Section 1

Introduction

Leeds aspires to be the best city to grow up in, the best city to grow old in, the best city for health and wellbeing and has the overall ambition to improve the health of the poorest fastest.

Leeds is making strong progress towards becoming a ‘smart’ city where voluntary, public and private sectors cooperate to achieve sustainable city outcomes and increase economic competitiveness. This includes the ability to share and exchange information across a whole city system.

Informatics, and the digital technology it oversees, is seen as central to the delivery of this ambition.

Leeds is the agreed footprint for the Local Digital Roadmap (LDR), covering the three Leeds NHS Clinical Commissioning Groups and the local health and care providers, including all GP Practices.

The Leeds Informatics unique selling points are:

- Our strong and long standing collaborative working arrangements around Informatics across health, care and academia
- Our robust information sharing arrangements between organisations
- Our engagement with citizens about how their information is and might be used to improve their health and care
- Our Leeds Care Record, an integrated view of health and care information with over 2000 active users
- Our use of joined up information and analytics across the city to provide knowledge and insights into how effective our health and care processes are

The priority Informatics opportunities described within the LDR are:

- To use technology to support people to maintain their own health and wellbeing
- To ensure a robust IT infrastructure provision that supports responsive and resilient 24/7 working across all health and care partners
- To provide workflow and decision support technology across General Practice, Neighbourhood Teams, Hospitals and Social Care
- To ensure a change management approach that embeds the use of any new technology into everyday working practices

The LDR has been produced in conjunction with the Leeds and West Yorkshire Sustainability and Transformation Plans (STP) and in collaboration with other LDRs across West Yorkshire.

The LDR is not intended to be a replacement for individual organisational informatics strategies but provides a consolidated view of the plans required to become as close as possible to ‘paper free at the point of care’ and to support the delivery of integrated health and care services.

The Leeds Local Digital Roadmap thus describes a 5-year digital vision, a 3-year journey towards becoming paper-free-at-the-point-of-care and 2-year plans for progressing a number of predefined ‘universal capabilities’.
Endorsement and contributors

It was agreed at an early point that the Leeds STP would be the driving initiative, being communicated widely to all stakeholders, including to the Leeds Partnership Executive Group and the Leeds Health and Wellbeing Board. The LDR development has also had wide visibility either as a complementary aspect of the STP or in its own right. The agreed sign-off process for the LDR is via the Leeds Informatics Board to the Leeds Partnership Executive Group, with visibility provided to the Health and Wellbeing Board.

The main contributing organisations have been as follows:
- NHS Leeds North Clinical Commissioning Group (lead CCG)
- NHS Leeds West Clinical Commissioning Group
- NHS Leeds South and East Clinical Commissioning Group
- Leeds City Council
  - Adult Social Care
  - Children’s Services
  - Public Health
- Leeds Teaching Hospitals NHS Trust
- Leeds Partnership NHS Foundation Trust
- Leeds Community Healthcare NHS Trust
- General Practice
- Informatics leads from West Yorkshire Clinical Commissioning Groups
- West Yorkshire Urgent and Emergency Care Network/Vanguard
- Leeds Third Sector organisations

The LDR has been developed using the following approach:

Resources, roles and responsibilities to deliver the roadmap were identified and secured at an early stage. Stakeholders were identified. Communication and engagement of the LDR plans involved, briefings, meetings and bulletins which were managed alongside the STP communications plans. The range of activities undertaken has highlighted the excellent work already undertaken in Leeds along with capability gaps, delivery constraints and opportunities to share expertise, minimise duplication, standardise and integrate approaches where possible.

Involvement in the STP programme has been an integral part of the process.

The key stakeholder groups included:

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<thead>
<tr>
<th>Senior Stakeholders</th>
<th>Leeds Partnership Executive</th>
<th>Leeds Informatics Board</th>
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<tbody>
<tr>
<td>Stakeholders</td>
<td>STP delivery group</td>
<td>CCG Planners group</td>
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<tr>
<td>City Chief Information Officers</td>
<td>Specialists to contribute to technical and clinical aspects</td>
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<tr>
<td>Chief Information Officers linked</td>
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<td>to organisations and their teams</td>
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<td>City Editorial Delivery Group</td>
<td>Dedicated resources</td>
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Sustainability and Transformation Plan

The delivery of digital solutions and the management of information in Leeds is an enabling component within the STP. The Local Digital Roadmap is as much about managing change and delivering new ways of working as it is about introducing new technologies.

The STP stakeholder workshops have included the digital leaders involved in the oversight of the LDR. Clinical leaders have worked with digital leaders to fully expose the transformational opportunities through the digital enablement of information pathways and self management and clinical support tools.

The following illustration describes the Leeds sustainability and transformation model where technology will support ‘prevention and proactive care’, ‘rapid response in time of crisis’ and ‘efficient and effective secondary care’:

Local delivery: Leeds

The STP has also described the required transformation plans, addressing the gaps and the enablers - one of which is Informatics:

Vision:
Leeds will be a healthy and caring city for all ages where people who are the poorest improve their health the fastest.

Impact on 3 gaps

Health and Wellbeing:
- Life expectancy for men and women remains significantly worse in Leeds than the national average
- Cardiovascular disease (CVD) mortality is significantly worse than for England
- Cancer mortality is significantly worse than Yorkshire and the Humber
- Deaths from cancer are the single largest cause of avoidable PYLL in the city, accounting for 36.3% of all avoidable PYLL
- IPS scores in Leeds are twice the level in the deprived Leeds quintile than in the non-deprived
- Suicide rates have increased

Care and Quality:
- NHS Constitutional KPIs the areas where significant gaps have been identified
- Mental Health (including IAPT)
- Patient Satisfaction
- Quality of Life
- A&E and Ambulance Response Times
- Delayed Transfers of Care (DTOC)
- Hospital admission rates
- Capacity gap: risked due to difficulties in enrolling and retaining GP staff resulting in rising demand
- Delayed Transfers of Care (DTOC)
- Organisational KPIs the areas where significant gaps have been identified
- Emergency and Critical Care
- Difficulties in providing greater access to services in and out of hours
- New Models of Care
- Public Health
- Key drivers

Efficient and Effective Secondary Care

Reducing:...
Section 2

City Technology vision and strategy

Vision and strategy:
Leeds has designed a simple informatics ‘blueprint’ which describes our vision for the city. There are three strategic building blocks that form our informatics vision to support improved health and wellbeing and improved health and care provision. These are:

- Information and technology that provides information for professionals;
- Information for citizens;
- ‘Open data’ that describes aspects of our city or our ‘place’, for example air quality and transport.

Informatics is thus the full range of technology and information management provision required to deliver this vision. This includes technology infrastructure such as data networks, information systems designed to collect and process information, the skills necessary to implement and operate systems and the use of the information produced.

Our simple Informatics strategy for the city
Supporting the Sustainability and Transformation Plan: 

The Leeds STP recognises that city-wide savings will arise from the multi-disciplinary activities that come from different parts of the health and care system that will work together to achieve this. 

We recognise that resources, both financial and human, will need to be reallocated and capacity and capability, as well as the significant information and communications technology (ICT) infrastructure required, will need to be identified and mobilised across the health and care system. We are taking a strategic approach to delivering the Local Digital Roadmap and will have in place a series of governance arrangements to deliver the vision. 

