Provider Digitisation Programme

University Hospitals Bristol NHS Foundation Trust Global Digital Exemplar Programme

Funding Agreement

Between NHS England on behalf of

Secretary of State for Health, and

University Hospitals Bristol NHS Foundation Trust

For The Global Digital Exemplar Programme

This is the reference version of the Agreement for use by UHBristol and System C programme staff.

Dated: 11 April 2017

Version 1.0 Issued

Contents

1 Introduction

THIS FUNDING AGREEMENT (the "Agreement") is made on 11 April 2017 BETWEEN:

(1) **NHS ENGLAND ON BEHALF OF THE SECRETARY OF STATE FOR HEALTH** whose principal address is for these purposes Quarry House, Quarry Hill, Leeds, West Yorkshire LS2 7UB ("**Authority**"); and

(2) University Hospitals Bristol NHS Foundation Trust whose principal address is at Trust Headquarters, Upper Maudlin Street, Bristol, BS2 8HW ("**Recipient**").

Together, the Parties.

1.1 Management of the Agreement:

The Authority will delegate the management of this Agreement to:

- NHS Digital whose principal address is for these purposes 1 Trevelyan Square, Boar Lane, Leeds, West Yorkshire LS1 6AE.
- Delegated Responsible Officers listed in Section 11 within the Recipient whose principle address is Trust Headquarters, Upper Maudlin Street, Bristol, BS2 8HW.

Individuals from NHS England, NHS Digital, and the Recipient will be nominated to represent the Parties for the purposes of this Agreement. Details of these individuals are provided below at Section 11.

1.2 Aim of the Agreement:

The purpose of the Funding Agreement is to formally agree the funding arrangements for the programme/project and to articulate the obligations on the parties involved.

The Agreement identifies the scope of work to be completed; timescales for completion; key accountabilities and responsibilities for completion and projected benefits.

2 Background Summary

2.1 Aims and objectives of the programme

For the last five years University Hospitals Bristol's (UHBristol's) Clinical Systems Strategy has had the following vision statement, borrowed from Cambridge's eHospital programme:

> ***"Our vision ... is one in which every member of our staff will have access to the information they need, when they need it, without having to look for a piece of paper, wait to use a computer or ask the patient yet again..."***

We have been working step by step towards this vision and the transformation that it offers, but with the sheer scale and complexity of the task and associated investment required it has remained a long-term goal.

GDE means that we can realise this vision within three years. Not just within the Trust itself but through the Connecting Care Partnership with partner organisations across Bristol, North Somerset and South Gloucestershire (BNSSG).

'Transforming Care'

UHBristol's mission is to provide exceptional healthcare, research and teaching, every day. We are proud of the high standards of clinical care we provide, but we know we can and must seek to do better in everything we do.

Our vision is for Bristol, and our hospitals, to be among the best and safest places in the country to receive care. We want our hospitals to be characterised by:

- High quality, individual care, delivered with compassion.
- A safe, friendly and modern environment.
- Employing the best and helping all our staff to fulfil their potential.
- Pioneering and efficient practice, putting ourselves at the leading edge of research, innovation and transformation.
- Providing leadership to the networks we are part of, for the benefit of the region and people we serve.

We work in challenging times. We work with patients whose health needs are becoming more complex and whose expectations about service quality are growing, and we face the challenge of the financial constraints placed upon us.

Our ambition to continually improve in this increasingly challenging environment means we have to deliver change across all areas of our hospitals. We have chosen to bring this work together under a common, overarching programme – ***Transforming Care***.

The Aims of Transforming Care

The Transforming Care Programme is built upon a set of underlying themes, each sponsored at Executive level and comprising a series of active projects designed to drive the Programme forward to realise the Trust's Mission and Vision.

- **Delivering Best Care – Medical Director and Chief Nurse**
  To deliver high quality care: Patients are safe from harm; Staff are friendly, helpful, compassionate and sensitive to individual needs; Clinical effectiveness is top class; Services are constantly improved to enhance patient experience.
- **Improving Patient Flow – Chief Operating Officer and Medical Director**
  To deliver better, timelier and safer care for patients (inpatients, outpatients and day patients) by improving flow through our patients' journeys.

- **Delivering Best Value – Director of Finance and Chief Operating Officer**
  To deliver increasing value for the public money we spend by becoming more efficient, by prudent investment and by managing within our budgets.
- **Building Capability – Director of Workforce/HR and Chief Nurse**
  To create an environment where everyone's contribution is valued. Build and develop an agile workforce with the right skills, who are confident in themselves and actively seek opportunities to do things better and deliver expert services with compassion.
- **Renewing our Hospitals – Director of Strategy and Chief Operating Officer**
  To support the delivery of best care, by making best use of resources available to us to provide our staff and our patients, with the best possible environment and technologies.
- **Leading in Partnership – Director of Strategy and Medical Director**
  To build and sustain positive relationships with key partners for the benefit of our patients and people in the communities we serve.

The Role of Digital in Transforming Care

The opportunity for UHBristol to become a Global Digital Exemplar carries tremendous benefits for the Trust, but also significant responsibilities in terms of making sure we take our own staff with us by equipping them to be able to exploit the information and technology that will be delivered, and, through 'Blueprinting' by learning lessons and setting an example to our neighbours and System C's other customers of how to do digital properly. This 'digital mentoring' aspect of the programme is critical and will require significant investment from senior UHBristol staff-time.

In the past five years we have successfully built the foundations we need to underpin the objectives of the GDE programme. We have a modern, mature patient administration and electronic patient record system (Medway), which forms the 'engine' driving activity within the Trust; we have a range of associated systems serving the specialist needs of departments such as the intensive care units, emergency departments and theatres; we have achieved an exceptional level of integration between systems around the Trust, with some 70 departmental system integrated with our PAS and other corporate systems in some way.

We are pushing ahead with the roll-out of our Evolve digital casenote system, which now contains almost 20 million documents available to all of our clinical staff, with plans to complete the roll-out across the Trust by mid-2017; we have already created over 200 e-forms and 75 service orders on Medway, each of which eliminates the need to generate and store several pages of paper-based information; we are already employing the means to communicate electronically with our health and care partners, with more opportunities being identified all the time; we are already working with System C towards our first pilot of electronic prescribing.

Above all, we have established an appetite for 'doing things digitally' across our user base, but this appetite is tempered by, for example, the 'friction' that users feel when they're trying to access and use the software that is not as usable or integrated as it should be, and the availability of convenient devices that allow staff to do what they need to do immediately.

Our aim is therefore to accelerate and broaden the scope of our Clinical Systems Programme, and GDE means that we can rapidly eliminate the gaps and inconsistencies between our existing systems and deliver the highly usable software tools that our staff need into their hands, wherever they are.

The specific objectives and commitments of GDE are described in other sections of this Agreement.

UHBristol's digital strategy and delivery is managed by the Trust's Clinical Systems Implementation Programme (CSIP), a comprehensive set of enabling projects that underpin many of the Transforming Care themes as shown in the table on the following page.

