network	2	10	20	£ 750.00	£ 15,000.00	2	5	10	£ 750.00	£ 7,500.00		
Building Distribution Rooms	2	10	20	£ 750.00	£ 15,000.00	2	5	10	£ 750.00	£ 7,500.00		
Hub Rooms	2	120	240	£ 750.00	£ 180,000.00	2	60	120	£ 750.00	£ 90,000.00		
Wireless Network	1	30	30	£ 750.00	£ 22,500.00	1	15	15	£ 750.00	£ 11,250.00		
Telephony	1	210	210	£ 145.00	£ 30,450.00	1	180	180	£ 145.00	£ 26,100.00		
Desktop IT equipment	4	210	840	£ 145.00	£ 121,800.00	4	180	720	£ 145.00	£ 104,400.00		
Application workstation / Software licences	1	210	210	£ 145.00	£ 30,450.00	1	180	180	£ 145.00	£ 26,100.00		
IP TV / Display Screens	1	60	60	£ 750.00	£ 45,000.00	1	30	30	£ 750.00	£ 22,500.00		
Totals					£ 460,200.00					£ 295,350.00		£ 755,550.00

Note: Commissioning costs are covered in Transitional Costs see Financial Case

FBC - IT Requirements Summary - IT considerations for 3Ts

23. The following two tables list the IT systems that have been considered for potential use in 3Ts and the infrastructure and funding implications. The final table is a list of BSUH IT systems and their licence positions.

NB – Where “BoQ Equipment Review” does not confirm inclusion of the equipment costs, a new Business Case may be required

	REQUIREMENT	COMMENT/S	INFRASTRUCTURE IMPACT / ADDITIONAL REQUIREMENTS	3Ts / CAPITAL /OTHER FUNDING (B/Case Required?)
01	A/V Strategy (WHP available)	Incl. VC, Theatre links, Teaching, Simulation	Potentially subject to specification	BoQ Equipment Review to confirm
02	Bus Departure Boards in Main Entrances/Cafés		Yes	Power/Network included in IT Costs Boards supplied by Bus Company?
03	Data Centre Links & location (the ‘pipe’)		No impact	Included in IT Costs
04	Capital & Estates Systems	Incl. MiCAD, BMS, FSI, BIM, Maintenance tablets	No impact	Licence Costs Only
05	Existing IT hardware – PCs, Printers, MFDs, Tablets, COWs	Incl. read-across to equipping strategy and capital programme	No impact	Included in IT Costs (plus capex refresh/ transfer)
06	Existing IT systems	Trust-wide and departmental, See Table 1 below	-	-
07	Existing Telephone systems	Transfer of existing switch or adopting IP technology	No impact	Included in IT Costs
08	Intelligent Parking System	Incl. space available count/identification	Subject to RFI cost assessment and approval	Potential new Business Case
09	Materials Management (eg. ‘smart cabinets’)	Security Implications	Subject to final agreements	BoQ Equipment Review to confirm
10	Network Resilience	Incl. business continuity eg. if p/call system fails	No impact	Included in IT Costs
11	Networked medical Equipment (e.g. Imaging)		No impact	Possible Network point additions when 1:50s finalised

