



CLINICAL EXCELLENCE, QUALITY & SAFETY

IM&T Strategy - Executive Summary

Luton & Dunstable NHS Foundation Trust
15 May 2013

Change history

Version	Date	Author	Issued To	Revisions
1.1	17/4/2013	ME	FIP	Added cost detail
1.2	21/4/2013	ME	FIP	Expanded exec summary
1.3	15/05/2013	ME	Trust Board	Reflects FIP and Board Seminar Input

1 Executive Summary

Introduction

- 1.1 The overarching vision of this strategy is that ***the L&D makes maximum use of information to deliver safe and efficient care.*** Decisions are made continually at so many different levels of the organisation: the bedside, the emergency department cubicle, the ward station, the Operations Centre, the clinic re-scheduling telephone call, the service manager's office, the Divisional or Trust Board. All areas need the support of robust reliable Information Management and Technology (IM&T) to inform these decisions. This strategy aims to support decisions in all areas, and is supported by six key goals, each with underpinning objectives. IM&T proposals and investments will be evaluated against these goals and objectives. Progress in delivering this strategy will be measured against this framework.
- 1.2 There are several key underlying themes woven through this strategy which this summary will highlight: the need to improve the resilience of the IM&T services to ensure they are appropriate for acute healthcare; the need to achieve a transformational level of efficiency to survive the competitive and demand pressures already impacting upon the Trust; critical IM&T support to assure the safety of our patients; and the enabling of the physical transformation of the estate.
- 1.3 Critically complete reliance on information systems requires a step change in capability by the IM&T functions within the Trust. The much greater complexity of technology, combined with the connected nature of the world, mean that broader and deeper skills are required. This falls into two areas: people and hardware. Our greatest challenge is resilient staffing to support an "*always on*" service. Trying to recruit and retain highly motivated staff that could develop their knowledge and careers whilst working for the Trust for a few years is proving unsustainable. We do not have the scale of IT operations, and our core business is healthcare. This strategy seeks to partner with an infrastructure supplier to support 24/7 pro-actively monitored networks and servers on which our system run.
- 1.4 Acute Healthcare is amongst the most information intensive services, but the context and complexity of its delivery has seen paper-based data capture and retrieval persist many decades beyond other sectors. The focus of this strategy is to build on the increase in use of information systems deployed in the previous strategy, bolstered by greater resilience, to realise the benefits in support of our Corporate and Clinical

strategy. At a time of great pressure on Trust resources these investments have to be weighed against many potentially forgone alternatives. Key to justification for this is robust corporate and divisional support for benefit realisation.

- 1.5 These benefits can only be realised by transformation on a large scale. The Trust has historically taken an incremental approach to change, and many times the forces of inertia have seen old processes continue in parallel or even defiance, of necessary changes. Amongst key stakeholders there is a clear vision and desire to improve our safety and efficiency. The challenges in delivering this strategy are largely within the clinical divisions. What we have come to accept as unchangeable failings of our current processes can be resolved, but not by tweaking or small scale refinement, but often by standardising and re-engineering. This is culturally an anathema to many embedded in the local complexities of a given process. However; the reliable quality that is expected by our patients, and the efficiency with which we need to deliver our services, mean this strategy is primarily one of organisational change.
- 1.6 Starting with the imminent implementation of an electronic document and records management system (eDRMS), moving into revolutionising our internal communication for our most critical clinical emergency work flows replacing the archaic bleep system, to transforming our communication channels with both GP's and Patients themselves. This strategy envisages a way of meeting the expectation of our patients and commissioners.
- 1.7 The strategy is a building block to enable the Trust to move towards an electronic patient record internally, but will enable much wider integration within the wider health system, to transform service delivery across boundaries and with other providers. However; it is internally focussed in many ways as the Trust needs to become fit to engage in the wider health system with electronic flexibility. As the Clinical Commissioning Groups embed it is expected that the Trust will work in partnership with other providers to enhance the single view of the patient across the Health System.
- 1.8 The horizon of this strategy encompasses the wholesale re-build of many of the Trust's key buildings. The IM&T investment could be seen as competing with the funds for re-building, however, two key enabling elements need to be considered. Firstly: funding a re-development requires a level of efficiency that we cannot attain without re-engineering and transforming our approach. This strategy asserts that this can only be really enabled by the correct application of information technology. Secondly, the flexibility required to re-locate, decant and flex our services cannot be delivered with paper-based, analogue workflows.
- 1.9 When delivered this strategy will have supported the transformation of the L&D into an exemplar modern, efficient, safe, leading healthcare provider, making informed decisions at all levels of the organisation to benefit our patients.