UHBristol's Digital Programmes in Transforming Care Priorities Digital Projects & Workstreams	Funding Source: CSIP or GDE	Transforming Care Programme: Delivering best care: Patient communications	Innovations & bright ideas	Patient safety	Outpatient transformation	7-day services	Improving patient flow: Uncheduled Care	Planned Care	Ward processes (incl. discharge)	Children's programme	Theatres Transformation	Virtual wards	Delivering best value: Efficiency & productivity	Savings board projects	Renewing our Hospitals	Building capability: Staff experience & engagement	Leadership development	Admin teams transformation	Leading in Partnership: Connecting Care	Better Care Bristol	STP across BNSSG
Clinical Systems and Paper-free Working																					
Medway Core PAS and EPR functions	CSIP	✓			✓		✓	✓	✓	✓	✓	✓	✓					✓			✓
Medway Clinical Noting & proformas	CSIP	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓					✓			✓
Medway Service Orders (incl. repl ICE)	CSIP			✓	✓	✓	✓	✓	✓	✓	✓		✓					✓			✓
Medway ePrescribing & meds admin	CSIP			✓	✓	✓	✓	✓	✓	✓			✓								✓
Medway Spine Connectivity	CSIP												✓					✓			✓
Real time Medway incl. Beds & discharge	CSIP						✓	✓	✓	✓			✓					✓			✓
Evolve Electronic Casenotes	CSIP	✓			✓	✓	✓	✓	✓	✓		✓	✓					✓			✓
Bluespier theatres	CSIP	✓		✓			✓	✓		✓	✓		✓					✓			✓
Paeds Oncology Prescribing	CSIP			✓			✓	✓		✓			✓								
Paeds Cardiology Imaging	CSIP			✓			✓	✓		✓											
Allocate eRostering	CSIP			✓		✓	✓	✓		✓	✓		✓					✓			
Digital dictation & speech rec	CSIP	✓			✓	✓		✓					✓					✓			
Philips ICCA (ICU & Anaesthetics)	CSIP			✓			✓	✓		✓	✓		✓								
Cardiology Management	CSIP			✓			✓	✓			✓		✓								
eReferrals (ERS)	CSIP	✓			✓	✓				✓			✓					✓			✓
Clinical Utilization Review (CUR)	CSIP						✓	✓	✓	✓			✓					✓			✓
Nursing eObservations	***GDE***			✓			✓	✓	✓	✓	✓		✓								
Rapport 'Clinical Workstation' modules	***GDE***			✓	✓		✓	✓	✓	✓			✓								
Rapport mobile modules (incl. orders)	***GDE***			✓	✓		✓	✓	✓	✓			✓							✓	
Clinical Collaboration																					
Careflow collaboration and task mgt 1	***GDE***		✓	✓	✓	✓	✓	✓	✓	✓			✓				✓			✓	✓
Community Collaboration																					
Connecting Care	CSIP	✓		✓	✓	✓	✓	✓		✓	✓		✓				✓	✓	✓	✓	✓
BNSSG Local Digital Roadmap	CSIP																		✓	✓	✓
Social Care integration (incl.D2A)	***GDE***	✓				✓	✓	✓	✓	✓			✓					✓	✓	✓	✓
Careflow collaboration and task mgt 2	***GDE***						✓	✓	✓	✓			✓						✓	✓	✓
Patient Collaboration with New Models of Care/Pathways																					
CareCentric Integration layer	***GDE***			✓	✓	✓	✓	✓		✓								✓	✓	✓	✓
Patient Held Record	***GDE***	✓		✓	✓	✓	✓	✓		✓								✓	✓	✓	✓
First New Models of Care	***GDE***	✓																	✓	✓	✓
Business and Clinical Intelligence																					
Medway BI Modules	CSIP				✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓			
Dashboards & whiteboards	CSIP			✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓			
Advanced analytics and BI	***GDE***			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓
Population health analytics	***GDE***					✓	✓	✓									✓		✓	✓	✓
Building Digital Capability																					
'Every user an expert user'	CSIP		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓		
Digital Practitioner Programme	CSIP		✓													✓	✓		✓		✓
Interoperbility as standard	CSIP			✓									✓						✓		✓
Adopting and embedding standards																					
SNOMED-CT	CSIP				✓		✓	✓		✓	✓										
Digital Medicines and dm+d	CSIP			✓		✓		✓		✓	✓										
GS1 and PEPPOL	CSIP							✓		✓	✓		✓								
Maintaining technical infrastructure & performance																					
'Reducing friction and cutting the clicks'	CSIP			✓	✓	✓	✓	✓	✓	✓	✓		✓			✓		✓	✓		
Cyber-Security and Best Practice	CSIP																				
Adopting new technologies (e.g. Cloud)	CSIP		✓			✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓		✓
Mobile and technology support	CSIP			✓					✓	✓	✓		✓		✓	✓	✓	✓	✓		
Technology refresh and improvement	CSIP														✓						

2.2 Alignment to STP/LDR

BNSSG's Sustainability and Transformation Plan (STP) is underpinned by an assumption that widespread adoption of good digital practices will enhance our ability to deliver on the STP themes—indeed the LDR forms the basis of this assumption. GDE in UHBristol will therefore have a direct impact on delivery of our STP:

- **We will standardise and operate at scale.**
  The standardisation of complex processes and interactions between partners can only be conducted safely and reliably using proven digital methods.
- **We will develop system-wide pathways of care.**
  Our GDE proposal includes shared care pathway and clinical collaboration tools that can be deployed across the city.
- **We will develop a new relationship with the population**
  Our proposal includes a 'person held record' (PHR), sometimes referred to as a patient portal, that will give our service users access to their records and the ability to participate in development of their care pathways.
- **We will develop new relationships between organisations and staff**
  With Connecting Care as the nucleus of a single, cohesive information sharing and notification
- **We will build on our existing digital work as a driver and enabler of cultural change**
  Technologically, UHBristol is starting from a high baseline, but many enabling functions remain untapped while we address these cultural issues.

GDE and the improved level of digital maturity that it brings will have a profound and fundamental impact on the day-to-day working of UHBristol, across the whole of BNSSG through our commitment to Connecting Care, across the South West through our tertiary network, and nationally through System C's customer base.

The programme cannot be delivered with a covert or piecemeal approach, because we will be implementing technology that will fundamentally change the way we all work, how we think about our work, and how we relate to our colleagues, our patients and our partners. It will take a certain courage for the organisation to commit to some of these changes, because to this point many of the technological solutions we have introduced are not mandated or pervasive throughout the organisation, but this will change with the nature of the technology that we will introduce through this programme.

Specifically, the impact on our patients and our staff will be through delivery of care within a cohesive digital framework that encompasses all administrative and clinical information, ensuring that there are no 'gaps' between the various professionals and teams involved in their care. This will eliminate delays, ensure that clinicians have the information they need, reduce variation in the delivery and outcome of care, and enable better communication and engagement between professionals.

BNSSG's LDR development benefited from the existing collaboration and relationships based around Connecting Care. The challenges in this area are primarily maintaining a progressive improvement in Digital Maturity across the health and care partners whilst keeping the vision focused on deriving best value from the five LDR themes.