	REQUIREMENT	COMMENT/S	INFRASTRUCTURE IMPACT / ADDITIONAL REQUIREMENTS	3Ts / CAPITAL /OTHER FUNDING (B/Case Required?)
12	Nurse Call System /Nurse Locater Ceiling Lights	Incl. Response time recording. IP System proposed.	No impact	BoQ Validation to confirm (plus PR referral)
13	Outpatient Buzzers	Interface requirement possible	No impact	BoQ Equipment Review to confirm
14	PACS		No impact	BoQ Equipment Review to confirm / Possible Transfer costs
15	Patient Call Systems & Intercoms	IP System possible	No impact	BoQ Equipment Review to confirm
16	Patient Check-in Kiosks	with PAS/EPR/system interfaces and patient flow	No impact	Outside 3Ts Costs. Business Case if required.
17	Patient Entertainment (Hospedia or equivalent, TVs, Music)	Hospedia contract ends 2017	Should have no impact	Subject to 2017 decision and 1:50 review.
18	Patient Information Screens		No impact	Included in IT Costs
19	POD Lockers	Not included to date. Access control implications.	No impact	Outside 3Ts Costs. Business Case if required.
20	Public Access Wifi	Already in place	No impact	-
21	RFID Tagging 21.1 Blood Transfusion 21.2 Drug Trolleys 21.3 Equipment 21.4 Patient Tracking 21.5 Safe Surgery 21.6 Security	Or other Medical Equipment tagging		Outside 3Ts Costs. Business Case if required.
22	Security Systems, incl. CCTV, Intercoms and Panic Buttons	CCTV – IP Technology Operational practicalities, implementation co-ordination		BoQ Equipment Review to confirm.
23	Smart boards	Interactive white-boards	No impact	BoQ Equipment Review to confirm.

	REQUIREMENT	COMMENT/S	INFRASTRUCTURE IMPACT / ADDITIONAL REQUIREMENTS	3Ts / CAPITAL /OTHER FUNDING (B/Case Required?)
24	Telecare nursing patients remotely	Existing trial with Renal/Stroke	No impact	N/A
25	Telemetry	Neuro ward to Neurophysiology, Cardiology...	Requirements revisit needed	TBA
26	VOIP	and hard-wired backup	No impact	Outside 3Ts Costs. Business Case if required.
27	Wayfinding Apps	To be considered in line with wayfinding options		Outside 3Ts Costs. Business Case if required.
28	ALSO TO NOTE FOR INCLUSION	IM&T-related initiatives in the B&H BCF BETTER CARE FUND plans (hyperlink below, see spreadsheet), eg. integrated IM&T and telehealth/telecare: https://foi.brighton-hove.gov.uk/requests/2934	BSUH is already working on further integration with health and social care partners including extending NHS Spine integration, remote monitoring and consultations (Renal).	

BSUH - Computer Systems

Ref	Systems / Applications	Licence Cost Implications
301	Acute Medical Guidelines	No
302	Alert (EPR)	No
303	AMU PRH (RAMU) Whiteboard	No
304	AP Forensics	Yes
305	Ardentia	Yes
306	Atlas	No
307	A/V Strategy (WHP available)	No
308	BadgerNet	No
309	Bloodhound Web	No
310	Bluespier Live	Yes
311	BSMS Client	No
312	BSMS Web	No
313	Bus Departure Boards in Main Entrances/Cafés	No
314	Capital & Estates Systems	Yes
315	Centricity PACS Workstation	No
316	Chemocare 5.3.4	No
317	Choose & Book	No
318	Cisco VPN	Yes
319	Cardiac PATS	Yes
320	Non Invasive Cardiology (PACING)	No
321	CSC Maternity RDS	No
322	CSC Maternity	No
323	CV5	No
324	DATIX Client	Yes
325	DATIX web	Yes
326	DawnAC	No
327	Dendrite PATS - desktop client	Yes
328	Dendrite PATS - Intellect	Yes
329	Diabeta 3	No
330	EchoPAC	TBC at 1:50 design stage

Ref	Systems / Applications	Licence Cost Implications
331	Emergency Surgery Live (CPOD)	No
332	Emergency Surgery Live Admin	No
333	eRMS & eIMS	TBC at 1:50 design stage
334	ESR	No
335	Finesse	TBC at 1:50 design stage
336	G2 Speech / GI Reporting (Unisoft)	Yes
337	Horizon Cardiology Web	Yes
338	ICE (desktop/admin)	No
339	ICT Track	No
340	Image Exchange Portal	No
	Intelligent Parking System	TBC at 1:50 design stage
341	iProc	No
342	JAC Pharmacy	TBC at 1:50 design stage
343	M7 Image Flow (Marwell)	Yes
344	Manchester Triage V2	No
345	Materials Management (eg. 'smart cabinets')	Yes
346	Metavision ICU	Yes – Included in IT Costs
347	Metavision NICU	Yes – Included in IT Costs
348	Metavision Report	Yes – Included in IT Costs
349	Networked Patient Monitoring Equipment (e.g. Imaging)	Yes
350	Nurse Call System	TBC at 1:50 design stage
351	Neurophysiology (MINDEX)	Yes
352	Msoft Biometrics	Yes
353	MUSE Web	Yes
354	NBSS LIVE	Yes
355	Oasis ADT Whiteboard	Yes
356	Oasis PAS (Oasis and e-Oasis)	No
357	OBIE	No
358	Oncology Information Management System	Yes
359	Oracle e-biz	Yes
360	Orthoview	No