Electronic Patient Record

Goal 1	An electronic patient record (ePR) with which care can safely and ergonomically occur without the need to move a paper file.
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- 1.10 The Trust acknowledges the risks and inefficiencies introduced by the paper health record. The Trust's approach to implementation of a full Electronic Patient Record (ePR), as set out in the previous IM&T Strategy, is to implement 'best of breed' components which are integrated together to provide a comprehensive ePR. Considerable steps have been made in the last few years to put in place the main building blocks and work is on-going to implement or extend further elements.

ePR 5 Year Strategy

- 1.11 The broad timetable for achieving key ePR deliverables is summarised below.

ePR - Years 1 and 2

- 1.12 The focus of the ePR strategy in years 1 and 2 is on consolidation and exploitation of the core components which are either in place or currently being implemented. The main elements of this phase will be:
- Completing roll-out of planned systems – e.g. e-observation, e-prescribing, eDRMS. (eDRMS will drive the removal of legacy paper records, beginning later in 2013)
 - A strong focus on benefits realisation; delivering efficiency savings.
 - Increase direct capture of clinical information (removing paper & paper processes).
 - Providing read-only access to GP and community clinic data (SystemOne).
 - Starting to address patient access to electronic records.

ePR - Years 3, 4, & 5

- 1.13 The focus of the ePR strategy in years 3, 4, and 5 is on extension of clinical scope to create a full electronic patient record and to improve (unify) clinical access to information. The main elements of this phase will be:
- Addressing information and service gaps, incorporating services and processes which have so far remained outside the main information systems, e.g. fully electronic recording and alerts in ITU and extending clinical engineering data links.
 - Accelerating direct capture of clinical information (further removal of paper steps).
 - Simplifying access and improving integration of various elements of the hospital clinical record including a portal approach to provide a unified clinical 'window', and potentially consolidation reducing the number of individual system elements.
 - Developing integration across the wider health and social care arena as required.

Clinical Support

- 1.14 Major decisions and projects are required in the Clinical Support Division. Addressing the end of the national PACS contract involves procuring a Vendor Neutral Archive (VNA), data migration services, and a replacement PACS system. The Cerner Pathnet system (the Trust's main LIMS) is not supported beyond 2015 and a procurement process would need to be started rapidly if that is the chosen way forward.

Information Governance

Goal 2	The Trust's information assets are safely, legally and ethically controlled.
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IG Policy and Management

- 1.15 An IG Management System will be in place through organisational and management structures, with a clear scheme of delegation and personal accountability for IG. This is accompanied by other systems, policy and a procedural framework. The IM&T department will increase its role in supporting Information Asset Owners.
- 1.16 The development of new information processes and planning for system implementations/changes need to be supported by the completion of Privacy Impact Assessments (PIAs) where the scope or approach requires this. The development of Information Sharing Agreements will accompany a number of the planned initiatives.

Information security

- 1.17 Essential components in the Trust's IM&T Strategy are the provision of logical and physical solutions for information security. An information security plan will be developed on an annual basis (and revised as needed) to define the specific actions and deliverables required in implementing the IT security programme. The Trust has developed a BYOD (Bring Your Own Device) policy in response to the pressures caused by the extensive use and ergonomics of consumer technology.

Management Information

Goal 3	Decision makers at all levels of the organisation using information in order to improve service delivery, design, quality, efficiency and safety.
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Management and Performance Information

- 1.18 Support and development of decision making is relevant at all levels of the organisation. The need spans the Trust board and committees, divisional boards, business line managers, and ward and department managers, etc. Information and decisions areas include managing capacity, demand, resource deployment, strategic planning of services and business growth, productivity issues, service quality, outcomes at aggregate level, and patient experience.
- 1.19 Strategic goals include increasing the engagement with information and its regular use to improve the robustness of decision making. Key projects are:
- The 'Dashboards' project seeks to deploy information tools to maximum effect to support the Trust. The key works streams are maximising medical productivity, and the delegation of quality and profit targets to division and service lines.
 - A strategy of generating external data feeds from the data warehouse, with iPM ceasing to be the direct source, will enable incorporation of non-iPM activity.
 - Automating distribution of reports (pushed) from the data warehouse.