The STP has presented greater challenges, being formed on the basis of solving BNSSG's financial shortfall. There is still work to do to define how digital techniques will be best applied against the STP themes to achieve the efficiencies and improvements required.

UHBristol's GDE programme will spearhead this work by driving Clinical Collaboration tools out from our Hospitals into the Community providers, adding value to the existing Connecting Care investment and introducing opportunities for faster, more reliable communication between all care settings.

The following table illustrates the relationship between UHBristol's Digital Programmes and the BNSSG STP and LDR themes, showing CSIP and GDE-funded activities and status.

		The STP Themes					LDR Themes				
UHBristol's Digital Programmes **Digital Projects & Workstreams**	**Ref.**	Standardize and operate at scale	Develop system-wide pathways of care	Develop a new relationship with the population	Develop new relationships between organisations and staff	Build on our existing digital work as a driver of cultural change	Primary Care at Scale	Paperless 2020	Connecting Care	The Information Engine	Infrastructure and Support
Clinical Systems and Paper-free Working	**A.**										
Medway Core PAS and EPR functions	01		✓			✓					
Medway Clinical Noting & proformas	02	✓	✓			✓		✓			
Medway Service Orders (incl. repl ICE)	03	✓	✓			✓		✓			
Medway ePrescribing & meds admin	04	✓	✓			✓		✓			
Medway Spine Connectivity	05	✓				✓				✓	✓
Real time Medway incl. Beds & discharge	06	✓				✓		✓			
Evolve Electronic Casenotes	07	✓				✓		✓			
Bluespier theatres	08					✓					
Paeds Oncology Prescribing	09		✓			✓		✓			
Paeds Cardiology Imaging	10					✓					
Allocate eRostering	11					✓					
Digital dictation & speech rec	12					✓					
Philips ICCA (ICU & Anaesthetics)	13	✓				✓		✓			
Cardiology Management	14	✓	✓			✓		✓			
eReferrals (ERS)	15	✓	✓	✓		✓		✓			
Clinical Utilization Review (CUR)	16	✓	✓			✓					
Nursing eObservations	***17***	✓	✓			✓					
Rapport 'Clinical Workstation' modules	***18***					✓		✓			
Rapport mobile modules (incl. orders)	***19***					✓		✓			
Clinical Collaboration	**B.**										
Careflow collaboration and task mgt 1	***01***	✓	✓	✓	✓	✓	✓	✓	✓		
Community Collaboration	**C.**										
Connecting Care	01	✓	✓	✓	✓	✓	✓	✓	✓	✓	
BNSSG Local Digital Roadmap	02	✓		✓		✓	✓	✓	✓	✓	✓
Social Care integration (incl.D2A)	***03***	✓	✓	✓		✓		✓	✓		
Careflow collaboration and task mgt 2	***04***	✓	✓	✓	✓	✓	✓	✓	✓		
Patient Collaboration with New Models of Care/Pathways	**D.**										
CareCentric Integration layer	***01***	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Patient Held Record	***02***	✓	✓	✓	✓	✓	✓	✓	✓		
First New Models of Care	***03***	✓	✓	✓	✓	✓	✓	✓	✓		
Business and Clinical Intelligence	**E.**										
Medway BI Modules	01					✓		✓		✓	
Dashboards & whiteboards	02					✓		✓		✓	
Advanced analytics and BI	***03***	✓	✓			✓	✓		✓	✓	
Population health analytics	***04***	✓	✓	✓		✓	✓		✓	✓	
Building Digital Capability	**F.**										
'Every user an expert user'	01				✓	✓		✓			
Digital Practitioner Programme	02	✓			✓	✓		✓	✓		✓
Interoperbility as standard	03	✓	✓			✓			✓		✓
Adopting and embedding standards	**G.**										
SNOMED-CT	01	✓				✓					✓
Digital Medicines and dm+d	02	✓				✓					✓
GS1 and PEPPOL	03	✓				✓					✓
Maintaining technical infrastructure & performance	**H.**										
'Reducing friction and cutting the clicks'	01					✓			✓		
Cyber-Security and Best Practice	02					✓					✓
Adopting new technologies (e.g. Cloud)	03		✓			✓	✓	✓	✓	✓	✓
Mobile and technology support	04		✓	✓		✓		✓	✓		✓
Technology refresh and improvement	05					✓					✓

2.3 Improving Digital Maturity

Digital maturity is a progressive state; it builds over time with sustained experience, investment and the development of routine use of the best technologies to deliver the best care for patients and management of our business. Digital maturity means that good use of the best digital tools is commonplace and taken for granted—it's not special any more, it's just what we do. GDE means that UHBristol will increase its DMA score in all respects from the conservative 64% assessed in 2015 to at least 90% by December 2019.

GDE will have a direct and immediate impact on delivery of our Local Digital Roadmap (LDR), because we will achieve digital maturity earlier and with more sophisticated tools than would otherwise be affordable. This will have a collateral benefit on our local partners and their own roadmap activity. The following table presents an estimate of UHBristol's Digital Maturity by late 2019. It is hoped that the DMA self-assessment tool will be made available for ad hoc use to track progress during the programme.

DMA Measure	15/16 baseline	19/20 Target	Comments
Governance	85	100	Our CCIO team is now embedded within the core CSIP governance structure
Records assessment and plans	55	95	We will roll out the 'clinical workstation' that will encompass paperless collection, use and management of patient information. 100% coverage is unlikely to be unachievable with some external organisations.
Orders and results management	78	100	We will continue to roll out service ordering for services other than radiology and pathology and will provide seamless access to results from other providers.
Medicines management	15	95	We will implement positive patient ID and DM+D as part of the Digital Medicines programme. Note that 100% compliance requires inference and prompting of appropriate medications, which we do not consider to be achievable within the term of GDE.
Decision support	45	90	We will implement digital alerting and messaging solution to support staff in making clinical decisions. Note that we do not expect to implement unrestricted decision support, which can be construed as over-ruling professional judgement, 100% is therefore unachievable.
Remote and assistive care	42	100	We will continue to roll out remote virtual clinic consultations and the take-up of video conferencing. We will use our PHR to undertake remote monitoring including the use of personal connected devices as part of the New Models of Care
Assets and resource optimisation	50	95	We will implement better tracking and scheduling of assets and resources using a range of automated techniques including GS1/PEPPOL where practical and appropriate. 100% is not considered to be achievable.
Standards	46	100	Implementation of SNOMED, DM+D, GS1 and records standards will be undertaken as part of our on-going programme. GS1 standards will be achieved as part of the GS1 programme which is not part of the GDE.
Enabling infrastructure	55	100	Enhancements to cyber security, staff and public WiFi and network infrastructure to enhance clinicians and citizen experience are already underway.

3 Programme Description

3.0 The Clinical Systems Programme and GDE

UHBristol sees the award of Global Digital Exemplar status as a welcome boost to the funding and capability already employed in the delivery of its long-standing Clinical Systems Implementation Programme (CSIP). The software components and functions that will be delivered through GDE funding are additional to those already committed within CSIP, but had been identified for later investment opportunities. These components will drastically extend the capability, convenience and usability of our existing systems, through closer integration and the use of more up-to-date, consumer-based technologies that will interoperate seamlessly with the core Medway EPR components.

