

# NOTTINGHAMSHIRE HEALTH AND CARE LOCAL DIGITAL ROADMAP



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# 1 Version Control

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<b>Superseded documents</b>	<b>Connected Nottinghamshire Clinical and Social Care Blueprint</b>

## 2 Foreword from Nottinghamshire Councillors & Clinical Lead

Welcome to the Nottinghamshire Local Digital Roadmap, which sets out our vision and ambitions for a fully digital and integrated Health and Social Care community across the Nottinghamshire footprint by 2020. Building on the Connected Nottinghamshire Health and Social Care Blueprint, the development of the Local Digital Roadmap is based upon significant engagement with partners and aligned to the strategic vision of the Nottinghamshire Sustainability and Transformation Plan.

Further promoting the Connected Nottinghamshire programme and fostering the strong existing relationships between health and care providers, this Local Digital Roadmap demonstrates how Nottinghamshire will work together and identifies how technology will support the Health and Social Care community reduce the health and wellbeing, care and quality and finance and efficiency gap by 2020.

Whilst significant progress has already been made across Nottinghamshire these have only been tactical and interim solutions, the delivery of this local Digital Roadmap will further develop this progress and improve:

- Information Sharing for direct and indirect care purposes, which will support the ambitions of the Sustainability and Transformation Plans to ensure the right information is always available to the right people, in the right place and at the right time. ***“The right information, To be available at the Right Place, For the Right Person, To make the Right Decisions, At the Right Time Always.”***
- Infrastructure to support new, more efficient ways of working across the Health and Social Care community.
- Self-care and healthy living by empowering citizens to use web and mobile technologies to access vital information to support healthy lifestyles .
- Measuring our success in driving up the digital maturity and sustainability of organisations to ensure that Nottinghamshire Health and Social Care providers are making the most of the opportunities of digital enablement.

Whilst we are fully committed to supporting the delivery of the Local Digital Roadmap we are also, as a community, mindful of future technological changes, suppliers and centralised standards. With this in mind we will continue to monitor and engage with external initiatives such as the Midlands Accord to support future improvements, collaboration, assurance and standards that will shape our future approach to technology, footprint and delivery.

Our vision for a fully digital and connected interoperable Nottinghamshire requires change and commitment across the entire health and social care system. We are absolutely committed to the implementation of this Local Digital Roadmap and we will work together across Nottinghamshire to deliver our ambitions, and, the Health and Wellbeing board will serve to strengthen our commitment as



partners. Whilst we are aware that the delivery of this Local Digital Roadmap is ambitious, we firmly believe that it can be achieved by 2020.



A stylized, handwritten signature in black ink.

**Councillor  
Alex Norris**



A handwritten signature in black ink that reads "Muriel Weisz".

**Councillor  
Muriel Weisz**



A handwritten signature in black ink.

**Councillor  
Alan Bell**



A handwritten signature in black ink that reads "Ian Trimble." with a period at the end.

**Dr Ian  
Trimble**

## 3 Patient Story

### Patient Representative Story on MIG, GPRCC and Portal

I previously worked within the NHS on the NPFIT programme which included the SPINE programme, as well as the local provider for single sign on. I am writing this from a patient's perspective as well as someone who has knowledge of systems within the NHS.

As I see it from a patient's perspective, the aspirational aim of the Connected Nottinghamshire programme is to improve the response time to the treatment of patient conditions by improving information sharing and IT systems to facilitate this.

I feel that we should be sharing more data. The NHS has to save money and to become more efficient. In order to do that they need to start sharing information to clinical staff regardless of which location they may be working from and which IT systems they are using. We need to assure patients that their data is secure and safe and that the appropriate controls and consent guidelines regarding how the information is accessed are in place in order to support patient confidence.

If we can start making key patient information more available to Clinical staff across all healthcare settings we can cut the amount of wasted time where patients have to attend unnecessary appointments and repeat medical tests.

We have to work better together and the only way we can do this is to enable data to be shared across health and social care, in particular where patients are discharged from care, but continue to receive care at home. The consent to sharing information needs to be explained clearly to patients, giving them the assurance that their data is safe and secure.

As a representative on monthly project boards I hear good news stories of how sharing information has helped improve patient care even to the degree of life saving events. The continued support from all clinical staff in promoting to patients the importance of sharing medical data will help to increase the positive patient outcomes. Particularly for complex patients who regularly visit different healthcare settings.

We have to work better together and the only way we can do this is to enable data to be shared.



**Terry Lock**

**Patient Representative**

## 4 Executive Summary and approvals

*The right information, available in the right place for the right person, to help make the right decisions  
at the right time – always*

This document identifies how technology will help to meet the challenges of closing the Five-Year Forward view's three gaps - the health and wellbeing gap, the care and quality gap and the finance and efficiency gap - by 2020. (Nottinghamshire has identified a **"fourth gap"** in terms of the cultural system thinking requirement).

We have a good understanding of our strengths and weaknesses in digital maturity, and have identified a number of areas that require improvement over the next three years to deliver the highest level of digital enablement. Our aim is to provide joined-up information across all providers, allowing staff to work differently using shared assessments and to see the information they need at the time they need it, all the time.

A vital part of our approach is to digitally enable citizens: using health and care IT to help the public use technology to support their health and wellbeing choices, and enable self-care.

Nottinghamshire has made significant progress across all health and care providers and commissioners in improving information sharing and infrastructure to support transformation in the last three years. There is a desire and willingness to work together across organisational boundaries, with mature governance arrangements in place. The necessary management processes are in place, but we recognise that some (change and benefits management) will need further development to cope with the change of scale and pace required.

The STP and LDR were developed in tandem, and technology-enabled care is a key high-impact area: one closely aligned with the transformation team and the technology programme.

We have plans in place to support the fast-moving changes needed to meet the local and national requirements by 2018/19. However, these will require additional financial support to achieve the scale and pace described.

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## 5 Background

### 5.1 Connected Nottinghamshire History

Connected Nottinghamshire is an established programme of work and has developed mature relationships with organisations that make up the Nottinghamshire digital health and care footprint. Building on this foundation the Connected Nottinghamshire Programme will support and oversee the development and delivery of the local digital roadmap. Members of the Programme are;

- NHS Rushcliffe CCG
- NHS Nottingham North & East CCG
- NHS Mansfield & Ashfield CCG
- NHS Nottingham West CCG
- NHS Nottingham City CCG
- NHS Newark & Sherwood CCG
- Nottingham University Hospitals NHS Trust
- Sherwood Forest Hospitals NHS Foundation Trust
- Nottinghamshire Health NHS Foundation Trust
- Nottinghamshire County Council
- Nottingham City Council
- NEMS
- Derbyshire Health United
- East Midlands Ambulance Service
- CityCare Partnership
- Primary Integrated Community Services (PICS)
- Partners in Health
- The Circle Partnership

The Connected Nottinghamshire Programme will provide the management coordination and governance framework to support delivery of the digital roadmap across the Nottinghamshire digital health and care footprint.

Connected Nottinghamshire Programme governance structures have a proven track record of successful operational delivery of local plans in line with the National Informatics Board and NHS England Roadmap objectives. The governance structure reports directly through a programme board (consisting of organisational Senior Responsible Owners) to the Local Health and Wellbeing Boards. There is a strong relationship with Nottingham City and Nottinghamshire County Councils with all members of the Connected Nottinghamshire Programme collaboratively developing strategic plans since 2013.

Connected Nottinghamshire originally set out to achieve the following three strategic objectives;

- Improved sharing of Health information to improve the citizen's experience of care and support business transformation

- Improved sharing of Health and Social information to improve the citizen's experience of care and support business transformation
- Improvements in collaborative working between Health and Care IT Service Providers

These were underpinned by the following three clinical priorities for tranche one:

- Making Comprehensive Geriatric Assessment (CGA) available across Nottinghamshire
- Delivery of an End of Life, Electronic Palliative Care Coordination System across Nottinghamshire
- Sharing of key information (GP record) to support management of patients requiring Urgent / Emergency Care

There has been good progress in developing the technical solutions to support these priority areas.

## 5.2 Strategy Alignment

The digital approach adopted by Nottinghamshire is aligned to:

- New Models of Care
- CCG IGM&T Strategy Nottinghamshire
- Sustainability and Transformation Planning
- Commissioner and Provider Strategic and Operational Plans
- CCG Estates strategies

The main national policies and strategic drivers for the Nottinghamshire digital plan are:

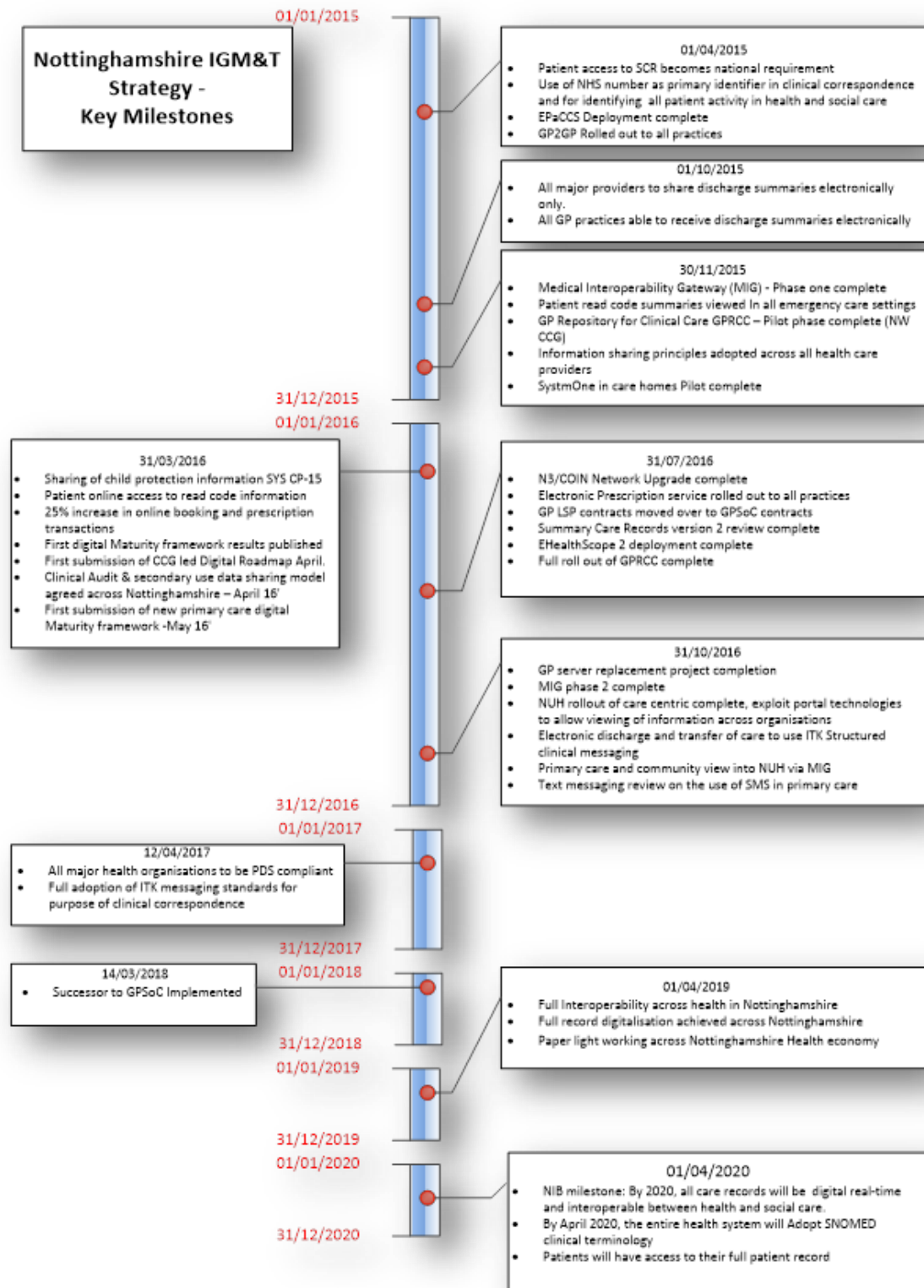
- NHS England Five Year Forward View
- Building the NHS from the Five year Forward View – NHS England Business Plan 2015/16
- Power of Information: Putting all of us in control of the health and care information we need
- Securing Excellence in GP IT Service Operating model
- The Forward View into Action: Paper-free at the Point of Care - Preparing to Develop Local Digital Roadmaps
- National Information Board (NIB) Personalised Health and Care 2020
- Children's Health Digital Strategy
- NHS England Interoperability Handbook
- The Information Governance Review Recommendations

Nottinghamshire Clinical Commissioning Group's reviewed and updated their IGM&T strategy in 2015 (Version 3.0.10, "The Nottinghamshire Forward View into Action") to align with the national strategy, "The Five Year Forward View" and the planning guidance for "5 Year Forward View into Action". This strategy is more external facing than previous versions and sets out the commissioner's intentions and expectations for the digital agenda moving forward. It is from the CCG strategy and the previous Connected Nottinghamshire Blueprint that this Local Digital Roadmap has evolved.

Connected Nottinghamshire will directly manage and deliver certain elements of the IGM&T strategy, specifically those that focus on integration to support transformation. Other projects that deliver capabilities required to support the new models of care will be monitored and “oversight” will be provided to the Connected Nottinghamshire IMT Senior Responsible Owner (SRO) Board.

The digital roadmap will become the foundation of local Clinical Commissioning Groups strategic plans and will support the creation of the Sustainability & Transformation Plans (STP). The STP will ensure the delivery of both health and social care systems across Nottinghamshire. It will drive the use of new technologies to improve the delivery of care for example enabling new care models and supporting seven day services where required.

## 5.2.1 An extract of the key milestones from the Nottinghamshire Clinical Commissioning Group strategy



## 5.2.2 LDR development process

Building on the foundations of the Connected Nottinghamshire Health and Social Care Blueprint, the development of the LDR started at the annual Health and Care IT Summit in November 2015 with identification of the key capabilities required, by year, across a wide range of stakeholders ([Appendix five](#)). The development of the combined Nottinghamshire Clinical Commissioning Group IGM&T strategy in January 2016 set out the major technology requirements and was approved by Connected Nottinghamshire members. These pieces of work meant that much of the content of the LDR was already agreed. In order to refine the LDR in line with the changing guidance a number of workshops and face to face meetings with key stakeholders took place over a 6 month period.

The involvement of patients and patient representative groups has been an important part of all the work in Connected Nottinghamshire to date. This has continued with the development of the LDR. A number of patient representative groups have contributed and a number of patient group leaders have been particularly helpful in refining and improving the content. Connected Nottinghamshire, the providers and the commissioners are very grateful for this support.

Health and Wellbeing Boards in Nottinghamshire County and City have been briefed on the development of the LDR alongside the STP. There is excellent challenge and support from the chairs and members of these Boards and their subcommittees. Approval of the LDR will come from the Health and Wellbeing Boards alongside the STP approval process. Regular reviews will be provided back to these bodies in order to track and support progress.

Nottinghamshire, Derbyshire, Leicestershire, Birmingham, Solihull and Sandwell LDR teams have worked collaboratively across the Midlands area to ensure consistency in approach across a number of major programmes. Recognising that delivering the digital capabilities necessary to bring about sustainability and transformation can only be achieved working together, sharing capabilities and resources and aligning delivery programmes accordingly. This approach has resulted in the creation and adoption of the 'Midlands LDR accord' with each party committing to work collaboratively on a number of fronts. These include but are not limited to:

- Consent models
- Data Sharing agreements and governance processes
- Adoption of standards, such as interoperability, identification and messaging to ensure consistency across the regions and benefits to patients who cross borders to receive care.
- Documentation standards for all transfers of care and document transmissions in line with the Academy standards and Clinical Document Application standards
- Joint procurements
- Intelligence platforms and big data – a single shared approach which will drive benefits and reduce costs for all parties

There is an intention as a region to promote overarching principles and standards and this work is supported by NHS Digital and NHS England.



## 6 Vision

### 6.1 Nottinghamshire Digital Vision

The Nottinghamshire STP identifies Technology Enabled Care as one of its themes and supporting this the vision is to gain a number of quick wins where digital enablement has already made progress whilst continuing to develop strategic information systems and improvements in system wide infrastructure.

Annually since 2013 Nottinghamshire health and care providers have attended the Annual IT Summit. This event has helped shape and define the strategy and digital vision for Nottinghamshire. Work on the LDR commenced in November 2015 at the fourth of these annual events. Output from that event has supported the development of this document with further engagement events and workshops with all providers across Nottinghamshire.

Nottinghamshire's vision for supporting the STP, the five year forward plan and 2020 objectives is to provide the capability for paper free at the point of care through the digital provision of;

- The right information
- To be available at the Right Place
- For the Right Person
- To make the Right Decisions
- At the Right Time *Always*

The Nottinghamshire focus on existing and planned transformation programmes/projects such as: Vanguards, Prime Ministers Challenge Fund, GP Access Projects, Care Act Trailblazer and Integrated Care Pioneers, which supports the vision that Nottinghamshire should always be one step ahead in providing the digital enablers so that transformation can happen without waiting for technology. This work will ensure that Nottinghamshire is able to achieve the 2018 and 2020 National Informatics Board milestones.

In order to enable change, the priority across Nottinghamshire is to support front line care professionals to operate in new ways ahead of other non-direct care business requirements. The key areas below have been identified as priorities:

- Managing an older population with more complex health and care needs
- Improvements in Urgent and Emergency Care
- Supporting end of life care
- An increasing number of patients with complex care needs for multiple long term conditions (with priority on; Diabetes, Respiratory diseases, Cardiology, living with cancer, Mental Health, Gastrointestinal & Muscular-Skeletal)
- Supporting Maternity, Children and Young People

Nottinghamshire is addressing the priority areas by utilising tested best practice methodology to ensure that information sharing, analytics, electronic workflow and infrastructure are available to support the new care models.

Beyond plans for the next five years Nottinghamshire recognises it is important to be mindful of future technology changes, suppliers and centralised standards in line with NHS Digital development. To support this, close monitoring and engagement with external initiatives are in place; for example 'Ripple', 'Code4Health', the Midlands Accord and future direct messaging improvements that will change our future approach to technology footprint and delivery. It is anticipated that the current requirement for "middleware" integration tools and architecture will change to allow more point to point information exchange via a central message interchange and end point discovery service. Nottinghamshire is working closely with other areas to support development of these new architectures and will require a significant development of this work in order to support transfer of patients both in and out of the Nottinghamshire care community.

The ability to offer equity of service to patients from outside the Nottinghamshire area has been considered as part of the vision scoping and working with wider East and Central Midlands roadmap leads is helping in gaining an understanding of the wider requirements as part of the digital enablement. It should be noted that there remains a great deal more work to complete in this area.

In addition to providing care professionals with the information they need Technology Enabled Care will enhance the lives of the citizens/patients of Nottingham and Nottinghamshire. Building on existing projects the use of technology to support people to live independently longer will become more and more a mainstream service. The use of technology to support people in their own homes will become the norm and will have a dramatic effect on the current flow of patients into long term residential care whilst also supporting families to play a greater part in the care of their loved ones.

The role of Telehealth will develop over the life of the roadmap. Starting from the current small scale developments, as more evidence based developments become available and as technology continues to develop in this field, the opportunities to change healthcare will be wide ranging. Through a continual review process the best of these will be identified and implemented to support the changes in healthcare.

Our current vision for the deployment of Assistive technology across Nottinghamshire includes reaching 10,000 users (under 65's) by 2018. Nottingham City Council will increase telecare users for assisted living by 11,000 by early 2019.

Nottinghamshire will continue to monitor the market place, guidance and tools from NHS England and NHS Digital regarding whole care system business intelligence to support population health management, effective commissioning, clinical surveillance and research.

## 6.2 Ambition

The Nottinghamshire ambition (working alongside our health and care partners in Nottinghamshire) is to; support the STP, be responsive, consistently deliver high quality solutions and work towards the National Informatics Board and NHS England Roadmap objectives.

The key five work streams that will support delivery of the Nottinghamshire vision are:

### **6.2.1 Workstream 1 Information sharing**

Sharing information for direct and indirect care (secondary) purposes will support the ambitions of the STP. This will be achieved via the delivery of key projects and initiatives such as: GP Repository for Clinical Care (GPRCC), Medical Interoperability Gateway (MIG), CareCentric Community Portal, Data Quality Strategy, Summary Care Record (SCR) including Community Pharmacies, Midlands Accord, standardised Nottinghamshire wide sharing principle, EPaCCS and standardised electronic discharge summaries.

### **6.2.2 Workstream 2 Infrastructure;**

Through improved infrastructure new, more efficient ways of working across health and care will be achieved. This Workstream will direct delivery of key projects and initiatives such as: end user device delivery, networks, cross-domain authentication, Wi-Fi, system integration including unified communications, VDI, data centre strategies alignment and 'SMART offices'. This Workstream will also oversee the existing Nottingham IT Managers (NITMAN) forum that meets bi-monthly. This group consists of senior IT managers from both health and social care organisations in Nottingham who meet to openly discuss strategies and align activities/decisions.

### **6.2.3 Workstream 3 Citizen/patient access to information;**

To support self-care and healthy living, technology can play a key role. Provision of information to support healthy lifestyles and citizens/patients living with health conditions, the use of web and mobile application technologies can provide access to vital information. Projects such as those in place to support Nottinghamshire practices to increase their uptake of online record registrations will be key. Emphasis will be made to encourage practices to offer the functionality for patients with long term conditions to access their own 'detailed coded record' online. Working with NHS Digital to assess national offerings as they develop and Birmingham Cross City to consider further roll out of their development of patient held records and patient specific advice. This Workstream will set the strategic direction in 2017 for delivery 2018-2020.