- Revisit the extension of data warehouse feeds from a much wider range of systems to assess priorities and benefits. (This includes assessment of HR feeds to provide a view of resource and quality mgt. with staffing alongside costs and activity).
- Reworking of the current service line reporting to fully exploiting the data warehouse and dashboard tools.

Information Quality

- 1.20 Information quality is critically linked to the Trust's IM&T goals - increasingly data drives the patient process, and is also essential to recover costs and manage resources effectively. Information Quality is supported by analysis in the information department; there is not a specific information quality department as such. Work focuses on iPM data and there may well be quality issues with other systems as yet undetected.
- 1.21 An underlying issue that has become more apparent in the last few years, is that improvements in efficiency and productivity require data capture and analysis which is often not part of the 'traditional' NHS operational systems.

Business Support & Benefits

Goal 4	Increased levels of safety, efficiency, and flexibility delivered by transformational technology
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- 1.22 There are range of systems, processes, and issues relating to business support including managing the patient flow and patient related communications through referral, outpatient, inpatient, and theatre elements. This is an area where IM&T enabled change should realise both efficiency benefits and improvements in the quality of service. There are opportunities to deploy 'transformational technology' which completely changes, rather than just modifies, business processes.
- 1.23 **Clinical Communications** - improvements or efficiencies in many aspects of clinical communications, including improved emergency messaging, will derive from:
- Modernising voice communication systems (e.g. VOIP, 'mobile', routing, & bleeps).
 - Capturing and tracking all clinical correspondence as electronic documents,.
 - Workflow support for improved robustness and efficiency of referral management.
 - Contact centre development, initially transaction centre, later for clinical support.
- 1.24 **Patient Management & Productivity** - A range of system and service developments to support patient management and productivity improvements:
- iPM (Patient Administration System) options to either replace or to address deficiencies through the addition of one or more 'presentation layers' on top of iPM.
 - Theatres (an iPM module) - address difficulties in real time data capture.
 - Extramed (Bed Management) - extend to two way interface with iPM.
 - Unified Scheduling - potential to manage complex booking and scheduling.
 - Big Hand (digital dictation) - further mobility in dictation is being added.
 - Document management services - potential to extending the scope of outsourcing.

- 1.25 **Wider Service Transformation** – primarily opportunities in the following areas:
- The reengineering of core patient support processes such as referral management, outpatient dept. services, waiting list management, and booking processes.
 - Supporting initiatives such as Hospital at home and Community Wards through electronic access to notes, observations, and interaction with 'on-site' services.
 - Opportunities to develop more proactive clinical management via tele-health, e.g. reducing patient journeys and improving chronic disease management.
- 1.26 **Efficiency and Safety** developments include an Infection Control System (subject to business case approval) to support early warning of potential risks and spread of outbreaks, and implementation of an e-Handover tool for improving handover and communications between teams.
- 1.27 **Patient Experience** options and improvements include:
- Patient Entertainment – assess patient entertainment provision over next 2 years.
 - Patient access to their records – moving on from the pilot to a trust-wide solution.
 - Improved communications & service access through several other IM&T initiatives.
- 1.28 **Finance** developments (as well as service line reporting and clinical productivity) are:
- Income/Cost analysis - on-going support for income analysis to divisions.
 - Contract Monitoring – improve automation, using more of the CSCI capability.
 - Agresso and Financial Reporting – assess potential for better use of reporting tools.
- 1.29 **Human Resources** developments include:
- On-going implementation of the Sickness and Absence management module.
 - Implementation of the eRostering module during 2013.
 - Development of self-service approach for HR operations utilising the new modules.
 - Providing improved information services to support the HR Business Partner Model.
 - Internal work to improve current templates and information (on Trust intranet).
 - Option evaluation and likely procurement of an HR guidance system.