The explicit functional objectives of GDE include areas where CSIP is already invested and delivering, but we will interject GDE-funded functions within these areas as appropriate.

For clarity, the GDE funding with its associated governance, monitoring and reporting requirements, milestones and tracking will be managed within the CSIP programme using existing controls and governance structures.

UHBristol's Unique Proposition

UHBristol has identified four particular areas of its proposition that set it apart from other GDEs and add strength to the Trust's overall programme. We will:

1. Deliver a significant proportion of our GDE programme value through the Connecting Care Partnership to improve the overall uptake of consumer-driven digital information technologies across Bristol, to harmonise the way that we use and share information in the handover and continuity of care.
2. Introduce New Models of Care apps for patients with long-term conditions. These apps will add the benefits of personalised care to the associated PHR, giving some of our most vulnerable patients better ways to interact with the service and participate in self-care management. The first Model to be introduced will probably be targeted from the Bristol Heart Institute at working patients with cardiac failure to monitor and manage their condition with the use of wearable devices and dashboards that give patients, carers and hospital professionals information about the patient's status. The next Models will address other pathways and may include pre-habilitiation, Epilepsy, COPD, Prostate Cancer or perhaps IBS; in the light of the first Model we will develop specific business cases to determine what subsequent Models will give us the best impact.
3. Use the same collaboration tools provided by System C across the hospital, the wider health economy and into patient homes, ensuring standardisation of approach and more rapid development of targeted solutions for health professionals and patients alike. These tools will be based primarily on System C's Careflow and Rapport, underpinned by CareCentric integration.
4. Implement at an early stage direct messaging between our Medway EPR and the LiquidLogic social care systems in use at Bristol City Council's adults and children's services, delivering discharge and handover-related information packages directly into social workers' worktrays, addressing one of the areas of delayed transfer of care commonly experienced by all acute providers. This will be a particularly important area of Blueprint, possibly the first of its type nationally.

3.1 The GDE Programme components

UHBristol and its strategic digital partner, System C, have drafted a plan to deliver the GDE programme components within the term of the GDE programme.

In keeping with the intention of the GDE initiative our plan is bold and ambitious, but it is based around the phased delivery of existing System C Alliance products and techniques with associated development and integration. No replacement or redundancy of current strategic digital solutions is envisaged by UHBristol, although we intend to achieve the replacement of several standalone and/or obsolete solutions currently used in some departments. The sequencing of milestones recognises areas where more detailed development is required by leading with existing products while development continues on the later components.

The Outline Deployment Plan in Annex I illustrates the rationale behind our plan by mapping the programme milestone outcomes to product components and GDE objectives. The milestone outcomes are shown below to illustrate the depth and pace of delivery.

We have set particularly ambitious goals for the first year after commencement. Based on existing products and technology, the first two milestones are intended to kick-start the impact of GDE by deploying useful, in-the-moment technology solutions to the basic problems of clinical communication and patient observations. These alone will derive immediate benefit and whet the appetite of our user base for what comes next.

But successfully delivering the technology components of the solution alone would miss the whole point of the exercise, which is to engage and equip all of our staff to understand how to make the best use of the technology and the information that it can make available to them when they need it, so alongside the technical delivery we will continue to conduct detailed engagement with our clinical and admin colleagues to set expectations, gain insight into their needs and prepare them for the new methods and processes.

The table on the following page shows the relationship between the existing CSIP Programme and the new GDE-funded components within the main programme themes, which are:

A	Clinical Systems and Paper-free Working
B	Clinical Collaboration
C	Community Collaboration
D	Patient Collaboration including New Models of Care
E	Business and Clinical Intelligence
F	Building Digital Capability
G	Adopting and Embedding Standards
H	Maintaining technical infrastructure and performance

The GDE-specific components in the following table are shown in this format

UHBristol's Digital Programmes Digital Projects & Workstreams	Ref.	Funding Source: CSIP or GDE	New Project or Work In Progress	Match Fund Y/N	Dependency Y/N	Benefit contribn Y/N
Clinical Systems and Paper-free Working	**A.**					
Medway Core PAS and EPR functions	01	CSIP	WIP	N	Y	N
Medway Clinical Noting & proformas	02	CSIP	WIP	N	N	N
Medway Service Orders (incl. repl ICE)	03	CSIP	WIP	Y	Y	Y
Medway ePrescribing & meds admin	04	CSIP	WIP	Y	Y	Y
Medway Spine Connectivity	05	CSIP	New	Y	N	N
Real time Medway incl. Beds & discharge	06	CSIP	WIP	N	N	N
Evolve Electronic Casenotes	07	CSIP	WIP	Y	N	Y
Bluespier theatres	08	CSIP	WIP	Y	N	N
Paeds Oncology Prescribing	09	CSIP	New	Y	N	N
Paeds Cardiology Imaging	10	CSIP	New	Y	N	N
Allocate eRostering	11	CSIP	WIP	N	N	N
Digital dictation & speech rec	12	CSIP	WIP	N	N	N
Philips ICCA (ICU & Anaesthetics)	13	CSIP	WIP	N	N	N
Cardiology Management	14	CSIP	New	Y	N	N
eReferrals (ERS)	15	CSIP	WIP	N	N	N
Clinical Utilization Review (CUR)	16	CSIP	WIP	Y	N	N
Nursing eObservations	***17***	***GDE***	***New***			***Y***
Rapport 'Clinical Workstation' modules	***18***	***GDE***	***New***			***Y***
Rapport mobile modules (incl. orders)	***19***	***GDE***	***New***			***Y***
Clinical Collaboration	**B.**					
Careflow collaboration and task mgt 1	***01***	***GDE***	***New***			***Y***
Community Collaboration	**C.**					
Connecting Care	01	CSIP	WIP	N	N	N
BNSSG Local Digital Roadmap	02	CSIP	WIP	N	N	N
Social Care integration (incl.D2A)	***03***	***GDE***	***New***			***Y***
Careflow collaboration and task mgt 2	***04***	***GDE***	***New***			***Y***
Patient Collaboration with New Models of Care/Pathways	**D.**					
CareCentric Integration layer	***01***	***GDE***	***New***			***Y***
Patient Held Record	***02***	***GDE***	***New***			***Y***
First New Models of Care	***03***	***GDE***	***New***			***Y***
Business and Clinical Intelligence	**E.**					
Medway BI Modules	01	CSIP	WIP	N	N	N
Dashboards & whiteboards	02	CSIP	WIP	Y	N	N
Advanced analytics and BI	***03***	***GDE***	***New***			***Y***
Population health analytics	***04***	***GDE***	***New***			***Y***