The city Chief Information Officers (CIOs) and Chief Clinical Information Officers (CCIOs) across Leeds have jointly proposed a city-first (or place-based) strategy and an integrated and strategic approach that provides clear direction and a consistent approach across the city. We have designed and agreed city-wide governance arrangements required to provide assurance on the delivery of digitally enabled health and wellbeing outcomes in Leeds, in line with the agreed design principles. 

We have designed a strategic framework to deliver that distinguishes between our city-based function will be created to support the work of the LIB, CIOs and CCIOs in the delivery of the Local Digital Roadmap. The function will provide support with planning, strategic compliance, business case development and delivery of projects. The shared systems and collaboration and productivity will be created to support the work of the LIB, CIOs and CCIOs in the delivery of the Local Digital Roadmap. The function will provide support with planning, strategic compliance, business case development and delivery. 

1. Technical infrastructure; 
2. Systems that deliver directly to the business; 
3. Innovations and research. 

This is illustrated below:

- **Business/Clinical requirements and joint decisions**: 
- **Technologists requirements and decisions**
- **Shared Systems collaboration and productivity**
- **Infrastructures Support programmes, business systems, computer etc**
- **Interoperability support programmes, business systems, computer etc**
- **Collaboration and productivity**
- **Innovations Enabling Citizens and Communities**
- **Infrastructure**
- **Supporting systems, software and operations, computer etc**
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- **Support programmes, busine...
Given that Leeds has already made considerable progress in delivering a number of far-reaching digital support facilities for the city, for example the Leeds Care Record, we have rated the following features based on the ‘push’ and investments required to deliver our ambition and not our current state. This is illustrated diagrammatically as follows:

These features by STP ‘gap’ are summarised as follows:

**Health inequalities gap:**

High-level considerations for how Informatics will contribute:

- To improve digital literacy skills for citizens to ensure that they are not excluded from technology-enabled healthcare solutions and technology enabled self-care opportunities;
- Continue to ‘link’ health and care data across sectors in order to undertake more sophisticated population and health needs assessment;
- Use and publish ‘open data’ to assist with health awareness and ensure our localities are well informed, for example, air quality, transport links and usage;
- Build and develop more analytical skills that span sectors, utilising skills and capacity across organisations which will drive understanding of the issues in the health and care sector;
- Work with citizens to increase their understanding and confidence and as to how their data/information can be used to improve healthcare;
- Provide tools to support self-care/self-management, for example tele-health and tele-care;
- Work with the private sector to develop new consumer-based products to support self-care and self-management;
- Utilise and improve population stratification techniques and our ability to monitor cohorts;
- Engage communities with data that is meaningful to them;
- Provide public wifi access.
Care and quality gap:
High-level considerations for how Informatics will contribute:

- Improve technology infrastructure within organisations to ensure reliability and adequate service support to cover extended hours and 7-day working;
- Provide health and care professionals with integrated decision support tools to proactively assist with the health and care provision;
- Provide facilities to enable health and care professionals to navigate pathways across sectors;
- Provide facilities to manage health and care workflow, especially across and between organisations and ensure technology is available to support service ‘hand-offs’ e.g. referral, discharge;
- Ensure Third Sector and AQP etc. can access the NHS number, as required;
- Provide facilities that allow health and care professionals to collaborate. For example, Instant Messaging, Voice and Video. This will include the capability to provide clinical advice and guidance and facilities for effective Multi Disciplinary Team meetings;
- Provide facilities to allow professionals to communicate with patients inc. patient online and video;
- Ensure health and care organisations have the range and maturity of specialist business and clinical systems within their organisations to provide ‘paper free at the point of care services and can interoperate with other parts of the health and care sector;
- Design and develop technology support for ‘new models of care’ providers;
- Provide health and care professionals with an integrated view of health and care information across sectors, including various alerts to support direct care;
- Extend an integrated view of health and care for citizens across a wider footprint e.g. West Yorkshire urgent and emergency care;
- Exploit nationally provided technology facilities to provide specific clinical benefits – e.g. electronic prescriptions (EPS2) and electronic referrals (eRS);
- Implement ‘tele’ technologies:
  1) Provided to citizens as consumer based technologies to enable them to be self sufficient and re-enabled
  2) Proactive “telecare” provided to citizens used to effectively monitor and make sure people who are at risk are safe and well;
- Provide technology to enable real-time feedback for providers on the services the citizen is currently accessing in the city;
- Provide technology to capture and share a single care plan;
- Provide specialist, high-tech solutions e.g. robotics etc.

Finance and efficiency gap:
High-level considerations for how Informatics will contribute:

- Continue to design and deliver city- or place-based solutions, exploiting the combined capabilities and resources across health, care, local government and academia;
- Work to move to one infrastructure footprint and service for the city – including voice, data, email, collaboration tools etc;
- Exploit nationally provided technology facilities to provide specific clinical benefits – e.g. electronic prescriptions (EPS2) and electronic referrals (eRS);
- Deliver ‘utility’ technology where possible to drive down costs and use estate flexibly etc;
- Utilise private sector, independents, SMEs etc. to contribute to city inward investment;
- Work to progress an Open Standards approach to developing a Digital Platform for the city.
Section 3

Digital maturity and Core Capabilities

Summary of current digital maturity

The following section summarises a national exercise that was undertaken in early 2016 to assess the digital maturity of the health and care providers in Leeds. The terminology used is that used within this particular methodology.

Readiness:

Strategic alignment, leadership, governance and resources are mature within acute and mental health sector. Although the informatics strategy is documented within community health there is less maturity in terms of dedicated internal informatics leadership, governance and resourcing.

There is a mature and well established Leeds city informatics strategy, city-wide governance and set of project initiatives which are jointly funded. The informatics programme is an enabling component of the city transformation programme (in the process of transitioning to the STP). The membership of the Leeds Informatics Board comprises of senior leaders, clinicians, CCIOs and CIOs from across the city.

Capabilities:

Digital records, assessments and plans have advanced in all health and care settings. There has been significant growth in the use of digital records and the use of paper records is declining. Records are up to date, held in a structured format and can be accessed quickly and easily.

Transfers of care from acute health to primary and social care settings is higher than the national average, however the transfer of care from community health and mental health is less mature, although the use of SystmOne across Community and 70% of Primary Care supports the transfer of patient care through the shared record functionality. The development of e-referrals and internal workflow is common to all organisations.

Orders and results management is mature within acute care and community care.

Digital medicine management and optimisation is relatively low in maturity which is reflected at a national level, however the level of maturity within acute care exceeds the national average.

Decision support capabilities exceed the national average across all health settings; the level of maturity within acute care is strong. The need for universal and standard decision support tools across the city has been identified as a key priority. Business requirements have been identified in some health and care settings. Advancement has been slow due to financial resource limitations.

Remote and assistive care technologies in a health setting are generally low in maturity which is reflected at a national level.

Asset and resource optimisation is mature and exceeds the national average in both acute care and mental health. Community health is relatively immature.

The position on “standards” is generally less mature than the national average.
Business Intelligence across the city is a priority. The requirements for information and data sharing are well formed and the production of linked intelligence is systematic. The further advancement of this initiative is also constrained by financial resource issues.