IM&T Service Development

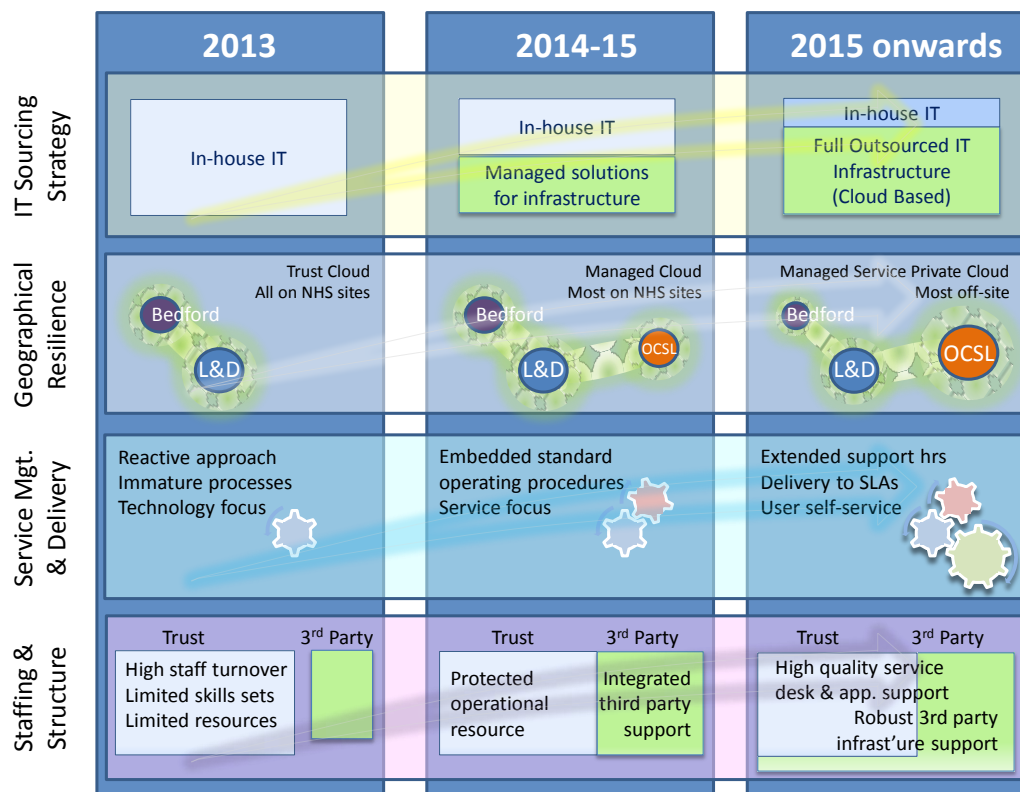
Goal 5	High quality service and operations with efficient support for clinical and administrative activity
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IM&T Service Management and Delivery

- 1.30 In order to support the Trusts IM&T vision of delivering high quality service and operations, the department's approach to IT Service Management and Delivery needs to transform into a highly customer focused, accessible and responsive service organisation. This will provide:
- A flexible structure which protects 'business as usual' resource from conflicting demands allowing them to focus on operational activities.

- Appropriately skilled staff, with on-site staff focusing on specialist application and end user device services and external infrastructure service providers seamlessly integrating to provide high quality end to end service provision.

1.31 In order to support this change a new Transitional Support structure has been developed. The diagram below illustrates how its implementation, along with the managed solution elements of the new infrastructure, will enable the step change required to progress the IM&T vision. The introduction of managed services in years 4 and 5 show the final step change and enables the department to become a highly customer focused, accessible and responsive service organisation.



1.32 It is proposed that switch-board staffing is brought back into IT due to the convergence of technologies and the potential to improve support services.

IT Service Recovery Improvements

1.33 Investment in the correct infrastructure and associated services/processes will mean that the Trust can be assured that system outages will be significantly better managed, less frequent and be for less time than they currently are.

Clinical Coding

- 1.34 The Trust already ensures that over 98% of discharges have full clinical coding within 8 working days of the end of a month. Pressure will increase to accelerate this and there is also continuing emphasis to ensure that coding completely captures all relevant complications and comorbidities. Work will be needed to support improvements in management of the clerking process to capture such data at the outset.
- 1.35 The intention is to bring Clinical Coding services within the SLR arrangement, providing coding services to a defined SLA and recharging on a cost per episode coded basis.

Compliance with Regulation & CQUIN

Goal 6	The Trust is compliant with all regulatory, quality (CQUIN) and statutory expectations
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- 1.36 There is an increasing focus on commissioning income being linked to quality indicators and also the application of service guidelines in Best Practice Tariffs. However, the main hospital systems were designed to track patient activity and events, leaving gaps in the data being required to meet some of the external demands. (Where possible the Trust needs to capture 'quality' data as part of the care/patient process). There are also pressures on data analysis and reporting as the linkage of data sets is needed to identify indicators and trends.
- 1.37 The Trust needs to monitor and plan responses to national requirements and continue to engage with commissioners regarding local targets/measures and how these can be measured accurately and efficiently.

