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# Digital Roadmap

Proposal for Board approval

28 September 2018



# Executive Summary

- A **clear vision** and **credible strategy** is **vital for the Trust to deliver high-quality sustainable care** to the individuals, communities and populations we serve. **Three parallel pieces of work** are being carried out across the Trust to **define our strategy**: short to medium term strategy (now to March 2020), long term strategy (now to March 2023), and full strategy.
- **Digital transformation** was highlighted as a **key strategic priority by our staff** when developing the emerging short to medium term strategy for the organisation.
- At an away day in August the **IT and Information teams** came together with the **CEO and two of our NEDs** to develop our **digital vision to 2020**. This vision is **underpinned by five strategic objectives** and brings together existing and new digital change programmes into a **single digital roadmap to 2020**.
- A new **digital roadmap transformation programme** will need to be launched to **deliver the change** across the Trust.
- A key enabler for the programme is the **implementation of a fully integrated electronic patient record (EPR)**. The **current EPR contract expires in May 2019**. Whilst a **process to select a long term partner** is run, the **interim decision to extend the current contract by twelve months** has been taken.
- The Board is asked to:
  - Approve the **vision and digital roadmap to 2020**
  - Approve the **process to select a long term electronic patient record partner**
  - Approve a **definition phase** of the digital roadmap transformation programme



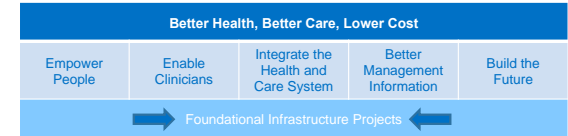
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# National policy and STP context guide and inform the Trust's digital direction

## National policy context

The Five Year Forward View (published in October 2014) and Personalised Health & Care 2020 (published in November 2014) both state the need to **deliver better clinical outcomes through the use of technology, systems and data** (see appendix)



## Northamptonshire context

Through the Sustainability and Transformation Partnership programme, **Northamptonshire** has established the **Heath & Care Programme** through which digital initiatives are being delivered (county wide WiFi for staff, shared care records, improvements in business intelligence reporting) (see appendix for Northamptonshire digital roadmap).

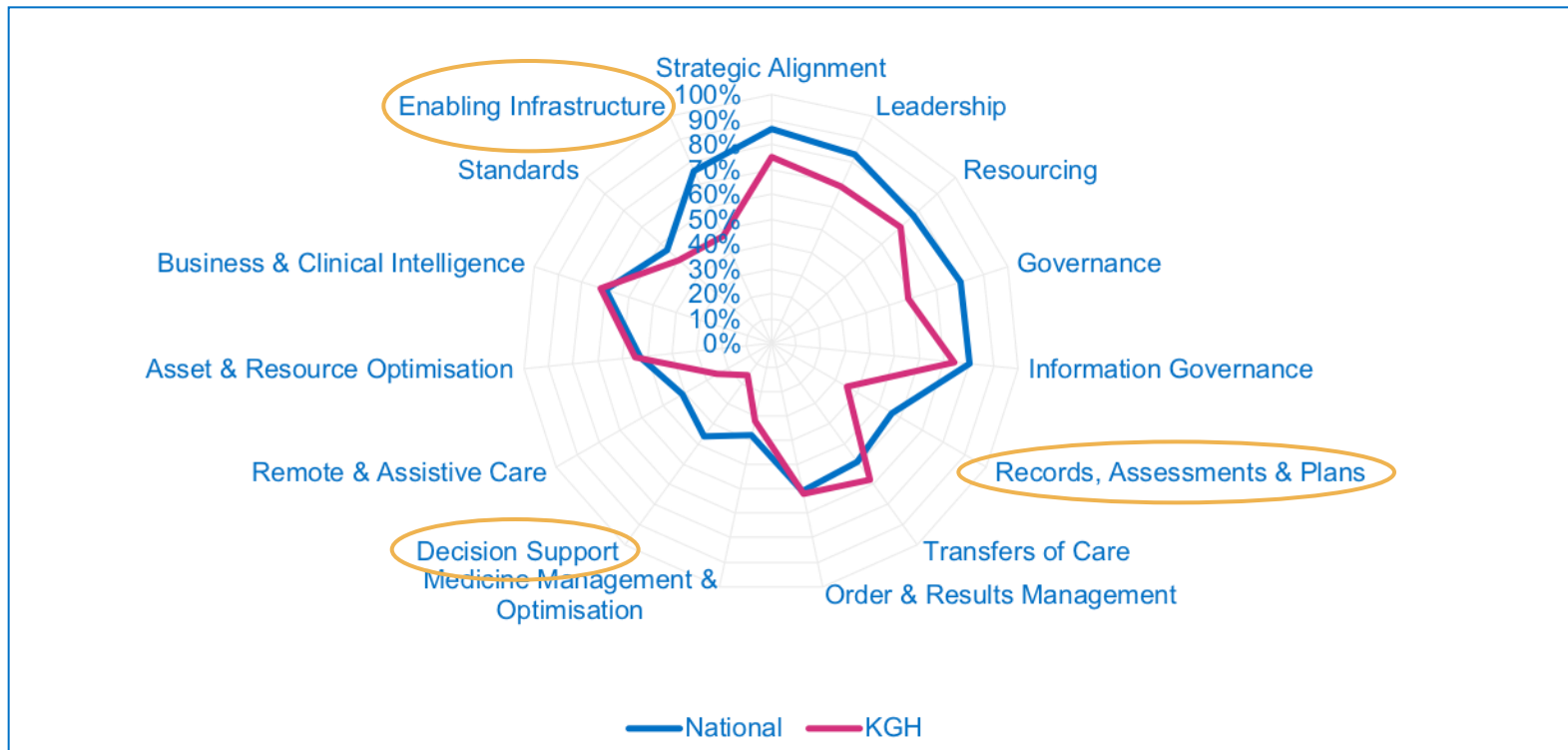
## KGH Digital Roadmap

The **national and countywide requirements are reflected in the revised Trust's Digital Roadmap**. A number of digital initiatives already underway with others planned over the next two years.



# Our latest self assessment against the Digital Maturity Framework shows that there are key areas where there is more we need to do to move further, faster

- The diagram below shows our **most recent Digital Maturity [self] Assessment (DMA)** from October 2017 (red line) compared to the **national average** (blue line).
- Whilst the Trust has made significant progress over the last year to improve its self assessment DMA score, it is still **behind the national average in three core areas**.



# Understanding the components of the Digital Maturity Assessment

The digital maturity assessment presents 179 questions in total, split over three themes each with sub sections. Areas with the **most significant gap to national** (marked in amber) are **priorities within the new KGH Digital Roadmap**:

<b>Readiness</b> (30 questions)  <i>The extent to which we are able to plan and deploy</i>	Strategic Alignment
	Leadership
	Resourcing
	Governance
	Information Governance
<b>Capabilities</b> (134 questions)  <i>The extent to which we are able to support the delivery of care</i>	<b>Records, Assessments and Plans</b>
	Transfers of Care
	Orders and Results Management
	Medicines Management & Optimisation
<b>Infrastructure</b> (15 questions)  <i>The extent to which the underlying infrastructure is in place to support these capabilities</i>	<b>Decision Support</b>
	<b>Enabling Infrastructure</b>

Examples challenges on slide 7



Examples challenges on slide 8



Examples challenges on slide 9



# Current challenges and opportunities in records, assessments and plans

- The **majority of records across the Trust are paper based**. This presents a number of challenges including: **accuracy and consistency, delays in processing activity, knock on impacts on patients and clinic schedules** etc.
- There is **no single central repository** that **provides a consolidated and consistent view of the patient** across the Trust. Records can be **manually retrieved**, however, the **process is labour intensive and introduces delays in care**.
- The Trust will **need to implement a full electronic patient record** in order to meet the national objective to be **paperless by 2020**.