### **6.2.4 Workstream 4 Digital maturity;**

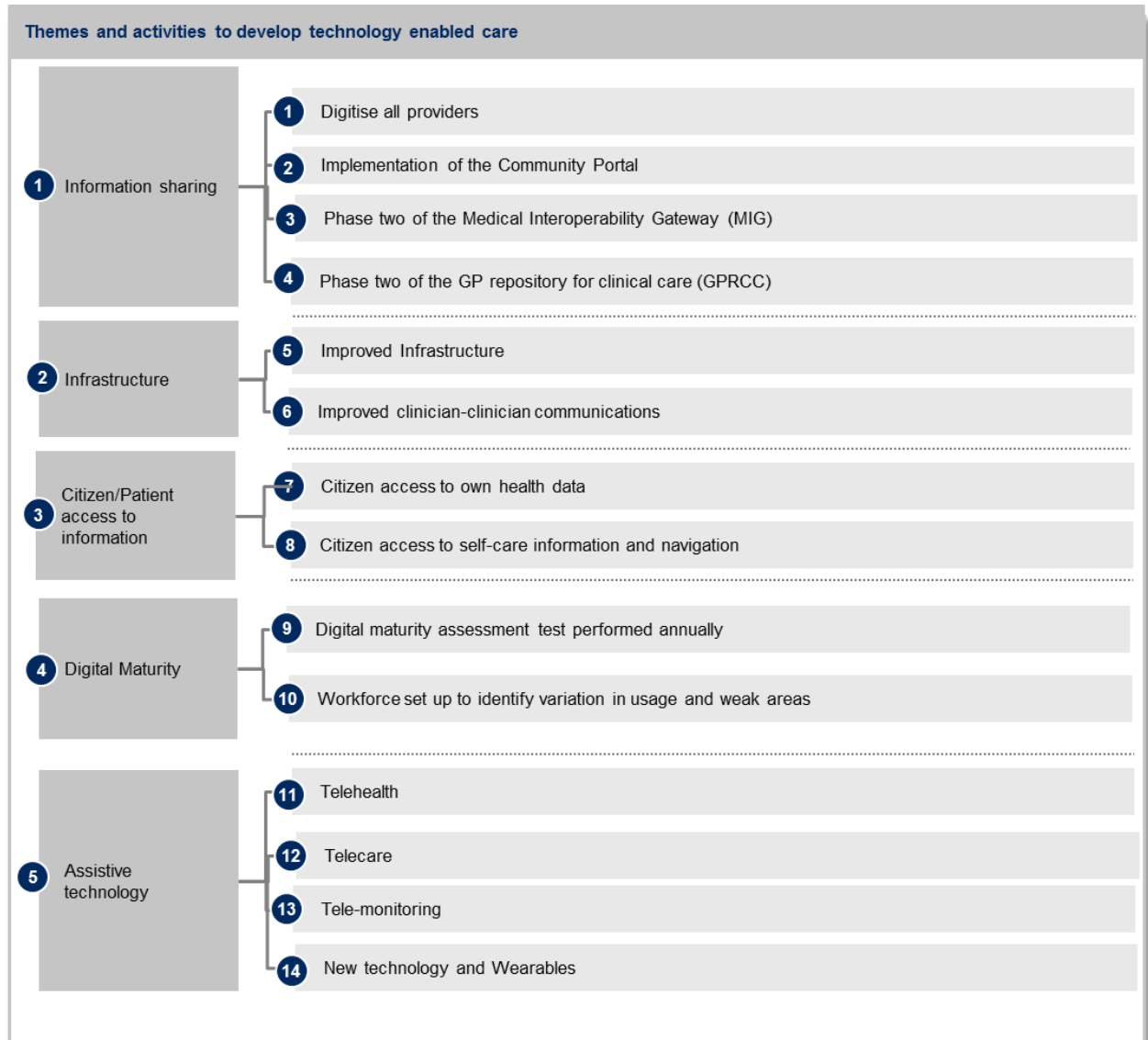
Focusing on the measurement of successful adoption and change management aspects this Workstream will drive up the digital maturity of organisations to ensure that Nottinghamshire providers of care are making the most of the opportunities that the digital enablement can bring. A Change Management Toolkit and Framework has been developed and will support the increased utilisation of technology to support care. Progress of this and the other Workstreams will be reported regularly to the Connected Nottinghamshire IMT SRO Board.

### **6.2.5 Workstream 5 Assistive Technology;**

Covering the research, identification and implementation of technology to support assisted living and Telehealth this Workstream will drive forward adoption of new opportunities to support people living at home independently longer. Utilising existing links with the Academic Health Sciences Network and other horizon scanning opportunities, future technology such as wearable and other technology developments in this area will be assessed to better understand where they can support the STP high impact areas and

other transformation/service improvement. Existing projects that will fall under this Workstream include; Doccobo Telehealth, Telecare, Flo (text messaging) and MyGP24/7. Full list section 8.1.8.

### 6.2.6 An extract of the STP Summary of Delivery Technology enabled care



## 6.3 Achieving National Objectives

Nottinghamshire has already made progress towards digital enablement, paper free transitions of care and paperless at the point of care. Nottinghamshire providers have successfully completed the deployment of MIG phase 1 across health settings in Nottinghamshire. Nottingham University Hospital continues to be one of the biggest users of Summary Care Record (SCR) across England.

Many areas of the National Informatics Board and NHS England Roadmap objectives that are required, have been delivered or are underway. These projects will enable 'digital by default' across the health and social care community. Given the current status and future plans Nottinghamshire is well placed to meet the 2020 objectives.

Nottinghamshire has embedded the National Informatics Board and NHS England Roadmap objectives into the combined Clinical Commissioning Group IGM&T Strategic objectives (latest version published early 2016). This newly approved strategy document has been distributed across Nottinghamshire and will inform future initiatives, commissioning and deliverables to achieve our local digital roadmap plan.

This foundation of delivery supports the continuing ambition that Technology Enabled Care will drive improvement and efficiency, supported by the wider business changes contained within the STP.

## 6.4 Integrated Model of Care

Nottinghamshire's digital enablement and key programmes/initiatives have ensured that integration of care delivery remains a core aspiration. As part of our journey to achieving the key milestones of paperless transitions of care by 2018 and paper-free at the point of care by 2020 our plans have delivered interim tactical solutions. This is through best of breed rationalisation of infrastructure and assets while planning the delivery of our desired final strategic solutions in line with the National Informatics Board and NHS England Roadmap objectives.

Examples of interim tactical solutions to date include:

- SCR in place across all Urgent and Emergency providers
- Deployment of the Medical Interoperability Gateway (MIG) across Nottinghamshire (primary care, secondary care, out-of-hours, ambulance and community settings)
- An agreed set of guidance principles to support a sharing and consent model approved by our Records Information Group (RIG), supported by Information Governance specialists, Local Medical Committee and now adopted by our practices and providers across Nottinghamshire
- End of Life, Electronic Palliative Care Co-ordination System (EPaCCS), live across health providers in Nottinghamshire utilising TPP S1 to support the core record
- Sharing of social care information to support Comprehensive Geriatric Assessment (CGA) – End of Life and complex discharge scenarios
- 100% of GP Practices offering patient on-line access to records including a number of trailblazers offering full records access

Nottinghamshire has a number of business transformation and integration programmes that are already in delivery;

- Prime Ministers Challenge Fund (Wave 1)
- Better Care Fund (Pioneers)
- Mid Notts Better Together Transformation Programme (Primary and Acute Care Services/PACS Vanguard)
- Greater Nottinghamshire Urgent and Emergency Care (Vanguard)
- Nottingham City Led Care Homes (Vanguard)
- Principia Partners in Health (Multi-Specialty Community Provider/MCP Vanguard)
- WeCare - Greater Nottingham Health & Care Transformation Programme
- Care Act Trailblazer – Nottinghamshire County council
- EMRAD Consortium ACC Vanguard

With many transformational programmes underway, the need to access information across care silos is and has been apparent for a number of years. In order to fulfil this requirement a pragmatic approach has been taken across Nottinghamshire. To facilitate access to information on a number of occasions access to multiple systems has been required, often with contractual arrangements and additional controls put in place to ensure best practice governance arrangements. This approach has allowed new models of care to be implemented even with basic levels of digital integration. This mode of operation, whilst successful in providing access to information, is only considered a temporary measure with integration of systems and interoperability of the desired model future state.

As part of the integrated care models transformation work Greater Nottingham organisations are working together to develop a new system of care working with Centene, a care system integrator organisation. This scope of work will review the IM&T capabilities required to support Accountable Care Systems based on their experience in North America and Europe. Learning from this work will inform future iterations of the Local Digital Roadmap.

## 7 Governance Arrangements

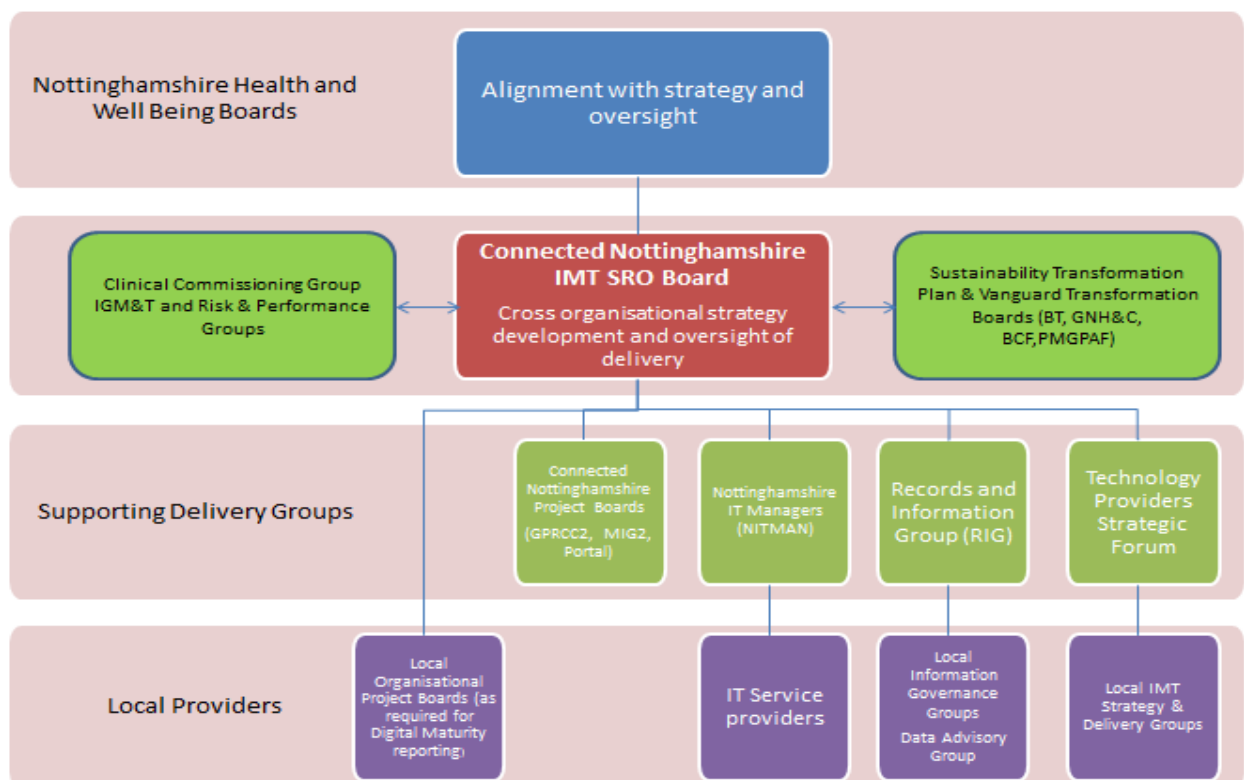
To ensure leadership, ownership and accountability for delivery of the complex transformational change across Nottinghamshire, the existing structure of the Connected Nottinghamshire IMT SRO Board will provide the coordination of delivery in line with other established leadership groups namely:

- Strategic Transformation Programme Executive
- Clinical Cabinet(s)/Council(s)
- Clinical Commissioning Group IGM&T Committee
- Clinical Commissioning Group Risk and Performance Committee
- Mid Notts Better Together Transformation Programme
- WeCare - Greater Nottingham Health & Care Transformation Programme

The Connected Nottinghamshire IMT SRO Board will continue to report into the Health and Well Being Boards and their implementation groups accordingly.

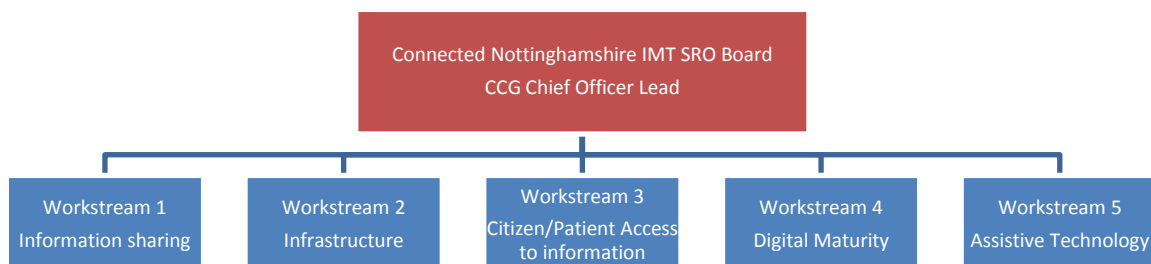
Figure one below, shows the current Governance arrangements for the Connected Nottinghamshire SRO Board and its relationships with other bodies;

*7.1.1 Figure one: Nottinghamshire Governance arrangements*



With the setup of the STP Workstreams helping to focus on specific areas of work, from December 2016 to April 2017 in preparation for the delivery of the additional LDR projects there will be a review of the supporting delivery groups shown in figure one. This is expected to integrate the reporting structure shown in figure two.

### 7.1.2 Figure two: integrating STP Workstreams



## 7.2 Membership

Connected Nottinghamshire has mature established working relationships with all health and social care organisations in Nottinghamshire with the key areas of focus being; improved collaborative working between health and social care IT providers and improved sharing of both health and social care information to benefit the citizens experience of care in line with the National Informatics Board Roadmap and strategic vision.

Working across Nottingham City and County Health and Wellbeing Boards membership includes all 6 Clinical Commissioning Groups with one Chief Officer (Rushcliffe Clinical Commissioning Group) acting as SRO. It is led strategically through the IM&T SRO Board. Connected Nottinghamshire has been co-operatively developing strategic plans through this governance structure, overseeing the operational delivery of plans since 2013.

### 7.2.1.1 Digital Footprint

The Nottinghamshire Digital Footprint fits the primary flow of patients within the 6 Clinical Commissioning Group geographic areas. Collectively Nottinghamshire members have agreed an IGM&T strategy for the future 5 years.

The Nottinghamshire key areas of focus being; improved collaborative working between health and social care IT providers and improved sharing of both health and social care information to benefit the citizens experience of care in line with the National Informatics Board Roadmap and strategic vision.

Connected Nottinghamshire supports Nottingham City Council and Nottinghamshire County Council Health and Wellbeing Boards. There is good co-operation in developing strategic plans prior to and including the LDR.

Rushcliffe Clinical Commissioning Group is the nominated lead Clinical Commissioning Group for the Nottinghamshire digital footprint. The partnership includes the following Clinical Commissioning Groups:



- NHS Nottingham City CCG,
- NHS Nottingham West CCG,
- NHS Nottingham North & East CCG,
- NHS Newark & Sherwood CCG
- NHS Mansfield & Ashfield CCG

There are a number of other Clinical Commissioning Group partners with which Nottinghamshire has a close digital relationship to ensure patient flows are supported across the East and Central Midlands. Bassetlaw Clinical Commissioning Group, as an associate partner in the Sustainability Transformation Plan, in particular is closely involved in ensuring the needs of the citizens/patients are met. With Nottingham University Hospitals being a provider of specialist services, a Regional Trauma Centre and to support the flow of Nottinghamshire Citizens using out of area services wider engagement across the Midlands has taken place. This out of area work will need to develop going forward to ensure methods of communicating patient information between geographically dispersed specialist services.

The following provider organisations are actively engaged in the development of the local digital roadmap:

- Sherwood Forest Hospitals NHS Foundation Trust
- Nottingham University Hospitals NHS Trust
- Nottinghamshire Healthcare NHS Foundation Trust
- Nottingham CityCare Partnership
- NEMS
- Derbyshire Health United
- Primary Integrated Community Services
- Partners in Health
- East Midlands Ambulance Service
- The Circle Partnership
- Ramsey Healthcare UK
- BMI Healthcare

The following Social care provider organisations are involved in developing the digital footprints:

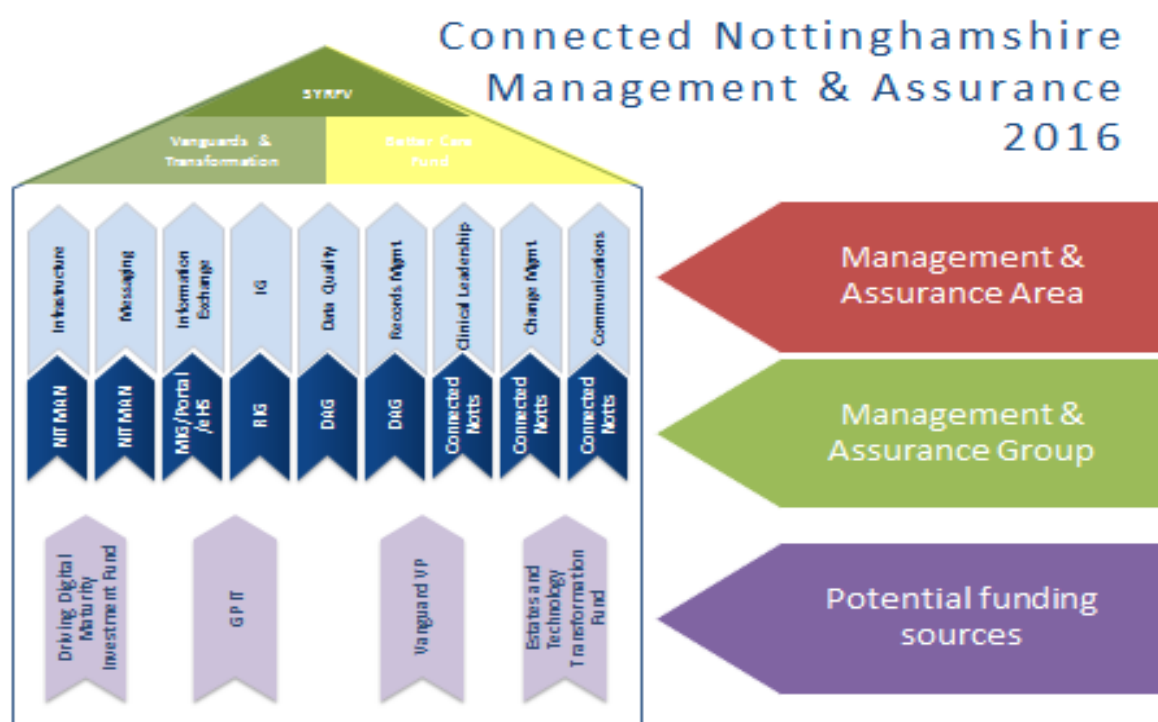
- Nottinghamshire County Council
- Nottingham City Council

Whilst these are the formally recognised members, engagement has taken place with District Councils, voluntary organisations, Nottinghamshire Police Force, Nottinghamshire Fire Service and several patient representative groups. It is recognised that District Councils in particular is an area where engagement will develop greatly over the life of the roadmap.

The model in figure three shows the relationships and governance between the “9 pillars of assurance”, finance, the areas of work addressing the 9 pillars, the groups that support them and the links to the 5 year forward view.

The health community recognise the importance of the IM&T Clinical Safety Officer role mandated through DSCNs in 2008. Nottinghamshire continue to support this function and will work with NHS England's local DCO to ensure the service commissioned by them is integrated into the governance arrangements across the footprint. Nottinghamshire also look forward to receiving assurance from NHS England nationally that this role consistently supports any changes to nationally accredited applications.

### 7.2.2 Figure three: Nottinghamshire Governance assurance model



## 7.3 Integration Across Footprint Areas

An early review led to an understanding of the flow of Nottinghamshire citizens/patients once they become health and care service users. In particular patient flows often extend their care boundaries beyond the Nottinghamshire digital footprint and STP area. With flows both in and out of Nottinghamshire the need to consider how records are shared and how transitions of care can occur digitally is an important piece of work moving forward. This is by no means more important than when considering the partnership working with Bassetlaw Clinical Commissioning Group. Nottinghamshire Healthcare NHS Foundation Trust and Nottinghamshire County Council both provide services to the partners citizens/patients. To address the issue, running in parallel with developing the capabilities across Nottinghamshire, work has commenced in creating a wider network of engagement and collaboration to develop ways of working and to shape standards that will allow the capabilities required to deliver the best care possible.

Supporting this work across the Midlands region (East and Central Midlands Clinical Commissioning Group areas), Nottinghamshire has engaged with members of the "Midlands Accord" ([Appendix one](#)) to develop

a shared understanding and set of standards to support out of area working. Engagement with NHS Digital as part of this work will shape the national assets and standards development to enable wider sharing in the next two to three years. This will provide a mechanism for sharing with wider East Midlands Clinical Commissioning Group GP populations in particular in this early phase and with Central and West Midlands Trusts over the life of the roadmap.

The same approach is to be taken forward in working with Yorkshire colleagues during 2016 to support patient flows into Yorkshire Trusts.

## 7.4 Programme Management

Management of the Connected Nottinghamshire Programme is based on MSP (Managing Successful Programmes) ensuring that the various work streams and projects are managed, coordinated and authorised in a controlled environment. The Connected Nottinghamshire IMT SRO Programme Board forms the Programme Board with a Clinical Commissioning Group Chief Accountable Officer acting as Senior Responsible Officer (SRO) supported by a Programme Director and Programme Manager.

The Programme team is kept small and is focused on the projects that support integration and interoperability. Only these types of projects are directly managed with other enablement projects being managed by the providers and their respective IT Service provider in order to aid transition to business as usual. Any projects that are on the critical path or that contribute directly to the aims of the LDR and achieving the NIB roadmap targets form part of the reporting (9 pillars of assurance) and oversight of the Programme Board.

To provide assurance projects follow Prince2 best practice guidance with project boards made up of stakeholder representatives from; clinical, Senior Information Risk Owner, Information Governance, Clinical Commissioning Group, LMC and patient representation groups. The project boards collectively review progress, controls and provide guidance in decision making. High-level risks and issues are escalated to the IM&T SRO Board. Moving forward the five delivery Workstreams will focus on project oversight and direction, reporting these back to the Connected Nottinghamshire IM&T SRO Board.

## 8 Baseline

### 8.1 Current Status

Nottinghamshire has a good understanding of the current position of its care providers and commissioners. In addition to the Digital Maturity Assessment process, Nottinghamshire has and continues to review the technical landscape. The high level current technological baselines are set out below with additional details relating to integration further detailed in Table one (Section 6.2.2).

Utilising the existing information sharing capabilities, progress has been made against the initial three clinical priority areas, supporting early changes in care models and sharing of datasets.