Capability – Technical Infrastructure

Infrastructure Vision

- 1.38 In looking forward over the next 5 years and beyond, there are a number of gaps in the current infrastructure that need to be addressed. The main challenges are:
- Clinicians depend on the use of applications without loss of access or data.
 - A significant increase in mobility with more services being provided off-site.
 - More efficient use of clinical resources and the appetite for innovative use of ICT.
 - Improved levels of service from the IT department at little to no cost.
 - The need to continually refresh IT systems that have fallen behind in some areas.
- 1.39 Specific deliverables required to realise the Trust's high level vision have been defined and are important in shaping the infrastructure programme. The Table below contrasts the current technology baseline and technology strategy recommendations.

Summary of Baseline	Summary of Recommendations
Electronic Storage	
<ul style="list-style-type: none"> Under capacity Underperforming with life expectancy of 2 years 	<ul style="list-style-type: none"> Forms the basis of Private Cloud Infrastructure High performance with starting size of 210TB but can grow to 400TB
Virtual Server	
<ul style="list-style-type: none"> Needs reconfiguration Life expectancy = 2 years 	<ul style="list-style-type: none"> New blade hardware – better efficiency and performance Migrate to Microsoft Server 2012 platform
Virtual Desktop	
<ul style="list-style-type: none"> No current VDI – but successful pilot in Paediatrics Most desktop devices nearing end of life – all need replacing in 2 years 	<ul style="list-style-type: none"> Deployment of full VDI with minimal replacement of desktop hardware Remote access to desktop from any networked location
Network	
<ul style="list-style-type: none"> Good but not resilient End of life WiFi and most edge equipment near end of life 	<ul style="list-style-type: none"> New specialised network for the datacentre New resilient LAN with powered switches (needed for new telephones) and new WiFi for improved network access, wireless telephones and asset tracking
Telephones	
<ul style="list-style-type: none"> Current system over 20 years old - obsolete Difficult to support and expand with fragile connections to the external telephone network (PSTN) 	<ul style="list-style-type: none"> New system deployed over the data network Full collaboration facilities and integration with Trust apps. for new ways of working
Mobile devices	
<ul style="list-style-type: none"> Very low uptake No standards or mature management platform 	<ul style="list-style-type: none"> Standardise on Windows 8 mobile devices BYOD acceptable with mobile device management
Microsoft Licences	
<ul style="list-style-type: none"> Transfer from central NHS effectively ties us to Microsoft Licences need upgrading 	<ul style="list-style-type: none"> Enterprise licences to be purchased Microsoft systems centre to be fully deployed

Capability – Staffing & Structure

Technical Services Staffing and 3rd Party Support

- 1.40 The current structure of the department is no longer appropriate for the needs of the organisation, and will not support the introduction of new technologies and the demanding project pipeline. It is proposed that the organisation is developed in two stages:
- Year 1 (to operate during years 1, 2,3) – Implementation of new Transitional Support Model, to align to the Infrastructure programme, use of third party suppliers for key managed solutions and to address immediate risks relating to resource numbers and capabilities.
 - Year 4 (to operate during years 4 & 5 +) – Implementation of a Managed Service Model, to support the vision of a fully managed service and movement of services to the cloud.

Information Department

- 1.41 The specific demands for rapid access to information are already leading to some local information support being provided in individual Divisions. It will be important to continue to define roles and skills tightly to avoid duplication between local specialists and the corporate information team. A corporate approach regarding the use of information tools and data sets must be retained to ensure transferability of skills and comparability/consistency of information.
- 1.42 There will continue to be a key and expanding role for a central department to support commissioning, performance and statistical reporting and the development of Trust-wide systems such as the data warehouse.

Clinical Coding Department

- 1.43 Clinical coding is becoming more and more specialist and with a very high proportion of nationally accredited coders in the Trust, staff retention becomes increasingly important. It is essential to create a viable service model which achieves good staff retention and attracts suitable recruits; including retention of a high level of accredited coders.

Information Governance Resources

- 1.44 Changing pressures on the Trust IG roles requires close monitoring. There is particular pressure to improve the processes for handling Freedom of Information (FOI) requests.

Capability - Finance

1.45 All costs are for the five year period of the Strategy (2013-2018).

2013-2018 Revenue

1.46 The total revenue planned over the 5 year period is £14.98M. This has a variance of £2.14M over the current revenue budget level (taken over the 5 year period).