As Is Paper Records

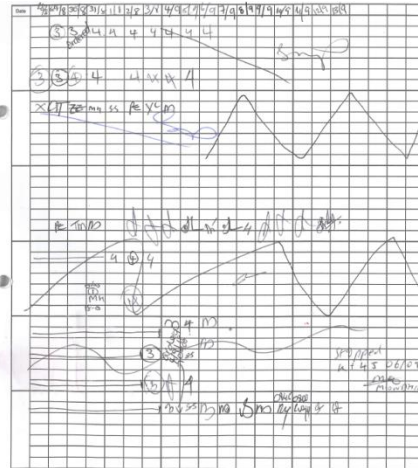


## Current challenges and opportunities in decision support

- **36% of all medication paperwork has an element that is either incomplete or inaccurate.** This is higher than the national average (28%). This presents risk and introduces delays in discharge.
- An **Electronic Prescribing and Medicines Administration (ePMA) system would not only** offer the **opportunity to address such problems**, but create the **opportunity to improve processes** through the use of **new management data** and the **establishment of an audit trail**.

## As Is Paper Prescriptions

				Regular Prescriptions		Month	Year	Time
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		12	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Bellevue		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		15	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Prochloratori		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		14	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Senns		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		15	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Senns		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		16	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Senns		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						
T19 A	Stop at discharge <input checked="" type="checkbox"/>	Reducing disownment of course		17	Drug	Day	10	2:00
Pharmacist	Dispensed	Checked		Senns		10/10/19	10/10/19	
Day	Frequency	Route	Duration	Prescriber's Signature		Post-Sortname	Shop	Pharmacy
2/10/19	QD	PO						



## Potential Future ePMA

**BARNES, Justine (Ms)**  
 23 Argo Road, Waterloo, Liverpool, L21 0NT

Gender: Female    Born: 01-Jan-1960 (57y)    NHS Number: 033 033  
 Hospital number: B00051689

**Allergies - cytisine, rapeseed**

**Drug Administration**

Location: Drug Admin. Consultant: WU, Andrew (Dr)    Date: 08-Dec-2017 08:27

	0 Overdue	1 Due	1 As Required	Thursday 07 December 2017	Friday 08 December 2017	05:00	07:00	09:00	11:00	13:00	15:00	17:00	19:00	21:00
<b>Regular Medication</b> <div>Count: 6</div>														
<b>aspirin</b> 75mg dispersible tablet 75 mg Oral ONCE a day 09:00 Every day Last Administered: 08-Dec-2017 09:00														
<b>stavudine</b> 20mg tablets 20 mg Oral ONCE a day 09:00 Every day Last Administered:														
<b>ibuprofen</b> 125mg tablets 125 mg Oral ONCE a day 09:00 Every day Last Administered:														
<b>Additional Administration Instructions:</b> Discussed with pt. Unsure of reaction happy to try again														
<b>doxycycline</b> 100mg capsules White 0.5L sachet 100 micrograms Inhalation TWICE a day MORNING and EVENING Every day Last Administered:														
<b>celecoxib</b> 375mg capsules 375 mg Oral THREE times a day Every day Last Administered:														
<b>paracetamol</b> 500 mg tablets 500 mg Oral FOUR hourly Every day for 3 days Last Administered:														
<b>permethrin</b> 500 mg tablets 500 mg Oral FOUR hourly Every day for 3 days Last Administered:														
<b>When required</b> <div>Count: 1</div>														
<b>glyceryl trinitrate</b> pump spray 2 spray (g) Sublingual Last Administered: 08-Dec-2017 08:07														

Show Discontinued Medications

Close

Cancel

Save

# Current challenges and opportunities in enabling infrastructure

- The effective use of **electronic systems relies upon an enabling infrastructure** that allows staff access regardless of physical location. At present the **Wi-Fi network is patchy**, with a programme to update by December 2018. In addition, a number of **clinics are run jointly across the county**. A **reciprocal Wi-Fi programme**, as part of the Local Digital Roadmap, is now being run to March 2019 .
- A lot of time is wasted by logging into the different systems that clinicians need to use. **Streamlining access to clinical systems and patient records** through the use of a single Sign-On solution can help to release that time back to patient care, **saving minutes per patient**.
- At present, our Medway PAS system is not connected to the **national Personal Demographics Service (PDS)** meaning that incomplete or inaccurate demographics may be recorded locally. PDS is the national electronic database of NHS patient details such as name, address, date of birth and NHS Number (known as demographic information), **enabling a patient to be readily identified by healthcare staff quickly and accurately**.

Wi-Fi network



Single Sign On



Personal Demographic Service



# IT and information are critical functions, central to the Trust's success. Over recent years there have been great examples of improvements in each of these areas

## Key recent achievements

### Improving our Collaborative working

- **EMRAD** enabled 5 KGH Radiologists to remotely report on CT, MRI and PF
- **Appointment of 2 x Chief Clinical Information Officers** in Jan 2018

### Putting in place secure, reliable, responsive, resilient infrastructure

- **No known ransomware infections after WannaCry cyber attack** in May 17
- **Trust's core IT infrastructure migrated successfully into new data centre** in Mar 18

### Ensuring our information systems are fit for purpose

- The **upgrade to Medway PAS to v4.8** took place in Nov 17
- The **Radiology Order Communications project** went live in for GPs in Nov 17 and internally in Mar 18



# However, as we look at our current IT and information functions, it is clear that there are threats and weaknesses we must address whilst seizing opportunities