UHBristol's Digital Programmes continued... Digital Projects & Workstreams	Ref.	Funding Source: CSIP or GDE	New Project or Work In Progress	Match Fund Y/N	Dependency Y/N	Benefit contribn Y/N
Building Digital Capability	**F.**					
'Every user an expert user'	01	CSIP	WIP	N	Y	N
Digital Practitioner Programme	02	CSIP	WIP	N	Y	N
Interoperbility as standard	03	CSIP	WIP	N	Y	N
Adopting and embedding standards	**G.**					
SNOMED-CT	01	CSIP	New	N	Y	N
Digital Medicines and dm+d	02	CSIP	New	N	Y	N
GS1 and PEPPOL	03	CSIP	New	N	Y	N
Maintaining technical infrastructure & performance	**H.**					
'Reducing friction and cutting the clicks'	01	CSIP	WIP	N	N	N
Cyber-Security and Best Practice	02	CSIP	WIP	Y	Y	N
Adopting new technologies (e.g. Cloud)	03	CSIP	WIP	N	N	N
Mobile and technology support	04	CSIP	WIP	Y	Y	N
Technology refresh and improvement	05	CSIP	WIP	Y	Y	N

The Projects

The following section describes:

a) GDE-funded projects, referring to existing CSIP elements where these may be dependencies.
b) CSIP-funded projects where these are offered as match against GDE-funding.

a) The GDE Projects

A.17 Nursing E-Observations
Description and scope: Implementation of Trust-wide VitalPac electronic nursing observation system including: • flexible NEWS and other EWS algorithms • direct integration with Medway EPR for patient location confirmation, alerting and authentication • direct integration with medical devices for automated capture of vital signs • automated escalation and messaging via Careflow integrated communications system • roll-out of further iPods and other iThings to support ward-based use of mobile apps including e-observations and clinical documentation.
Associated Delivery milestones: Assumption: Trust procurement for e-obs is concluded by end May 2017 DM2 – Project A.17 • Version 3.4 VitalPac deployed to Trust Server • Localisation document completed • UAT completed and signed off by Trust • Vitalpac electronic nursing observation system live on one ward DM3 – Project A.17 • Vitalpac electronic nursing observation system including flexible NEWS and other EWS algorithms live on all adult inpatient wards, followed by paediatric inpatient wards. • Direct integration with Medway EPR will ensure the patients real time location is confirmed on both systems. • Automated escalation and messaging integrated with Careflow to achieve a seamless platform for the clinician enabling rapid communication and patient management with the use of handover and task management. • Integrated observations devices - pilot commenced
Exclusions: Not yet assessed but likely to exclude those forms and assessments that will be handled via A18, A19 and B.01, also delivered through GDE.
Key Outputs: • Real time patient location • Clinical assessments and screening • Alerting • Messaging • Escalations • Patient lists • Standard and specialist observations • Sepsis and AKI alerts.
Key Outcomes: Benefits related to safety and quality.
Dependencies: Medway EPR version 4.8 deployed to support bi-directional integration (DM3).

VitalPac procurement dependent on outcome of successful competitive process.

A.18/19 The 'Clinical Workstation' and Mobile Platform

Description and scope:

The clinical workstation will be delivered through phased integration of existing clinical systems plus deployment of new features and technologies via the GDE programme. The clinical workstation will deliver improved and more efficient user interfaces to access data, collect data, more intelligent sharing of data and better workflow integration. It will be accessible through desktop, mobile and web form factors.

The following modules will be available and integrated through the clinical workstation:

- Existing Proformas and Service Orders reviewed and optimised
- Rapport technology to be phased in in parallel, delivering new structured clinical noting for pathways and assessments, as well as gradual replacement of existing proformas, enabling more integrated working, less duplication of data, advanced workflows and more agile iterations for design and development
- It will host new services to enhance clinical workflow which will include clinical team context, patient list management, reassigning a patient's consultant and timeline views of patient activity
- It will deliver a more seamless user experience and enable faster navigation between both different patients in clinical lists and between the relevant clinical modules and notes, within patient context, to enable safe but efficient multitasking and optimise clinician's time spent within the EMR
- The scope will include identification of specific features for mobile through a 'minimal viable use case' approach, working closely with clinical stakeholders and delivered through the Rapport platform to ensure optimal value is delivered.

Exclusions:

Not yet assessed but dependent on any BNSSG organisations that elect not to participate directly. This will be addressed via the Connecting Care Partnership.

Key Outputs and Associated Delivery Milestones:

DM1:

- Structured and unstructured Clinical noting scope agreed and configuration commenced
- Order Communications gap analysis

DM2:

- Demonstrate integrated mobile working between Vitalpac and Careflow
- Optimisation of first 50 proformas and service orders
- Mobile Results and Order Comms mvp agreed

DM3:

- New pathways, assessments and service orders mapped ready for Rapport deployment
- Rapport based structured clinical noting pilot commenced
- Rapport based mobile results pilot commenced

DM4:

- Mobile Order Comms deployed and pilot commenced
- Mobile results mvp live and in use
- Client side integration for mobile suite of apps, with patient context switching between Vitalpac, Careflow, Results and Order Comms
- Structured clinical noting rollout commenced
- Rapport based unstructured clinical noting pilot commenced
- New Medway UI piloted to provide multitasking experience, clinician managed consultant allocation, team structures and full Careflow/Vitalpac/Rapport integration

DM5:

- Mobile Order Comms roll-out in progress including Radiology
- Mobile results iteration based on clinical feedback
- New Medway UI deployed

Key Outcomes:

Enables development and delivery of elements of B.01, C.04, D.01/02/03.
Enables start of routine use of mobile solutions across the Trust.

Dependencies:

Medway EPR version 4.8 deployed (DM3 onwards will require EPMA and OCRR module functionality in Medway 4.8).
As an underlying development platform this product has delivery dependencies on all subsequent delivery milestones.

B.01 'Careflow' Clinical Collaboration within UHBristol

Description and scope:

Careflow provides secure integrated communications with both team-based and event-driven mobile workflow with open APIs covering the entire platform.

A unique publish-subscribe model for alerting enables either care teams or individual clinicians to build workflows to ensure they receive clinical escalations only relevant to their needs and their patient cohorts. Careflow's 'Notify' API enables integration of these patient events or triggers from any system.

Careflow's core strength is in its ability to support teams and team based workflow which is fundamental to care coordination required for most of healthcare delivery. Careflow enables managed teams, on-call teams, intelligent and curated team based lists, structured and unstructured patient identified messaging within and between teams and task management that enables hospital 24/7. Additional workflow integration is enabled through both server side APIs as well as client side app-switching through published URI schema.

