

## **IT Progress Report**

**Presented by:**

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**Board**

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**Action for Board:**

- **For information ✓**
  - **For consideration**
  - **For decision**
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## **1 Executive Summary**

As previously reported, Moorfields' IT strategy was reviewed in 2012 and it was swiftly determined that in order to enable Moorfields' informatics ambitions to move forward, it was necessary to focus on the IT infrastructure. The existing IT infrastructure was dated and needed addressing both to reduce the risk of service failure, but also to build the foundations for exploiting technology.

Over the past 2 years IT has invested considerable effort in refreshing and updating the underlying infrastructure. The IT infrastructure programme has been successfully delivered, allowing work on information systems and interoperability to commence, thus supporting the drive for better knowledge management and greater operational efficiencies.

## **2 Historical Overview**

In August 2012 independent consultants Z/zen reviewed Moorfields' IT Strategy and produced an IT Strategy Report which concluded that sustained and significant under investment in IT was impeding Moorfields' development and restricting achievement of operational benefits. The main areas of concern were:

- A poor IT infrastructure leading to serious issues with reliability, performance and accessibility to IT systems for all staff.
- The need to replace the Local Area Network (LAN) at the City Road Campus to help facilitate operational requirements.
- The need to widen and upgrade Wi-Fi coverage to aid the introduction of mobile technology that will enable the tracking of patients, equipment and support of patient level costing (PLICS).
- A particularly poor IT service at all Satellite sites.
- Significant gaps in the IT staffing structure especially in the areas of:
  - Information systems management.
  - Project and programme management.

This resulted in a number of risks being raised on the corporate risk register, the majority of which have now been mitigated as expected (Figure 1)

Figure 1

Development Area	Key Outcome	Risk forecast status for Q4 2014/2015	Risk Actual status Q4 2014/2015
Infrastructure Upgrade: Wide area Network	Robust connectivity for satellites	Green	Green
Infrastructure Upgrade: Terminal Services	Consistent resilient user experience	Green	Green
Infrastructure Upgrade: Local Area Network	State of the art, medical grade network	Green	Green
Business Continuity	Assurance of critical service availability	Green	Amber*
Staffing capacity and structures	Fit for purpose IT department aligned with MEH goals	Green	Green
Project Management and governance	Visibility, control & management of IT needs to IT delivery	Green	Green

\*The Business Continuity risk has moved from red to amber, by introducing resilient components to every part of the infrastructure; however it will remain at amber until we invest in off-site secondary data centres. This investment is now planned to take place in the context of the wider technology support arrangements in the Trust. Moorfields is currently reviewing these technology service delivery options.

### 3 The Foundations Laid

Over the last 2 years effort has been primarily focused on bringing the IT infrastructure ‘up to code’ and implementing a programme of change to address the concerns outlined in the Z/yen report, providing a firm foundation upon which Moorfields could move forward.

It should be noted that this programme of change was also against a backdrop of continued, improved IT service delivery and support for operational service expansion.

#### a. Programme of Change

Figure 2 demonstrates the extensive range of major projects that have been (or are in the process of being) completed as part of this programme.

Figure 2

Project	Completion date			Comment
	2012/2013	2013/2014	2014/2015	
Data Centre		✓		
Virtualisation of Servers			✓	
New Terminal Servers			✓	
Local Area Network		✓		
Wide Area Network (N3)		✓		
Egress Secure Email			✓	
PC & Equipment Refresh (phased)	✓	✓	✓	This will be on-going at circa 400 devices a year on a 5 year cycle
IT Restructure			✓	May/June 2015 CIO to start (tbc)
Transformation of Service Model		✓		
Networking of Imaging (Pentacams etc.)			✓	On-going for new equipment
Managed Print Solution			✓	
IT Project Office Established			✓	
Integration Engine developed			✓	
PACS (Picture Archive & Communications System) Exit				Expected completion June 2015
Storage (Capacity, Resilience & Performance)			✓	
Licensing compliance			✓	

## b. Service Expansion:

Figure 3 lists the more substantial Service Expansion and operational projects that IT has continued to support despite this intensive phase of improvements.

During this period IT has been at the forefront of supporting operational business change, playing a significant role in the opening and migration of the Croydon service. Initially working with host IT systems to support the service, then subsequently migrating them to internal Moorfields' systems. This included the performance assessment and upgrade of both clinical and administrative systems.