## Strengths

We're passionate about what we do

We're passionate about the NHS

We're a great team and work together well

We're flexible and accommodating

We do what we do well

We support where we're needed

## Weaknesses

We don't prioritise well

We don't identify and track benefits

We don't optimise the systems we deploy with the divisions

Accommodation for staff isn't good

Struggle to do BAU and Transformation at the same time

Data isn't centralised, and there is a lack of ownership

## Opportunities

We're small enough to be nimble

Patients want to see improved ability to access their records

Optimising systems is a quick win without cost

We could build bridges with the divisions

Better identification of benefits and lessons learned

Developing and improving our data warehouse

## Threats

We don't have enough cash to deliver the projects

We don't have the skills and capacity needed

Decisions are made on flawed data

We have a siloed mentality

We don't deal well with unexpected workload

We don't recruit as well as we could

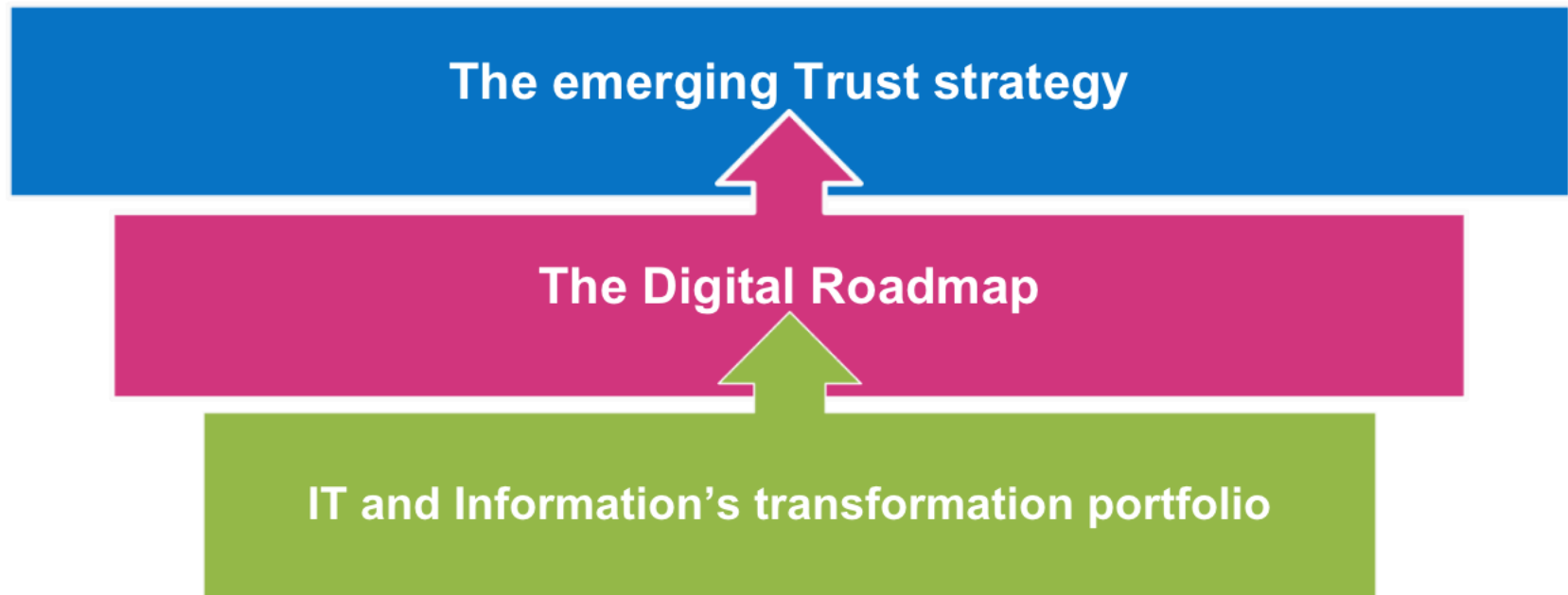


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# Digital transformation was highlighted as a key strategic priority by our staff when developing the emerging medium term strategy for the Trust

- Through August we have been **engaging with our staff to develop our medium term strategy** to 2020. **Digital transformation** was a **consistently recurrent theme** in engagement events, with recognition that it is a **critical enabler to delivery of many other strategic priorities**.
- We now need a **clear vision and digital roadmap** that **steers transformation** in information and IT through a **managed portfolio of defined programmes and projects**.



At an away day in August the IT and Information teams came together with the CEO and two of our NEDs to develop a vision to 2020

## Our vision for 2020 is to deliver digital services that;

- empower patients, putting them at the centre of their care,
- enable our passionate staff to provide the best possible services and achieve world class health outcomes,
- utilise data and information in an collaborative way across the trust and with strategic partners.



# Our vision is underpinned by five strategic objectives

## Our vision

**Our vision for 2020 is to deliver digital services that;** empower patients, putting them at the centre of their care, enable our passionate staff to provide the best possible services and achieve world class health outcomes, utilise data and information in an collaborative way across the trust and with strategic partners.

## Why is the vision important?



To deliver the **infrastructure that enables seamless care for patients** across pathways, **preventing delays and putting patients at the centre of their care** with access to, and control over their own electronic health records.



To enable staff to **focus on clinical duties**, reducing time spent on paper-based administrative tasks. To **optimise data driven decision making** through improved information and analytics.



To enable **delivery of the Trust's long term strategy and transformation plans**, including facilitating greater integration with system partners as well as recurrent resource savings across the organisation.

## Strategic objectives to deliver our vision



By 2018, **strengthening partnerships**, through shared solutions and expertise that enable our staff to deliver high quality care



By 2019, **developing our digital infrastructure** to ensure it is secure, reliable, responsive and resilient to our business needs.



By 2019, **providing trusted information** that enables our staff to make information-led decisions regarding the best care they can provide.



By 2020, **delivering a fully integrated electronic clinical record** where routine processes are digitised enabling staff to focus on clinical duties.



By 2020, **delivering joined up digital services** that empower patients, puts them at the centre of their care, to help them make informed decisions.

# At the away day the teams identified how the Trust would feel for patients, staff, and IT when the strategic objectives were delivered

## Patients will be able to:



- Access a version of their clinical records through an online account
- Use an interactive service to access care through a medium of their choosing
- Be treated and seen without any paper being used to capture or record their medical records

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## Staff will be able to:



- Make informed decisions and measure the impact of their decisions on the Trust
- Understand the next steps in the patient journey, and anticipate what patients will need next
- Use AI and machine learning to diagnose patients

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## IT will be able to:



- Respond to and resolve the Trust's issues 24/7
- Work alongside the divisions through a structure that allows more collaborative working
- Focus on the key projects within the Trust, that will deliver the most value to staff and patients



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# Our Digital Roadmap sets out our IT and information transformation to 2020



**Delivering a fully integrated electronic clinical record** where routine processes are digitised enabling staff to focus on clinical duties.



**Developing our digital infrastructure** to ensure it is secure, reliable, responsive and resilient to our business needs.



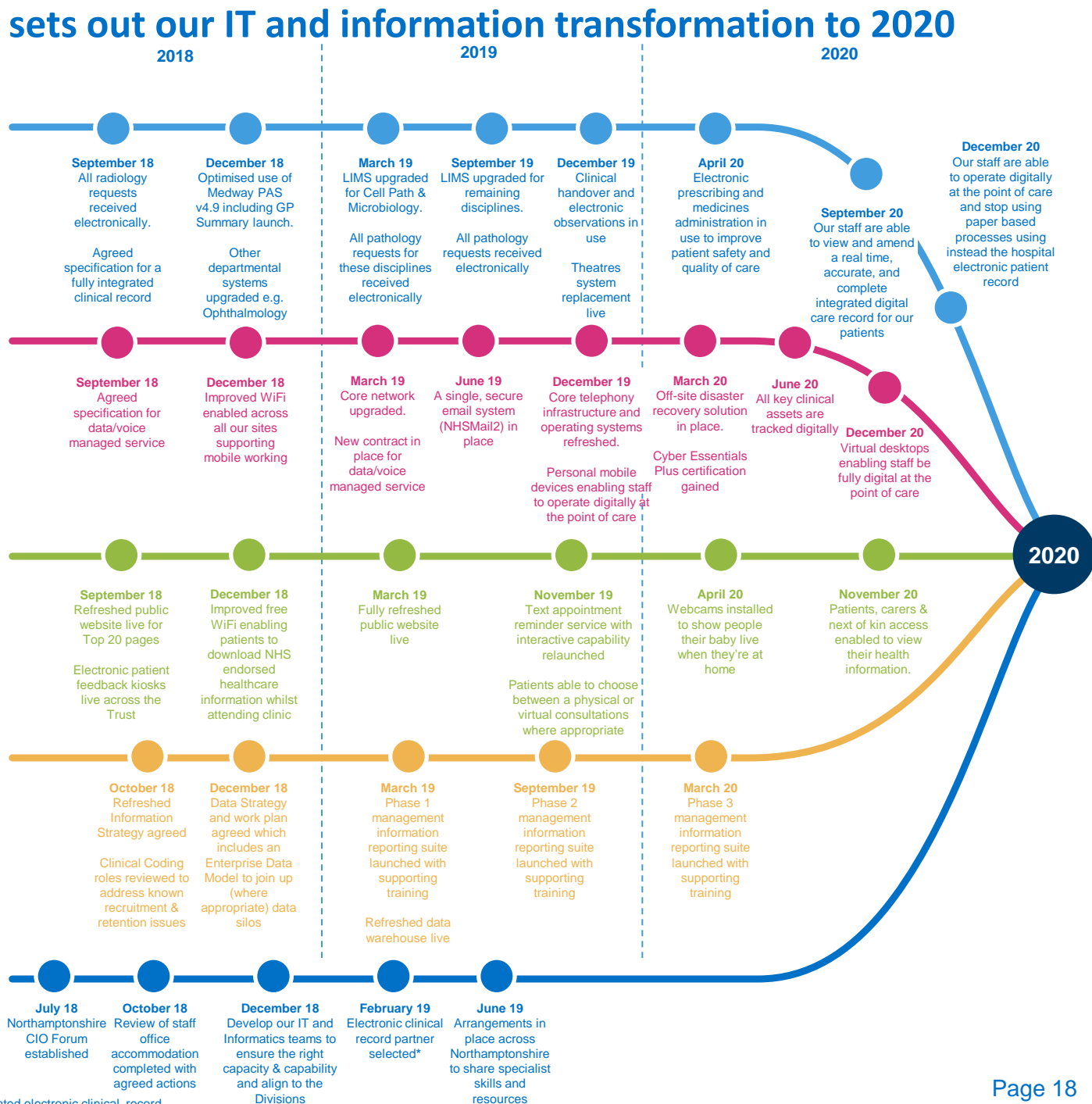
**Delivering digital services** that empower patients, puts them at the centre of their care, to help them make informed decisions.