Associated Delivery Milestones:

DM1:

- Installation of Careflow 'Staging network' for testing and UAT of the following integrated functionality:
- Patient MPI/ADT integration from either Medway or Vitalpac*
- Real time bed/location data, Early Warning Score and Estimated Discharge Date integration from Vitalpac*
- Set up of roles for administrators, super users and IT support
- Set up of Care Teams and enabling of core team workflow including patient identified conversations linked to patient record, secure picture messaging and shared patient smart lists
- SBAR Handover and clinical patient tags
- Inter-team/inter-specialty SBAR patient referral messaging
- Task Management for Hospital-at-night and hospital-24/7
- Secure mobile messaging and presence

DM2:

- Deployment of Careflow 'Live network' with above functionality to enable full rollout as agreed with the Trust
- Active Directory Integration to auto-provision joiners and leavers
- Vitalpac alert notifications, including High and Critical EWS, VTE, AKI*
- Medway alert notifications
  - Patient Safety: low/high K+, low Hb, Neutropenia, TNT, D-Dimer, availability of radiology reports
  - Patient Flow: admissions, discharges and A&E attendances plus key admissions including COPD, Oncology, Congenital Heart Patients, Haemophiliacs and patients with learning disabilities
- Nurse-driven Managed Escalations using Vitalpac/Careflow linked task management for deteriorating patients*
- Availability of standard activity and engagement reports through Microsoft Power BI

Exclusions:

Application where other GDE components, e.g. Rapport and VitalPac are more suitable

within the Clinical Workstation product set.

Key Outputs:

DM1:
- Careflow staging network deployed and accessible through mobile and web apps and integration testing
- Project team familiarised with Careflow on the staging network
- Certificate of acceptance of the Careflow staging network
- An Agreed rollout plan to be executed by DM2

DM2:
- 24 teams actively using Careflow for communications and workflow including Handover, Alerting, Messaging and Task Management.

Key Outcomes:

Real time delivery of patient safety and patient flow information using team based and individual subscription model to improve accuracy of alert notifications and governance
Improvement in direct collaboration between care professionals leading to more rapid response and turnaround time, and therefore greater safety, in task management and handover of care.
Reduction in bleep traffic and telephone usage through direct context-based communication, releasing time to care and improving prioritisation of workflow
Reduction in paper and isolated spreadsheets or databases to manage patient lists and patient handover, reducing communication errors and improving patient safety
Elimination of unauthorised communication methods such as Whatsapp and personal paper based notes so improving information governance.

Dependencies:

Medway EPR version 4.8 deployed. A.17/18/19

C.03 Direct Integration Between Medway EPR and LiquidLogic Adults and Children's Services

Description and scope:

- Phase 1: Message-level integration of workflow and task documentation (e.g. S2s, S5s, D2A) between UHBristol Medway EPR and LiquidLogic Adults' and Children's systems at Bristol City Council.
- Phase 2: Roll-out to North Somerset and South Glos councils once Children's LiquidLogic systems are deployed.
- Phase 3 (possible, not committed): Progress similar integration with North Somerset and South Gloucestershire councils for adult non-LiquidLogic systems (subject to third-party supplier participation).

Associated Delivery Milestones:

DM3. The Medway - Liquidlogic integration allows the user to create and send social care notifications to Liquidlogic Social Care. Acceptances and rejections of these notifications from Liquidlogic to Medway will be sent via secure email. This is a significant enhancement in allowing staff to communicate when social care services are required for a patient.

Exclusions:

Not yet assessed but dependent on Council preferences for handling additional task functions between UHBristol and BCC.

Key Outputs:

When the transfer of care for a patient requires social care involvement the Medway user will create the appropriate social care notification which will be sent to the social care provider, in this case the social worker worktray in Liquidlogic. The notification will be created using a template in Medway and pre-populated by Medway with any relevant information plus specific data required for that referral. Once the notification is created and the changes are saved, the document will be sent electronically from Medway to Liquidlogic's worktray.

It is possible to cancel a notification once has been sent. The user has the possibility of cancelling Section 2 notification, Section 5 notification or both populating a withdrawal notice present also in Medway. Similar to the others two documents, this one will be populated with the patient and ward details. Once finished and saved, it will be sent to the social care provider following the same procedure as the other notifications.

Key Outcomes:

Benefits related to immediate notification, removal of paper, and mismatched processes between UHBristol and BCC to reduce turnaround times and improve reliability and content of communication.

Dependencies:

Medway EPR version 4.8 deployed.

C.04 Clinical Community Collaboration within BNSSG

Description and scope:

Building on B.01 implementation of Careflow within UHBristol and rolling the capability for task-based communications into participating BNSSG organisations (to be agreed).

This project significantly extends the capabilities for community collaboration within BNSSG thorough the provision of a set of capabilities which deliver the key outputs below which are aligned with the appropriate delivery milestones.

The scope is defined as the building of a foundation community integration layer alongside Connecting Care with an aggregated enterprise master patient index encompassing all patients across primary care, social care and acute and community health provision. The Careflow solution in collaboration with the CareCentric solution will form this platform.

This platform will be used as an enabler to facilitate the management of community wide cohorts of individuals (based on a variety of factors including demographic or social factors and/or disease specific) and to manage the treatment of these individuals using defined alerts and collaboration applications.

Providing the most complete possible view of patient data and publishing clinical alerts and associated text to defined multi-disciplinary groups of users. This will provide key communication to those clinical staff involved in the care of individuals with complex care and/or those who are most vulnerable.

Associated Delivery Milestones:

DM1:
Community alerting scope draft, data sharing agreements reviewed

DM5:
Completed design, configuration, on-boarding and active participation of up to 50 patients

DM6:
Access and patient participation extended for up to 250 – 500 active patients

Exclusions:

Not yet assessed but dependent on which BNSSG organisations elect to participate in the early stages of this exercise. This will be addressed through the Connecting Care Partnership, which will provide programme support, governance and lots of encouragement for this aspect of the programme.

Key Outputs:

The currently agreed lists of outputs are;

- A reviewed and agreed care community scope [DM1]
- Data sharing agreements reviewed and updated as necessary [DM1]
- Design and deploy Bristol care community integration layer [DM2]
- Agree community wide alerting and clinical collaboration requirements [DM1]

- Configure community wide alerting and clinical collaboration requirements [DM2]
- Roll-out care community-wide alerting and clinical collaboration 1,000 users [DM3]
- Roll-out care community-wide referrals and task management [DM3]
- Deploy integrated admission / discharge workflow with LL social care [DM3]

Key Outcomes:

Improvement in direct collaboration between care professionals across participating BNSSG organisations leading to more rapid response and turnaround time, and therefore greater safety, in task management and handover of care.
Reduction in telephone use through direct context-based communication use of paper as a communication medium.

Dependencies:

A.18/19, B.01

D.01/02 The Person Held Record (with CareCentric integration Layer)

Description and scope:

D.01 Establishes the technical platform and connectivity between the core systems of record and integration engines that will feed and interoperate with the patient-held components. This will deliver a foundation layer for the Person Held Record leading to a functional patient portal solution. These will commence with UHBristol's EPR with a view to matching or integrating the BNSSG based Connecting Care, ensuring that the patient-held record will ultimately reflect the content of Connecting Care in future.

D.02 then builds on the platform to provide access for the patients to their integrated Digital Care Record

The primary focus is on sharing the Acute data and allowing the patients appropriate views of the same data via the patient web portal and a smaller subset again for the myCareCentric app.
The constituent parts are the main CareCentric product patient repository (based on Microsoft HealthVault), PHR app (based on Rapport development platform), identity and consent management solution.