Figure 3

Project	Completion date			Comment
	2012/2013	2013/2014	2014/2015	
<b>Darent Valley</b> (Service Opening)			✓	
<b>Sir Ludwig Guttman</b> (Service Opening)			✓	
<b>Croydon</b> (Service Opening)		✓		
<b>Croydon</b> (Service & Data Migration)			✓	
<b>Croydon</b> (Clinical Application Upgrade)				Due for completion March 2015
<b>Theatre Reurbishment</b> (Whittington relocation)			✓	
<b>Theatre Refurbishment</b> (City Road)				Initial IT phase due for completion March 2015
<b>Satellite Remediation</b>		✓		
<b>Nelson Service Opening</b>				Due for completion April 2015
<b>DRSS Service bid</b>			✓	
<b>Kemp House</b>				On-going
<b>Ocular Oncology/BARTs</b>				Due for completion June 2015
<b>A&amp;E Refurbishment</b>		✓		
<b>Ealing Extension</b>		✓		
<b>New Corporate Website</b>		✓		

### c. Service Delivery

The programme of change to improve the infrastructure has been instrumental in facilitating the improved overall service delivery throughout the Trust.

Despite the significant impact on resources to support the considerable number of projects and operational changes taking place, IT has been continually improving and redesigning service in line with industry standards and ITIL good practice. This has resulted in a consistent level of service to end users, supported by robust, resilient back-end services.

In addition an out of hours on-call service has been introduced, ensuring business critical systems are supported 24/7.

#### **4 Benefits realisation**

A key benefit of this programme of change has been the delivery of a robust and consistent IT service, with user experience being equal, irrespective of location in the Trust.

The fundamental change in the infrastructure has given Moorfields a significantly improved understanding of our infrastructure and quicker return to operation in the event of a failure.

The speed and usability of systems trust-wide have been noticeably improved, with initial log-on times up to 10 times faster than previously. Out of warranty software has been replaced and hardware updated, creating a more positive, consistent and reliable experience for users.

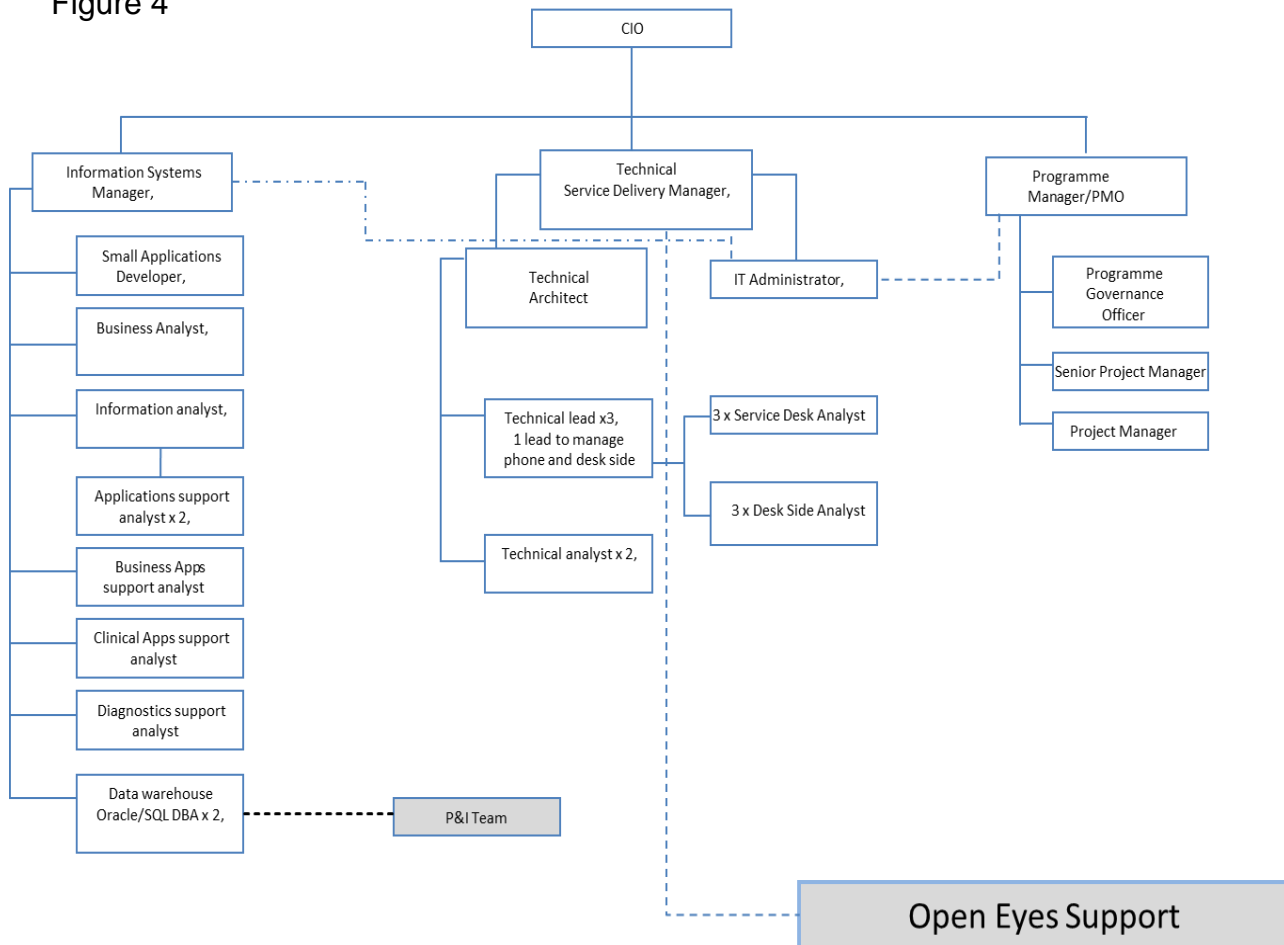
An integration engine has been developed and is in the early stages of its adoption. Its growing use throughout the Trust will result in reduced data entry, increased data accuracy and make a significant contribution to operational efficiencies.