**Providing trusted information** to enable our staff to make information-led decisions ensuring they can provide the best care possible.



**Strengthening collaboration and strategic partnerships**, sharing solutions, expertise and lessons learned to enable transformation



\* This is a key dependency for the successful delivery of a fully integrated electronic clinical record.

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## There are three key enablers to support delivery success:

- 1 Selecting an **electronic patient record** partner
- 2 Developing the **right capability and capacity** in IT and information
- 3 Designing the right **programme and change model** to ensure appropriate control over delivery of the portfolio

# There are a range of approaches available to achieve a fully integrated electronic clinical record

- An Electronic Patient Record (EPR) provides a **digital view of clinical information** to **coordinate patient care and document the point at which it was delivered**.
- An EPR is **typically delivered through departmental or service based modules**.
- When **modules are fully integrated** across a trust or health system, **an EPR can provide an enterprise view of the patient**. This provides a **full view of a patient**, and their **history of care, irrespective of the setting** in which the care was delivered within the system. These integrated records can then be used to **support operations, finance and reporting in a joined up way**.
- A **fully integrated EPR can be achieved through either**; the **creation of a bespoke best of breed system**, integrating multiple EPR modules; or through the **implementation of a single supplier integrated solution**.

## Best of breed solution

- Ability to integrate existing trusted and accepted systems.
- Readily supports incremental addition of functions but may take longer to implement.
- Taking an incremental approach leads to a more gradual impact on business.
- Cost savings take longer to be realised but upfront costs tend to be lower.
- Inconsistent design and slower performance in moving from one system to another.

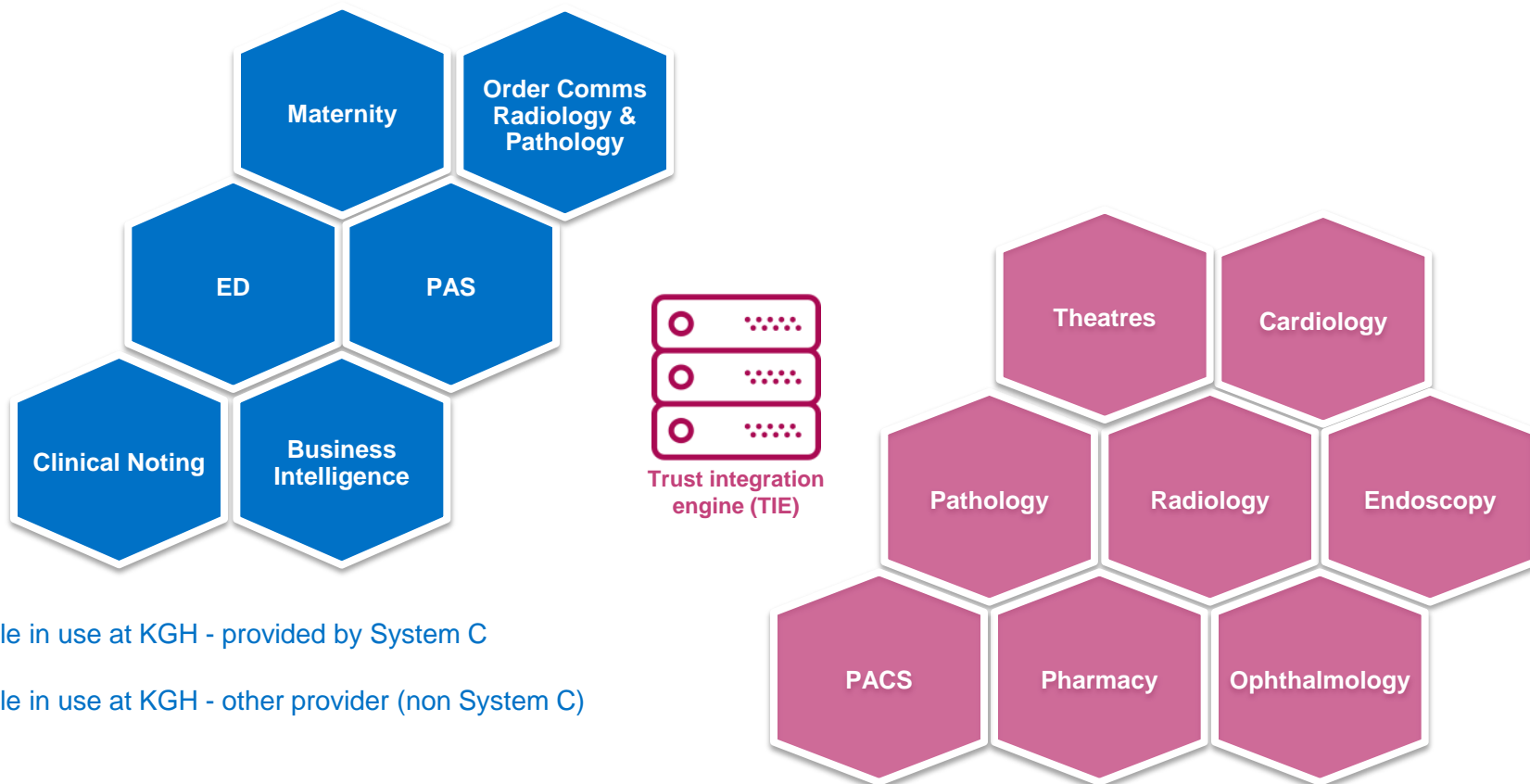
## Single supplier integrated solution

- Necessary to 'rip and replace' all existing systems.
- Entirely new system to be learned, meaning a steep learning curve, and re-training of staff.
- Rapid provision of a complete electronic system enabling fast pace of change.
- High upfront costs but benefits are realised more quickly.
- Consistent look and better performance.

1

## KGH's current EPR is partially integrated, with System C its biggest provider. However, some services remain paper based and do not use an EPR

- KGH currently has an **EPR across some services**, with **System C as its main supplier**. Other systems are provided by **alternative providers**, and are integrated with System C through a **custom engine**. **Some services still remain paper based**.
- The contract with System C, is due for **renewal in May 2019** although there is an option to extend for 12, 24 or 36 months.