#### 8.1.1 Progress in system sharing

##### 8.1.1.1 Comprehensive Geriatric Assessment (CGA)

This work has been a clinical priority since 2013 and underpins the STP work looking to address the complex needs of older and frail people. It links with local service developments such as Transfer to Assess, Call for Care and Care Home developments. Nottinghamshire continues to work with the East Midlands Academic Health Science Network (AHSN) to better understand how an electronic CGA dataset and plan can support improvement in care across organisational boundaries. Using this information toolset Nottinghamshire can provide better support & care for older and frail people. Improvements in areas such as better discharge planning and avoidance of un-necessary admissions have been achieved by having better information available to hospital clinicians at the point of care and having joined up care planning. Work is continuing on the development of a joined up, system wide CGA which is supported by Nottinghamshire Geriatricians. Linking to existing work in hospitals to digitise existing paper based records or move to electronic clinical noting will be a major contributor to support this initiative.

*Improvements supported by digital enablement:*

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Clinicians at Sherwood Forest Hospitals (SFH) were using a paper form to record a patients 'Comprehensive Geriatric Assessment' (CGA). From the 15th August 2016 the Geriatric Consultants, Frailty & Intervention Team and Therapists at SFH are now using SystmOne to record their CGA's electronically. This allows hospital staff to see previous patient history, community staff to support more efficient discharge and all to improve the quality of care provided to the patient.

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Moving forward in the roadmap the ability to view CGA data will be provided through functionality from existing systems such as: TPP EPRCore, the GP for Repository Clinical Care (GPRCC) - e-Healthscope, MIG and the Community Portal (CareCentric) which will enable wider sharing of patient data across differing

systems and organisational boundaries at the point of need. With early trailblazers now live with this work making good progress system wide coverage is anticipated in 2017.

With the five domains of information that CGA covers and the planning function requirement it is anticipated that the technical enablement from this work will be easily transferable to other STP priority areas rapidly, thus supporting the paper free at the point of care strategic requirement.

#### **8.1.1.2 Delivery of an End of Life, Electronic Palliative Care Coordination System (EPaCCS) across Nottinghamshire.**

To support improvements in End of Life care Nottinghamshire has implemented an EPaCCS solution built on TPP SystmOne. This underpins the STP and will support patients with their continuing care, respecting their wishes in areas such as Death in Usual Place of Residence (DiUPR) and Preferred Place of Death (PPoD). This work not only helps respect the patient's wishes but supports reduction of avoidable admissions to support the finance and efficiency gap target. As part of the MIG deployment phase 2 and the Community Portal (CareCentric) project, 2017 will see an additional 'supportive care' dataset which includes End of Life data being shared across even more organisations.

##### *Improvements supported by digital enablement:*

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In 2013 Nottinghamshire achieved a Death in Usual Place of Residence or Preferred Place in only 32% of cases record. Since the EPaCCS project, supported by a shared record and plan, in 2016 this now stands at 73% - a 41% improvement.

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#### **8.1.1.3 Sharing of key information (GP record) to support management of patients requiring Urgent / Emergency Care.**

To support improvement in Urgent and Emergency Care across Nottinghamshire there have been a number of developments. Deployment of the SCR and Medical Interoperability Gateway (MIG) to support the sharing of GP patient records and the Emergency Care Solution (ECS) to support sharing of Ambulance Service information. The deployment of these systems have supported clinicians across urgent and emergency care providers by providing them access to timely and key medical information – enabling them to make more informed clinical decisions when treating patients and benefit patients by allowing them choice to visit the most appropriate clinical setting. Nottinghamshire has also used these systems to support 7 day working in extended hours offered by GP Federations and locality working as part of Prime Ministers Challenge Fund, GP Access and Vanguard initiatives.

Tranche two (2016-18) of the programme will continue the work with the existing clinical priorities and, in line with the Clinical Commissioning Group IGM&T strategy and ensuring alignment with STP, will see the addition of Long Terms conditions management added. As examples of this shift Respiratory Medicine,

Care Navigation and Gastroenterology services are hospital based areas that have already been enabled for access to GP records for management of STP priority pathways.

### 8.1.2 Primary Care

- All practices have migrated away from the LSP contracts to NHS Digital commissioned contracts; the Clinical Commissioning Group IGM&T and Connected Nottinghamshire Boards monitor this
- Clinical Commissioning Groups have Nottinghamshire Health Informatics Service (NHIS) contracted for their IT services and support providing common technical solutions across all Practices to support integration
- The Records and Information Group (RIG) led by a GP, Caldicott Guardian with membership from primary, community, secondary and social care has been set up to share best practice within the health and social economy. Key success's include the development of a system wide guidance setting out the principles of sharing for Direct Care purposes which has been adopted
- Tactical information sharing solutions have been implemented using TPP SystemOne and the Medical Interoperability Gateway (MIG) with Rushcliffe Clinical Commissioning Group holding the contract with HGL on behalf of other Clinical Commissioning Groups under the GPSoc Lot 3 framework terms and conditions
- NHIS has contracts in place for IT infrastructure that covers primary care with excellent progress made on; a Community of Interest Network (COIN), Wi-Fi federation, Electronic prescribing service, Patient on line access to records and mobile enablement. The use of NHIS has been a key success factor in the delivery of integration projects through their flexible approach and locally focused support. This flexibility and support is critical to realising future ambitions within the local digital roadmap
- GPs make good use of the eReferrals service with >80% of referrals to secondary care being made electronically
- The use of eDSM in sharing of GP data has made significant progress in the past three years. eDSM sharing of data within practices has grown from ~15% in 2013 to ~90% in 2016.
- The out of hours provider (NEMS) uses Adastra as their primary system with TPP SystemOne for a number of direct facing areas
- The NHS 111 service provider (Derbyshire Health United) use Adastra as their primary system
- The out of hours, walk-in centre and NHS 111 providers access GP records via the MIG Detailed Care Record dataset and will shortly have access to EPaCCS records via this route also

### 8.1.3 Community Care

- The majority of Community Care providers use TPP S1 eDSM and MIG to support shared records access
- GP records now provide greater than 90% availability across Nottinghamshire
- With support from the Nurse Technology fund, mobile working has now been rolled out across a substantial proportion of Community staff
- Community teams as part of multidisciplinary working have access to a locally developed solution called eHealthscope for care planning and risk stratification information

*Examples of integrated care supported by digital enablement:*

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Nottinghamshire has new models of care being delivered as part of a number of Vanguards. An example from a PACS Vanguard is the integrated care across Newark & Sherwood Clinical Commissioning Group called 'PRISM' – Profiling Risk Integrated with care Self-Management which is supported through the digital risk stratification tools and sharing of information at the point of care.

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#### 8.1.4 Secondary Care

- NUH is the host of the Graphnet CareCentric Portal solution, providing services through a contract as IT service provider
- SFHFT and NUH hospitals have updated their Patient Administration Systems to the same modern System C Medway product
- NUH have a legacy in-house information sharing tool, called Notis, that supports access to large amounts of Hospital information across Primary and Community care (this is to be retired in line with the CareCentric roll out)
- SFHFT use the Orion portal and integration technologies including clinical pathways, clinical data repository and links electronically to other areas to allow wider access to Hospital information and will connect this into CareCentric during the first phase
- NUH and SFHFT both have a demanding schedule for replacement and digital enablement across their whole estate
- NUH utilise technologies such as e-Observations/Handover, have mobile devices in every clinician's hand, a safer staffing application and a pocket midwife application
- Ramsey Hospitals are currently implementing a new PAS and EPR solution
- Circle Partnership currently use a mixture of their own IT systems and those provided to them as a service from Nottingham University Hospitals NHS Trust
- Secondary care providers are represented at the RIG and have adopted the direct care consent sharing model
- The Digital Maturity Assessment has identified gaps in some areas within the universal capability requirement and there remains much work to do to reach the Paperless at the Point of Care target for example e-Prescribing across Acute providers
- GS1 has been adopted by secondary care providers
- Private healthcare providers are engaged within the Programme and dialogue on going in relation to their requirements and input. Both Ramsey Hospitals and BMI Hospitals are working toward national targets as part of the NIB roadmap and are aware of Nottinghamshire's plans for information sharing and integration.

#### 8.1.5 Mental Health

- Nottinghamshire Healthcare NHS Foundation Trust provides mental health services across Nottinghamshire and wider. They have recently re-commissioned Rio7 as their primary information system but also use eCPA (document management) and PCMIS to access patient information

- NHCFT have implemented Viper 360 as a tactical solution to support internal integration and MIG, building on their Ensemble integration engine and also plan to connect into CareCentric as part of the first phase of work
- A number of patient facing solutions are in place to support a number of their mental health services

*Examples of improvement supported by digital enablement:*

Nottinghamshire Healthcare NHS Foundation Trust implemented their local integration portal to support sharing of information between systems in 2015. Evaluation of the system found that having this shared information influenced decision making in 45% of clinical decisions.

### 8.1.6 Social Care

- Nottinghamshire County Council use the Servalec Framework-i Children's and Adult's Social Care system which is on target to be upgraded to the Servalec MOSAIC product in September 2016
- Nottinghamshire County Council has made great progress in mobilisation of their workforce with 1,600 tablet devices now deployed to front line social care staff. This solution enables social care staff to have the right information at the point of service delivery and has been achieved through the implementation of TotalMobile. This product forms part of the Council's "integration platform" which has recently completed proof of concept testing for message exchange between health and social care to support discharge planning and reduction of Delayed Transfers of Care
- Nottinghamshire County Council have recently replaced their Wide Area Network connectivity with a PSN compliant MPLS network. Connectivity to both NHIS and Nottinghamshire Health Informatics systems has been maintained which enables over forty joint use sites to share connections and reciprocally broadcast Wi-Fi networks
- Nottingham City Council is currently migrating from CareFirst to use the Liquid Logic Children's and Adult's Social Care system. This will be complete by March 2017 with first phase going live in October 2016
- Nottingham City Council built the requirement for integration into the procurement process ensuring that their system will interoperate with health systems to support digital transfers of care
- Both local authorities have work underway to implement electronic transfers of care (in addition to discharge) in line with the Midlands Accord
- Both Local Authorities have made excellent progress with NHS number matching and have in excess of 85% of current case loads matched with NHS number and projects in place to move to real time matching
- Both Local Authorities have plans to enable Child Protection Information Sharing CP-IS during 2016/17
- Both local Authorities have taken part in the Local Government Associations Digital Maturity Assessment and findings from this will influence priority areas moving forward.



### 8.1.7 Pharmacy

A number of projects are underway to ensure Pharmacists and Pharmacy resources are digitally enabled to support the STP plans.

- SCR roll out into Pharmacies will be complete by the end of 2016
- EPS2 has made good progress across Nottinghamshire with only dispensing GP Practices left to complete
- A number of pilot projects are underway to provide Pharmacy support to GP practices on medication reviews and advice. They are using TPP SystmOne GP unit access to review the record and to offer advice and guidance back to other clinicians.

### 8.1.8 Assistive Technology

Nottinghamshire has made progress with Assistive Technology to improve patient care quality, effective use of resources and an improved outcomes. Through work with the STP High Impact Area leads it is clear that Telecare and Telehealth can provide further potential opportunities to support the new models of care.

There are a number of existing programmes of work underway in Nottinghamshire which include:

- Virtual Consultation - virtual clinics being developed in gastroenterology and MSK services. The aim is to reduce outpatient appointments through patients having virtual access to specialists
- Advice and Guidance - Within our emergency care pathway it has been demonstrated that prior discussion with a specialist can deter, direct and facilitate attendance within an acute service
- Medicines Optimisation through Assistive Technology (MOAT) - will utilise the Flo text messaging system to set up reminders to a patient's mobile phone that their meds are due
- COPD - Telehealth device, which allows patients to send their own personal stats in so their results can be monitored and managed
- FLO - simple text messaging service, sends reminders to take medication, asks health questions and obtains vitals etc.
- Teledermatology - iPhone device specifically modified to send photos of skin lesions etc. to specialist for further inspection and diagnosis
- COVIRT - a "COPD Virtual Ward" using AT. The patients will be monitored by the existing Telehealth monitoring centre at Nottingham On Call who will then escalate alerts to the Integrated Respiratory Service. In addition the patients will have (at least) monthly video conferencing calls
- Care Homes - part of Nottingham City's role as a Care Home Vanguard site there is a plan to put in place video conferencing / Skype consultations to Care Home residents and to set up monitoring through a Clinical Hub and as part of joint working with AHSN

### 8.1.9 Third Sector

A number of charity and other third sector organisations are involved in supporting transformation and improvements in care across Nottinghamshire. The maturity of their infrastructure and systems varies but is largely at an immature level of development.

### 8.1.10 Patient and Carer Access

A number of projects have been completed or are in progress to provide citizen/patient access to records and care plans:

- Nottinghamshire County Council has the SEL “WiKi” solution rolled out to a number of families across Nottinghamshire County. This solution provides access to a multimedia driven care planning platform to support children who are part of Education, Health and Care Plan under the Care Act 2014
- 100% of Nottinghamshire GP’s provide access to repeat prescribing, appointment booking and the Detailed Care Record
- A number of GP Practices across Nottinghamshire have rolled out full access to the GP record in order to assess benefits and resolve any early change management issues. This completed in 2015 and now forms the basis of further roll out plans set out in the Clinical Commissioning Groups IGM&T Strategy
- Recap is a system used by NHCFT to engage with their patients and share information relating to their care and treatment
- MyCare is an initiative underdevelopment by Nottinghamshire County Council to support easy access to a wide array of health and care services. This offers the potential for a single point of access into the wider care record resources
- A number of Nottinghamshire locally developed mobile apps are in varying levels of use. An example of this is the Nottingham City Clinical Commissioning Group app, used to direct people to the right providers for emergency care and to the right information for their specific health condition

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*What does good technology look like to a citizen/patient in Nottinghamshire?*

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“ I don’t want to repeat myself over and over”, “I want my information to be safe and secure”, “I want to be able to see my results”, “I want to be able to choose who can see my records”, “I want to be able to check my records”, “I want to have access to more appointments on line”, “I want to manage my mums care online”

### 8.1.11 Ambulance

- East Midlands Ambulance Service (EMAS) has access to the Emergency Care Solution to capture electronic patient records, this information is shared with both Acute providers in real time but this is coming to an end in 2016/17 with re-planning underway to implement a new system with greater opportunities for integration
- EMAS use MIS Alert C3, their Computer Aided Dispatch (CAD) system, this is populated with flags from the Nottinghamshire EPaCCS to support EoL care
- The Clinical Assessment Team (CAT) have access to GP Detailed Care Records via MIG

### 8.1.12 Care Homes

- A number of Care Homes across Nottinghamshire have access to TPP S1 Care Homes module to support improved care
- Extended use of the GP Patient on line access is currently being evaluated

### 8.1.13 Hospices

- Three Hospices across Nottinghamshire have access to the EPaCCS, TPP SystmOne GP and Community Records

### 8.1.14 Prisons

- Nottinghamshire Prisons use TPP SystmOne but have specific controls on record sharing

### 8.1.15 Support arrangements

- Nottinghamshire has 5 main IT service providers; Nottinghamshire Health Informatics Service (NHIS), Nottinghamshire Healthcare NHS Foundation Trust Health Informatics Service, Nottingham University Hospitals NHS Trust ICT Service, Nottingham City Council IT Service and Nottinghamshire County Council IT Service.
- East Midlands Ambulance also has its own IT Service
- All providers support a mixture of in house and external services across their wide ranging user bases
- IT Directors meet on a regular basis as part of the Technology Providers Strategic Forum
- IT Support leads meet regularly as part of the Nottinghamshire IT Managers Group (NITMAN)

### 8.1.16 The Carter Review

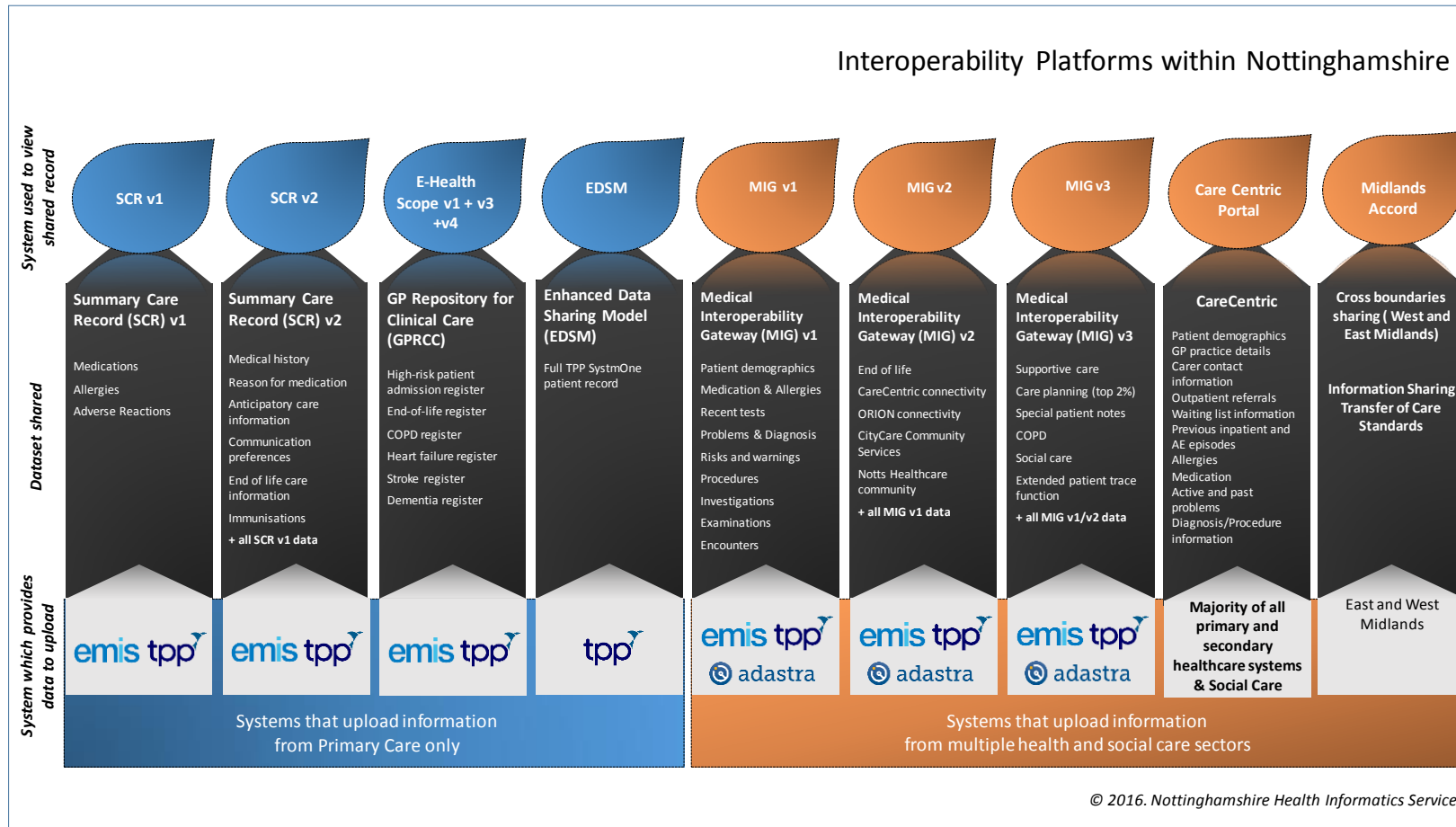
- In considering the required content of the Local Digital Roadmap the recent NHS efficiency review was considered. The STP Workstreams have identified some of the learning from the Carter Review and these have been built into the capabilities required for Connected Nottinghamshire moving forward. In addition to this the potential merger between Nottinghamshire Health Informatics Service and Nottingham University Hospitals ICT Department are examining further opportunities for driving efficiencies and improving services through back off function redesign.

### 8.1.17 Staff development

- Nottinghamshire IT support services have a wide range of technical, service management and professional services staff
- Development of these staff is an on-going process but Nottinghamshire would support engagement with national work (such as that led by the British Computer Society) to improve the professional standing and development of these staff
- Education and development of non-IT staff is provided through a mixture of internal and external providers across Nottinghamshire. It is recognised that to support the ambitions of the LDR and STP, development of staff to make best use of the digital assets will be a key area to address

## 8.2 Nottinghamshire Interoperability Platforms

### 8.2.1 Figure four: Interoperability Platforms within Nottinghamshire



### 8.2.2 Table one: Care Providers and Key Integration System details across Nottinghamshire Health and Care providers

Organisation	Primary Care	East Midlands Ambulance Service	Nottingham CityCare Partnership	Nottinghamshire Healthcare NHS Foundation Trust (includes CHP)	Nottingham University Hospitals NHS Trust	Sherwood Forest Hospitals NHS Foundation Trust	City Council	County Council	Out of Hours - NEMS & DHU 111
Existing systems supporting integration	TPP SystmOne EMIS Web eHealthscope (locally developed care management and risk stratification tool) GP Respiratory for Clinical Care SCR MIG	Emergency Care Solution (part of CSC suit with HL7 links into TPP and potential Summary Care Record access), DTS messaging SCR MIG	TPP S1 SCR MIG	RIO, TPP S1, PCMIS, Summary Care Record, ICE and implementing a Viper 360 Portal MIG	System C Medway, TPP Clinical Record Viewer, ICE, in-house developed portal type product, Summary Care Record and DTS messaging Notis CareCentric Portal MIG	McKesson Medway, TPP ED, TPP EPR Core, ICE, Orion portal, Summary Care Record, DTS messaging and implementing a portal product MIG	Liquid Logic	Framework-i TotalMobile	Adastra SCR MIG

In addition to local information sharing developments Connected Nottinghamshire has been and continues to monitor developments in relation to both NHS Digital and NHS England's API policy. These capabilities will be considered as part of our integration programmes/projects and future strategy however with the current limitations in the maturity of this work it is felt necessary to adopt middleware or "man in the middle" solutions to enable sharing.

### 8.2.3 Information Sharing

Since 2013 information sharing across Nottinghamshire has progressed beyond the health economy to include health, social care, citizens/patients/carers and some third sector organisations with more planned for the future.

The infrastructure work co-ordinated through the Nottinghamshire IT Managers group (NITMAN) is supported by a number of delivery groups, the Records and Information Group (RIG) and Data Advisory Group (DAG) being two of the most important, that draw membership from both health and social care providers.