### Enabling Infrastructure:

A strategy has been agreed across the city to standardise the technical infrastructure within the acute sector to improve resilience, performance, 24x7 and extended hours working across the city. Leeds Teaching Hospitals NHS Trust has the most pressing infrastructure upgrade needs. Their requirements include resilient data centre capability, network improvements, single sign-on and improved performance for clinical users. The Trust has unsuccessfully bid for capital funds from the TDA/monitor and work is underway to refresh a business case in the summer/autumn 2016.

Leeds City Council utilises the PSN network and has successfully pioneered a PSN to N3 connection. GP Practices all utilise the N3 network. This provides practice-to-N3 connectivity but not practice-to-practice connectivity that will be required for increased federation and new models of care.

As per our strategic approach, the city is looking to deliver ‘place-based’, ‘utility’ solutions in the future, enabling health and care users to work any-time and any-place within the city.

### Summary position across the 7 Core Capabilities

Each health and care economy is required to make digital progress against 7 ‘core’ capabilities to enable ‘paper free at the point of care’ operation by 2020. Those digital capabilities are:

- Digital records, assessments and plans
- Transfers of care
- Order and results management
- Digital medicines management and optimisation
- Decision support
- Remote care and assistive technologies
- Asset and resource optimisation

The following assessment across the 7 core capability areas references both the provider view - as captured by the digital maturity assessments - and the city-view to enable transformation, as described in the Sustainability and Transformation Plan (STP).

As essential supporting information to the 7 core capabilities required to be progressed, the following templates have been completed:

- Capability trajectory, showing the anticipated capability improvement from the baseline position over 3 years, and subject to the required resource capacity and capability.
- Capability deployment schedule over 3 years, and subject to the required resource capacity and capability.

The following diagram is an illustration that combines both aspects and represents our strategic way forward:

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**Summary position across the 7 Core Capabilities**

- Digital records, assessments and plans
- Transfers of care
- Order and results management
- Digital medicines management and optimisation
- Decision support
- Remote care and assistive technologies
- Asset and resource optimisation

We have rated the above features based on the ‘push’ and investments required to deliver our ambition and not our current state.
**Capability:**

**Digital records, assessments and plans**

Integrated city perspective:

- West Yorkshire (and beyond) record sharing
- Integrated (Leeds) Care Record
- Single View of the Child

**Provider Baseline:**

The level of maturity of formatted digital records for clinical notes, observations and plans in acute care and community health is lower than the national average; however these organisations have programmes of work to review and develop systems and processes to enable replacement paper records with digital records increasing the use of e-form capability and usage which is captured in the capability deployment schedule.

Mental health is very mature on these records being digital, in particular case notes are input directly into the patient management system. It is worth noting however that the current system in mental health has limitations to deliver interoperability so there are plans to procure an alternative that can deliver to the requirement for an integrated city-wide capability. Social care have semi-structured digital records.

The ability to access digital records from wherever they are needed is strong within acute care, however there is acknowledgement that the current system in social care has limitations to deliver interoperability so there are plans to procure an alternative that can deliver to the requirement for an integrated city-wide capability. Social care have semi-structured digital records.

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Access to and updating digital records from wherever they are needed in community health and social care is less mature with clear dependencies on digital network access and access to integrated information systems.

The ability to access a single source of digital information at the point of care, and input once to a single system at the point of care, is less mature and lower than the national average within all care settings. The key requirement across all providers to support delivery of an integrated patient record is a common thread through the capabilities in the deployment schedule.

Health professionals have access to information from other health care providers. Access to a consolidated view of patient information is mature and higher than the national average. Social Care has access to health information and health has access to social care information. Although the level of information being shared and accessed is higher than the national average (which is low) there is a programme of work through the Leeds Care Record to advance the data content and the number of professionals accessing the shared information system which is reflected strongly in the capability deployment schedule.

Patients are currently unable to access health and care data via secondary care but good progress has been made on patient access to PatientOnline with approximately 15% of patients registered to use online services currently which is over the national target of 10%.

The delivery plan for universal capability shows clear ambition and activities to improve this position.

This position has significantly improved in Primary Care in Leeds over the last decade as a result of every GP Practice moving to one of two strategic systems; EMISWeb or TPP SystmOne. Record sharing is relatively mature especially using EDSM within SystmOne as this is also used by Community and the two hospices in Leeds.

**Example showcase initiatives:**

- Leeds Community Healthcare is re-engineering the use of their core system to change from administrative use to clinical use as an electronic patient record.
- Leeds Teaching Hospital NHS Trust have consolidated their letter production, storage and search facilities using a product called ePRO.
- Adult Social Care has implemented a new case management system. Children’s Social Care has implemented a new case management system. The improvement in functionality for professionals has led to better care and increased efficiency.

**Strategic view:**

Health and care providers in Leeds will operate paper-free-at-the-point-of-care. Information systems will use the NHS number as the common identifier. Information systems will use APIs and generate and receive messages from other systems. An integrated care record (Leeds Care Record) will provide a cross-organisational view of patient and client care.
Capability:

**Transfers of care**

Integrated city perspective:

- Instant messaging/voice and video conferencing
- Booking, advice and guidance / scheduling and workflow

**Provider Baseline:**
The production of digital care summaries at patient discharge to GPs is mature with 96% of secondary care providers sending GPs electronic discharge summaries, of which 84% are received within 24 hours. The status of other structured electronic referrals for transfers of care is less mature, however, in terms of Social Care compliant Assessment, Discharge and associated Withdrawal notices 83% of referrals are being sent from the acute provider electronically to Social care.

The production of digital care summaries that are created in a structured format in secondary health and are shared with other healthcare providers in real time is more mature than the national level. These are also closely aligned to the AoMRC headings where appropriate.

The production of structured digital referrals for all categories of care which are automatically integrated into digital clinical workflows is lower in maturity across all care settings than the national level. Within secondary care there is also some pre-population of data to other systems.

Within community health the use of structured formatted referrals and care summaries is relatively immature although GPs who use SystmOne benefit from the ability to “task” community services with referrals and have access to the detailed electronic record through the sharing functionality. Within the social care digital system there is a case summary view.

In primary care, Leeds GPs receive a range of electronic messages, these include e-Discharge Advice Notes, Pathology and Radiology results and e-A&E discharge notes.

**Example showcase initiatives:**

The establishment of a city-wide information governance steering group overseeing the IG needs of the city to ensure security, consistency and improve best practice. The group has led the production of class leading Information Sharing and Data Processing Agreements for the integrated care record.

Integrated neighbourhood teams have been established in shared accommodation and have been equipped with technology which supports the joint care management of patients and service users. Tactical shared infrastructure has been implemented and strong information governance has enabled improvements in the transfer of care from one setting to another.

Colleagues within health can access the email addresses of appropriate staff in adults and children’s care services and visa versa. Secure email has been implemented in all health organisations and in the local authority. This has improved the transfer of care and information security.

**Strategic view:**

There will be a consolidated view of care plans across the city. Pathway management and decision support tools will assist clinical decision making and transfers of care. Advice and guidance facilities will be available to ensure that all referrals are necessary. Professionals will be able to see the ‘presence’ of other professionals, and convert this into an instant message, telephone or video call. Universal booking facilities will be available. Information and data will follow any transfers of care, using open APIs between information systems.