### Key



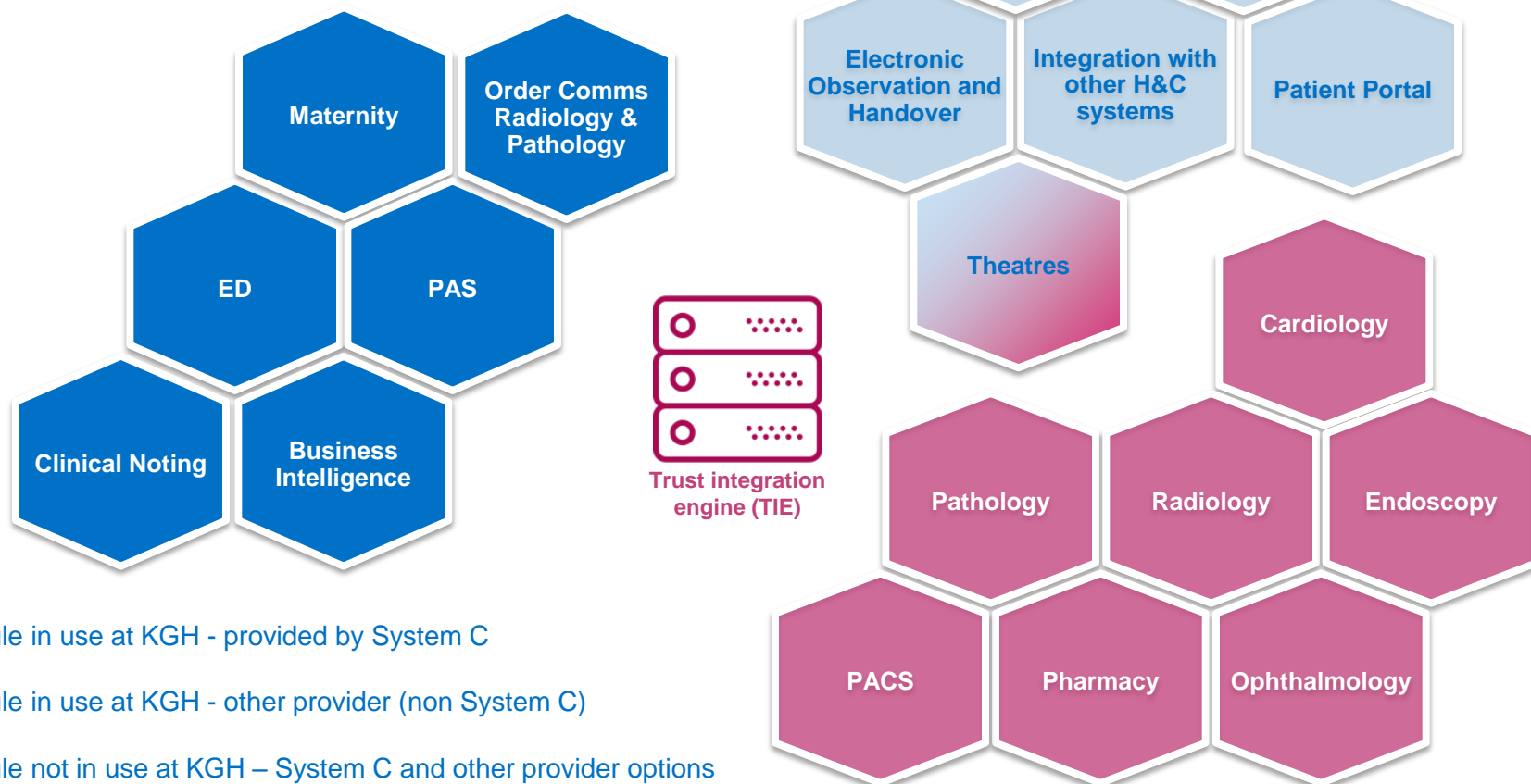
Module in use at KGH - provided by System C



Module in use at KGH - other provider (non System C)

# There is now an opportunity to consider what a fully integrated EPR may look like for KGH

The Trust is seeking to **implement a fully integrated EPR in line with the 2020 plan**. In order to enable this, the additional modules not currently provided through an EPR need to be considered.



## Key



Module in use at KGH - provided by System C



Module in use at KGH - other provider (non System C)



Module not in use at KGH – System C and other provider options

# When changing from one EPR supplier to another it is typical to incur transition costs. These need to be factored into supplier selection decisions

When moving from one supplier to another it is typical for a trust to incur a number of transitional costs. These need to be considered carefully as part of any supplier selection decision. Illustrative examples of transition costs for KGH are set out below:

## Impact on pace on change

- Full **re-procurement** will likely take a **minimum of four additional months**.
- **Implementation** of the system will then likely take a **further twelve months**.
- Other dependent projects will also likely be delayed, meaning the **2020 roadmap is not deliverable**.

## Implementation costs

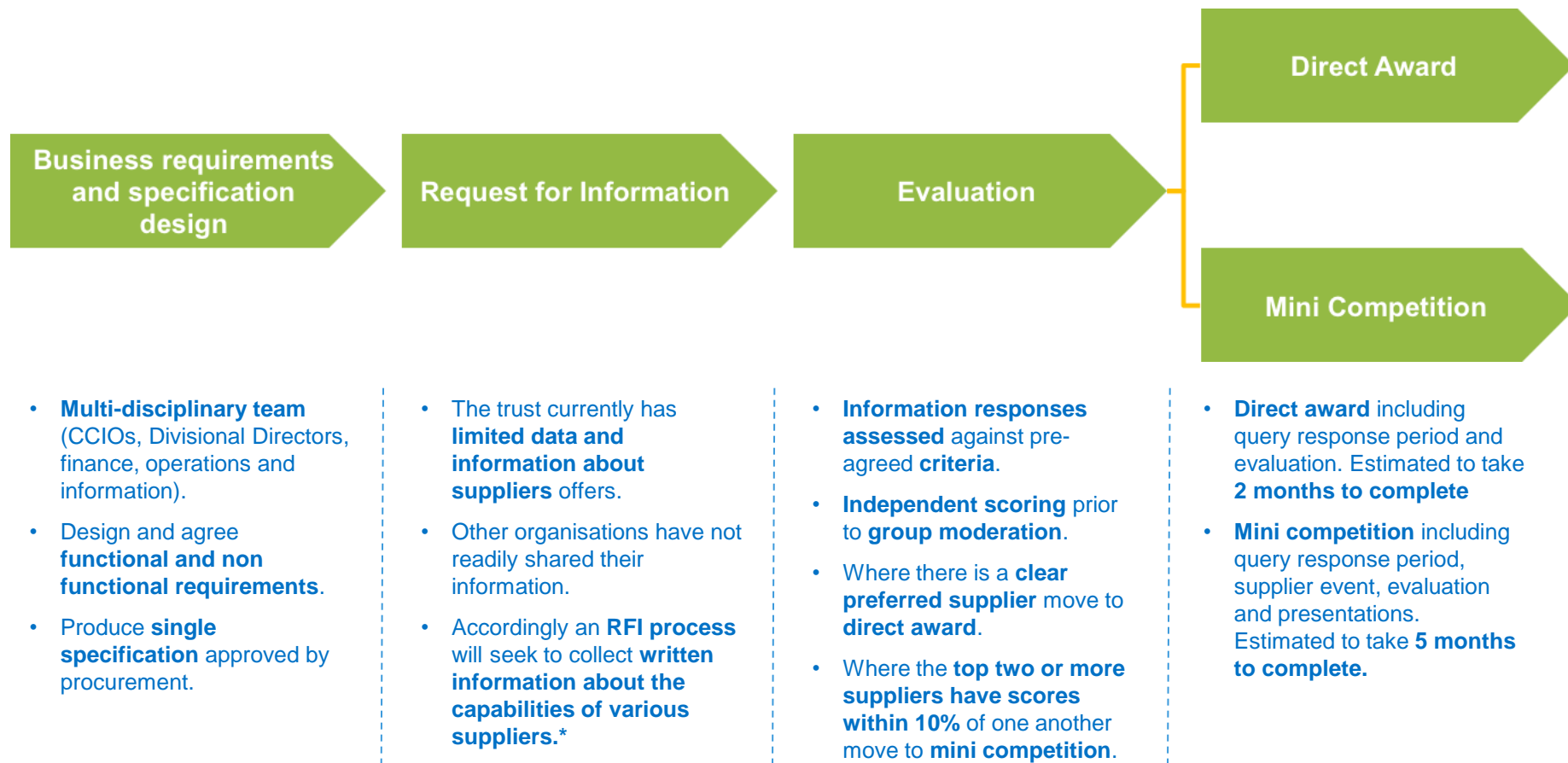
- **IT implementation costs**, with **c17 staff needed** from IT for: Systems – configuration, testing, IT Infrastructure, IT security, IT Training, information reporting, data quality
- **Clinical implementation costs**, with **c20 staff needed** for: divisional facilitation, UAT, training etc.
- Management costs, with dedicated procurement, finance and project management support.