2013-2018 Capital

1.47 The total capital for **Strategic Infrastructure Investment** over the 5 years period is £4.78M, however, of this £2.38M is off-set by unspent allocation for IM&T infrastructure. Hence the *additional* capital bid for strategic infrastructure is £2.36M.

1.48 The total capital for **Strategic Application Development/Replacement** is £3.91M, however, of this £2.98M is off-set by unspent allocation for IM&T Application Development/Replacement. Hence the *additional* capital bid for strategic infrastructure is £0.94M.

Total Capital Investment

1.49 The total 2013-2018 Capital (infrastructure and applications combined) is £8.70M of which £5.36M is unspent pre-allocated capital. The capital bid set out to implement the IM&T strategy is £3.34M.

Revenue Savings and overall impact

1.50 The strategy implementation is estimated to realise £2.33M in A&C revenue savings over the five year period, with the revenue savings starting in year 2 and increasing over the remaining years. Hence the net impact of the 2013-2018 IM&T strategy (Capital and Revenue) over the present revenue budget levels is £13.29M over the five years. If the previously allocated, but unspent, capital is allowed for then the additional impact is reduced to £7.93M.

Additional Clinical Support Items

1.51 In addition to the IM&T strategy costs above, the Trust also has to plan for significant IT investment in the Clinical Support Division. Three projects: Pathology LIMS Replacement; PACS Radiology System Replacement; and PACS Vendor Neutral Archive and Data Migration together will require approximately £3.04M over the five year period (capital and revenue combined). The majority of this, £2.17M, will fall in year 2 (2014/15).