Capability:

**Remote care and assistive technologies**

Integrated city perspective:

- Patient/client access to records and person held records
- Telecare / Telehealth /Self-Care and Self-Management
- Citizen-drive initiatives inc. apps etc

**Provider Baseline:**
The maturity level of professionals and patients use of collaboration tools to support clinical consultations and advice is low in most areas except mental health which reflects the national level of 50%.

Maturity levels for remote monitoring of patients at risk of readmission are similarly low however there is a higher level of maturity in social care to support service users at risk.

The use of Patient Online as a means by which patients can manage their care through electronic booking of appointments, ordering repeat prescriptions and access to their GP record is increasing and Universal ‘Capability J’ delivery plan evidences activities to improve on the current position. This will include engaging with the GP Connect programme and GP system suppliers who are reviewing options to improve their service offering.

The ‘Technology Fund 2’ initiative, ‘Ripple’, will pilot a person-held record in 2016.

**Example showcase initiatives:**

We have tested a number of technologies for use with citizens. These have included technology to enhance citizen self-management of health and care, apps that interact with a patient’s GP (e.g. managing acute pain) and those enabling people to live independently and tackle social isolation. The acute pain management app is also live but many tests and trials have yet to demonstrate the economic case for implementing at scale. Assisted Living Leeds is the most successful example of remote care technology. This is now a large operational service providing assistive technology aids such as falls and flood indicators.

**Strategic view:**

We aim to create the environment and encourage the technology market to respond to aspects of the citizen health and wellbeing requirement, for example, this could be the use of internet ‘home hubs’ integrated to near-citizen digital devices. We aim to do this via the establishment of a city technology ‘test bed’ to enable suppliers to work in a close-to-real environment. We will also encourage open standards for the sharing of citizen collected information with professionals and vice-versa. We will integrate near-patient testing devices with our Leeds Care Record. We will use social prescribing to increase the uptake of innovative approaches to health and wellbeing.
**Capability: Orders and results management**

Integrated city perspective:

Provider Baseline:
The digital ordering of tests and consultations in a structured format across all health settings is strong and higher than the national maturity level. More development is needed in the areas of pre-population of existing data and assimilation of associated data. Community health can positively identify patients through using barcoding technology prior to all diagnostic tests being performed. Requests received by diagnostic services are integrated into digital workflows. The results of tests and images for patients are available to city health and care professionals at the point of care. These maturity levels are higher than the national levels. The capability to create an alert for results that require acknowledgement is less mature. Within Primary Care universal technology features have been implemented that have enabled significant efficiencies; Ordering of tests and services using Sunquest ICE, electronic results reporting.

Example showcase initiatives:
A digital facility for orders and results management has been in place for several years across the Leeds Teaching Hospital and all GPs in primary care in Leeds. Making processes more efficient, improved clinical decision making and patient experience. The order communications systems is integrated within GP clinical systems.

Strategic view:
The breadth of services covered by an operational order communications facility will be expanded. The protocols for ordering (decision support) will be continually refined. Results, as well as other outputs such as images, will be available via Leeds Care Record.

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**Enabler: Standards**

Integrated city perspective:

Provider Baseline:
Publication of the NHS Number on correspondence to support information sharing across the health setting is not established in all settings. The use of SNOMED CT is not established and national levels are low. Dictionary of medicines and devices is low in maturity and lower than the national levels. The Academy of Medical Royal Colleges Standards for clinical structure of patient records is strong and stronger than the national levels. The recording of patient end of life preferences with reference to the national standards in the community are higher than the national level of 14%.

Example showcase initiatives:
NHS Number: Excellent progress has been made on obtaining the NHS number in Leeds. Adult Social Care undertook the Information Governance Toolkit wide assessment several years ago (now completed council wide) and began tracing NHS numbers. The next step is to capture the NHS number in care records for both adults and children in real time from the PDS. This will replace the current use of the DBS. We will also ensure the publication of the NHS number on to adults and children’s correspondence. This supports joined up care, speeds up access to information and improved records management and data quality. Ripple: Leeds has led the way on a ‘Technology Fund 2’ programme to establish and promote the use of open standards and open requirements to support organisations outside Leeds undertaking digital care record initiatives. This programme, known as ‘Ripple’ has developed a demonstrator Open Source Integrated Digital Care Record Platform.

Strategic view:
To ensure health and care organisations have the range and maturity of specialist business and clinical systems within their organisations to provide core capabilities which have been implemented in such a way so as to interoperate with other parts of the health and care sector and deliver paper-free at the point of care.
Capability: Digital medicine management and optimisation

Example showcase initiatives:
- Excellent progress has been made in implementing e-prescribing 2 in Primary Care. Practices have started in a structured rollout of the same e-prescribing/administration electronic solution which utilises the same base formulary for prescribing, allowing for medication optimisation and the establishment of prescribing protocols. This will see the baseline scores of both providers increase over the 3 year LDR period as medication management processes are embedded.
- Community Health do not currently have an electronic prescribing and administration system, however there are clear plans in place to improve this baseline within GP and Community Pharmacists evidenced in the delivery plan for universal capability 1.

Strategic view:
- Secondary Care hospitals and the mental health provider will be using electronic facilities for near patient prescribing. To take home 'e-prescriptions' will be sent to GPs. Both secondary and primary care prescribing will be reflected in the Leeds integrated care record. Various medicine regimes will be recorded. The accessibility of this information by the appropriate professionals improves the management of care, the utilisation of professional clinical time by enabling remote access to electronic prescribing and administration records, reducing medicine costs, errors and patient safety.
- Community Health and Social Care do have some visibility of medication order sets via Summary Care Record, where Role Based Access Control (RBAC) permissions are in place, this is enhanced through Leeds Care Record which provides access to GP prescribed medication. Medication prescribed by other providers will be increasingly visible as the e-prescribing/e-administration system use becomes widespread and available through the Leeds Care Record in a 'melded' view of the patient's medication from all health providers.
- Social Care are low in maturity in the administration medicine management, however, their focus is on ensuring they have information on prescribed medication including dosage and frequency which will be supported by the delivery of information within the Leeds Care Record which is accessed through Leeds Care Record which provides access to GP prescribed medication. Medication prescribed by other providers will be increasingly visible as the e-prescribing/e-administration system use becomes widespread and available through the Leeds Care Record in a 'melded' view of the patient's medication from all health providers.

Section 3

Leeds - Local Digital Roadmap 2016
**Capability: Decision Support**

Integrated city perspective:

- **Risk Stratification, health intelligence and population management**
- **Linked data**
- **Clinical Decision Support**
- **Telecare / Telehealth /Self-Care and Self-Management**

Provider Baseline:

The maturity of capability for health and care professionals to receive alerts to the existence of patient preferences, specific patient risks and where there has been a deterioration of their condition is strong and much higher than the national levels.

Reminders about overdue care actions and chase ups for missing information exist in part and at a higher level of maturity than the national level.

The delivery of an electronic e-prescribing and administration system in secondary and mental health will enhance the delivery of automated alerts which will highlight patient specific alerts and allergies in patient context and will reference potential contra indications with existing medications. The solution also provides for electronic access to decision support tools for prescribing within the application without additional navigation.