## Data quality costs

- Based on previous implementations, **post implementation data quality challenges** are common, often resulting in **operational challenges and validation programmes**, with potential for **clinical harm**.

# A process to select an EPR partner by February 2019 has been approved by procurement

The below process uses **established frameworks** and has been **approved by procurement**:



\*There are two core frameworks which could be used for the procurement process (LPP CDIS or SBS – Healthcare Clinical Information Systems)

## Critical success factors to selecting an EPR partner include:

### Clinical Leadership:



- It is critical that the process is **clinically led** and **managerially supported**.
- Specifically, **clinicians** should be at the **heart of all activities in the process**, from **specification design and market testing**, to **evaluation and decision making**.
- Whilst the **two CCIOs will lead clinical engagement**, a **broader range of clinical stakeholders** will provide input throughout the process.

### Robust Specification:



- A clear technical specification sets out **how the future system will function**. It **defines the scope or boundaries of the system**, **removes ambiguity** around functionality and **lists assumptions** upon which the design is based.
- It is important to **take the required time to develop a robust specification upfront**, ensuring all other steps and decisions in the process are fed off this.

### Proactive Management:

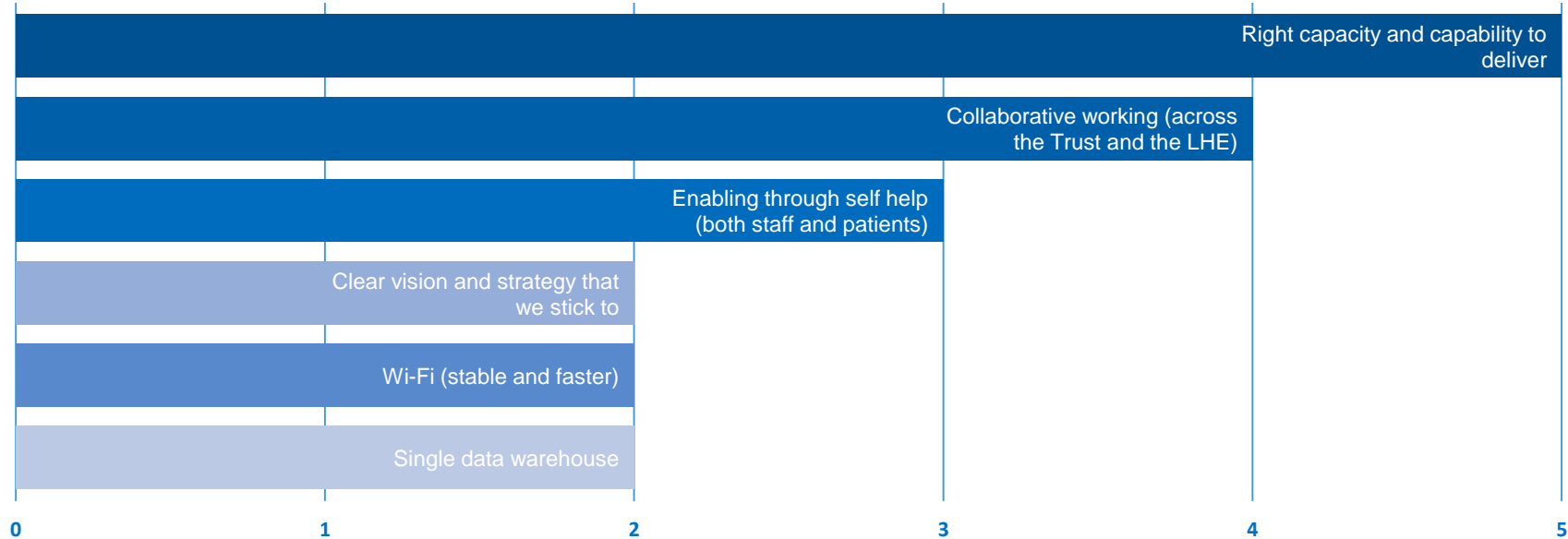


- Selecting an **EPR partner is a prerequisite for many other elements of the digital roadmap** to be delivered. Accordingly, there is a **need to proactively manage the process**, **minimising delays** and delivering to the agreed timeline.
- Specifically, **dedicated programme management and procurement time** will be required to facilitate the process.

## At the IT and information away day it was clear that the team needs to develop its transformation capability and capacity alongside its BAU activity

- At the IT and information August **away day the room was split into groups of five**. Each group was asked to **identify key enablers for success required to deliver** the digital roadmap's strategic objectives.
- Every single one of the five groups identified capacity and capability** within the IT and Information as a **key enabler**.
- Other key areas included collaborative working across the Trust, and LHE, allowing greater access to self help, and a clear vision and strategy that the Trust maintains.

Number of groups (out of five) that identified each enabler at the IT away day

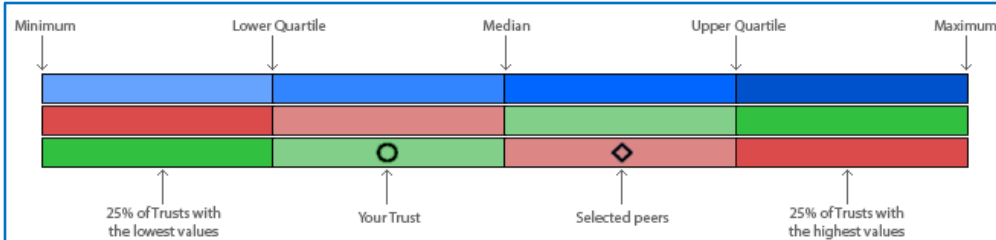


## Initial capacity and capability gaps have been identified across IT and information

Area	Additional Capability and/or Capacity Gap
IT	<ul style="list-style-type: none"> <li>• <b>EPR System Support</b> capability and capacity (within IT and across the Trust)</li> <li>• <b>Programme/project management, including benefits realisation</b> capability and capacity</li> <li>• <b>Supplier and contract management</b> capability and capacity</li> <li>• <b>Cyber Security</b> capability and capacity (within IT and across the Trust)</li> <li>• <b>Microsoft Windows10</b> capability</li> <li>• <b>Best Practice Service Management (ITIL)</b> capability and capacity</li> </ul>
Information	<ul style="list-style-type: none"> <li>• <b>Information integration</b> capability and capacity</li> <li>• <b>Data analytics and programming</b> capability and capacity</li> <li>• <b>Information access administration and training</b> capacity across the organisation</li> <li>• <b>Microsoft Office training</b> capacity</li> </ul>