The introduction of medical grade wireless technology throughout the City Road campus has been particularly beneficial to mobile working and promoted the efficient use of space. This is further expected to facilitate systems for tracking and locating equipment and patients.

Virtualisation and rationalisation of infrastructure and software has mitigated a £2m licence compliance risk with Microsoft and Oracle.

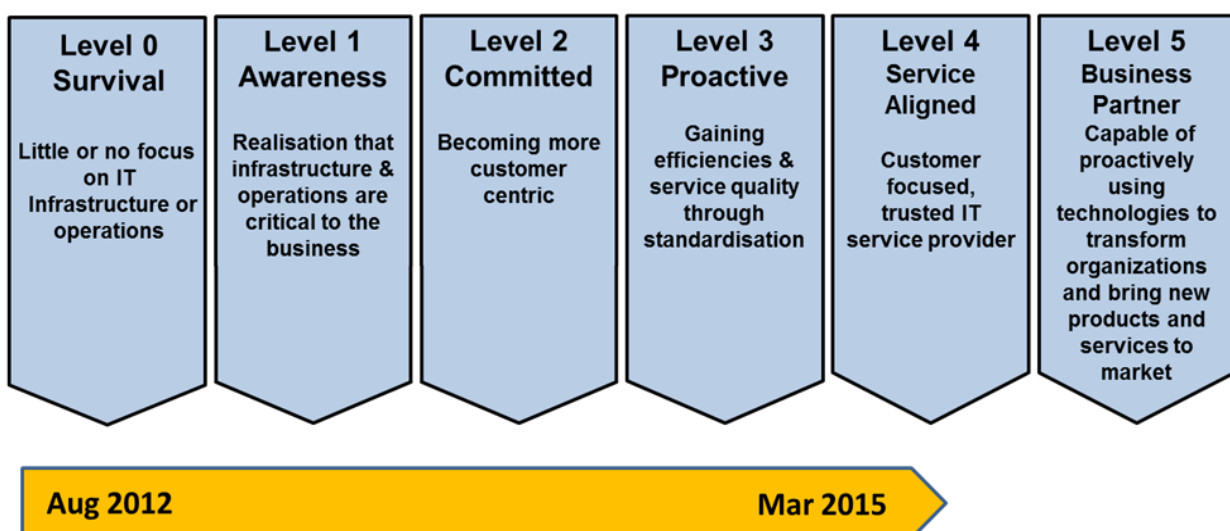
The new IT structure (Figure 4) has provided a strong service and customer centric IT organisation. All IT requests, either service requests (including projects) or incident reports are dealt with through a single engagement model, ensuring progress is monitored, resources are planned and prioritised and ultimately customers' expectations are delivered.

Figure 4



This programme of IT and operational change, whilst still maintaining strong service delivery, has transformed IT into a much more customer centric, trusted service provider. This is in line with the aspirations that were set back in 2013 and shows significant elements that according to Gartner would put Moorfields' IT at maturity level 4 (Figure 5).

Figure 5



\* Source: Gartner the worlds leading IT thought leaders

Moorfields is rightly placed, given the nature of the organisation and its appetite for IT investment, at a level 4. Level 5 is typically delivered by major outsourcing houses. In certain aspects of the business Moorfields may aspire to level 5, but this should be measured against benefit and value.

## 5 The Future Agenda

**a. IT Strategy** is to focus primarily on the informatics agenda, deriving benefits from the data that we hold. Informatics should deliver value in the future

The next planned phase in the new informatics strategy is to:

- Ensure OpenEyes delivers real benefits; currently creating a business case to review and assess a number of options in regard to the way forward. This is planned to be brought back to the Board in quarter one 2015/2016
- Implement revised data warehouse and analytics
- Define fuller relevant datasets to allow pattern and patient complexity to be segmented to improve flow and waiting time for patients
- Partner with other added value providers to exploit data. Work with CCIO to contribute to medical technology to transform operating model (virtual clinics, patient provided data, mobile comms etc).