Decision support currently provides support to the discharge process and maturity levels are higher than the national level. The LDR capability deployment schedule shows a clear capability delivery priority as encouraging and increasing access and management of a shared patient summary record through enhanced usage and richness of data in the Leeds Care Record, which will enable effective and proactive joint decision making through collective provision of decision support information. This will support delivery of enhanced patient flow through care settings.

GP core clinical systems have aspects of decision support and strong workflow features. This includes implementation of the EPaCCs template to ensure that patients on a palliative care pathway can express and change their end of life preferences. Universal ‘capability H’ delivery plan confirms the excellent progress that has been made and the activities to include this information in the Leeds Care Record to make this available for all care professionals.

Child Social Care is implementing Child Protection Information Services (CP-IS) as part of the national roll out. Universal capability G delivery plan evidences the ambition and activity to ensure this information is available through both CP-IS and Leeds Care Record to care professionals in particular in urgent care settings.

**Example showcase initiatives:**

**Leeds Care Record (LCR)** has clear plans in place in 2016/17 to deliver additional patient alerts including an indicator that a patient is in the top 2% of patients with a care plan in place and alerts to learning disabilities. This is evidenced within the LDR deployment schedule capability deliverables.

Leeds GPs can see live ward electronic whiteboard details of their patients in hospital or lists of patients recently discharged through the LCR. Electronic messages from Leeds Teaching Hospital automatically appear in GP clinical system workflows. General practice use facilities such as the ‘frailty index’ and make use of proactive clinical templates.

GPs and secondary care use pathway guidelines which are available through the Leeds Health Pathways from a dedicated website at [http://nww.lhp.leedsth.nhs.uk/](http://nww.lhp.leedsth.nhs.uk/)

Leeds Intelligence Hub: Separate from clinical decision support Leeds has made excellent progress with commissioning decision support. Using pseudonymised linked data Leeds has some powerful examples of improved commissioning decisions and evaluations. Significant analysis has been delivered supporting transformation initiatives and city priorities. This has enabled the health and care system to evaluate the impact of changes and identify opportunities for change and driving efficiencies. The Leeds Intelligence Hub compares variation in care across the city’s neighbourhoods and begins to understand why and how to address unwarranted variation. The insights generated have provided a totally new level of dialogue and discussion across the city from city-wide leadership groups, the Health and Wellbeing Board, urgent care boards and most organisation’s senior management teams.

**Strategic view:**

Facilities that are currently passive will become proactive. Clinical decision support facilities will move from within organisations to a city-wide collective provision with access available to all organisations and with all organisations providing input. We will design our Leeds Care Record to use real-time feeds from ‘tele’ facilities such as near patient testing devices. Capabilities such as booking will move from point-to-point to ‘open’ facilities to support a wide range of booking.
Capability:

Asset and resource optimisation

Integrated city perspective:

- Place-based approach to Information and Technology
- Booking, advice and guidance/ scheduling and work flow
- Integrated (Leeds) Care Record
- Single View of the Child

Provider Baseline:

Digital systems are used in all secondary care settings to monitor bed utilisation; maturity levels are consistently higher than the national levels.

Digital systems are used to track patient flow in acute and mental health; there is less maturity in community health and social care. The Acute provider is deploying GS1 to allow assets to be tracked robustly through the secondary care organisation to optimise their use and ensure they are available at the right place at the right time for delivery of care. The ability to track patients robustly through their journey through the Trust will also be managed more effectively to signpost to relevant departments and to improve patient flow.

Staff rostering is digitally managed in acute, mental health and social care although weaker than the national level in community health. However, within the deployment schedule there are capabilities with planned delivery of e-rostering solutions in both the mental health provider and Community which will support the appropriate health and care professional being in the right location at the right time to make best use of professional resource.

The uploading of data from devices is mature in acute but weak in other settings. This is dependant on devices being fit for purpose, managed and supported effectively.

Example showcase initiatives:

As described in Section 1 Leeds has gained approval to take a city-based approach to the delivery of informatics in terms of integrated infrastructure, planning and delivering integrated business/clinical systems and innovations. This will eradicate the multiple and diverse initiatives which come from different parts of the health and care system that use up resource in an unplanned way and often confuse. It will also ensure that digital programmes and projects are aligned fully to an agreed whole-system outcome described in the health and wellbeing strategy, STP and LDR.

The Leeds Care Record is proving valuable in terms of avoiding phone calls between sectors to access additional clinical information.

Mobile working initiatives have delivered efficiencies in the use of accommodation and office space. Desk utilisation has reduced to 60% in areas of the system where the implementation of mobile working has been fully embedded.

Strategic view:

We will deliver a city (or place-based) approach to technology infrastructure enabling an any-time, any where, any-place capability for professionals. We will use informatics resources as effectively as possible. We will improve the technology infrastructure within organisations to ensure reliability and service support to cover extended hours and 7 day-working. There will be a full review of estate assets across the city. This will underpin the place-based approach from a technology perspective, combining the infrastructure offer for efficient service delivery. We will deliver ‘utility’ technology where possible to drive down costs and use estates flexibly. We will utilise the private sector, independents and SME’s etc to contribute to city inward investment.
Enabler: Infrastructure

The city has a wide range of infrastructure maturity, Leeds Teaching Hospitals NHS Trust has the most pressing infrastructure upgrade needs. Their requirements include resilient data centre facility, public Wi-Fi and a high level of secured information technology services. Leeds is a 4G city and the University has delivered an international facility called ‘eduroam’ which is able to federate with public sector Wi-Fi. The University and the hospital trust have secure data and telecommunications gateways between the laboratories and the acute trust.

Public Wi-Fi access is relatively strong but weaker in the acute sector. The use of mobile devices is establishing itself in community health with a concerted programme of work to deploy portable devices to mobile staff, but more mature than the national level in acute and mental health. Single sign-on is low in acute and community but higher mental health. The time it takes to log on is relatively high across the health settings, and the maturity in this area is lower than the national levels.

Software approval and management is mature. IT Service Desk standards and management processes are weaker in acute and community health, but very strong in mental health. Disaster recovery processes are weaker than the national maturity levels.

Recommendations made by the city’s Shared Strategy, Architecture and Commissioning group include:

- Develop a business case for shared data centre facilities
- Develop a platform as a service for infrastructure and desktop services that can be delivered to colleagues within health and care settings
- Establish a community health with a concerted programme of work to deploy portable devices to mobile staff, but more mature than the national level in acute and mental health
- Single sign-on is low in acute and community but higher mental health
- The time it takes to log on is relatively high across the health settings, and the maturity in this area is lower than the national levels
- Software approval and management process is mature
- IT Service Desk standards and management processes are weaker in acute and community health
- Disaster recovery processes are weaker than the national maturity levels

Example showcase initiatives:

- Implementation of the public sector network (PSN) in health and care has offered versatility and achieved efficiencies. Leeds led the national pilot to connect the dedicated NHS network (N3) to the public sector network (PSN). This link provides access to health systems and information and increased efficiencies through flexible working.
- Implementation of secure email for all health organisations and the local authority. In addition, the sharing and linking of data networks has allowed integrated 4G teams to operate across health and care in new or redefined locations.
- The delivery of improved Wi-Fi for flexible and mobile staff working. This has improved public access to social care systems on health devices.
Section 4

Universal Capabilities

Summary position across the 10 Universal Capabilities

Every local health and care system is expected to make early progress on 10 universal capabilities, demonstrating clear momentum between now and the end of March 2017 and substantive delivery by end-March 2018.