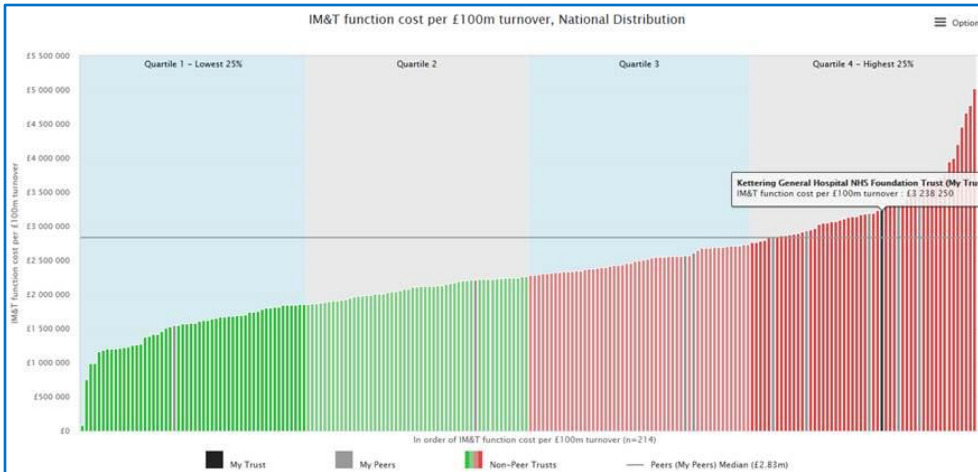
# Model Hospital demonstrates that there is an opportunity to increase our capacity and capability through rebalancing pay and non pay costs

## Pay Costs



When benchmarked against peers our pay costs are significantly lower than average, and below the median across the country.

## Overall Costs



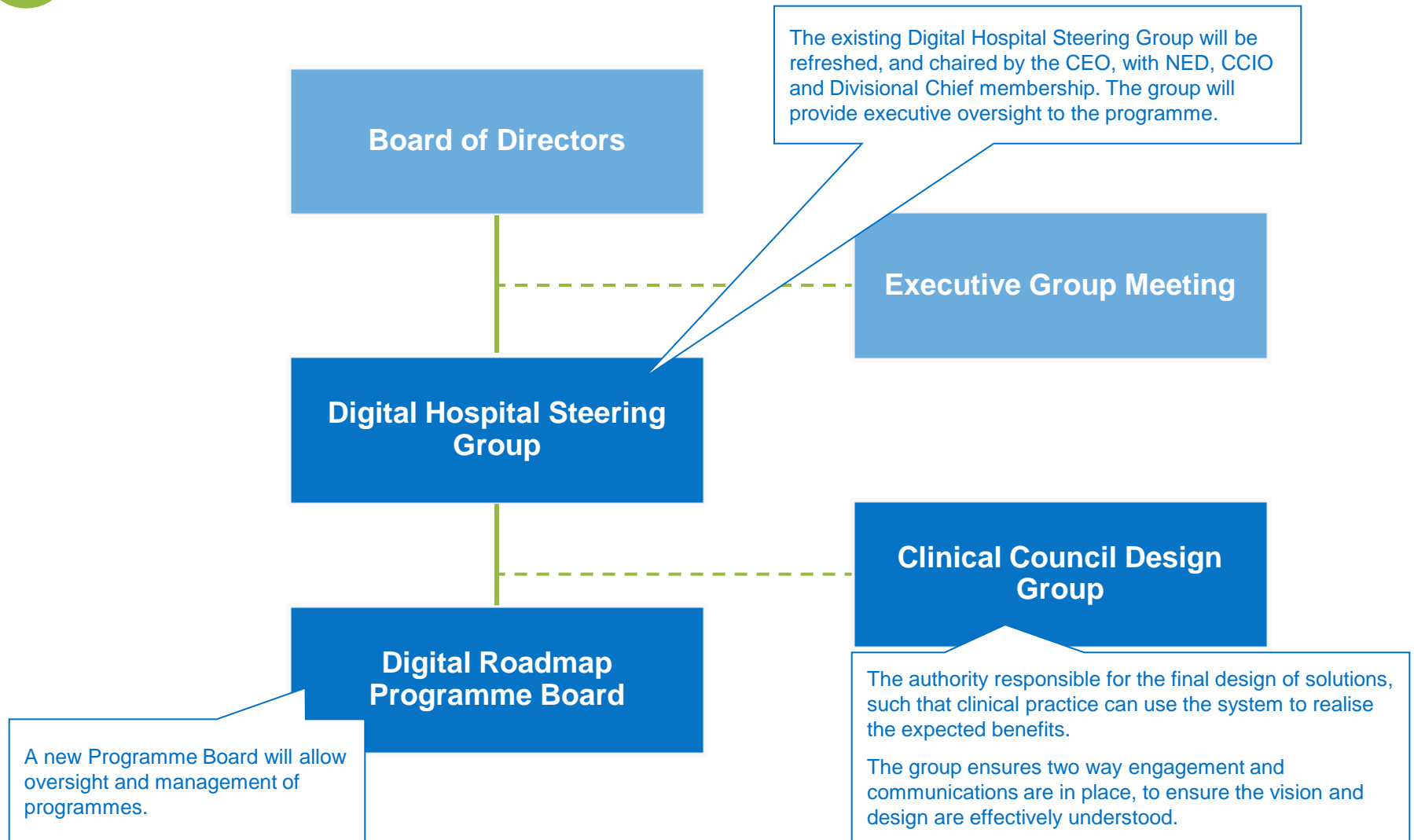
However, our **non-pay costs** are significantly higher than the benchmark, swinging our total costs to higher than the median (for our selected peers). This suggests that there may be a **false economy in place**.

Historically, we have **only had the capacity and capability** in place to run and maintain our essential IT and information services, with limited focus on transformation.

We have been **unable to focus on effective supplier and contract management**.