RIG has been established since 2013 and has brought together the Information Governance leads from all Health and Care provider Information Governance leads alongside commissioning leads. Led by a GP and Caldicott Guardian with additional clinician members, this group has made significant progress in supporting the improvements in information sharing for direct care. Through the production of system wide Guidance Notes the Group supports whole system change under the overarching framework of the Nottinghamshire Information Sharing Protocol. Significant progress has been made due to the key enabling work of this group.

The DAG has wide membership across all Health providers including Clinical Commissioning Group representation to support General Practice. With data quality a vital part of information sharing, this group and its terms of reference are currently being reviewed to ensure they are fit for purpose moving forward. A wider membership is expected to result from this work to include Social Care members and to facilitate closer links back into inter-organisational quality work.

As part of the governance Nottinghamshire employs for managing projects; when addressing the areas of information governance and information sharing each project completes the following documentation sets to be approved at project board level: Privacy Impact Assessment (PIA), Information Sharing Agreement (ISA), Information Access Agreement (IAA), Quality Impact Assessment (QIA) and Equality Impact Assessment (EIA). The Data Management Team, who act as data processors on behalf of practices across Nottinghamshire, utilise an electronic signature capability through which practices, providers, secondary care and social care teams can digitally sign/approve documents such as data processing agreements and updates to ensure all data controllers are informed and compliant with best practice.

The technologies that support information sharing currently are:

- Medical Interoperability Gateway (MIG) – this supports sharing across Out of Hours, Secondary Care, Community Services, GP Federation(s) and Mental Health Services using the Detail Care Record data set plus an additional End of Life care dataset

- GP Repository for Clinical Care (GPRCC) - to support direct patient care, agree additional use cases for data for example to support areas such as clinical audit/outcomes, closer integration with social care teams
- EPaCCS - to maintain the Electronic Palliative Care Co-ordination System and bring in-line with the MIG project re End of Life dataset
- Multi-Disciplinary Team meetings access a locally developed care planning, risk stratification and sharing tool called e-Healthscope to support integrated working
- eDSM in TPP S1 sharing of GP and Community data is in use across many areas and also utilises the TPP EPRCore product to enable access where S1 units are not in place
- The Graphnet CareCentric Portal has been adopted as Connected Nottinghamshire's Strategic Solution for a Community Portal; the initial phase has commenced to allow interoperability across primary care, secondary care and social care settings

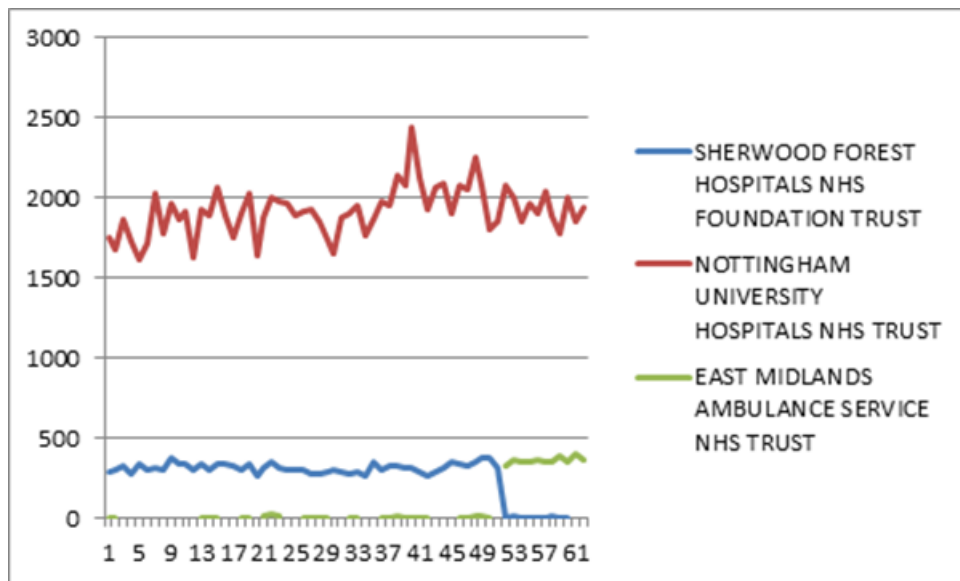
SCR v1 dataset has been fully uploaded to the National Spine from GP systems across Nottinghamshire. Nottinghamshire's usage is high.

Following a parallel project in the middle of 2015 to improve GP record sharing (via the Enhanced Data Sharing Model eDSM) Nottinghamshire now have approximately 90% of patient records available to be viewed via eDSM and/or MIG. As such from the end of 2015 there have been many 'good-news' stories regarding how MIG has supported clinical staff during consultations in urgent and emergency care providers. Initial evaluation and benefits assessment has been very positive and has paved the way for further investment.

It is worth noting that Nottingham University Hospital (NUH) uses SCR more than MIG. SCR has been embedded in this Hospital's processes for a number of years to the degree where NUH continues to be one of the largest users of SCR in England with views ranging between 1800 – 2000 per week (figures from HSCIC). It is anticipated that this figure will reduce over time as more access to MIG and the Community Portal replace access to Nottinghamshire patient information with SCR being used only for certain use cases and out of area patients.

Sherwood Forest Hospital Emergency Department has access to SystmOne which allows clinicians to view a patient's full GP record (if they are from a SystmOne practice). This is done for the majority of patients seen given the percentage of practices on SystmOne in Nottinghamshire. As such this minimises the use of both SCR and MIG.

*8.2.4 Chart one shows SCR viewing in Secondary Care settings in Nottinghamshire from 2015 to 2016.*



As all community providers across Nottinghamshire use SystmOne and have access to detailed records the SCR usage figures are low as you would expect.

NEMS are the Nottinghamshire Out of Hours provider and make good use of SCR historically although this is expected to reduce over time as detailed care records are now widely available.

Sherwood Forest Hospitals use SCR but having access to detailed care records now in a number of key areas of the hospital has meant a significant drop has occurred.

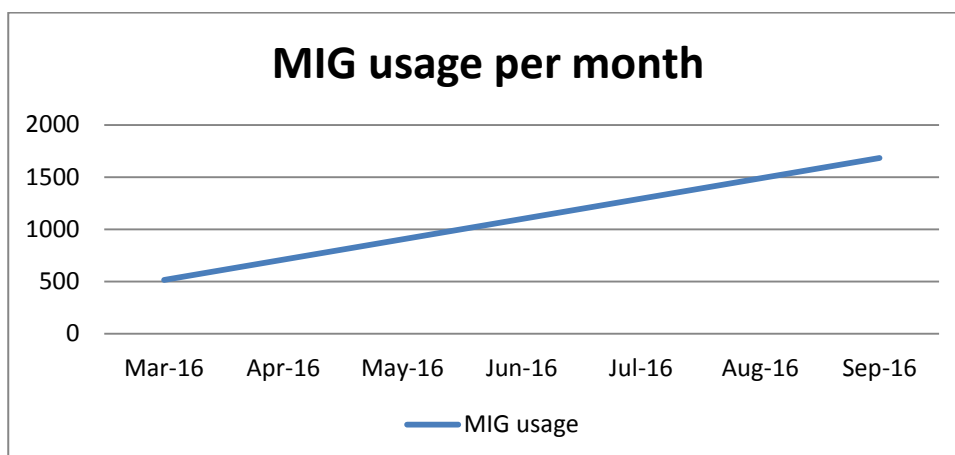
As new information sharing tools become available it is expected that the system will see a transition from one to another dependent upon the use case and care setting. SCR use is still anticipated to be high in particular in community pharmacies and for those patients not resident within Nottinghamshire (who may not have a detailed care record available), usage remains important.

EMAS have already implemented access to MIG to their Clinical Assessment Team and this has enabled their Nurses to support ambulance crews in understanding a patient's background and wishes. This has already demonstrated the benefit of Ambulance staff having access to patients records (in this case via MIG) at the time of need in an emergency/urgent care setting.

The data in Chart two illustrates how MIG is being used across Nottinghamshire to support services such as: GP Federation, Out of Hours, East Midland Ambulance Service (EMAS), Community Services and Hospitals (Emergency Departments and Elective Care Services). The work moving forward will be to drive increased use to ensure the benefits are realised consistently. It is believed Sherwood Forest Hospital Emergency Department will continue using SystmOne for the majority of patients as they also use this to assist with 'alerting' across the health community.



### 8.2.5 Chart two showing usage of MIG per week over time



The above chart was measured between the period of March 2016 September 2016 highlighting the usage on a monthly basis from an early phase of the project through the to the current period.

The above chart shows the steady usage of MIG over a recent period. Approaching the end of the second project phase MIG has matured into business as usual processes within clinical settings. MIG usage remains low where clinical settings have an existing SystmOne to SystmOne sharing protocol in place however for other clinical settings such as our Out of Hours service NEMS their usage remains high.

We anticipate a dramatic increase in these figures now we are approaching the critical Winter period and are expanding access to other clinical systems over the coming months.

#### *Examples of integrated care supported by digital:*

NEMS Out of Hours provider in the first evaluation of MIG found that having the additional information available supported better decisions in relation to the care they could offer to patients. It supports them in making the right decision about the most appropriate care for the patient, described as “turning on the light” in the delivery of care. This supports new ways of working in Urgent and Emergency Care.

The National Information Board (NIB) has specified that SNOMED CT is to be used as the single terminology in all care settings in England in order to support a single common terminology in electronic integrated care records moving forward. To support this work Connected Nottinghamshire has commissioned a data quality business analysis exercise across Nottinghamshire (currently in progress) to confirm the current position in relation to data quality and records management. The output from this

work and its recommendations for improvement will identify the work that is required in order to be ready for the adoption of SNOMED and the standardisation of systems to the NHS Dictionary of Medicines and Devices (dm+d) before 2020. Moving forwards all system procurements and developments will be in line with this set of standards. In order to meet the SNOMED standard in the initial phases of delivery it is expected that translation from one coding nomenclature to another is likely to be required.

## 8.3 Digital Maturity Assessment

From the Secondary Care and Ambulance Digital Maturity Assessment (DMA) report Nottinghamshire has confirmed a number of areas for improvement. E-Prescribing in secondary care was identified and the Nottinghamshire Acute providers have agreed to explore a joined up approach to e-Prescribing across Nottinghamshire that is integrated across all care settings. Further work is underway to review and plan to address the specific points of improvement.

Table two shows the overall Nottinghamshire DMA results and the plans moving forward to address the areas of improvement.

Appendix Three ([secondary care capability trajectory target](#)) shows the individual estimated timelines for digital maturity improvement. These flight paths are caveated and in some cases will require significant support from the Developing Digital Maturity Fund. Nottinghamshire will, wherever appropriate, produce a single business case for applications against maturity improvements.

As the Primary Care and Local Authority Digital Maturity information become available these will be used to identify priority areas.

*Table two: The table shows collective results across the Nottinghamshire organisations*

Digital Maturity Assessment	Nottinghamshire Average Scores from DMA	Nottinghamshire Actions
<b>Organisation Demographics</b>	<b>Local average(national average)</b>	
<b>Strategic Alignment</b>	73% (76%)	Nottinghamshire recognises that work is still required to ensure the highest level of strategic alignment is achieved. Generally local providers are well aligned but further work is needed for regional and out of area services e.g. EMAS, Derbyshire Health United (111)
<b>Leadership</b>	77% (77%)	Whilst it is acknowledged that leadership has been an issue in one organisation, this has been addressed and it is not anticipated that this will present a problem moving forward.
<b>Resourcing</b>	56% (66%)	The use of technology to support resource management is an area that requires greater investment and development. Plans for 2017/18 include development of systems to build on pockets of good work and to further support localised resource management improvements (system wide staff resource management, bed management and equipment resource management).
<b>Governance</b>	70% (74%)	Nottinghamshire providers are generally well governed in terms of IM&T. With long established relationships and mature IT Service providers, the appropriate controls are in place and improving annually. Each IT Service provider has an experienced leadership team in place. Further work remains to be done with alignment of benefits, business cases and some regional services.

<b>Information Governance</b>	63% (73%)	Good progress has been made for direct care purposes across most providers however; Mental Health information remains more complex. Secondary uses of information still require a great deal of work to ensure the analytical opportunities can be achieved to support the best quality care possible. Cyber security requires more work to ensure it is co-ordinated and fit for purpose in a more open and integrated systems architecture.
<b>Records, Assessments &amp; Plans</b>	40% (44%)	There remains a great deal of work to complete in reaching the level of maturity required. Whilst there are plans in place to address the technical enablers through MIG/GPRCC/Community Portal, and some are already implemented, a significant amount of change management will be needed to achieve the milestones set out in the plan to be paperless at the point of care by 2018 (for health and care). In addition to the national requirement the ambition for joint trusted assessment is a key aspect of the STP moving forward and the this will be a key area to support that work.
<b>Transfers Of Care</b>	52% (49%)	With a great deal of the focus of the STP being on improvements of pathways to support getting patients out of hospital more effectively, transfers of care is seen as a key digital capability. Currently there are multiple methods of electronic messaging in place to support this requirement but through 16/17 these will move to standard ITK messaging and new functionality will be available to support improvements in the transfers of care. Early work in Social Care to enable these electronic flows is expected to develop at pace in the coming 12-18months.
<b>Orders &amp; Results Management</b>	42% (52%)	Good progress has been made in orders and results management in Primary Care with links the laboratory systems. This work now needs to continue to ensure all providers have access to this vital functionality. It is recognised that this will drive improvements in care and quality as well as reduce unnecessary diagnostics and in turn reduce cost. Work in Secondary Care as part of the merger will have an impact on improving this area throughout 16/17/18.

<b>Medicines Management &amp; Optimisation</b>	22% (29%)	The DMA result confirmed local thinking that medicines management is an area that requires further investment and development. The ambition is to, in 2017/18, implement a community wide electronic prescribing system that can meet the needs of all secondary care providers and that aligns with the primary care system (including community) requirements.
<b>Decision Support</b>	38% (36%)	Current levels of decision support are limited however 2016/17 will see further roll out of improved risk identification systems (Risk Stratification) and wider use of the Directory of Service software (populated with all Health and Care service providers). Moving forward the plan is to continue to build on the good progress made in the use of electronic observations systems both in hospital settings and at home as part of remote care.
<b>Remote &amp; Assistive Care</b>	31% (33%)	Nottinghamshire has good uptake of the simple Telehealth system FLO in most CCG areas. This will continue to expand through natural growth. In 2016/17 a review will consider the future direction for remote and assistive care. Early successes, such as FLO and the use of technology to provide supported living, will continue to grow. Early trailblazers including Tele-dermatology, Care Home Tele-consulations, Docobbo Telehealth use and other will be evaluated. This will then lead to the delivery of the agreed strategy from 2017/18 onwards increasing by 20% per year to support the ambitions of the STP care models.

<b>Asset &amp; Optimisation</b>	<b>Resource</b> 35% (42%)	Current resource planning capabilities are focused internally within organisations but with the creation of Care Co-ordination teams within Care Delivery Groups and localities across Nottinghamshire and emerging services such as Call for Care being commissioned to offer joined up care, there is an emerging requirement for visibility of all engaged services and resources in care. The use of eHealthscope and other tools has helped meet this requirement but more work is needed. Organisations have made progress in assets tracking internally but this is still localised to individual services and organisations. Further development of systems is needed within organisations to support their local needs and then to be able to “publish” appropriate information to support whole system needs. Work, such as that being done at Nottinghamshire County Council on the MyCare initiative(which provides a citizen view of their whole care service provision and shared calendars), will continue to develop and be monitored to see where the system can exploit these assets.
<b>Standards</b>	36% (41%)	Nottinghamshire’s approach is to first use national standards, and then consider standards already created elsewhere before lastly looking to create its own standards. Frustration at the lack of some national standards has hampered thinking but driven Nottinghamshire to work closer with other areas to ensure progress. From 2016/17 Nottinghamshire will be working hard to make better use of the Interoperability Toolkit (ITK) standards for messaging and will welcome development of national API definitions to support a standards based approach. The use of standards is a key element of the Midlands Accord and it is anticipated that this will drive adoption and development of standards. There remains a great deal of work to be completed in this area and support from NHS Digital will be critical to drive this.

<b>Enabling Infrastructure</b>	64% (68%)	The results of the DMA demonstrate the good progress that has been made in some areas of enabling infrastructure. The result also confirms there is still more work to complete. Later sections on infrastructure give more detail of progress and plans but 2016/17 will see the beginning of work to look at improvements in data centre alignment and provision as well as greatly needed improvements in Wi-Fi provision and the replacement COIN network. The goal of all these projects, to support digital access to records and IT services at the point of care in the best location for the patient/citizen/care professional.
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The Nottinghamshire outcome assessment has given a clear indication on areas that need development. Plans are now underway to address them. As further information on the maturity of providers becomes available through further iterations of the Digital Maturity Assessment and associated projects (including Primary Care, Community Providers and Social Care) these will be used to support the planning and delivery of their necessary capabilities.

### 8.3.1 Collaboration

The existing collaborative approach to digital enablement will continue to be adopted by Nottinghamshire health and care organisations. For several years Nottinghamshire project management and governance arrangements have driven system thinking and engagement. Nottinghamshire has proactively promoted collaborative working by encouraging engagement in all project boards from a broad spectrum of providers and patient representation. Supporting an open culture where discussing objectives and concerns (risks/issues) that may arise can take place. Examples of this include the GPRCC and MIG project boards where Nottinghamshire has board representation from primary care, secondary care, provider organisations (including NEMS Out of Hours, Derbyshire Health United 111, East Midlands Ambulance Service (EMAS), Primary Integrated Community Services (PICS), CityCare, Nottingham University Hospital NHS Trust, Sherwood Forest Hospital Foundation Trust and Notts Healthcare Foundation Trust), Local Medical Committee and patient representation. Projects that have similar or overlapping deliverables and/or dependencies such as MIG, GPRCC and the Community Portal (CareCentric) share all papers and share representation across project boards to ensure alignment. Although it is recognised some IT projects may be delivered to give an organisation a competitive advantage, there is generally a culture of openness and collaboration across Nottinghamshire's IT community.

At a higher governance level all six Clinical Commissioning Groups are represented by one of the Chief Officers who is the SRO for the overarching IM&T SRO Board and recent work has aligned Clinical Commissioning Group thinking to produce a single Nottinghamshire Clinical Commissioning Group IGM&T strategy.

A number of groups support the IMT SRO board in the delivery of the digital agenda. NITMAN meets bi-monthly and spans across all health and social care (both local authorities) providers and provides an opportunity for technical leads and teams to openly discuss IT strategy implementation, lessons learned, key areas such as cross domain authentication, unified communications and shared infrastructure.

### 8.3.2 Information Sharing and Learning

The Records and Information Group (RIG) provides guidance on Information Governance and information sharing. The Data Advisory Group (DAG) provides guidance on data coding, quality or identifiers. These groups meet bi-monthly and monthly respectively.

RIG is chaired by a GP clinical lead and this group played a vital role in reviewing and agreeing the Nottinghamshire Consent Model. This has allowed progress to be made in the delivery of the MIG project and the deployment of improved eDSM (enhanced data sharing model) across all SystemOne practices which has seen sharing move from ~18% to ~90%.

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In a survey following MIG shared record roll out (2016), 67% of the clinicians questioned at Nottinghamshire Healthcare Foundation Trust found that having additional information available at the point of care influenced their clinical decision making.

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The Nottinghamshire consent model is reviewed locally annually and has been reviewed externally as part of the Vanguard assurance work. Having support from the Local Medical Committee and using them as a “critical friend” has supported the significant shift in appetite to share. Discussions with the Nottinghamshire Coroner has led to her Office’s support to this approach for information sharing and to her citing in guidance the use of information sharing tools (MIG in this case) to support clinical practice requirements.

In order to support the utilisation of data for both direct and non-direct care purposes a principles guidance note has been developed across Nottinghamshire which sets out options to support the processing of information across Nottinghamshire health and care providers and commissioners for direct and non-direct patient care purposes. This guidance is based on the IGA guidance note Options for Lawful Sharing and sets out the options when processing for non-direct care such as evaluation, audit, risk stratification, finance models, outcome tracking, planning and commissioning.

The Nottinghamshire Data Sharing Principles - sharing for non-direct patient care purposes has been endorsed by the Nottinghamshire Records and Information Group (RIG) and directly supports development of the GPRCC project and other analytical projects looking at use cases such as; clinical audit, outcome measures and closer integration with social care teams integrating new ways of working such as the Mid Nottinghamshire PACS Vanguard PRISM model. The principles guidance note will be reviewed annually by the RIG in line with the Nottinghamshire consent model.

### **8.3.3 Partnership in strategy development**

All six Clinical Commissioning Groups across Nottinghamshire collectively developed and consulted with provider organisations to produce both the IGM&T Strategy document and the Sustainability Transformation Programme document. These documents informed the content and direction of travel of this LDR.

Two of Nottinghamshire’s hospitals have this year (2016) announced a merger as part of an aim to improve the quality, safety and sustainability of hospital services. Activities are in the early stages however this is expected to support actions around the learning from the Carter Review. The anticipated benefits of the merger include: improved clinical outcomes, more flexible services to meet changing needs of citizens/patients, stronger ability to meet national quality standards, financial stability, and greater opportunities for research, development and innovation and improved career prospects for staff. Underpinning this partnership will be the integration of IM&T systems further supporting integration across Nottinghamshire.