The care community integration layer defined in C.04 is a key enabler for the full interworking of the PHR and for New Models of Care/Pathways [D.03]

Associated Delivery Milestones:

DM1:
- Patient engagement strategy agreed and commenced to recruit initial users

DM2:
- Bristol care community integration layer deployed alongside Connecting Care - content assembled from providers across the care community at the point of care
- Patient-Held Record requirements agreed (Patient Access), initial pilot group (est. 250 - 500) recruited and pilot commenced

DM3:
- Patient Held-Record/Patient Access pilot complete and lessons learnt under review with the focus on the ability to view their own records from across the acute setting.

DM4:
- Care Community Patient Access pilot complete.
- Linked to C.04, care community clinical collaboration scope agreed and configured ready for roll-out.
- Patient Acute appointment self-management (see Outputs)

DM5:
- Roll-out patient access, including collaboration, to acute (est. 250-500 patients)
- NMC/Pathways roll-out for one selected pathways in progress

DM6:
- Care community patient access now matured for est. 250-500 patients.
- Patient-Held Record/Patient Access including collaboration (see C.04 above) is available to all relevant patients

Exclusions:

Provision of devices and networks used by enrolled patients to access the PHR.
Integration of other organisation-based PHR products used in BNSSG (e.g. PKB).

Key Outputs:

The currently proposed lists of outputs for the initial deployment are:
- Establishment of the PHR repository and linkage to this for on-boarding and identity management [DM 4]
- Deployment of the PHR application via Rapport toolset and integrated with the care community integration layer [DM 4]
- Inclusion of relevant data from UHB EPR (appointments and test results) [DM 4]
- Ability to send information back to clinical users [DM 4]
- Access to patient correspondence that the Trust has issued [DM 4]

Subsequent releases of the PHR will increase the data, function and the accessibility of information.

PHR roll-out completed
Full rollout commenced
Patient access matured for 250 – 500 patients

This project also includes a DM4 deliverable, Patient Acute appointment self-management:
- Ability for patient to be updated via text of appointment offers/reminders
- Ability for patient to view booked appointments
- Ability for patient to cancel/rejecting appointment offers

Key Outcomes:

Pilot of first PHR as a platform for New Models of Care/Care Pathways and direct patient involvement in clinical collaboration. Learning for the next phase of the roll-out including scale of uptake and management of associated administrative functions.

Dependencies:

Dependent upon C.04, may be affected by A.18/19, B.01

D.03 New Models of Care/Pathways

Description and scope:

The development and use of specialist apps associated with the PHR to support patient involvement and self-care for long-term and complex conditions. The initial phase will use an existing project, currently expected to be Cardiac Heart Failure.

This will lead the way and inform the future rollout of other condition focused solutions, taking into consideration:

- Development of new NMC solutions associated with BNSSG's STP priorities (e.g. COPD, frail and elderly, MSK).
- Additional NMCs already developed elsewhere to be integrated into the core solution (e.g. Southampton's prostate cancer and IBS apps).

Note that additional pathways to be defined STC in collaboration with the Connecting Care Partnership.

This programme component will use the CareCentric IDCR and Careflow alerts along with the Microsoft Healthvault platform to deliver the 'myCareCentric' solution for patients to use as part of the supported self-care agenda.

Along with the patient app the corresponding clinician views will be accessible from within

the CareCentric Gateway solution. It is anticipated the solution will use a mix of passively captured data (via connected devices in the home and/or wearables) and actively collected eForm data.

Associated Delivery Milestones:

DM1 Initial candidate Long Term Condition agreed

DM2 Pathway scope agreed build / configuration in progress and est. 20 – 50 pilot patients recruited

DM3 Pilot Commenced

DM4 Pilot evaluation completed; plan for roll-out

DM5 Roll-out (extended cohort of patients for initial LTC)

DM6 Adopted for full LTC patient cohort

Exclusions:

Provision of devices and networks used by enrolled patients to access the PHR and NMC apps (possible inclusion of essential wearables associated with the apps depending on requirements).
Integration of other organisation-based PHR products used in BNSSG (e.g. PKB) not specifically identified as included in the pilot.

Key Outputs:

Initial cohort of LTC related patients and clinical teams active use of NMoC for condition management

Pilot report including recommendations for further LTC solutions produced

Pilot extended to the wider cohort as appropriate

Key Outcomes:

Measured benefits associated with direct patient collaboration and self-care.
Reduced unnecessary face-to-face contacts, interventions and admissions; improved patient communication and triggered interventions; immediate availability of patient status to improve safety and quality of outcomes.

Dependencies:

A.18/19, B.01, C.04, D.01/02

E.03/04 Advanced Analytics and BI

Description and scope:

E.03 enables advanced analytics and Business Intelligence to revolutionise the use of data within UHBristol. Includes the roll-out of advanced clinical and business intelligence functions as part of the existing Medway BI suite to continue development and delivery of real-time dashboards. Introduction of further data science projects jointly working with academic partners.

The primary focus is for the use Business and Clinical Intelligence to provide highly visual dashboards to help improve patient flow and the enable use of data to make informed decisions more rapidly. Adds technology to give capability for advanced data visualisation, data science, analytics and mobile BI.

- Introduction of Data Visualisation software (Yellowfin) which includes capability to embed BI within the Medway EPR, mobile BI, subscribe to content and metric driven alerting. Browser based technology and mobile capability means it can be used anywhere within the organisation.
- Design, build and deliver as a joint collaborative project with UHBristol clinicians and analysts 10 clinical / business intelligence dashboards. Example areas that may be included are:

- Identification of bottlenecks in patient flow and management of causal factors.
- Real time analysis of Sepsis response.
- Analysis of early warning score escalation management and clinician response times.
- Upskill staff within UHBristol to both utilise the technology and enhance soft skills in requirements gathering, design, analytics and agile development techniques.
- Introduction and evaluation of data science models to assist patient flow management on length of stay prediction and ward busyness. The evaluation will include collaboration with other System C customers and academia.
- Integration of BI into day to do business processes.
- Ability to access and utilise data from across the systems deployed as part of this programme.
- Data Visualisation software licences included for up to 150 concurrent users (unlimited named users). Includes capability to be used on any data available within UHBristol.
- Collaboration with other System C customers on sharing Business Intelligence content and techniques.

Associated Delivery Milestones:

DM1:
Data Visualisation software deployed. Requirements analysis commenced. Training commenced.

DM2:
Training completed. Requirements analysis, scope agreed and completed. Collaborative Agile content development cycle commenced. Data Science models deployed.

DM3:
First five dashboards completed.

DM4:
Collaborative Agile content development completed with delivery of remaining 5 dashboards. UHBristol self-sufficient in Data Visualisation content development. Data Science modules either in active use or proved to have no practical value. All trained personnel able to create and deploy dashboards using the supplied tools independent of SCH BI support.

Exclusions:

Licences for a defined number of users will be included in the GDE-related agreement. Additional licensing will be negotiated separately.

Key Outputs:

- Suite of dashboards and reports that are actively used as part of business processes within UHBristol.
- Clinical Intelligence used to help improve patient care via the identification of areas that can be improved.
- Business Intelligence used to measure and track programme benefits.
- Contribution of dashboards and reports to Azure-based metrics library which can be used by other System C customers.