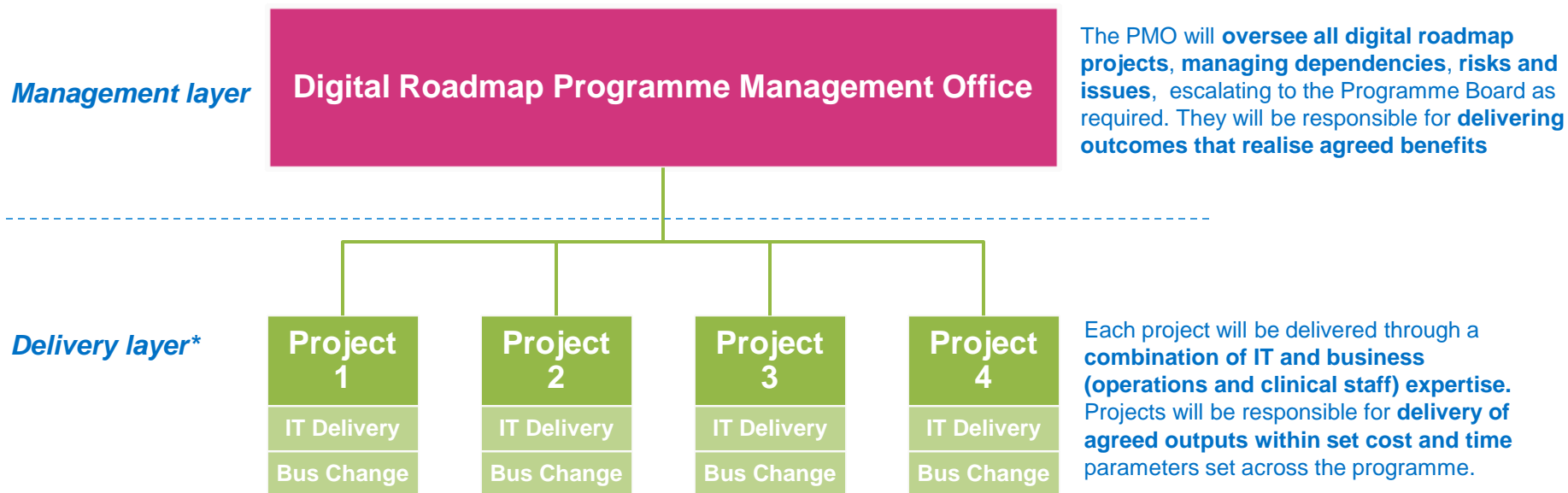
There is an opportunity to invest in additional capacity and capability (in pay costs) to better manage contracts and transformation (non pay costs)

## We are implementing robust governance to manage transformation delivery



## Portfolio, programme and project management layers to secure delivery

- A new **Digital Roadmap Programme Management Office** will manage project implementation, reporting into the Programme Board.
- Each project will be delivered through a **combination of IT Delivery and business change** expertise.



*\*Four projects are included for illustrative purposes. It is expected that more projects will concurrently be operating across the programme*

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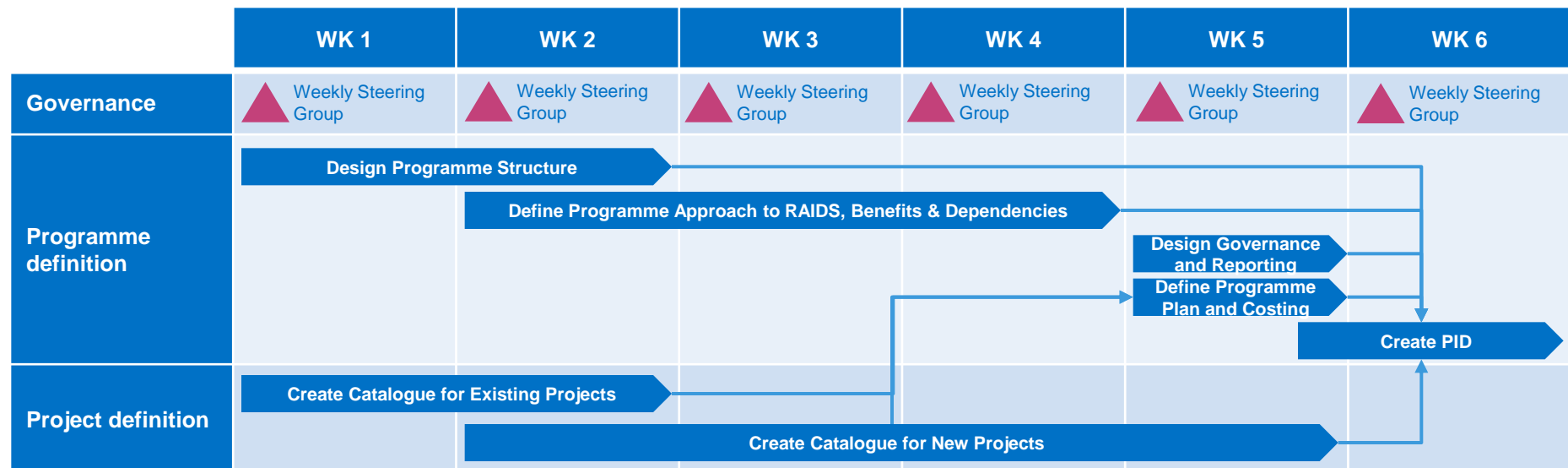
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# Digital roadmap programme programme definition phase

## Objectives of the phase

- To **scope and define each component project** within the programme
- To **map dependencies** across the projects, setting out an **overall delivery plan to 2020**
- To set out the **costs and benefits of the programme**, accounting for both capital and recurrent values (financial and otherwise)
- To **define the capacity and capability requirements** to support delivery of the programme

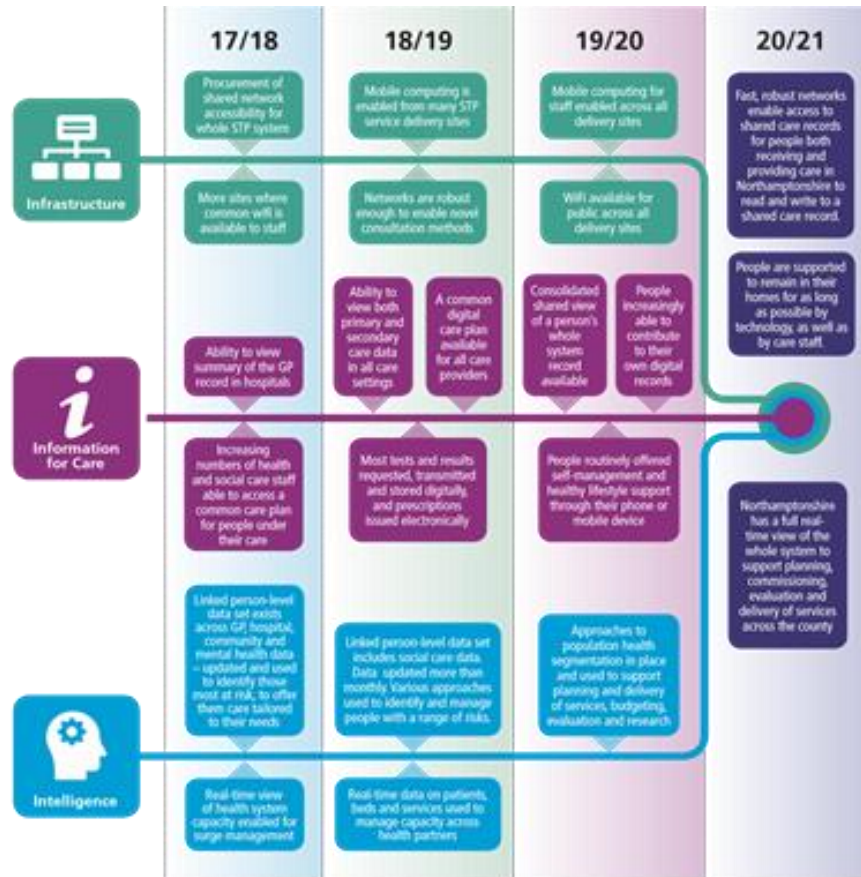
## Approach and timeline



# Appendix



# Our Northamptonshire digital roadmap to support national commitments



- The **Five Year Forward View** makes a commitment that, **by 2020**, there would be **“fully interoperable electronic health records so that patient’s records are paperless”**.
- This was supported by a Government commitment in **Personalised Health and Care 2020** that **“all patient and care records will be digital, interoperable and real-time by 2020”**.
- It also states that **“By April 2020, the entire health system will adopt SNOMED clinical terminology”**.
- Nationally, the **detailed delivery plans were left to the local digital roadmaps (LDR)** – the **Northamptonshire one, published in June 17**, is best summarised through the **adjacent roadmap**.