A separate template sheet has been completed for each of the 10 universal capabilities. Each is described as a ‘capability delivery plan’ and has significant detail in terms of baseline, ambition, key activities and evidencing progress, therefore we have not undertaken a point by point review as per the 7 core capabilities in this narrative. However as Leeds is in a good position to make the required progress we have provided examples of some areas where we have made notable progress, as well as some areas where more work is required.

Why Leeds is well placed to succeed in implementing the 10 universal capabilities:

Leadership: For many health economies there may have been some break in continuity between the Informatics leadership that existed within a Primary Care Trust and the new arrangements put in place at the establishment of Clinical Commissioning Groups. Fortunately Leeds had the foresight to establish a senior Informatics leadership arrangement at the outset on behalf of the 3 Leeds CCGs. This included the unified oversight of the IT provision for GP Practices. This CCG/General Practice leadership arrangement has now been supplemented with clarity on leadership and a structured way of working across the city.

Technology capability: Leeds has significant development experience and capability in technologies that support integration. This has enabled the Leeds Care Record to go beyond some national facilities such as the Summary Care Record. This development, which utilises integration and messaging capability, allows messages to flow in excess of those recommended nationally which can be viewed across health and care settings citywide.

City-wide working: Excellent arrangements have been in place for several years to ensure that the strategic informatics agendas of health and care organisations in Leeds are aligned, and aligned with the business/clinical agenda. This has meant that facilities such as an e-Discharge Initiation Document between health and adult social care is in place because of the business need that became apparent several years ago.

Engagement with General Practice: Through effort and good relationships we have many GP Practices in Leeds that continue to be willing to trial and then champion national technology facilities such as PatientOnline and Electronic Prescribing.

All of the above has meant that good momentum has been maintained in most of those areas that fall under the, now identified, 10 universal capabilities. Below are 2 examples of good practice and an example of where more attention is required.
Significant progress:

**Example 1:**
Universal Capability - ‘Professionals across care settings can access GP-hold information on GP-prescribed medications, patient allergies and adverse reactions’.

**Maturity view:**
Leeds led the way in enabling all GP Practices to use the Summary Care Record (SCR) (100% contribution). This facility was used extensively in secondary care, with Leeds Teaching Hospitals being one of the top SCR consumers in the country. SCR was very much seen as a precursor to the Leeds Care Record, a secure, multi-organisational view of multi-organisational health and care data. Leeds Care Record is in its 4th Phase of development with over 2000 active users. As a basic this view includes GP-prescribed medications, patient allergies and adverse reactions.

**Example showcase initiatives:**
Leeds Care Record, including an agreed pilot with 111 nurses specialising in palliative care and mental health to allow access to the Leeds Care Record. This will inform design work across West Yorkshire to support Urgent and Emergency Care.

**Strategic view:**
The Leeds Care Record continues to be an essential part of the Leeds Informatics plan, although there are a number of challenges in terms of strategic next steps. These include:

- Delivering capabilities to move from a passive view record to a proactive tool for decision support
- Consideration to ‘write facilities’ to the LCR
- To deliver a future proof solution, a strategic approach to development is required i.e. in-house, a partnership or a city-developed asset

**Capability deployment:**
See ‘universal capability delivery plan’.

**Example 2:**
Universal capability - ‘Social care receive timely electronic Assessment, Discharge and Withdrawal Notices from acute care’.

**Maturity view:**
Acute Care for Leeds Adult Social Care receives on average 750 referrals per month. ASC’s engagement with partners to work effectively to ensure social care receive timely electronic notices has been successful to date and has resulted in 83% of referrals currently being received electronically from the secondary care hospital to a single point of urgent referral (SPUR).

The SPUR is a multi-disciplinary team who have access to health and Social care systems including a system to support police custody related calls. This means that SPUR can effectively receive and deal with in excess of 2,500 referrals on a monthly basis to ensure a joined up response to urgent requirements.

**Example showcase initiatives:**
The achievement of 83% of timely electronic transmission of notices from the acute hospital provider to social care.

Establishment of SPUR which is a multi-disciplinary team made up of both registered and unregistered workers from Joint Care Management and Intermediate Care Teams to deliver a Single Point of Urgent referral. This approach supports the STP initiatives of rapid response in times of crisis to optimise response and use of resources effectively.

**Strategic view:**
All 100% of Care Act 2014 compliant Assessment, Discharge and associated Withdrawal Notices will be sent electronically from the acute provider to local authority social care within the timescales specified in the Act through coordinated activities to engage with out-of-area hospitals and convert the remaining non-electronic fax transmissions to the electronic solution to support SPUR coordination.

**Capability deployment:**
See ‘universal capability delivery plan’.

Further progress required:

**Example:**
Universal capability - ‘GPs can refer electronically to secondary care’.

**Maturity view:**
Whilst Leeds has managed to maintain a reasonable position with regards to e-Referrals it is fair to say that city-wide coordination is less robust than say 3 years ago. Our booking rates are lower than they were 3 or 4 years ago. Much of this is due to a problem with slots not being available in some specialties at the time of booking, leading to what is known as ‘appointment slot issues’. Leeds Community Healthcare has made some good progress with becoming directly bookable for non-consultant led services, but resource gaps has led to this work slowing down. All GPs use the new eRS system to some degree but we have to address aspects such as advice and guidance and a pressure to shortcut processes.

**Strategic view:**
We will confirm the current place of eRS in the city. In the longer term we will look at open APIs for booking to create a more generic and ‘open’ booking facility. We will re-establish improvement coordination of eReferrals across the city and explore the facilities for advice and guidance and how this and eReferrals can become closer to pathways guidelines.

**Capability deployment:**
See ‘universal capability delivery plan’.
Section 5

Other enabling factors

Sources of funding
The Sustainability and Transformation Plans describes the underlying financial position and plan for the city and the need for significant recurrent savings to be delivered. However, it also recognises the role of Informatics in enabling smarter working and service transformation. There will therefore need to be further investment in digital over the next 5 years as a means of delivering savings, efficiencies and improved quality elsewhere in the health and care system. At the same time there is an expectation that the efficiency of informatics operational services will also improve, delivering internal and collaborative savings across technology departments within the city. We expect any new investment to be multi-sourced over a multi-year timeframe. Leeds has a good track record of securing external funding and has the expertise to continue to do so.

Anticipated sources of funding:

<table>
<thead>
<tr>
<th>Providers</th>
<th>City</th>
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</thead>
<tbody>
<tr>
<td>Existing internal revenue budgets</td>
<td>City access to NHS National Information Board funding e.g. Local Digital Roadmap</td>
</tr>
<tr>
<td>Efficiencies on internal revenue budgets</td>
<td>Access to other NHS funding e.g. Vanguard, Estates and Technology Transformation Fund, Integration, Pioneer funding</td>
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<tr>
<td>Access to internal capital</td>
<td>Better Care Fund</td>
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<tr>
<td>Access to external capital</td>
<td>Collaboration across providers</td>
</tr>
<tr>
<td>Collaboration with the private sector</td>
<td>Collaboration with the private sector e.g. via an Innovation Test Bed</td>
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<tr>
<td>Provider direct access to NHS National Information Board funding</td>
<td>Access to international funding sources</td>
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</table>
Governance

Strategic city-wide governance arrangements are established and provide assurance on the delivery of digitally-enabled health and wellbeing outcomes in Leeds.