### **8.3.4 Infrastructure, networking and mobile working**

Nottinghamshire Health Informatics Service and Nottinghamshire Healthcare Health Informatics have jointly sourced and specified a common single PSN (Public Sector Network) compliant COIN (Community of Interest Network) to cover the majority of NHS wide area networking across Nottinghamshire. The main concept is to provide a multi tenanted network, which is capable of PSN accreditation. As the solution is capable of PSN compliance, it also ensures connectivity to non-NHS PSN compliant organisations e.g. Nottingham and Nottinghamshire Councils, allowing connections to be made without

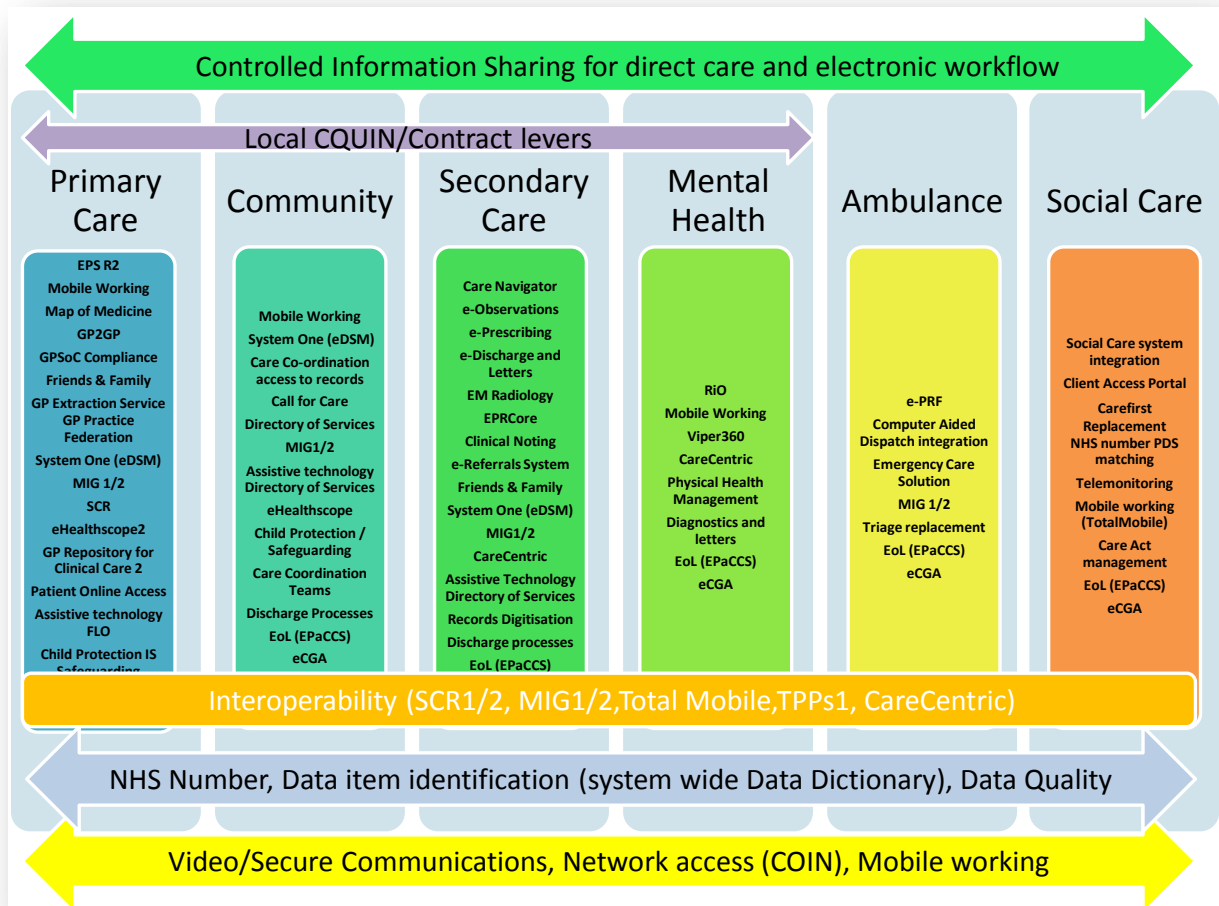
additional dedicated infrastructure offering the greatest flexibility for the changing 'care' landscape, ensuring the network is future proofed for the life of the contract.

Alongside COIN there have been other on-going initiatives in the areas of mobile working and federated Wi-Fi access. For community mobile working significant progress has been made and Nottinghamshire currently have more than 1,000 mobile working devices in use in the community. *Key learning locally is that national stimulus funding such as the Nurse Technology fund has been paramount to supporting these cross community initiatives.*

Significant progress has been made in the mobilisation of hospital based staff, NUH and SFHFT have enabled significant numbers of clinical staff to enable them to have technology at the patient bedside. NUH have rolled out a device to every clinician transforming the way they manage patients. SFHFT have found similar benefits when supporting transformational work like the electronic Comprehensive Geriatric Assessment.

The pilot to assess provision of GP mobile access has been delivered with full rollout to commence in July 2016, providing mobile access to all GP Practices in 2017. Wi-Fi coverage across 157 health and local authority sites is live but more work is underway to improve the coverage and speed of this vital infrastructure. A bid to support roll out across all GP sites has been submitted and the ambition is that more sites will be added during in 2016.

### 8.3.5 Figure five: Nottinghamshire current information systems, information sharing tools, infrastructure and key enablers.



### 8.3.6 Interoperability

MIG phase 1 was successfully completed at the end of 2015, enabling 100% of GP practices to share records and providing access to all urgent and emergency care provider organisations across Nottinghamshire (including Ambulance and 111 organisations) with the core 10 datasets. MIG also supports the GP practices as part of their federated working where there is a mixture of EMIS Web and TPP SystmOne. This technology was supported by the Nottinghamshire wide consent model (implemented across the SystmOne estate via eDSM) as developed and approved by RIG and adopted by all Nottinghamshire providers. MIG is now in phase 2 and will enable additional supporting care datasets including End of Life care. Phase two will also enable MIG in new organisational areas that were not originally part of phase 1 e.g. Through the NUH Community Portal (CareCentric), SFHFT Orion, Nottinghamshire Healthcare (additional SystmOne units) and CityCare (additional SystmOne units).

Moving forward from MIG for enhanced information sharing and joint assessment the Community Portal (CareCentric) Programme has now started. This new technology will support the STP transformation of service delivery across the local health and care community. The key objective of the Programme is to create and deliver a secure information exchange across both health and social care, providing health and care professionals to collect and access the information they need to deliver safe and efficient 'seamless' care, regardless of location and organisation. To support this work a new project and steering group has been setup to provide oversight and direction for the project with links into the existing Clinical leadership groups across Nottinghamshire, such as existing Clinical Commissioning Group Clinical Cabinets. The first milestones are connections from Nottingham University Hospitals, Sherwood Forest Hospitals and Nottinghamshire Healthcare and to enable GP practices to access this important information. Very quickly following this phase, links into the Local Authority Social Care systems will commence, providing for the first time a joined up picture of a citizen/patients care. The Community Portal will have MIG viewer enabled within its configuration enabling users of the system have access to primary care data. GP practices will also be able to access secondary care data via the two-way sharing process to better improve both clinical and patient's experiences. The Community Portal is seen as a key component of moving to digital and achieving the ambition of being Paper-free at the Point of Care by 2020.

The GPRCC (GP Repository for Clinical Care) project is now in its second phase. The focus of the first phase was to develop the technology required to combine data sources for direct patient care and to make it easier for practices to manage large multidisciplinary meetings at a greater pace. This second phase will start to consider further data flows. The work will examine how to make it easier for practices to perform their clinical audits, view system performance outcomes measures and get more from Public Health services through the use of the aggregate GPRCC2 data. Given the nature of the project Nottinghamshire have been working very closely with IG leads and the LMC and will continue to do so throughout the project lifecycle. Nottinghamshire have recently reviewed the membership of this Project Board and have added an expert patient representative to ensure the project is provided with the view of the citizen/patient.

### **8.3.7 Legacy systems and integration**

There has been significant progress made by individual providers to modernise their legacy systems. For example both Acute Hospitals have implemented modern PAS, Theatre and PAC/RIS systems and the Mental Health Trust has migrated from an LSP contracted system to one locally procured. Community providers have moved to locally managed contracts. Nottinghamshire County Council are using Framework-i and TotalMobile to support their social care record needs and to support users when out in the field to access data. A new instance of LiquidLogic is currently well into implementation at Nottingham City Council (due for completion end of 2016).

The Ambulance service (EMAS) have identified an issue with their continuation of their Emergency Care Solution (ECS) system as funding is yet to be agreed in order to support this position. This system is seen as key to driving integration across Urgent and Emergency Care providers and Nottinghamshire is doing all it can to support this work. An extension has been agreed for the existing system to allow time for the business case to be reviewed and approved to secure a new contracted system. The new system will drive

integration with staff access to MIG (Medical Interoperability Gateway) that will give access to all GP records, shared special patient notes, DNAR (Do Not Attempt Resuscitation) information etc. There are also opportunities for the new hardware to host guidelines, action cards and document when staff have received and acknowledged receipt of clinical bulletins which will assist improvements in evidence for CQC assessments.

Nottinghamshire have an Electronic Palliative Care Co-ordination System (EPaCCS) based on SystemOne which is pending a decision regarding its future use beyond 2017 as new information sharing tools become live that may ultimately replace it. It is anticipated that the use of MIG and the additional supportive care dataset scheduled for enablement this year may retire this system alongside the developments of the Community Portal. Great care will be taken in this decision as the EPaCCS project overall has had a significant impact on End of Life care.

Across Primary Care all LSP contracts have moved to GP Systems of Choice contracts.

### **8.3.8 Clinical Leadership**

The clinical leadership approach in Nottinghamshire is strong. Working as part of the Connected Nottinghamshire programme there are currently two clinicians acting in CCIO roles from the Nottinghamshire Clinical Commissioning Groups with greater protected CCIO time in place. NUH has a full time Senior Nurse acting as CCIO, co-ordinating a wide range of clinical and medical specific pieces of work and has dedicated involvement in ICT programmes. NHCFT now also have a CCIO who is supporting the delivery of their IM&T strategy going forward.

The IM&T SRO board, RIG (where Nottinghamshire has a clinician chair the group) and project boards have clinical membership to provide guidance and the correct steer in the decisions the board make. The clinicians also represent differing clinical areas within primary care, secondary care and provider organisations to ensure they bring not only their clinical skills to the decisions the board make but also their experiences across differing boundaries and how this can inform the clinical guidance the board receive.

## 9 Readiness

### 9.1 Readiness Assessment

From 2013 Nottinghamshire has embarked on several transformation programmes supported through digital developments in providers and through Connected Nottinghamshire.

There has been a significant level of success in providing whole-system programme governance involving multiple organisations and multiple occupational groups. This provides the right level of governance readiness to support future programmes. The following are some examples of governance and accountability frameworks in place within the health and social care economy:

- Records and Information Group (RIG)
- Clinical leaders in place linked into Clinical Cabinet
- Established governance and leadership for IM&T SRO
- Nottinghamshire Information Technology Managers (NITMAN) links
- Data Advisory Group (DAG)
- Annual IT Summit to ensure alignment with transformation links
- Health and Wellbeing board links
- STP and Transformation programme links

#### 9.1.1 Organisation Readiness

Organisational readiness for the digital roadmap delivery in Nottinghamshire is well developed. This is evidenced through the outcome of digital maturity assessment which in summary showed that Nottinghamshire has progressed significantly through;

- Leadership of collaborative programmes/projects
- Constitution of groups like IGM&T Board, NITMAN, SRO Board, RIG and DAG that provide platforms for discussions on inter organisational issues
- Technologies like MIG, Care Centric, COIN etc. that provide proven track records of organisational capacity to deliver joint technical solution that combine multi-vendor systems in a whole system capability
- The merger between Nottingham University Hospital and Sherwood Forest Hospital provides new opportunities for system alignment and integration within the provider space
- Connected Nottinghamshire has visibility, leadership capability and credibility as the rallying point for whole system transformation and integration within Nottinghamshire
- The IGM&T strategy has been refreshed by the commissioners towards readiness for external alignment across the health and social care communities
- Since 2015 CQUINs has been used as contractual lever to incentivise information sharing enablement

### 9.1.2 Projects and Programmes

Currently there are in excess of 150 projects being monitored by Connected Nottinghamshire. These are either underway or planned for delivery in 2016/17 across Health and Care providers in Nottinghamshire and nationally. Most of these projects contribute capabilities to achieve the outcomes required for some of the gaps identified in digital roadmap. [Appendix four](#) shows the current projects being monitored.

### 9.1.3 Data Quality Readiness

Nottinghamshire recognises that Data Quality is a key success factor for the digital roadmap and has therefore included Data Quality as one of the nine pillars of assurance supporting the delivery of the 5 year forward plan. The Data Advisory Group will focus on data quality. Adopting the 5 principles from the Vision to support data quality assurance namely:

1. Right Information
2. Right Person
3. Right Place
4. Right Decision
5. Right Time Always

Information sharing within Nottinghamshire communities has developed since 2015; CQUIN has been used as a contractual lever to incentivise steady progression from technical readiness to specific implementations like MIG, EPaCCS, Care Centric and e-Healthscope. This is now followed up with community-wide data quality project to align and provide common principles and understanding of the quality of data within Nottinghamshire.

## 9.2 Financial Readiness

The investment model in use is built on the use of non-recurrent “upfront” money to support providers in adopting new technologies to align to integrated care models. It is anticipated that any on-going costs can then be absorbed into the providers as new care models and new provider models are recommissioned and as the providers realise financial benefits.

There is an established collective bidding process to support individual partners through identification of the correct funding and support in the application process. It is anticipated that collective bids will be submitted to the Developing Digital Maturity Fund to drive improvement of digital maturity and the integration of systems across Nottinghamshire. Connected Nottinghamshire will support and facilitate this work on behalf of health and care providers and will look for opportunities to share bids and reduced costs through frameworks and the Midlands Accord.

### 9.2.1 Benefits Management

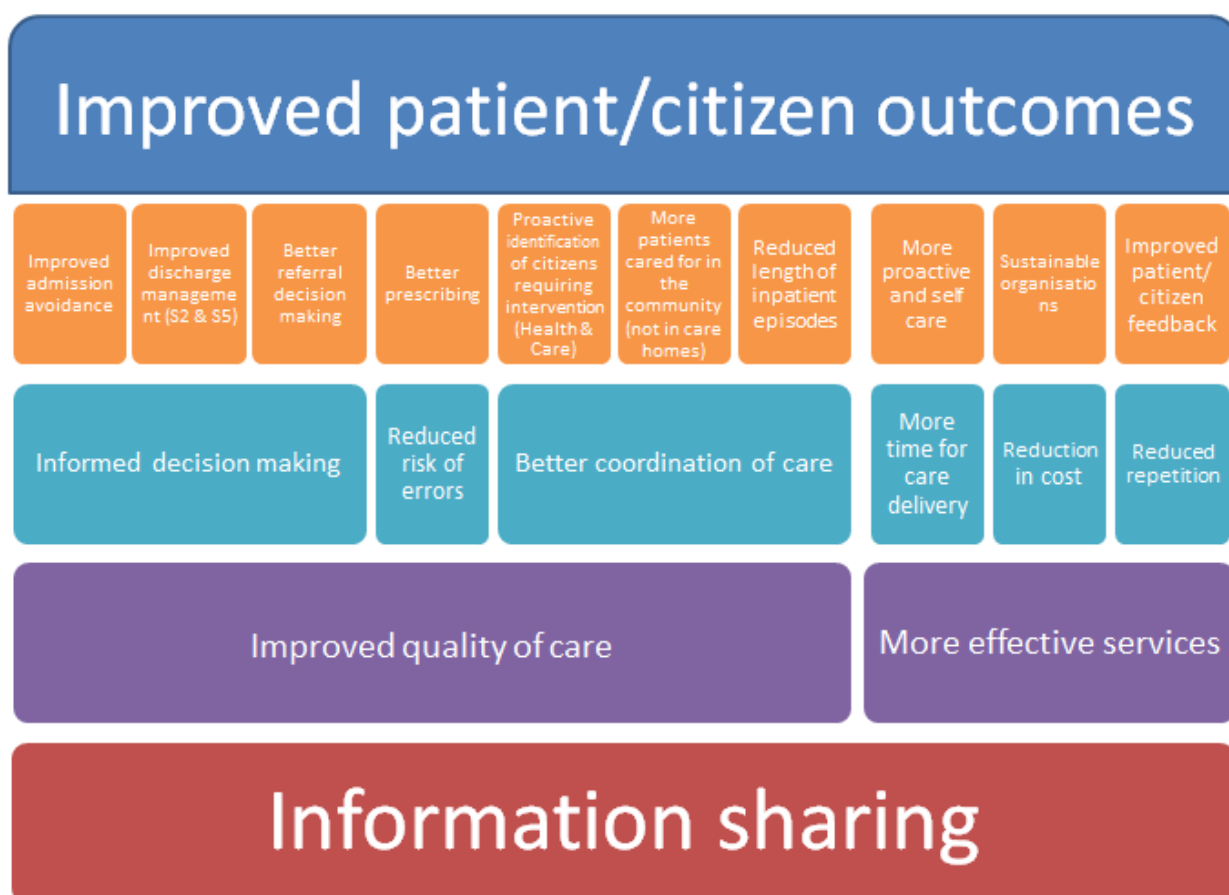
Nottinghamshire’s approach to benefits management is built on the close alignment between the needs of the STP and the opportunities that digital enablement can create as part of technology enabled care. For community wide projects there is a systematic process of evaluation that provides (at a project and programme level) an indication of the qualitative and quantitative benefits achieved. Whilst the benefits

of technology alone are not assessed, the evaluations examine how as part of the overall change the technology has supported the benefits accrued from the change. The evaluation is used to provide evidence of the return on investment and to inform the measurement of success set out in Business Case and Project Initiation Documents.

Moving forward there is more work required to develop the measurement and exploitation of the benefits that digital enablement can support and it is recognised that with each project, funding will be required to support the benefits work. The benefits management tool is being developed as part of the change management toolkit.

It is recognised that in order to achieve the ambitions of the STP work packages the measurement of outcomes and improvement through KPI tracking is essential to the business. To achieve this work several projects such as; GPRCC, Community Portal and the work of the Data Management Team offer the ability to link data to outcomes.

### 9.2.2 Figure six: Nottinghamshire High Level Benefits Diagram



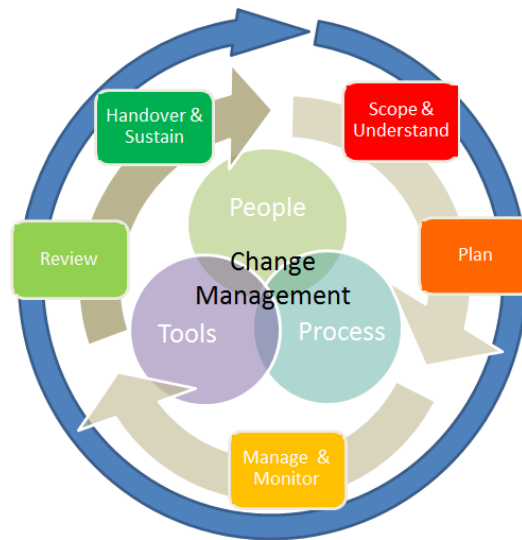
### 9.2.3 Change Management

In order to support Nottinghamshire's local plans to achieve a fully digital and integrated Health and Social Care economy a change management and benefits realisation model has been developed to support



organisations across Nottinghamshire, effectively embed change, and fully enable the benefits change projects to be realised.

The Nottinghamshire change management and benefits realisation model has been developed from a hybrid of different change and benefits models bringing together the best areas to develop a tailored model to support a standard approach across the Health and Social care economy in Nottinghamshire. The model is a five step model focussing on the three key stages of managing change and benefits; it can be applied to any type of change programme such as organisational and strategic change.



The Nottinghamshire change and benefits model is supported by a framework providing organisations across the Nottinghamshire footprint with a single approach to managing strategic change and process change both internally, and, cross organisationally with the tools required to support the delivery of change management and benefits realisation.

The objectives of the framework are to;

- Deliver a single change management and benefits realisation model that is transferable across Nottinghamshire
- Deliver a toolkit for assisting organisations in effectively managing benefits realisation and change management
- Deliver standardised guidance, terminology and document templates

The framework has been designed to work alongside existing change management and benefits realisation tools within organisations where there is already a level of maturity and will provide a whole set of change management tools for those who do not have anything. The framework will look to address the best way to implement technology enabled care and look at how management of the change can be monitored to level out any inconsistencies in approach and adoption.

The framework is underpinned by a change management and benefits realisation toolkit, which is an interactive tool, designed to standardised templates and process for managing change and the delivery of benefits across the whole Nottinghamshire footprint.

The approach is currently being piloted in a number of stakeholder organisations across the Nottinghamshire footprint on both clinical and technologically driven projects. The framework and toolkits aims to be fully tested and implemented to wider stakeholder groups by the beginning of December 2016. Connected Nottinghamshire will be supporting the deployment and integration of the toolkit into stakeholder organisations and aims to support the development of the workforce cross organisationally by providing support and training to enable the change model to be successfully implemented.

Measuring success will be key to delivering benefits and tackling unwarranted variation. Table three identifies an initial set of Key Performance Indicators that have been identified as part of the Sustainability Transformation Plan and Local Digital Roadmap alignment.

### 9.2.4 Table three showing initial Key Performance Indicators

#### Key performance indicators

- % of records available to share digitally (by organisation)
- % of organisations providing regular data for analytics use
- % of staff working in the community using mobile technologies to access digital records (by organisation)
- % of staff with secure communications (mail) access
- % of organisations using teleconferencing for care provision
- % of clinical priority pathways with self-care information provision (to support self-care)
- % of staff using digital records as primary record keeping method (by organisation)
- % of citizens/patients with access to their records
- % of “known to social care” patients in acute settings having had their admission automatically notified/referred to social care
- % of referrals to social care from acute settings being conducted electronically
- % of transfers of care done electronically (by organisation)

## 9.3 Risk And Issues

Risk and Issues management follow a formal approach all the way up to the Connected Nottingham IMT SRO board providing visibility of system wide risks and issues through a structured management process. A standard risk management register provides informative details on threats and opportunities, these and; risk impact analysis, mitigation and ownership are agenda items that are reviewed regularly at project board meetings. Through an escalation process they provide board level assurance on aggregate risk exposure within the portfolio of projects and programmes.

Moving forward there will continue to be a Senior Responsible Owner with accountability for ensuring that the board and respective partners are kept aware of risk management process and the resultant issues. This process will continue to be cascaded throughout the programme, projects and work streams. All significant risks are shared with the individual Clinical Commissioning Group SIRO's and added to individual organisational risk registers accordingly.

Undoubtedly there will be several risks and opportunities inherent in such a complex programme as the digital roadmap spans several organisations within a health and social care economy. The following are the initial risks identified from current projects which require further analysis to provide control mechanisms and mitigations:

- Lack of engagement
- Project fatigue
- Duplications of work
- Finance shortfalls
- Too many changes - change on top of change
- Stakeholder resistance to change
- Limitations in benefits realisation/change management
- Commercial partner readiness (including SNOMED readiness)
- Infrastructure consistency in terms of maturity across the community
- Limitations in capability to share across geographical boundaries (including requirements for Bassetlaw as a partner)

Clearly the ambitions contained within the STP for service redesign are significant. The ambitions include the Delivering Technology Enabled Care high impact area and the use of technology as an enabler for other high impact areas.