**b. Establish the new CIO role**

- A permanent CIO is crucial to MEH's information agenda in the digital age.
- This role will help create one homogenous information environment for the Trust.

Looking at the agenda in front of the CIO it will include activities as outlined in Figure 6, subject to validation by the new post holder.



Figure 6

Years 1 to 2	Years 2 to 3	Years 3 and horizon
Secondary data centre	Deliver Trust wide centralised imaging system to deliver ophthalmic PACS. Delivering efficiencies, resilience and better patient care.	Moving MEH further up the digital data maturity scale.
Creating a standard IT operating model which includes: Service catalogue Strong business aligned metrics Strong reporting culture	Enhanced VC model, review potential solutions for wider primary care model including high street business model/alliances.	Planning for new building.
Working with third party suppliers to supply best value service	Deliver primary care and integration into MEH referrals linking doctors and patients in to backend systems.	Horizon scanning disruptive technologies to support aims of MEH.
Ensuring correct support model is in place	Enhanced data capture will aid in decision support and virtual expertise to exploit user market created by OpenEyes. Key differentiator for OE model.	Working with potentially disruptive technologies, (from year 1, but maturing in year 3) on potential models of care.
System interoperability and integration	Roll out of operational flow management optimisation pilots.	Review large scale contracts to ensure “fit” for new hospital.
Working with the business to complete PLICS data feed sets for both in and outpatients.	Drive to improved and enhanced data analytics delivering operational and clinical improvement	
Support business change programmes	Work with research to deliver Big Data approaches within clinical research.	
Ongoing support of the OpenEyes programme to see it delivered into the business readiness.	MEH to strive for international leadership with clinical research and informatics.	
By end of second year looking at how mobile tech can work with apps (like OE) to deliver benefit, economies and service improvement both within IT and more importantly within operations.	Review potential partnerships with organisations on silicon roundabout.	
Review PAS and related systems		

### c. The budget

Figure 7 shows the IT Revenue expenditure change over the last 6 years.

Expenditure is expected to peak in 2014/15 with the conclusion of a large number of significant projects and the high level of contractors needed to support both infrastructure service transformation and major extensions of service.

Figure 7

IT Revenue Expenditure	2010	2011	2012	2013	2014	2015 (forecast)
	£	£	£	£	£	£
Pay	951,701	1,075,105	1,150,216	1,342,687	1,192,109	1,226,662
Non-Pay	1,170,439	1,622,889	2,048,650	2,413,861	2,556,685	2,876,338
Depreciation	896,932	762,916	710,516	636,977	866,048	839,252
<b>Total</b>	<b>3,019,072</b>	<b>3,460,910</b>	<b>3,909,383</b>	<b>4,393,525</b>	<b>4,614,842</b>	<b>4,942,251</b>
Year on Year Increase £		441,838	448,473	484,143	221,317	327,408
<b>Year on Year Increase %</b>		<b>15%</b>	<b>13%</b>	<b>12%</b>	<b>5%</b>	<b>7%</b>

#### **d. Key Lessons Learned to take forward**

- In future the pace and level of projects needs to be planned in good time to avoid spikes in resource need if financial control maintains its increasing importance
- Ensure clear objectives and requirements are established from the outset linked to a strong benefits realisation plan
- Define an agreed realistic scope with key stakeholders
- Ensure good governance and maintain strong change control and documentation
- Ensure strong stakeholder engagement
- Maintain powerful communication links with relevant parties
- Early engagement with IT leads to enhanced outcomes

#### **6. Conclusion and thanks**

Over the last 2 years IT has delivered this agenda and is now in a strong position to hand over the delivery of the next stage of development to the new CIO. Moorfields now has a robust infrastructure, which can sustain and facilitate the forward agenda, including new technologies and applications (including OpenEyes), information needs and ensuring that the wider research and education agendas are well catered for.

There is still work to be done on ensuring that business continuity and disaster recovery risks are fully mitigated. Work has commenced into looking at options to safeguard the infrastructure (and support of that infrastructure) going forward and adding a secondary data centre to the environment. This will be one of the key tasks for IT over the next year or so aligned to a new digital imaging solution to support clinical requirements, such as virtual clinics, and wider clinical access to ophthalmic imaging across the whole of Moorfields.

From a personal point of view it has been a pleasure to be part of such a prestigious institution and to be able to make a difference to the working lives of staff at Moorfields and ultimately to aid their delivery of excellent patient care.

I would like to thank the Board, the Executive team and colleagues for the opportunity to work here at Moorfields over the last 3 years. It has been an incredible experience and confirms to me that Moorfields continues to be the fantastic institution that it is.