Accountability for delivery of the Local Digital Roadmap and the associated digital change programme is delegated to the Leeds Informatics Board (LIB). This Board consists of a mix of senior leaders, clinicians and senior informaticians. It is chaired by a senior clinician; a GP and Clinical Chair of North Leeds CCG.

We are currently designing the anticipated city capacity and capability structure to support the delivery of the Local Digital Roadmap. Part of this resource plan may be a changed focus of some existing staff:
Change and benefits management approach

As a city, we are committed to continuous learning and improvement across our health and care services. As such, Leeds uses the appropriate change management models and approaches to deliver real business transformation to working practices and to bring about improved outcomes for the people of Leeds.

Different methodologies are used depending on the scale and the scope of the change required, from a “light touch” in-house approach, for example Leeds City Council’s PM lite methodology, to more radical and nationally recognised models such as the Sustainable Improvement Team’s 8 element Change Model. There is an integrated Programme Management Office for Informatics in the city. Additionally, individual organisations in Leeds have in-house project management offices and use recognised approaches to project management such as PRINCE and the Life Cycle / Gateway process. We will look to appoint a change and benefits management expert dedicated to the delivery of our Local Digital Roadmap.

With regard to business change, we recognise the importance of taking the clinicians with us on the journey. Staff engagement is critical to our change management work. For example, Leeds is leading on a digital literacy project for the health and care workforce, to enable them to make the most of the new technologies available and share the benefits of this with patients and service users.

We are uniquely placed through our partnership working and ‘one city’ Informatics leadership approach to access national and international support to bring about the changes required. For example, Leeds Teaching Hospitals Trust, is working with the Virginia Mason Institute. This approach supports them to apply ‘lean’ principles to increase patient safety, quality of care, value and efficiency.

Leeds identifies and deploys approaches to benefits management and measurement at the outset of any project, benefits and resources are planned using the appropriate tool to the scale of the project.

Progress is tracked continuously to ensure ongoing service improvement and value for money. In terms of measuring health and care effectiveness of service changes, Leeds has an integrated intelligence hub that works on behalf of the city and uses tools such as CareTrak to establish baseline data, predict and model change and measure progress. Academic evaluation is also built into the core of major projects. Listening to the views of staff, patients and service users to gather qualitative evidence of benefits is also crucial to measuring change and identifying barriers to realising benefits in the Informatics arena.

Risks and issues

We recognise that there are many rate limiting factors around people, processes and technology.

The pace of delivery of the digital roadmap is dependent on:

- Funding
- Sufficient staff with knowledge and expertise in the required portfolio roles
- Capacity for change across the system
- Signed-off digital requirements
- A variety of external dependencies
- Access to stakeholders and stakeholder leadership
- Clinical champions
- Technology

We have covered an element of risk and rate limiting factors within the locally defined attributes of the ‘capability deployment schedules’ headed ‘Confidence; high, medium or low’, against each capability.

In addition, the impact on the delivery of the capabilities within the Capability Deployment schedule, has been used to inform the Capability Trajectory scoring template. This trajectory assumes that funding can be secured. If this is not the case then clearly those maturity scores will not be achievable, either in totality or at the required rate.

The delivery of infrastructure at pace, which is robust and resilient, is a key dependency on delivering the Roadmap. The Leeds Teaching Hospitals NHS Trust (LTHT) has the most pressing infrastructure upgrade needs. Their requirements include resilient data centre capability, network improvements, single sign-on and improved performance for clinical users. The change includes a step change in both technology and the service management policies and procedures to support the service delivery.

The step changes to deliver resilient infrastructure for the city includes:

- The establishment of strategic city-wide governance
- A full review of the current infrastructure and support models
- Identification of the gaps and recommendations for unified solutions

Leeds has advanced on these activities, the options and recommendations on the technical solution and business support models are under consideration. The production of the delivery plans has commenced.

There is a risk to the pace of delivery of effective collaboration technology. Local Authority access to NHS email functionality would resolve the current city-wide communication and collaboration limitations. Without this there will be a delay in the development of alternative options which will be costly. The ability to federate across all organisations including the Local Authority is also essential.
Further rate limiting factors include:

- Access to the child-protection information system through the public sector network, with a bi-directional flow to be investigated.
- PSN to be accessible by the acute trust to support a multi-agency approach
- N3 circuit reduction
- PSN Alpha replacement and Leeds access to the Demographic Batch Service (DBS) through this route
- Agreement and implementation of a new generation national IG toolkit
- Addressing the cybersecurity agenda

A key element of our approach to minimising the risks arising from technology is the focus we are placing on good governance and the establishment of a common Strategy, Architecture and Commissioning function for the city. Our aim is for the adoption and usage of open and common standards as reflected elsewhere within this Roadmap. We see this as a fundamental construct in our wider approach to mitigating risks from technology in terms of ‘future proofing’ the city. As such, we will ensure that, as far as possible, GS1 standards are written in appropriately to our stated requirements as deemed necessary.

**Resources**

We recognise that resources, both financial and people capacity and capability, are essential to delivering this Roadmap. A city-first approach to Informatics delivery seeks to eradicate the multiple and diverse initiatives which come from different parts of the health and care system that use up resource in an unplanned way and often confuse. It will also ensure that digital programmes and projects are aligned fully to an agreed whole-system outcome described in the health and wellbeing strategy, STP and LDR.

Such an approach will also help to develop and align our Chief Information Officers and Clinical Chief Information Officers.

We will also focus on building and securing more holistic analytical skills and facilities that span sectors, utilising skills and capacity across organisations.

The proposal for the establishment of a new Digital Portfolio Office is outlined in this document. The benefits include the economies of scale achieved through the sharing of expertise, standardising technologies and ways of working. The support functions will be streamlined to reflect shared infrastructure and technologies.

The process of developing the digital roadmap has exposed the City-wide plans to achieve paper-free at the point of contact. Cross cutting initiatives have been clarified and the strategic vision for integrated working has set the direction of travel. The design and development of the STP sets the focus for future digital enablement. The alignment of these activities provides greater control in terms of the effective use of resources.

**Digital Literacy Programme:** Leeds has commenced a digital literacy programme, the vision being to help health and care practitioners develop digital skills and confidence so they can make things better for people who access their services. We will also have a structured approach to improve digital literacy for our citizens.

**Leeds Health and Care Academy:** Leeds will support the establishment of one workforce for the city through collaboration between our universities and health and care employers, and establishing a workforce Academy for Leeds. This will:

- Unify the training for a care workforce which has the required levels of digital literacy
- Provide efficiencies and a shared approach to delivering health care across various bodies including increased use of virtual facilities
- Enable training future health care providers e.g. new models of care including digitally enabled self care
- Assist with understand the funding landscape for training future professionals
- Provide a rapid response to workforce training needs including training in digital technologies

**Innovation for Leeds**

The delivery of the city’s ambitions to be the best for health and social care requires the development of both systems and culture which embed innovation. It is recognised that supporting infrastructure will be required to ensure these priorities are realised and will include deployment of the city’s Universities as integral to mainstreaming of innovation into service delivery. The Leeds Academic Health Partnership has been established to create an environment for solutions to be created and accelerated through collaboration and partnership across academia, strategy and practice. It will ensure current ‘assets’ are deployed to accelerate precision medicine including system flow capabilities, diagnostic capabilities and personalised and patient centred care.