## 9.4 Business Alignment

The STP provides opportunities for organisational strategic alignment that will be leveraged by the Nottinghamshire Digital Roadmap. This will present opportunities for the joint procurement of systems that span multiple organisations e.g. Acute prescribing.

The Partnership between Nottingham University Hospital (NUH) and Sherwood Forest Hospital (SFH) offers additional opportunities for local business alignment through the merger.

As part of this work Nottinghamshire will explore the approach across organisations (primary care, secondary care, social care) to centralised procurement (or through the Midlands Accord) to strengthen activities in areas such as: IT service estate, infrastructure, service desk support, service management and change management. This approach will create an overall benefit through 'economies of scale' which in turn will help reduce the finance and efficiency gap.

#### 9.4.1.1 The Nottinghamshire STP High Impact changes

**Promote wellbeing, prevention, independence and self-care** Support people to stay healthy and independent, and prevent avoidable illness

**Develop technology enabled care** Use technology to help citizens stay healthy and manage own care, and to help providers deliver care more productively

**Strengthen primary, community, social care, and carer services** Improve access to GPs, help people with long-term conditions stay well and avoid acute care, and support frail elderly to live (and die) in line with their wishes

**Simplify urgent and emergency care** Help people to quickly and simply access the most appropriate provider for their urgent care needs

**Ensure consistent and evidence based pathways in planned care** Provide planned care with minimum avoidable variations in quality and cost

The Local Digital Roadmap has been produced in partnership with the STP development team and the supporting local area planners. The Greater Nottingham and Mid Nottinghamshire Transformation programmes have both been instrumental in guiding the development and alignment of the roadmap. The priority areas for deployment and development of digital technology are aligned to the priority areas identified in the STP. In particular supporting the values and high impact changes.

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## 10 Capabilities

### 10.1 Core Capabilities

To support the various transformation programmes and projects across the Nottinghamshire Digital Footprint a number of business and system analysis pieces of work have been conducted using a number of requirements elicitation methods including; workshops with leads responsible for Proactive Care, Urgent and Emergency Care, Elective Care, Mental Health and Women & Children's work streams. The learning from this analysis was that there are three Core Capabilities required to support all transformations. These are:

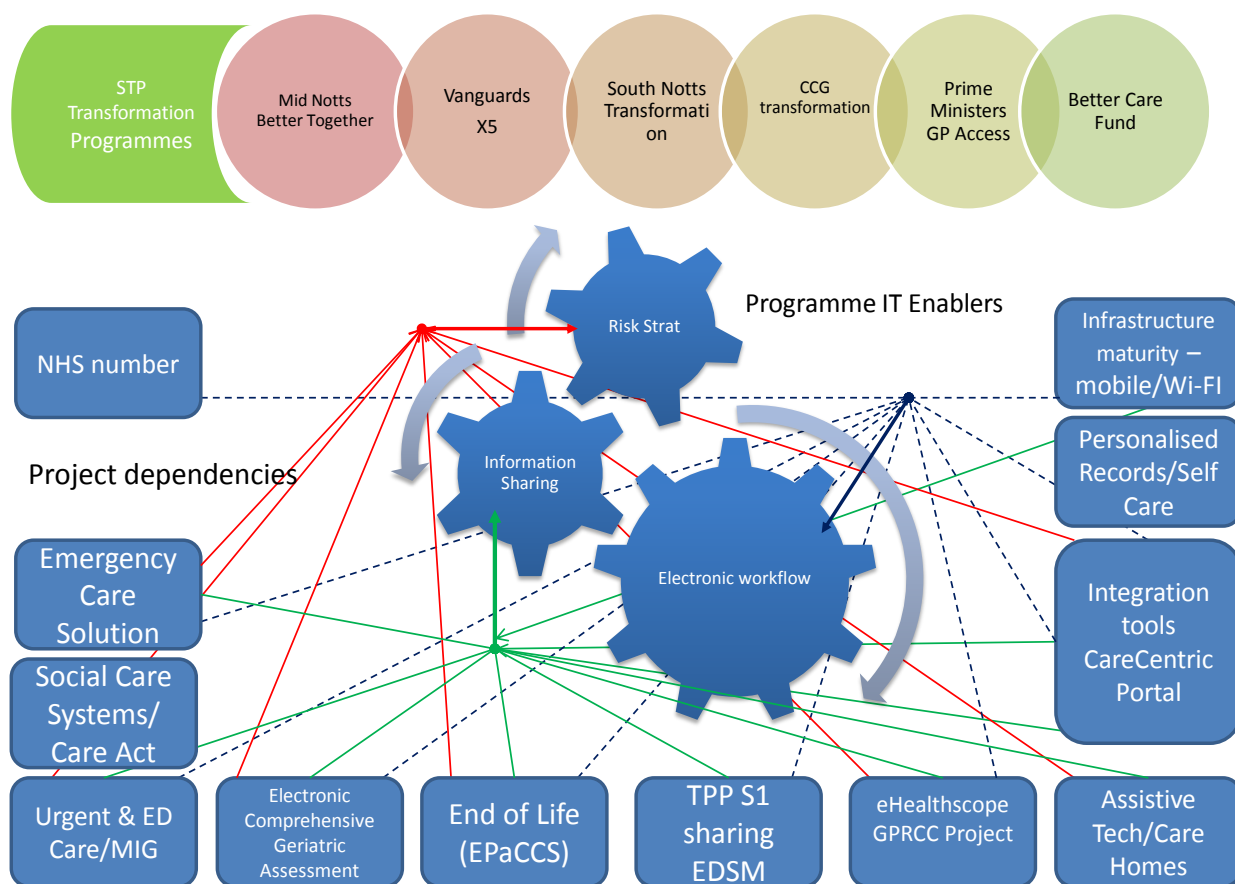
1. The ability to identify patients or families who are at risk of unwanted or unnecessary negative outcomes. This is referred to as Risk Stratification.
2. The need to have access to "the right information, at the right time and in the right place". "Access to shared records" was highlighted in the top three enablement requirements/issues as part of the analysis work. Included in this requirement is the need for shared care plans to be available across all care providers including patients/citizens themselves and their carers. This requirement is referred to as Information Sharing.
3. Often overlooked but always identified upon analysis was the ability to manage the patient flow through any care system. Replacing the paper processes with electronic mechanisms to process actions is referred to as Electronic Workflow and includes electronic actions, tasks, notifications, referrals etc.

During this work other capabilities were identified as required that are also considered important but not core. The requirement to support delivery of those capabilities for front line care delivery has been identified as the priority and key to enabling change. The additional capabilities were identified as:

1. Workforce management
2. Remote Care provisioning
3. Finance Management (including support for personal health and care budgets)
4. Performance Management and Reporting (including outcomes reporting)
5. Knowledge Management, Decision Support and On Line Training (including citizen/patient facing information resources)

For Nottinghamshire the digital transformation projects are divided into three categories; Infrastructure, Messaging and Information Exchange to simplify management and monitoring. The core governance will be provided through Connected Nottinghamshire's IM&T SRO Board (led by the Chief Operating Officer of Rushcliffe Clinical Commissioning Group on behalf of the 6 Clinical Commissioning Group organisations across Nottinghamshire). This board has a direct relationship with board level representatives of all health and care organisations across Nottinghamshire.

### 10.1.1 Figure seven: Representation of the three Core Capabilities demonstrating a number of key enabling projects



Projects will be aligned to the LDR core capabilities and infrastructure planning to ensure consistency throughout.

Whilst Nottinghamshire has made good progress in addressing the digital enablement to support transformation, there remains significant work to do to have the pace of change required to support the STP and to meet the National Informatics Board and NHS England Roadmap objectives for 2020.

## 10.2 Analytics at the Point of Care

Nottinghamshire is using the national Directory of Services (DoS) application to support significant capabilities for improved care navigation by providing a wide arrange of endpoints across health and care (including 3<sup>rd</sup> sector). This one stop shop for care services will continue to be expanded and developed to link with wider service provision across all urgent and emergency care providers (including 111, Ambulance and local services) and care navigation services locally such as Care Navigator and Call for Care. In addition to the national DoS service and application both Local Authorities are creating service based directories so that the citizens of Nottinghamshire can navigate their care services better. These projects will become the access point for care directories moving forward with projects such as MyCare in

Nottinghamshire County Council acting as the “portal” for citizens to access both health and care service information. This approach is replicated in the City with the local authority already well underway with the directory service that will support both staff and the public in meeting their self-care needs.

Nottinghamshire Clinical Commissioning Groups are supporting the setup of a new centralised repository that will allow an agreed set of data to flow from GP systems, community systems and acute provider systems. will be used for direct patient care initially but will include clinical audit and outcomes management on a system wide basis for the GP as the project develops. Data flows are reviewed and considered as part of the project PIA with strong access and Information Governance controls in place to meet local and national requirements. This system will provide analytics based on the desired models of care and risk stratification and identification tools. The GP Repository for Clinical Care (GPRCC & e-Healthscope) project is now in phase 2 of deployment with this second phase changing the focus to consider additional clinical use cases and wider audiences.

The extended use cases for GPRCC have been developed and agreed and will support areas such as clinical audits / outcomes measurement, care integration with social care teams (data extracts from social care systems to provide a more holistic view of a patients care pathway across both health and social care settings), support system effectiveness measurement and future strategy development. This will become a key tool in support the segmentation and risk stratification of the population of Nottinghamshire for direct and indirect care. Currently the project has over 100 practices using the information provided to help them manage gaps in care and drive out unwarranted variation in clinical practice. Over the next 12 months this work will be transitioned to business as usual and will support significant improvements in care and the management of outcomes.

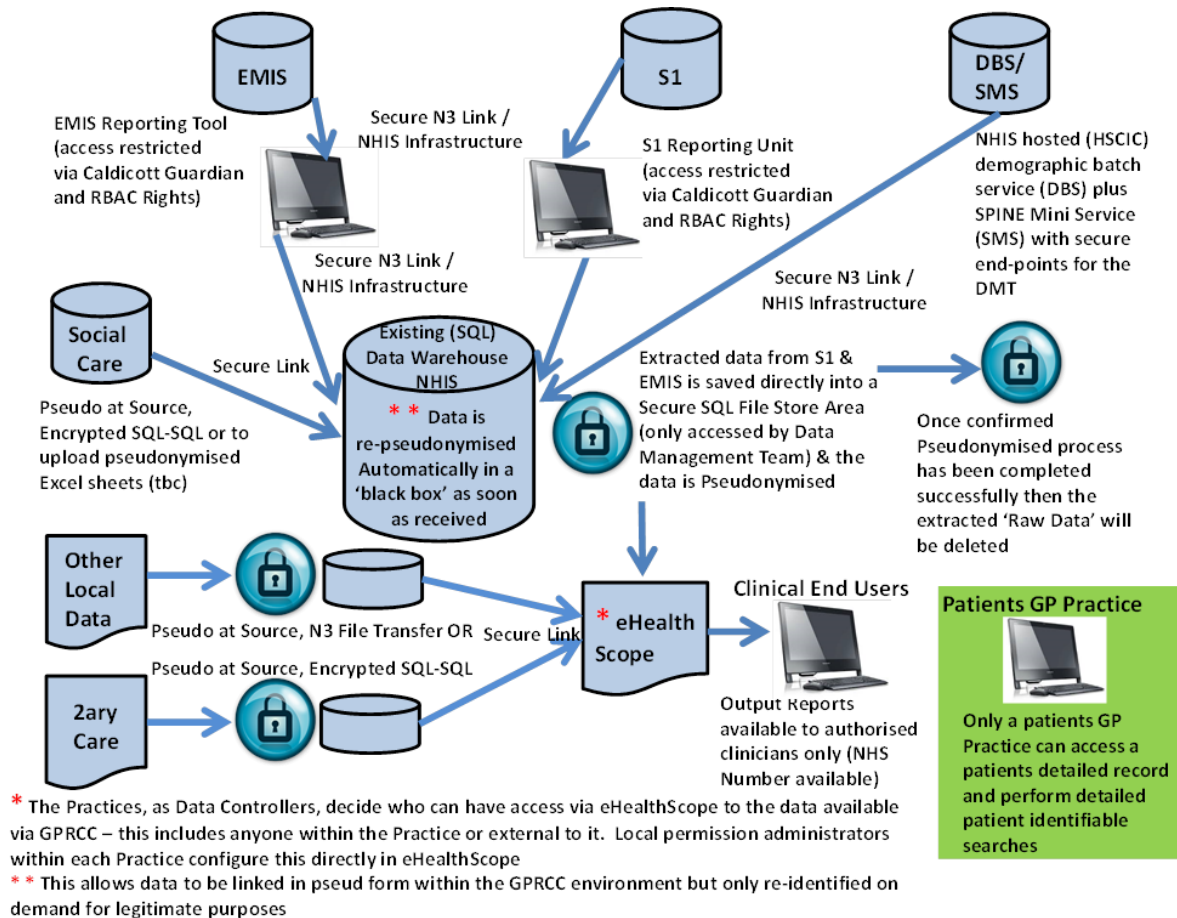
As the CareCentric Community Portal matures the opportunity to interface the two systems will be investigated in order to better automate data sharing and improve information processing and outcome management. These technologies will form the backbone of information sharing and analytics for Nottinghamshire moving forward.

The Data Management Team at Rushcliffe Clinical Commissioning Group act as Data Processors on behalf of GPs. An end-user can only see clinical information associated with identified patients that they have a legitimate relationship with.

Figure eight shows the architecture of the technology involved in data sharing using the GPRCC/e-Healthscope solution for both direct and indirect care uses.



### 10.2.1 Figure eight: Nottinghamshire Analytics Architecture



## 10.3 Medical Interoperability Gateway (MIG)

MIG has been enabled within all GP practices and all urgent and emergency care provider (viewer) organisations/locations as part of phase 1. This is to satisfy the capability requirement of making the GP records available across the health system. Phase 2 will see additional organisations enabled and also, following approval of a revised information sharing agreement with GP practices and consuming organisations, additional datasets will be made available e.g. to support End of Life care patients.

The ten core domains of patient information available via MIG are as follows:

- Summary sheet
- Problems (current and past)
- Diagnosis (current and past)
- Current medication, past medication and medication issues
- Risks and warnings (allergies and contraindications)
- Procedures (operations, vaccinations and immunisations)
- Investigations
- Examinations (blood pressures)

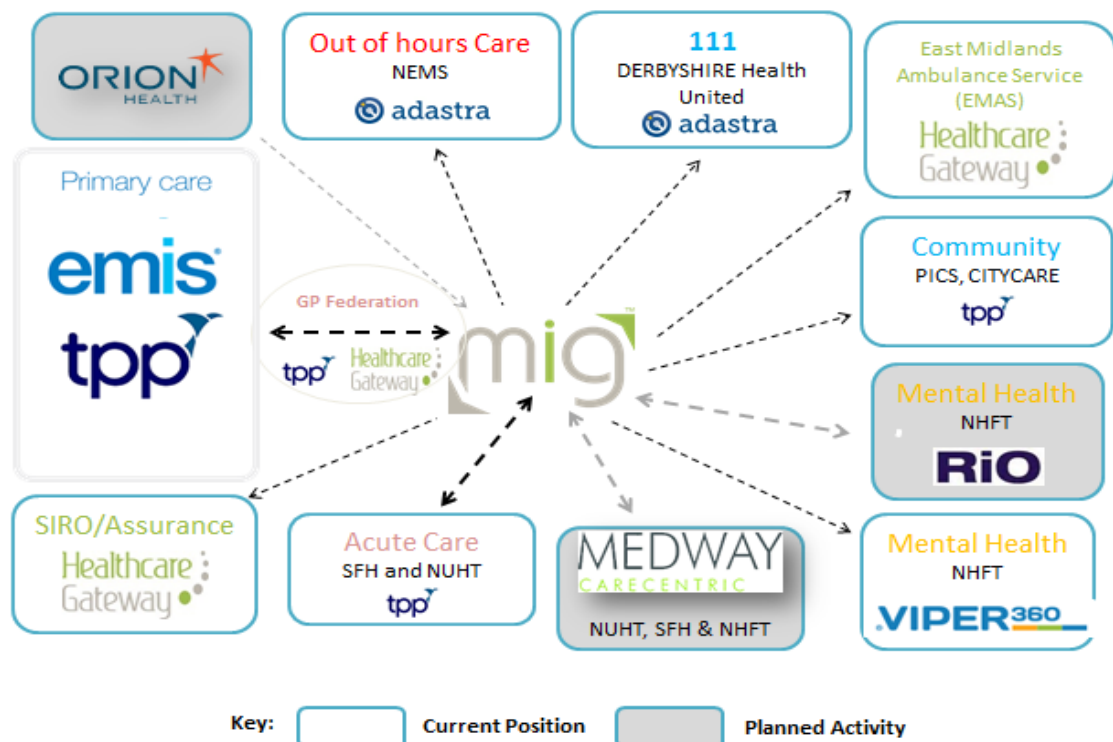
- Events (encounters, referrals and admissions)
- Demographics

MIG is now in phase 2 and will see at the end of 2016 an additional dataset available to support End of Life care for patients in Nottingham. This dataset includes read code items but also any associated free text recorded in the patients practice. Early 2017 will also see the commencement of the 'first of type' to provide safeguarding codes via MIG.

This second phase will see MIG viewing being enabled in additional care settings across Nottinghamshire for example; via Orion in Sherwood Forest Hospital, via CareCentric in Nottingham University Hospital, via Rio for Nottinghamshire Healthcare (Mental Health), Paramedics whilst in the field via SRV and additional SystmOne Community Units at Nottingham City Care. There have also been rapid tactical deployments using MIG SRV viewing solutions to a number of departments/elective care services in Nottingham University Hospital supporting services such as Respiratory, Care Navigation, and Gastroenterology plus Circle Nottingham. These deployments are aligned with the priority areas of the STP.

The figure below shows the architecture of the technology involved in data sharing within Primary and secondary care using the MIG solution.

*10.3.1 Figure nine: Nottinghamshire Medical Interoperability Gateway Sharing Model*



## 10.4 Care Centric Portal

The CareCentric Portal will deliver the majority of the local and universal capability requirements. It will integrate data from three hospitals including mental health in the first phase. This will in turn connect with primary and social care data to provide a central repository to manage shared information for the entire health and social care whilst also supporting real or near real time access to directly connected systems.

[Diagram one](#) shows the information systems involved in data sharing using the Care Centric solution.

Whilst portal technology is often considered as one entity, the reality is that this technology is made up of a number of different technical components and systems. These different components will support the delivery of information sharing, IT security, consent model compliance, record matching and electronic workflow (transfers of care).

## 10.5 Capabilities and the Health and Wellbeing Gap

A key ambition of the STP is to **“Increase average healthy life expectancy to the best of comparator areas by targeting our efforts to those groups and populations with the poorest health”**. Technology enabled care in Nottinghamshire will support the requirement to close the **health and wellbeing gap** through the use of:

- **Improved sharing of information and closer integration across settings;**  
Patient’s key medical information is available to clinicians across all clinical settings regardless of organisation at the point of need when treating patients. Nottinghamshire has delivered this initially via: Summary Care Record (SCR), Medical Interoperability Gateway (MIG) and SystmOne to SystmOne shares between primary care, community teams and points across secondary care but much remains to be completed.
- **Patient access to records to support self-care;**  
Patient Online Access is 100% technically enabled at GP practices across Nottinghamshire. Patients now have the ability from their home to make appointments, request prescriptions and view their medical records without the need to visit their practice. Following evaluation of a successful full records access pilot across Nottinghamshire plans are to roll out full records access to support long terms conditions management and reduce unnecessary GP surgery follow up appointments as well as support improved self-care and ownership of health management (including support for personal health and care budgets). In addition to records access, information on lifestyle, healthy living and health promotion will be available and targeted at those who are recognised as needing more support though the use of business intelligence led across a variety of different media streams.

As a transformation area, access to records will move at a significant pace (25% faster due to Vanguard Transformation Area status) however it is recognised from early trailblazer work that public engagement in these initiatives is difficult to achieve. Nottinghamshire will investigate how differing media sources and training provision can support citizens and patients to increase uptake

and make more use of the technology available to them. This patient focused support (cultural change) would benefit the ability to bridge both the health and wellbeing gap and finance and efficiency. An example of how this is envisioned is through engagement with a social enterprise or charity to help change our citizens perception of technology across the Nottinghamshire population to educate and train how the technology can help with their lifestyle choices, daily health and social care service provision. The Assistive Technology Workstream are investigating patient online technologies such as on line consultations e.g. products like MyGP24/7, eConsult and other patient self-help services. It is envisaged that these type of technologies will form a part of the new ways to access services.

- **Risk Stratification enhancement;**

Nottinghamshire has made good progress with the use of risk stratification to support new models of care. With the setup of a new centralised repository for GP's that will allow a subset of data to flow from GP systems, community systems, acute provider systems and social care improved risk stratification and identification of care needs is possible. The system will identify patients who require intervention earlier than previously possible supporting new models of care in avoiding secondary care admissions and providing care closer to home. These developments also offer the opportunity to identify on a wider scale than ever before those citizens who are getting suboptimal care or require interventions to prevent conditions developing. As part of this work the role of Public Health and the learning that they can bring will be addressed whilst observing the limitations within the law around the sharing of data.

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#### Examples of digital enablement of new care models:

In City Clinical Commissioning Group the Care Delivery Groups (CDG) and Care Co-ordinators support a Multi-Disciplinary Team in 'MDT meetings' using eHealthscope to share vital information about patient care. They access systems across Health and Care to plan the care for their clients on behalf of their Doctors. This model of integrated care is also used in other areas across Nottinghamshire such as the Call for Care service.

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## 10.6 Capabilities and the Care and Quality Gap

In order to support the “**shift left**” for care provision as required in the STP (the idea of moving care toward more health promotion, self-care and promotion of independence); digital enablement in Nottinghamshire will support the requirement to close the **care and quality gap** through:

- **Risk Stratification;**

Using e-Healthscope, a locally developed and mature GP led risk stratification tool, a clinician can see key information to help inform and decide how a patient at risk or on a health based needs register needs to be managed through the local multidisciplinary care team caseload e.g. Heart

failure nurse, COPD matron, Community matron, End-Of-Life nurse, etc. The information is formed from data on recent admissions, OPD attendances, A&E attendances, Local Care Teams registers; Heart Failure, COPD, End-Of-Life, Risk of admission etc. These are indicated alongside the patient's calculated risk score using the Devon Algorithm. Development of this tool will in phase two bring indicators relating to social care risk scores (e.g. loneliness) in addition to health.