Ref	Systems / Applications	Licence Cost Implications
361	PACS Centricity Web	n/a
362	PACS Enterprise (Philips Intellispace)	No
363	Paediatric Diabetes DB	Yes
364	Paediatric Surgery Live	Yes
365	Patient Tracking?	Yes
366	PDS (Patient Demographic Service)	No
367	Pharmacy drug locator	No
368	Philips PACS Portal	No
369	Post Coder +	Yes
370	Practice Navigator	Yes
371	ProSoma	TBC at 1:50 design stage
372	Pulsox Data Anaysis DS-5	Yes
373	Q-Pulse	TBC at 1:50 design stage
374	Radiopharmacy	TBC at 1:50 design stage
375	RMS/IMS	Yes
376	Roster Pro central	Yes
377	SASH PACS	No
378	SCRa viewer	No
379	SECAmb Ambulance Web	No
380	SimpleCode	Yes
390	Somerset Cancer register	TBC at 1:50 design stage
391	NHS Spine	No
392	Spirotrack	Yes
393	SSNAP database	TBC at 1:50 design stage
394	Stents	Yes
395	Symphony	n/a
396	Syngo	TBC at 1:50 design stage
397	System One	Yes
398	TELECARE (MILCARE)	Yes
399	TeleDerm	Yes
400	EPR	Yes – Included in IT Costs

Ref	Systems / Applications	Licence Cost Implications
3100	Theatre Management Systems	Yes
3101	Traka	Yes
3102	Ward Watcher	Yes
3103	Winpath Lab System	Yes – Included in IT Costs
3104	Winpath Ward Enquiry	Yes

Notes

Licence Cost Implications:

- Yes – included in IT costs = additional licences required and included in the IT costs table
- Yes = additional cost if additional licences are justified (costs included in IM&T costs)
- No = additional covered within site licence.

Summary

Summary Points

1. Good quality information underpins sound decision-making at every level of the organisation and most importantly contributes to best patient care. The Trust's ambition is to be at the forefront of technological development, both locally and nationally.
2. The Trust has signed a strategic partnership with Alert Life Sciences to implement an Electronic Patient Record (EPR) system. It will support the transformation of clinical services, enabling greater collaboration with the health community (through a health Information Exchange facility, which provides a shared record between primary, secondary and tertiary care services); more efficient use of resources; safer patient care; and a professionally more fulfilled workforce by replacing the current inefficient and repetitive paper-based records systems.
3. 3Ts is dependent upon many of the capabilities of EPR being in place when it opens, for example minimal space provided for storage of hardcopy patient records and associated documentation, and efficient and effective clinical services supported by decision support and evidence based medicine enabled by order communications and electronic prescribing in the full patient context.
4. Since the transfer of IT services back into the Trust from the Sussex Shared Services there has been significant local investment in the IT infrastructure including a second data centre at the PRH site, dual diversely routed private fibre connections between the sites, complete replacement and enhancement of the network infrastructure and upgrades to server and storage facilities. The 3Ts scheme will benefit from these infrastructure developments and facilitate the deployment of modern IP based systems ranging from intelligent building systems through to fully mobile access to patient information.
5. The design for the 3Ts IT infrastructure has been developed with input from major IT manufacturers including Cisco, Microsoft, Hewlett Packard and Mitel alongside experienced NHS IT staff.