The innovation programme seeks to develop a deep understanding of the challenges patients and clinicians are experiencing, including their use of technology, and then redesign pathways to identify how technology can be an enabler. The programme will use this understanding to provide a framework to then ‘test’ innovative products and services developed by collaborative partners which have been designed to improve population health and wellbeing. This programme provides the supporting infrastructure and access points for collaborative partners to develop innovations, promoting product and service development for the Health and Social Care market.

**The programme will operate the following work streams:**

- The acceleration of the delivery of the Leeds City Region digital platform which is an integrated set of technologies that provide the structure to deliver joined up health and social care data that connects services, channels, systems and provides the foundation for sharing information to provide better care.
- The gathering of information to develop a deep understanding the challenges that patients, service users and clinicians are experiencing in the NHS and Adult Social Care with an initial focus on diabetes and frail elderly. The information will allow us to understand their use of technology, and then carry out pathway redesign, identifying how technology can be an enabler. This information can then be used to create a call to market for products, innovations and services that specifically target the issues identified and are supplied by SMEs from across the UK. This work will also help to accelerate the cities digital literacy priorities.
- The commissioning of innovation projects. The first stage of this will involve a call to market based around the needs identified above. NHS and Social Care will act as innovation hosts who will meet innovators at a series of networking events. This process aims to bring together innovators who can offer the greatest potential to improve health outcomes. Where there is scope for a collaboration the host and the innovator will be invited to submit a proposal to the commissioner fund, which will provide finance for implementation and training.
- Quality assurance and evaluation.
**Working with our citizens**

In Leeds, engaging and communicating with citizens is crucial to ensure that their views are at the heart of the work to help make the city a better, healthier place in the future.

Using and sharing information about citizens underpins this ambition yet there is often hesitancy around sharing information, even when this may lead to improved health outcomes and reduced health inequalities. Involving citizens in the discussion has been part of the work from the beginning and there is a commitment to continually engage using a variety of methods which includes regular updates to Clinical Commissioning Group Patient Assurance Groups.

In Spring 2015, ‘Joined Up Leeds’ was developed as a two week period of conversations taking place across the city. Citizens discussed how their health and wellbeing data could and should be shared, the benefits of sharing, the concerns they have, and how information could be used for the benefit of people in Leeds. The recommendations from the report resulted in creating a leaflet called “Sharing Healthcare Records” that was co-produced with patients and distributed across the city via GP Practices.

Following on from the success of Joined Up Leeds, ‘Joined Up Leeds 2’ gathered the views of local people to find out whether citizens of Leeds want a Personal Health Record, how they would use it and how it might affect their health and the relationship they have with their healthcare providers. The results of the engagement have been published widely since the report was finalised in Spring 2016.

From the outset, Leeds Care Record has engaged with patients, stakeholders and service users. Regular meetings are held with a dedicated patient group who have helped to develop the communications material, wider reaching patient engagement and the communication plan. The project team also meet many of the patient representative groups for GP Practices to inform them of the project. For specific areas of development, the team have commissioned a third sector organisation to engage with patients and service users to help inform the project. A number of methods have been used: surveys, face to face interviews, focus groups and piggybacking network events. An extensive engagement exercise was delivered to ensure we understood the requirements of people regarding what aspects of their mental health information should be shared by asking the views of services users first. The results were then used by clinicians to identify the data that was relevant to share.

Further communication with citizens is also conducted using a multi-platform approach of online presence, social media, local press, posters and leaflets to promote the work to a wide audience in the city by using a combination of channels.

Leeds has also run a number of engagement sessions with patients and the voluntary sector as its role as a pathfinder for the care.data programme and the National Data Guardian review and will continue to do so.

**Information sharing**

Information governance is very strong within acute care, mental health and social care exceeding the national average. Community Health is less mature at a strategic level, however good training is provided to professionals on day to day information management.

Above organisation level Leeds has a city-wide Information Governance Committee, jointly chaired by senior officers in health and social care.

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A common Information Sharing Agreement with all the major providers within Leeds Health and Social Care was agreed in 2014 and reviewed again in 2015 to account for changes in legislation with the introduction of the Health and Social Care (Safety and Quality Act 2015).

All health organisations and the Local Authority in Leeds are compliant with the IG Toolkit to Level 2 and above verified by an annual rolling program of internal audit assurance. The IG Toolkit addresses areas such as business continuity plans. As individual Data Controllers each organisation takes responsibility for their policies, plans and procedures. Leeds Local Authority and health providers have thus have robust policies and procedures in place for all the areas identified.

All NHS organisations use the NHS number as the primary identifier for a patient. Patient Administration Systems and Electronic Patient Record systems that manage the Patient Master Index (PMI) either use or moving towards PDS to match NHS numbers dynamically.

In terms of new regulations, all organisations will be implementing the Accessible Information Standards and are working with their suppliers to adapt informations systems accordingly.

Most organisations have adequate arrangements in place for assessing the clinical safety aspects of implementing new or adapting information systems.

Data quality is recognised as essential and underpinning to the use of digital systems to replace paper. Organisations have arrangements in place to improve data quality.

**Other strategic stakeholders**

**Healthy Futures**: A West Yorkshire Sustainability and Transformation plan is being developed to cover 11 CCGs and the health and care providers therein.

The approach is to bring together local place based plans and collaborative West Yorkshire plans to deliver the required cumulative impact and the right interventions and services at a population level to meet the identified gaps. Whilst local plans retain primacy as much of the transformation will be delivered at this local level, there are some gaps and challenges where the work needs to be undertaken at a West Yorkshire level. Three key questions will be used to determine where value can be added at a West Yorkshire level using the ‘West Yorkshire Lens’. Based on this approach, six priority areas have been identified which will form West Yorkshire workstreams to deliver the change required. These are:

- Cancer
- Urgent and Emergency Care (including the Urgent and Emergency Care Vanguard)
- Specialised Commissioning
- Mental Health
- Prevention at Scale
- Hyper-acute stroke

These workstreams and local plans are supported by a number of enabling workstreams including digital and interoperability, workforce and OD, communications and engagement. Leeds is taking a lead technology role in the digital enabling work and particularly the Urgent and Emergency Care Vanguard.
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The main contributing organisations have been as follows:

- NHS Leeds North Clinical Commissioning Group
- NHS Leeds West Clinical Commissioning Group
- NHS Leeds South and East Clinical Commissioning Group
- Leeds City Council
  - Adult Social Care
  - Children’s Services
  - Public Health
- Leeds Teaching Hospitals NHS Trust
- Leeds Partnership NHS Foundation Trust
- Leeds Community Healthcare NHS Trust
- General Practice
- Informatics leads from West Yorkshire Clinical Commissioning Groups
- West Yorkshire Urgent and Emergency Care Network/Vanguard
- Leeds Third Sector organisations

The Leeds Local Digital Roadmap has the following supporting documents:

- Universal Capability Delivery Plan
- Capability Deployment Schedule
- Capability Trajectory (Secondary Care)
- Information Sharing Approach

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