- **Supporting Self-Care through remote and assistive technology;**

Nottinghamshire has a number of projects underway utilising TeleCare devices in patient's homes in the Greater Nottinghamshire area which include self-care applications and a Tele-dermatology service. Alongside this another initiative using 'Flo' (which is a text messaging 'Telehealth' service to patients) is used widely in the Mid Nottinghamshire area is supporting key cohorts of patient such as those with early heart failure and COPD diagnosis. Benefits from these systems include: reduced nurse home visits information, supporting avoidable hospital admissions, reminder of appointments, reminders for medications and also a 'how do you feel today' questionnaire supporting mental health conditions assessment. In addition to Telehealth local authorities have made significant progressing in Tele-monitoring to support people living at home longer along with Tele-consultation pilots now in place to improve the care of patients in Care Homes and support the Care Homes Vanguard work. This work will move forward at a rate of ~20% per year. Future work is expected to involved "wearable" technology with early work at Nottingham University Hospital involving reviewing a number of healthcare products to support earlier discharge and home monitoring of certain cohorts of patients. This work will be the self-care component of Workstream 5.

- **Good Business Intelligence;**

A dedicated and mature team of Business Intelligence Professionals are in place that ensure data integration, analysis and distribution of quality analytics to support clinical and business decisions consistently throughout the 6 Clinical Commissioning Groups areas. The Nottinghamshire Data Management Team is based out of Rushcliffe Clinical Commissioning Group. This team act as data processors on behalf of all GP practices in Nottinghamshire and manage a secure data warehouse as part of the centralised, efficient and standardised service. During the life of the LDR the relationship between the Data Management Team and other Business Intelligence leads across health and care will become more and more important to ensure joined up analytics.

- **Use of external expertise where required;**

Nottinghamshire recognises that using external support e.g. Actuarial bodies to review data on pathways to advise of best models of care is vital to ensure that local models are compared with the best worldwide. A number of pieces of work have been carried out to enable this and as part of the vision going forward this approach will continue. There are various organisations involved e.g. Commissioners, major acute providers, mental health, community, Local Authorities, EMAS, Rushcliffe and GPs. The ability to link various health and social care events for real time care and for the development of new models of care will provide an inherent improvement in our ability to understand resource utilisation for the various population cohorts. This will be a key area for development moving forward and will need to develop at a greater pace than currently available.

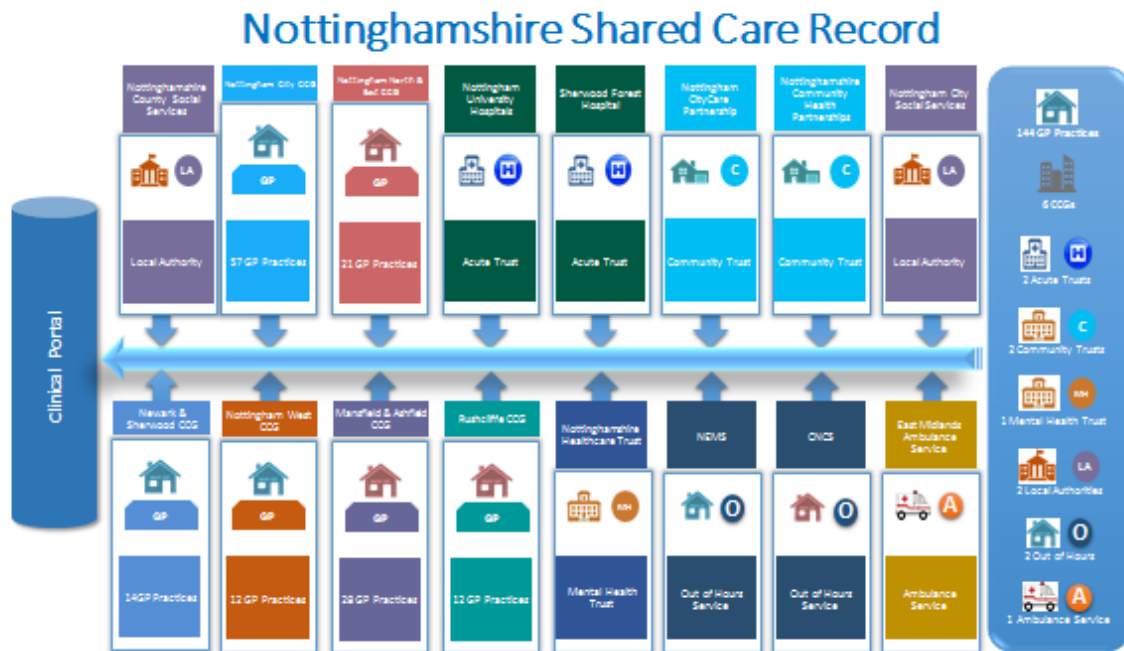
- **Sharing of information;**

Using SCR, SystmOne and Medical Interoperability Gateway (MIG) Phase 1 Nottinghamshire have deployed a full Electronic Palliative Care Co-ordination System (EPACCS) record and ten core datasets across all urgent and emergency health settings in Nottinghamshire. Evaluations of the impact of this work have been very positive, even with the limitations of the tools used. There is a significant opportunity for information sharing to further support decisions that clinicians and care professionals make to improve the quality of care delivered. Phase 2 is on-going and will provide End of Life datasets and greater reach of GP records to elective care settings. MIG phase 2 will provide greater detail to support clinical staff outside of the patients GP practice with the additional supportive care dataset but will also importantly include any specific 'free-text' information that has been recorded by the patients GP practice. The additional data will include (where recorded) details such as personal care plan details, patient consent, disabilities, social accommodation, carer, next of kin and patient preferences. This will ensure a better care experience for the patient by not having to answer the same questions again and again or repeat medical tests. From the benefits studies carried out on work so far it is clear there is a link between the quality of information available and the clinical decisions made (including an impact of the level of risk considered as safe that influences decision making and supporting the "shift left" of care)

- **Enhanced information sharing tools;**

Evaluation of simple information sharing tools has proved value in improving care but Nottinghamshire's vision is to move beyond this to utilise a Community Portal. Nottingham University Hospital is hosting the delivery of the Graphnet CareCentric Community Portal on behalf of the health and social economy. This will support a move to digital by default record keeping. CareCentric will include data flows from all health and social providers and will allow for pathway specific data sets to be compiled and accessed, further improving the opportunities to redesign care models and improve the care and quality delivered across health and care provision. Like other aspects of digital enablement the community portal will need to move at a pace greater than currently in place to meet the demanding pace of the STP work across Nottinghamshire and this will be a key area for investment in both the technology and change management support. Alongside the enhanced sharing tools support from these tools for digital transitions of care will be key. This work will be the major component of Workstream 1.

### 10.6.1 Diagram one: The Nottinghamshire Community Portal Shared Care Record



## 10.7 Capabilities and the Finance and Efficiency Gap

With the STP predicted “do nothing gap” being £628 million by 2021; digital enablement in Nottinghamshire will support the requirement to close the **finance and efficiency** gap by the use of:

- **Mobile working;**

Nottinghamshire has made good progress as a community through support of initiatives such as the Nurse Technology Fund to drive adoption of mobile working across the community. Building on the use of Federated Wi-Fi, the N3 replacement COIN and other community initiatives great productivity gains have been seen in both health and local authorities. There still remains more work to do in order to get the most out of this element of the vision. Projects like this will make up Workstream 2 with Workstream 4 ensuring consistency and adoption across the system.

- **Information Sharing;**

The evaluation of MIG Phase 1 and the 10 core datasets across all urgent and emergency care health settings in Nottinghamshire has demonstrated the impact information sharing can have on efficiency as well as quality in supporting the shift left of care. Phase 2 is on-going and will offer greater opportunities alongside good use across Nottinghamshire of SCR and SystmOne. The enablement of these systems will remove the need for various services faxing or phone calling to request patient details and the need to request the patient attend un-necessary appointments to answer basic questions that the systems can provide, thereby improving efficiency. This is nowhere more apparent than the transitions of care work which will enable care transfer to be more timely, effective and accurate moving forward. As more organisations make use of the

information sharing available to them the opportunities for improved efficiency will continue to grow.

- **Enhanced information sharing;**

Initial evaluation of other areas benefits from implementing enhanced information sharing tools like the Nottinghamshire Community Portal identify many efficiencies that can be gained from this use of technology. The improvement of digital data capture supports paper free at the point of care and improved transitions of care through digital workflows. Having the right information in the right place at the right time (the core values of the vision) will enable better transitions of care meaning opportunities to reduce length of hospital stays and improved avoidable hospital admission rates. Significant progress is expected on this work in 2016 and 2017 with this work aligning with development of the Midlands Accord.

- **Risk Stratification (and improved identification of patients who require intervention);**

The GP Repository for Clinical Care (GPRCC) project for improving risk stratification with early identification of patients needing intervention, sharing of disease and patient registers creates the opportunity to prevent patients from suffering deterioration of or even developing certain conditions. Simply avoiding patients going into crisis will ensure the most effective care is put in place. The current phase two work is expanding the opportunities for better care and will add benefit to supporting those 'high-volume service user' patients who may have complex multiple conditions and/or attend multiple consultations to support their care. It will offer support to the clinical staff who deliver care by providing access to key clinical information specific to these patients to improve efficiencies such as time to treat and avoiding duplications that cause the patient and the care system issues.

- **Patient/citizen access to records;**

Early evaluation from work done across Nottinghamshire has identified the opportunity to reduce unnecessary follow up appointments for patients with long term conditions. Whilst there are issues to resolve around public buy-in and GP record reviews, the opportunity to align this digital capability with the STP plans to address long term conditions management is obvious. Further benefits to all organisations will become achievable in future years as self-care and personalise budgets become more widespread. Utilising the GP Patient on line record is the initial starting point but already across Nottinghamshire Social Care tools to promote access to key information such as "Wiki" are delivering benefits to specific groups. Wider adoption of these types of tools will drive efficiencies and cost reduction in the delivery of services as part of Workstream 3 with adoption and maturity tracked through Workstream 4.



## 10.8 Addressing the cultural gap

Nottinghamshire has identified a “**fourth gap**” in terms of the cultural system thinking requirement. This also applies to the digital enablement work and will be addressed through:

- **Reducing variation;**

In order to exploit all opportunities to deliver benefit from digital enablement the adoption of these services will be monitored and managed through existing oversight channels to ensure all organisations are supported in achieving the business benefits. Where one organisation struggles to deliver, support and learning from those who have delivered will ensure avoidance of unwarranted variation. The use of technology to support staff in the way they work will be tested with concepts such as a “genius bar” facility to encourage better use of technology and ways of working will be considered/developed.

Nottinghamshire will investigate how best to initiate staff culture change across all health and social care settings. Initial investigations will review improved technology, improved integration between organisations and systems and more choice for working locations e.g. ‘Smart Offices’ where staff can work securely and access their systems from a single location regardless of which organisation they belong to. Much of this work will fall into Workstream 4.

## 10.9 Universal Capabilities

### 10.9.1 Delivering the Capability

To deliver the NHS England universal digital roadmap capabilities, Nottinghamshire will leverage existing digital programmes and projects within local health and social. This is demonstrated through mapping the universal capabilities against existing digital deployments across Nottinghamshire. The evidence shows a strong local readiness and capabilities that can be harnessed to achieve quick wins, proof of concept developments and significant opportunities for collaborative engagements with all stakeholders.

### 10.9.2 Capability Analysis

[Tables four](#) shows analysis and plans for local projects across Nottinghamshire to achieve each of the universal capability requirements with an indication of the target for delivery (Green text indicates completion). With Nottinghamshire as a Transformation Accelerator region, plans cover the rapid two year deployment of these capabilities. Appendix two contains further information on performance against these targets.

10.9.3 Table four: Delivering the Universal Capabilities

Universal Capabilities Mapping within Local Primary Care, Secondary Care and Social Care Capabilities			
Years/Target			
15/16	16/17	17/18	
<b>1. Universal Capabilities:</b> Professionals across care settings can access GP-held information on GP-prescribed medications, patient allergies and adverse reactions <b>Capability Group:</b> Records, assessments and plans <b>Clinician Organisation:</b> Secondary Care			
<ul style="list-style-type: none"> <li>• TPP ED system shares between Sherwood Forest Hospital, Community and GPs (eDSM sharing enabled) ✓</li> <li>• Summary Care Records (SCR) ✓</li> <li>• Medical Interoperability Gateway ✓</li> <li>• System wide EPaCCS solution ✓</li> <li>• TPP ED implementation (KMH/Newark) ✓</li> </ul>	<ul style="list-style-type: none"> <li>• CareCentric Community Portal) - Phase 1</li> <li>• Medical Interoperability Gateway 2 (enhanced datasets and endpoints 1)</li> <li>• eHealthscope/GPRCC2</li> </ul>	<ul style="list-style-type: none"> <li>• CareCentric Community Portal) - Phase 2</li> <li>• Medical Interoperability Gateway 3 (enhanced datasets and endpoints 2)</li> <li>• eHealthscope/GPRCC3</li> <li>• Accelerated change management (increasing digital adoption)</li> </ul>	
<b>2. Universal Capabilities :</b> Clinicians in urgent and emergency care settings can access key GP-held information for those patients previously identified by GPs as most likely to present (in U&EC) <b>Capability Group:</b> Records, assessments and plans <b>Clinician Organisation:</b> Secondary Care			

<ul style="list-style-type: none"> <li>• SystmOne admin rights (eDSM) share out to Clinicians in U&amp;EC settings ✓</li> <li>• Medical Interoperability Gateway ✓</li> <li>• System wide EPaCCS solution ✓</li> </ul>	<ul style="list-style-type: none"> <li>• CareCentric Community Portal) - Phase 1</li> <li>• Medical Interoperability Gateway 2 (enhanced datasets and endpoints 1)</li> <li>• eHealthscope/GPRCC2</li> </ul>	<ul style="list-style-type: none"> <li>• CareCentric Community Portal) - Phase 2</li> <li>• Medical Interoperability Gateway 3 (enhanced datasets and endpoints 2)</li> <li>• eHealthscope/GPRCC3</li> <li>• Accelerated change management (increasing digital adoption)</li> </ul>
<b>3. Universal Capabilities :</b> Patients can access their GP record <b>Capability Group:</b> Records, assessments and plans <b>Clinician Organisation:</b> Primary Care		
<ul style="list-style-type: none"> <li>• Patient Online Access to records (5%) ✓</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Patient Online Access to records (25%)</b></li> <li>• Information and advice websites</li> <li>• Access to patient letters</li> <li>• Patient portal (long term condition information)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Patient Online Access to records (50%)</b></li> <li>• Self-Care Apps</li> <li>• GPSoC API in place</li> </ul>
<b>4. Universal Capabilities:</b> GPs can refer electronically to secondary care <b>Capability Group:</b> Transfer of Care <b>Clinician Organisation:</b> Primary Care/Secondary Care		

<ul style="list-style-type: none"> <li>Choose and Book 2 / e-Referrals (80%) ✓</li> <li>TPP eReferrals</li> <li>Medical Interoperability Gateway (Delivered Milestone April 2016) (SRV deployment in Respiratory, Care Navigation Triage services for e-referral support data) ✓</li> <li>Care Navigation app and website ✓</li> </ul>	<ul style="list-style-type: none"> <li>NHSmil2 roll out</li> <li>Additional services outside secondary care using e-Referrals Service (social care, community, 3<sup>rd</sup> sector)</li> <li>Additional multi-agency assessment referrals in place</li> </ul>	
<p><b>5. Universal Capabilities:</b> GPs receive timely electronic discharge summaries from secondary care</p> <p><b>Capability Group:</b> Transfer of Care</p> <p><b>Clinician Organisation:</b> Primary Care/Secondary Care</p>		
<ul style="list-style-type: none"> <li>SystemOne (eDSM) share out to Clinicians in GP Practices (Delivered Milestone April 2016) ✓</li> <li>NHSmil discharge ✓</li> <li>GP Access ✓</li> </ul>	<ul style="list-style-type: none"> <li>Use of NHS mail as part of decommissioning use of faxes across Nottinghamshire</li> <li>Health ITK/CDA Messaging Standards for discharge, referral and transfers of care (Midlands Accord)</li> <li>Clinical correspondence (e-letters)</li> </ul>	<ul style="list-style-type: none"> <li>Electronic transitions for all transitions of care (Health and Care)</li> <li>Care Centric Community Portal providing access to transitions of care documents</li> </ul>
<p><b>6. Universal Capabilities:</b> Social care receive timely electronic Assessment, Discharge and Withdrawal Notices from acute care</p> <p><b>Capability Group:</b> Transfer of Care</p> <p><b>Clinician Organisation:</b> Social Care / Secondary Care</p>		

<ul style="list-style-type: none"> <li>• <b>Total mobile interface engine implementation ✓</b></li> <li>• <b>Liquid logic procurement ✓</b></li> </ul>	<ul style="list-style-type: none"> <li>• Liquid Logic deployment in City Council</li> <li>• Liquid Logic ADT ITK/CDA interface</li> <li>• Total Mobile ADT message exchange proof of concept</li> <li>• Medical Interoperability Gateway for Social Care</li> <li>• Social Care APIs in place</li> <li>• Midlands Accord priority for out of area patients</li> </ul>	<ul style="list-style-type: none"> <li>• Care Centric Community Portal providing access to transitions of care documents</li> <li>• ADT ITK/CDA message exchange live for transitions of care</li> <li>• ADT ITK/CDA message exchange live for requests for service</li> <li>• ADT ITK/CDA message exchange live for reporting of existing services in place</li> </ul>
<p><b>7. Universal Capabilities:</b> Clinicians in unscheduled care settings can access child protection information with social care professionals notified accordingly</p> <p><b>Capability Group:</b> Decision Support</p> <p><b>Clinician Organisation:</b> Secondary Care</p>		
<ul style="list-style-type: none"> <li>• <b>Child protection project established ✓</b></li> </ul>	<ul style="list-style-type: none"> <li>• Child Protection IS implemented in all unscheduled care settings</li> <li>• Child Protection IS integrated with more end systems (accreditation)</li> </ul>	<ul style="list-style-type: none"> <li>• Child Protection IS integrated with Medical Interoperability Gateway</li> <li>• Child Protection IS integrated with Care Centric Community Portal</li> </ul>
<p><b>8. Universal Capabilities:</b> Professionals across care settings made aware of end-of-life preference information</p> <p><b>Capability Group:</b> Decision Support</p> <p><b>Clinician Organisation:</b> All Settings</p>		
<ul style="list-style-type: none"> <li>• <b>Electronic Palliative Care Coordination System (EPaCCS) implemented (including Bassetlaw Partner) ✓</b></li> <li>• <b>Hospice access to EPaCCS ✓</b></li> </ul>	<ul style="list-style-type: none"> <li>• Medical Interoperability Gateway 2 sharing of EPaCCS data set to EMAS &amp; Hospitals</li> <li>• Cross boundary sharing of EPaCCS explored</li> </ul>	<ul style="list-style-type: none"> <li>• EPaCCS integration with Care Centric Community Portal</li> </ul>
<p><b>9. Universal Capabilities:</b> GPs and community pharmacists can utilise electronic prescriptions</p> <p><b>Capability Group:</b> Medicines management and optimisation</p> <p><b>Clinician Organisation:</b></p>		

<ul style="list-style-type: none"> <li>• Electronic Prescribing 2 commenced (80%) ✓</li> </ul>	<ul style="list-style-type: none"> <li>• Electronic Prescribing 2 delivery complete (dispensing practices)</li> <li>• SCR Viewer in community pharmacy complete</li> <li>• Community pharmacy work with TPP GP unit access</li> </ul>	<ul style="list-style-type: none"> <li>• Community pharmacy work supported through MIG and Community Portal</li> </ul>
<p><b>10. Universal Capabilities:</b> Patients can book appointments and order repeat prescriptions from their GP practice</p> <p><b>Capability Group:</b> Remote Care</p> <p><b>Clinician Organisation:</b> Primary Care</p>		
<ul style="list-style-type: none"> <li>• Online appointment booking enabled (100%) ✓</li> <li>• Prescription ordering on line enabled (100%) ✓</li> <li>• Patients can access SCR enabled (100%) ✓</li> </ul>	<ul style="list-style-type: none"> <li>• Online appointment booking (25% uptake)</li> <li>• Prescription ordering on line (25% uptake)</li> <li>• Patients can access coded record set (20% uptake)</li> <li>• Local apps/web information tool and NHS choices support direction of care (25%)</li> </ul>	<ul style="list-style-type: none"> <li>• Online appointment booking (50% uptake)</li> <li>• Prescription ordering on line (50% uptake)</li> <li>• Patients can access coded record set (40% uptake)</li> <li>• GPsOC API in place</li> <li>• Local apps/web information tool and NHS choices support direction of care (50%)</li> </ul>

# 11 Future System Wide Infrastructure

## 11.1 Access to Systems

Infrastructure standardisation, compliance and best practice within Nottinghamshire health and Social economy is driven through the Nottinghamshire Information Technology Managers (NITMAN) Group. NITMAN is currently looking at a number of community wide technical work packages including items such as cross domain authentication and core infrastructure improvements. Nottinghamshire's approach is to use best of breed technology and national standards wherever possible. Where these aren't available the use of existing standards developed in other communities are considered and only as a last resort are local standards created. This is in line with the work with out of area LDR leads across the Midlands to support the Midlands Accord.

### 11.1.1 Community of Interest Networks (COIN)

The use and application of COIN within Nottinghamshire has fostered collaborative and mobile working across the health and social care economy. Nottinghamshire County Council replaced their network in 2015 with the EMCloud solution and in 2016 a new contract was signed for replacement of the existing health COINs into a single MPLS based network. This will deliver improvement in security, speed (latency) and capacity (bandwidth) from these new networks and consideration of the new changing data sharing demands. It is anticipated that the health COIN, provided by BTN3, will migrate to HSCN network contracts and service provision from 2017 onwards. (See section 6 regarding the links between the County/City Councils and NHIS/Nottinghamshire Healthcare Informatics networks and the number of shared sites saving the wider public purse finances).