IM&T Strategy - Executive Summary

Executive Summary

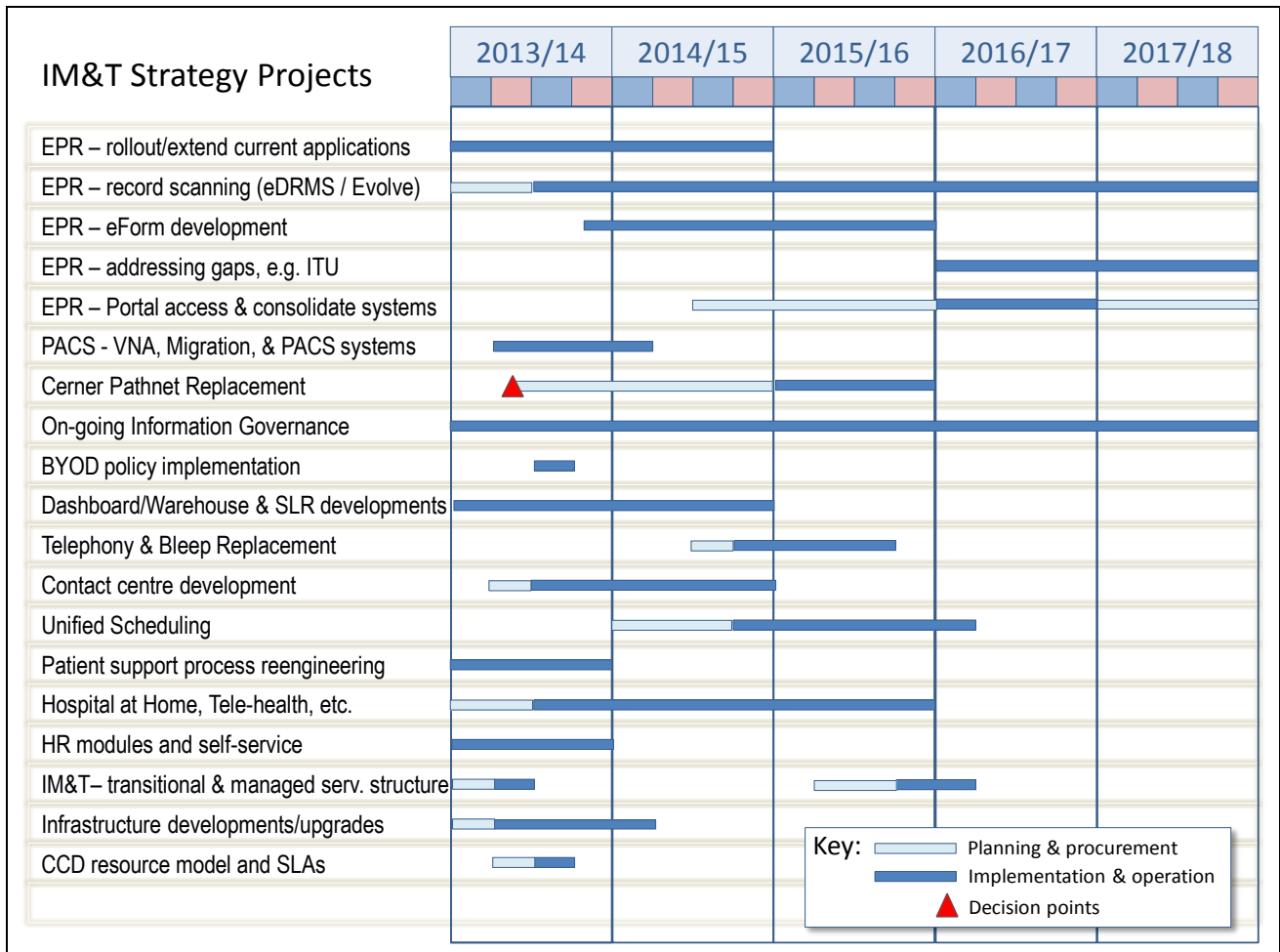
IM&T Strategy 2013-2018 Financial Appraisal				2013/14 Year 1	2014/15 Year 2	2015/16 Year 3	2016/17 Year 4	2017/18 Year 5	Total 5 Year
2013-2018 Revenue									
Strategy Planned Revenue				£2,929,370	£2,908,100	£3,038,108	£3,073,588	£3,029,588	£14,978,754
<i>NOTE : Variance between Planned and Current Budgetted Revenue Costs</i>				£361,836	£340,566	£470,574	£506,054	£462,054	£2,141,084
2013-2018 Capital									
Strategic Capital - Infrastructure									
<i>Infrastructure Capital - Pre-allocated Unspent 2008-2013 (IM&T Capital)</i>				£1,937,070	£326,018	£121,100			£2,384,188
Additional Infrastructure Capital Bids				£1,112,255	£675,923	£407,453	£445,363	£537,725	£2,395,914
Total Strategic Capital - Infrastructure				£3,049,325	£1,001,941	£528,553	£445,363	£537,725	£4,780,102
Strategic Capital - Application Development/Replacement									
<i>Application Capital - Pre-allocated Unspent 2008-2013</i>				£2,051,606	£923,609				£2,975,215
New Application Capital Investment				£214,000	£425,720	£100,000	£100,000	£100,000	£939,720
Sub-Total Strategic Capital - Application				£2,265,606	£1,349,329	£100,000	£100,000	£100,000	£3,914,935
Total Capital Investment				£5,314,931	£2,351,270	£628,553	£545,363	£637,725	£8,695,037
2013-2018 Revenue Savings									
Cumulative Total A&C Revenue Savings					£ 199,020	£ 465,040	£ 731,060	£ 934,080	£ 2,329,200
Net Impact of IM&T 2013-2018 Capital/Revenue									
Net Impact of IM&T 2013-2018 Capital/Revenue				£ 8,726,092	£ 3,494,758	£ 1,162,641	£ 765,721	£ 703,425	£ 13,287,023
Additional Significant Clinical Support Divisional Items									
Total Clinical Support Division IT Capital and Revenue 2013-2018				£ 113,000	£ 2,170,000	£ 520,000	£ 120,000	£ 120,000	£ 3,043,000
Current IM&T Budget 2013-14 For Reference									
<i>Existing Revenue</i>				£2,567,534	£2,567,534	£2,567,534	£2,567,534	£2,567,534	£12,837,670

IM&T Strategy - Executive Summary

Executive Summary

Summary IM&T Development Plan

- 1.52 A summary view of the IM&T Development Plan is given below. The Projects and actions are grouped by the IM&T strategic goals and capabilities, broadly in the order covered within the strategy report.



Benefits Management and Realisation

- 1.53 Benefits Management will be managed as an integral element throughout each project lifecycle. This is particularly relevant for review at the business case stage where both the identification of benefits and the approach for managing and realising benefits should be assessed as part of the project approval process. The ISSB and other governance groups have an important role over the forthcoming strategy period as opportunities for reengineering and transformational change will develop from the combination of multiple IM&T and organisational elements.