### 11.1.2 Wireless access

157 sites are now live with federated Wi-Fi across Nottinghamshire but more work is underway to improve the coverage and speed of this key infrastructure. Plans are in hand to extend federated Wi-Fi across the community for staff to access outside their office building to provide an agile and mobile approach to working (supporting the finance and efficiency gap in particular). This combined with secure home access through VPN and NHSmail 2 will enable the following:

- Reduction in staff travel time
- Effective mobile and collaborative working, enabled by seamless access to online resources.
- Staff access to their organisational IT systems when working from over 150 sites across health and social Care
- Reduction in lost hours (using flexible working as part of home working)
- Access to networks is now closer to the patients and citizens homes for care staff who need to synchronise patient notes/caseloads
- Support for the move to paper-light/paper less ways of working
- Reduction in the footprint of the estate and its cost

The NITMAN group are considering options for partner Wi-Fi access, focusing on the Government Digital Services (GDS), Common Technology Services (CTS) Architectural pattern. A working group is being setup to progress a proof of concept for the GDS/CTS solution.

Public Wi-Fi is in place across a number of providers including Nottingham City Council, Nottinghamshire County Council, Nottingham University Hospitals and Sherwood Forest Hospitals. With further roll out across Primary Care planned, providing access is seen to benefit patients who regularly visit services as well as presenting the opportunity to deliver health and wellbeing messages to inform them of key activities e.g. flu vaccinations and other useful information to promote healthy lifestyle and close the health and wellbeing gap.

### **11.1.3 Mobile working**

Community Mobile Working has deployed more than 1,000 mobile working devices in community services. Through the Nurse Technology fund and local provider investment, Community staff now have access to digital resources wherever they work along with significant numbers of hospital based staff. Local authorities are also progressing this work with Nottinghamshire County Council having enabled its staff for both online and off-line mobile working. Other providers have plans to deliver this capability in the coming years.

There does remain further work to do with GP mobile still in deployment. The focus of this being for clinicians to use on visits to patient's homes and care/nursing homes.

The remaining mobile enablement will focus on supporting staff in Mental Health and in hospital to ensure they have access to the right information at the bedside. Although good progress has been made on this there is more to complete in to meet the aspirations of the STP in terms of efficiency and Workstream 4.

The Emergency Care Solution in EMAS is a significant part of plans for Nottinghamshire. Discussions remain on-going to confirm its future and it is hoped that a solution can be found quickly to ensure that paramedics and their teams are digitally enabled in the way they need moving forward.

### **11.1.4 Data Centres**

Nottinghamshire have approximately twelve data centres/computer rooms across Nottinghamshire but plan review these arrangements in 2016/17 to better understand what efficiency, quality, resilience, security, access, speed and scalability improvements can be gained through rationalisation and closer working. In 2017/18 the reviewed outcomes from this work will deliver the agreed actions. Leading the way with this work, Nottinghamshire County Council have recently developed a cloud migration strategy that will result in the de-commissioning of their data centre and this will present further opportunities for rationalisation and share of public sector assets.

### **11.1.5 Virtual Desktop**

Several organisations have implemented Virtual Desktop infrastructure across Nottinghamshire. Plans to roll this out further are in place and include support for transforming General Practice. There remains an investment gap to deliver at the desired pace but improvements are being achieved using an agile approach.



## 11.2 Communication

Modern digital messaging systems are replacing facsimile and sending of paper documents within health and social care. The Nottinghamshire ambition is to move to fully ITK/CDA messaging for transitions of care in support of the national standard and the Midlands Accord. It is recognised that this will likely take two years locally and possibly longer for out of area messaging. In order to support this ambition other methods of communication will be needed to support the transition from old ways of communicating within the care providers and with citizens/patients/carers.

### 11.2.1 NHS mail 2

There is a plan to migrate most health providers to NHSmail2 with one organisation providing local accredited services that will be linked to NHSmail2. The local authorities are using PSN compliant mail systems meaning that from 2017 care professionals will be able to communicate securely across health and care.

### 11.2.2 Unified Communication

Nottinghamshire already have unified communications capability across most organisations. These individual organisational systems are linked across telephony, building on a long term existing arrangement for call plans and integration of call systems. Shared video infrastructure is already available for clinical MDT in some areas where shared care pathways such as Cancer and Stroke are in place as well as some back office functions. These trailblazers have demonstrated the value of this kind of technology for wider adoption.

Moving forward, the plan is to further integrate these platforms to include video and presence. This will be primarily built on the Microsoft platform with the use of federated Microsoft Lync a key component to provide video, voice and chat capability to support communication in the digital space. It is envisaged that these digitally enabled communities will be built around the developing new multidisciplinary team needs for communication for example; GP Federated Groups, Prism Teams, Care Co-ordination teams, shared care pathways like Diabetes etc.

## 11.3 Cyber Security

Cyber security is seen as a very important consideration in all technology enabled projects. Connected Nottinghamshire adopts robust processes in information governance, data security and IT security. Standard project documentation requires projects to complete Privacy Impact Assessments (PIA), Quality Impact Assessments (QIA), Equality Impact Assessment (EIA) and RAID logs recording risks and issues including those relating to cyber security. The Cyber Security checklist is used as a tool to assess readiness and compliance with best practice. All providers involved in the Connected Nottinghamshire work have achieved a minimum level of IG toolkit compliance (including partners) and several pieces of additional assurance work have taken part, related to shared information tools, in the last 12 months.

Nottinghamshire include a wide range of representation on project boards including clinical, IG, patient representative and data quality. Nottinghamshire is also engaged with accredited independent third party suppliers to conduct exercises such as PEN/Vulnerability testing when delivering or changing technical

infrastructure. The layered approach to security is embedded within all providers with; endpoint, network and perimeter security deployed across the range of services. All of these embedded processes ensure Nottinghamshire is well placed to work to ensure NHS Digital CERT requirements are met.

Whilst good progress has been made in this area it is recognised that as we move into more whole system information systems, additional capabilities and resources will be needed to ensure that the existing high levels of cyber security are maintained and continuously improved.

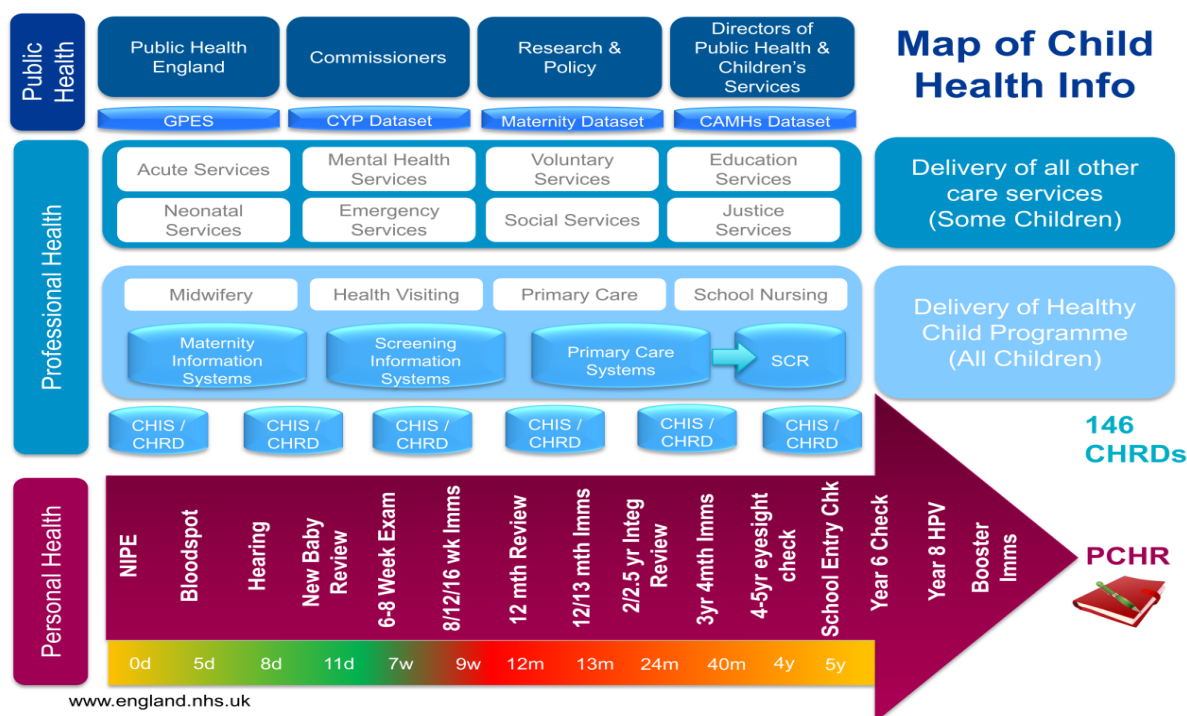
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## 11.4 Children And Young Persons Services Requirements

Nottinghamshire recognises the emerging Childrens Health Digital strategy and is working toward realising the objectives within this. Good progress has been made in sharing children's records across health (whilst observing best practice IG and the legalities of Fraser competence considerations) in Nottinghamshire, primarily through the use of GP and Community based systems.

### 11.4.1 Diagram of current national child health services model

([www.england.nhs.uk](http://www.england.nhs.uk))



There is a mature Multi Agency Safeguarding Hub (MASH) in place to address concerns across all public services with the information sharing agreement for this agency having recently been refreshed. Detailed safeguarding records are shared using TPP S1 safeguarding functionality and plans are in place to implement the Child Protection Information System (CP-IS) in Quarter 4 of 2016/17.

The recent recommissioning of Childrens and Young Persons services gave the opportunity to shape the digital eco-system with integrated digital records and patient/carer access to records at the heart of the requirements. With the implementation of these new service models and digital tools this work will help move children's services in the strategic direction. Delivering this consistent message across all service recommissioning supports the move to the National Informatics Board requirement of paperless at the point of care.

## 12 Funding

Nottinghamshire has been agile in the use of local and national funding to make best use of support wherever it might come from and whatever the form it may be in (capital or revenue). This has helped Nottinghamshire move forward as it has. With the necessary change in pace required to support the STP changes and new care models it is clear that additional “stimulus” funding is required.

Good progress has been made in Primary Care and Community services on improving infrastructure and systems, support through Nurse Technology Fund and other technology funding streams. Secondary care has also benefited from these schemes, improving integration and digital records. It has been more of a challenge for local authority members of Connected Nottinghamshire. Clinical Commissioning Groups have funded initiatives such as the MIG to allow the whole system to benefit and move forward with sharing of records and the Primary Care Infrastructure Fund (now the Estates and Technology Transformation Fund) and Primary Care IT funding have supported early integration work. Through support from the Vanguard Value Proposition, progress has been made on the implementation of the Community Portal, although more remains to embed this powerful tool across the care system. Despite these positive steps forward there is much work left to do in order to complete the implementation of the Nottinghamshire vision.

Moving forward it is expected funding will come from the following sources:

- Local provider and commissioner IT budgets
- Estates and Technology Transformation Fund
- Primary Care IT fund
- Developing Digital Maturity Fund

Nottinghamshire has considered areas such as infrastructure, systems (support and service management) and culture (change management) as part of an overarching holistic approach across both the health and social care settings for improving digital maturity to realise the requirements of the STP and the National Informatics Board roadmap. This approach has identified areas where consolidation, integration and improvements can occur and present opportunities. It has also identified areas where there are gaps in relation to core capabilities.

Nottinghamshire is one of the accelerated delivery areas and will look to deliver 20% faster on national targets. It is anticipated that a rapid upfront investment will enable efficiency and financial savings after year two and a percentage of these savings will need to be re-invested as revenue to ensure the future sustainability of the changes. Whilst this figure seems very large it is recognised that some of this funding is already in the system through the routes identified in Figure three section 7.2.2. It should also be considered that the requirement is to bring *all health and social care* partners up to a minimum level across the Connected Nottinghamshire footprint whilst supporting those who are at the forefront of developments to continue to trailblaze and shape the future direction.

Nottinghamshire digital maturity assessment outcomes clearly demonstrated areas where we are below national targets and these areas will be considered as priority areas for funding.

## 13 Conclusion

Nottinghamshire has made significant progress across all health and care providers and commissioners in improving information sharing and infrastructure to support transformation in the last three years. There is a desire and willingness to work together across organisational boundaries with mature governance arrangements in place. The necessary management processes are in place but it is recognised that some (change and benefits management) will need further development to cope with the change of scale and pace required.

The STP and LDR have been developed in tandem and technology enabled care is a key high impact area. There is close alignment with the transformation team and the technology programme.

Plans are in place to support the fast moving changes needed to meet the local and national requirements by 2018/19. However these will require additional financial support to achieve the scale and pace described.

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## 14 Appendix

### 14.1 Appendix one: Midlands Accord



Midlands Accord  
Governance v0 5.doc

## 14.2 Appendix Two: Nottinghamshire Capabilities Take-Up/Optimisation Evidence

### 14.2.1 Summary Care Record (SCR)

Clinical Commissioning Group	No. of practices	% Enabled/live with SCR
NHS Newark & Sherwood CCG	14	100%
NHS Nottingham City CCG	57	100%
NHS Nottingham North and East CCG	21	100%
NHS Nottingham West CCG	12	100%
NHS Mansfield and Ashfield CCG	27	100%
NHS Rushcliffe CCG	12	100%

Organisation	SCR Views/Usage 28/12/15 - 30/05/16	SCR Views/Usage 01/06/2016 – 01/10/2016
Nottingham (NEMS)	9597	6726
East Midlands Ambulance Services NHS Trust	96	39
Nottingham University NHS Trust ( NUH)	43116	35024
Sherwood Forest Hospital NHS Foundation Trust (SFTH)	8511	7890
Derbyshire Health United (DHU)	11563	19343
Nottingham CityCare Medicines Management	112	73
Nottingham CityCare Walk in Centre	816	872

### 14.2.2 Electronic Prescription Service 2 (EPS)

Clinical Commissioning Group	No. of Practices	% Enabled/Live	Dispensing
City CCG NHS	57	86%	0
Mansfield & Ashfield CCG NHS	27	92%	1
Newark & Sherwood CCG NHS	14	77%	3
Nottingham North East CCG NHS	21	81%	4
Nottingham West CCG NHS	12	75%	0
Rushcliffe CCG NHS	12	50%	4

### 14.2.3 Patient Online Services (POA)

Clinical Commissioning Group	No. of Practices	% Enabled/Live ( Appointment Booking, Medicine Order, Detailed Coded Record)	Usage % within 10% National Target
City CCG NHS	57	100%	33%
Mansfield & Ashfield CCG NHS	27	100%	59%
Newark & Sherwood CCG NHS	14	100%	93%
Nottingham North East CCG NHS	21	100%	71%
Nottingham West CCG NHS	12	100%	67%
Rushcliffe CCG NHS	12	100%	92%



#### 14.2.4 GP Repository for Clinical Care (GPRCC)

Providers	Technically Enabled/Data feed Percentage	Usage Percentage	Comments
NUH	100%		100% able to share 24hr discharge data, but may wish to increase range of data and look at near-live HL7 feeds around A&E, for example, which we haven't attempted. NUH staff not accessing eHealthscope, currently, but would like to increase this in targeted areas (e.g. STP priority areas, cardiology, respiratory outpatients etc.)
SFH	100%		50% able to share data, as on NHIS infrastructure and share PAS with NUH. However, different PAS version and haven't yet identified staff in Trust with expertise and commitment to prove the automated technology. As with NUH, currently no SFH staff accessing eHealthscope but aim to increase this in targeted areas – ideally linked closely with PRISM in Mid-Notts.
PICS Community	100%		75% able to share data – however this is a manual process (extract from S1, pseud in Excel and upload to eHealthscope). Would like to work towards more automated extraction process either from S1 directly or to assist PICS with developing SQL capability as a basic standard for local connectivity. PICS users are currently able to access eHealthscope but we would like to develop this further.
City Care Community	100%		75% able to share data – however this is a manual process (extract from S1, pseud in Excel and upload to eHealthscope). Would like to work towards more automated extraction process either from S1 directly or to assist PICS with developing SQL capability as a basic standard for local connectivity. PICS users are able to access eHealthscope but we would like to develop this further.
Social Care - County	100%		0% technically enabled. They do have SQL capability and are keen to explore links, but there are network issues and user access issues because eHealthscope

			is not currently on N3.
Social Care - City	100%		0% technically enabled. They do have SQL capability and are keen to explore links, but there are network issues and user access issues because eHealthscope is not currently on N3.

#### 14.2.5 Medical Interoperability Gateway (MIG)

Provider	Technically Enabled Percentage
NEMS	100%
SFHFT ED	100%
NHCFT	100%
NUH ED	100%
DHU 111	100%
EMAS	100%
PICS	100%
Rushcliffe GP Federation	100%

### 14.2.6 EPaCCS

GP Practice usage by number of patients								
CCG	Active Patients	Referral Source (Practice / Non Practice)	PPC/PPD discussed	Resuscitation Status Recorded	Deceased patients (All time)	DiUPR or Preferred Place	Average Weeks from Referral to Death	Finding The 1%
Bassetlaw	334	224:108	68.7%	34.5%	536	72.9%	14	0.35%
Mansfield & Ashfield	690	475:215	68.5%	49.3%	746	68.2%	9	0.37%
Newark & Sherwood	507	363:144	67.8%	53.4%	754	72.5%	11	0.44%
Nottingham City	798	425:371	74.9%	66.9%	1021	73.4%	9	0.25%
Nottingham NNE	768	536:231	72.0%	57.1%	643	69.5%	11	0.54%
Nottingham West	382	257:119	70.2%	67.3%	265	77.3%	11	0.38%
Rushcliffe	971	668:301	84.1%	68.6%	773	74.9%	12	0.87%
Other	33	-	79.2%	63.5%	27	79.9%	4	0.02%
<b>Total</b>	<b>4483</b>	<b>2948:1489</b>	<b>73.2%</b>	<b>57.6%</b>	<b>4765</b>	<b>72.7%</b>	<b>11</b>	<b>0.46%</b>

### 14.2.7 eDSM

Clinical Commissioning Group	Practices Totality	Technically Enabled	Record availability for sharing Percentage
NHS City CCG	57	100%	66%
NHS Rushcliffe CCG	12	100%	89%
NHS NNE CCG	21	100%	82%
NHS NW CCG	12	100%	98%
NHS M&A CCG	27	100%	88%
NHS N&S CCG	14	100%	97%

## 14.3 Appendix three: Secondary Care Capability Trajectory Target



Nottinghamshire LDR  
- Capability Trajectory



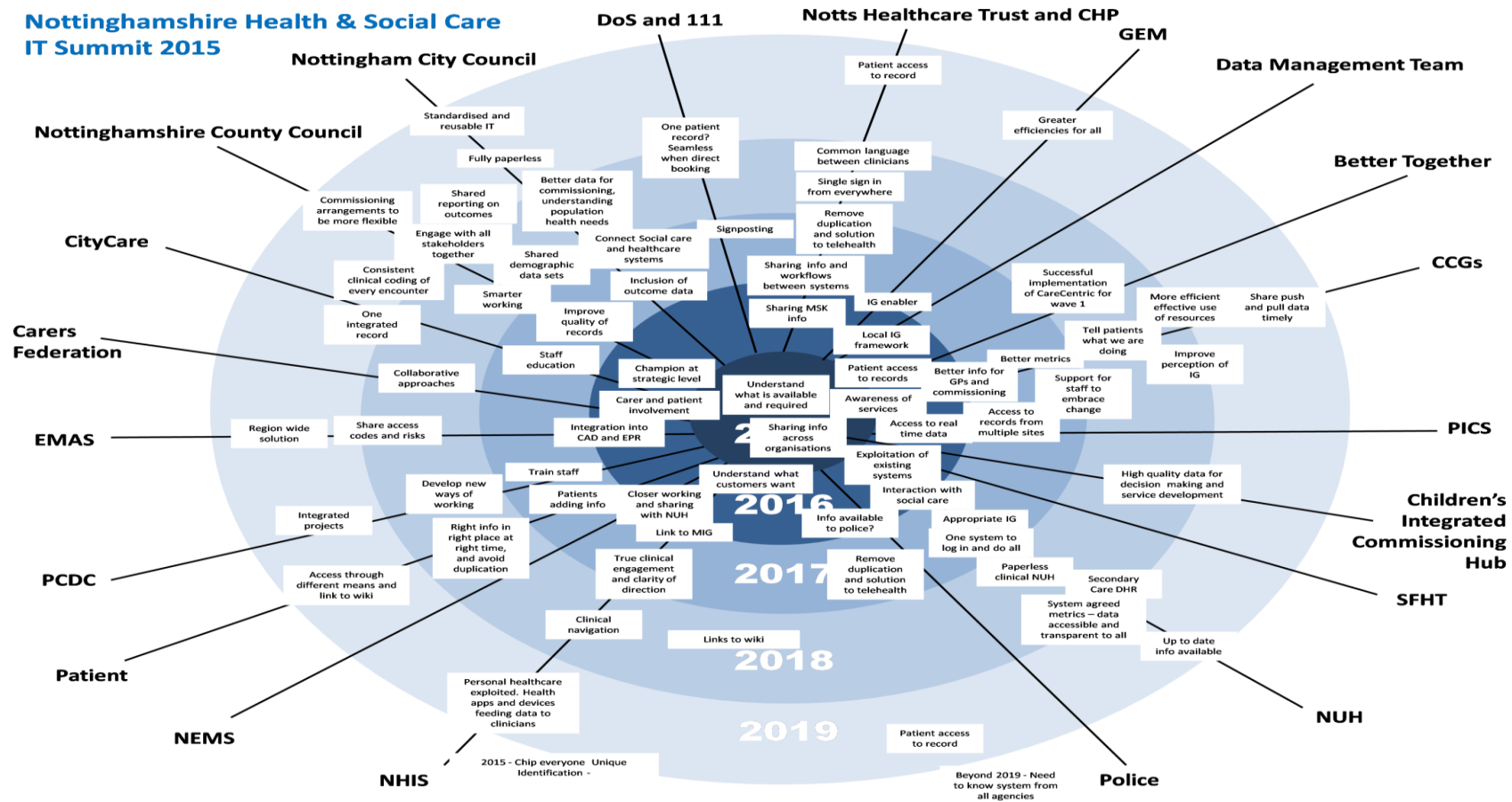
DMA Baseline and  
Template for 3 year c

## **14.4 Appendix four: Project Gant Chart for 2016/17/18 projects on the Connected Nottinghamshire Critical path**



High level  
programme outline 16

## 14.5 Appendix five: LDR requirements planning from 2015 IT Summit



Date: 11 January 2017

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