Key Outcomes:

Within UHBristol: Continued development of an information culture based on the use of reliable, real-time data that helps clinicians and managers to make informed decisions more rapidly.
Ability to measure and track benefits via data from across the programme.

Dependencies:

D.01/02, Medway 4.7 (4.8 for later features).

b) The CSIP Projects

The following CSIP-funded projects will contribute match against GDE-funding.

Note that the underlying products for many of the CSIP projects have already been procured and implemented, with the on-going project work based on revenue (staff-time) costs, not capital expenditure, for extending and embedding use of the functionality, so the match contribution will be relatively low but contribution to the programme (e.g. HIMSS ≡) will be high.

CSIP-funded projects are not being deployed against the GDE delivery milestones.

A.03 Medway Service Orders and Order Comms
Description and scope: Medway Service Orders is a core module that will contribute to UHBristol's HIMSS 7≡ and provide a completely integrated electronic requesting capability across the Trust for all services that are offered between departments, from radiology and pathology to lung function tests and palliative care referrals. Medway Service Orders allows clinicians to request services and receive associated results and reports, construct order sets to drive pathway task management, and service departments to monitor and management their workload and set the status of outstanding orders. Once fully deployed this module will replace Sunquest ICE (currently launched in context from within Medway) as the order comms solution across the Trust. ICE will, however, continue to be used by UHBristol's GP community until an alternative primary care solution is adopted, perhaps alongside EMIS.
Current position: • Phase 1 of the Service Orders project has been completed with the roll-out of electronic requesting across the Trust. There are currently over 100 service orders defined across departments within all hospitals in the Trust, with more orders for departmental services being defined all the time. • Phase 2, Implementation of Order Comms for radiology and pathology, has been delayed because of the late delivery of the new WinPath pathology system, implemented jointly by North Bristol and UHBristol's pathology departments. Completion of this project has allowed us to commence Phase 2 of the Medway module delivery.
Delivery plan: • The System C and UHBristol deployment team have completed the functional gap analysis and PID for this project and are engaged in detailed planning for the migration from ICE to Medway. • Integration work with the pathology and radiology system currently sets the timeline for the project, with the draft plan showing go-live early in Q4 17/18. • Roll-out does not need to be 'big-bang' so a phased uptake of Medway ordering away from ICE will be undertaken department by department over a two to three-month period.
Exclusions: • UHBristol already uses Sunquest ICE for radiology and pathology order comms inside and outside the Trust, so will gain no additional functional benefit from the switch to Medway order comms for these disciplines. • UHBristol GPs will continue to use ICE for requesting radiology, pathology and certain other services as permitted by the CCG.
Key Outcomes: • Paper-free requesting and reporting for all service departments. • Fully integrated operation of service orders and demand management within Medway. • Request-driven task management within defined clinical pathways, including EPMA orders.
Dependencies: • Inward: Medway EPR version 4.8 to support specific order comms functional and

analytics capabilities (scheduled for Q3 17/18).
- Outward: This module must be deployed to support GDE project A.19 - mobile order comms.

A.04 Medway Electronic Prescribing and Medicines Administration

Description and scope:

Medway Electronic Prescribing and Medicines Administration is a core module that will contribute to UHBristol's HIMSS 7≡ and provide an integrated electronic prescribing capability for all general wards and outpatients across the Trust.

Developed in partnership between System C and UHBristol, Medway EPMA is a completely new module, fully integrated into Medway and designed with detailed participation between clinical, pharmacy and technical users. The module will replace the paper drug chart and all prescribing and drug admin functions through to automated transfer of TTOs into the Medway-based discharge summary.

Current position:

- Partially funded by Tech Fund 1, the development process for this product has taken longer than expected but is now in advanced testing stage.

Delivery plan:

- The System C and UHBristol deployment team have completed a detailed implementation plan for the roll-out of EPMA.
- Phase 1 of the roll-out will commence with the pilot of the adult functionality in the Bristol Heart Institute in Q3 17/18, followed by staged roll-out across all adult general wards by the end of Q4 17/18.
- Phase 2 includes the delivery of additional technical functions and paediatric prescribing. We are currently agreeing the timescales and detailed scope for this phase, which will be completed by the end of the GDE programme term.

Exclusions:

- Medway EPMA will not address prescribing in the Trust's Intensive Care Units (provided by Philips ICCA) or chemotherapy units (provided by CIS Chemocare). Simple integration will be implemented to support transfer of the current chart between these systems where appropriate.

Key Outcomes:

- Paper-free prescribing and drug admin management across the Trust.
- Key safety and quality improvements expected from any successful EPMA implementation.
- Incorporation of drug orders into request-driven task management within defined clinical pathways.

Dependencies:

- Inward: Medway EPR version 4.8 to support EPMA linkages (scheduled for Q3 17/18).
- Outward: This module must be deployed to support GDE project A.19 - mobile prescribing.

A.05 Medway Spine/PDS Connectivity

Description and scope:

PDS connectivity between Medway and the National PDS service. Medway's PDS integration allows the functionality to be activated and deployed progressively, i.e. not using a big-bang approach.

Current position:

- UHBristol deployed Medway in 2012 without connection to the National Spine/PDS. Until the present time this has presented no particular disadvantage, with frequent batch tracing ensuring that NHS number verification has been high.
- The Medway PDS module has been ordered but delivery held awaiting local upgrade of

Medway to version 4.6 or above. Our next Medway upgrade will be to 4.8, following which the PDS module will be activated and roll-out commenced in appropriate areas across the Trust.

Delivery plan:

- The roll-out will commence following upgrade to Medway 4.8 in Q3 17/18 with initial use in emergency departments followed by other priority and admissions areas.
- The Trust's Registration Authority is based in the Clinical Systems Support Office. It will be resourced to cope with the additional demand for registration, but this will not be significant because we will not be using a big-bang approach.

Exclusions:

- None expected.

Key Outcomes:

- Real-time NHS number verification and update of patient details.

Dependencies:

- Medway EPR version 4.8 (scheduled for Q3 17/18).

A.07 Evolve Electronic Casenotes

Description and scope:

Kainos Evolve is a robust electronic document management system that has been optimised to act as an electronic casenote management system. Within UHBristol it is being used to replace the legacy ('buff') casenote across all hospitals in the group, removing historical paper from all locations and provide immediate, shared access of patient notes across the Trust and other BNSSG locations.

As well as replacing the historical casenote, Evolve is used to collect 'new' paper being produced in those areas that have not yet been able to adopt paper-free operation, another aspect of the project that involves Medway's clinical noting module and the GDE 'clinical workstation components described elsewhere.

Current position:

- Partially funded by Tech Fund 1, the first phases of the roll-out have taken longer than expected because we have encountered an 'underground' economy of local notes as we have progressed through the various phases of the Evolve roll-out.
- Learning from observation of other Trusts adopting EDMS systems, we have approached this project in an 'industrial' manner. This has included the creation of our own in-house scanning bureau, which has scanned over 16m documents since the project commenced in October 2014.
- We have rolled out Evolve across St Michael's Hospital and the Bristol Royal Hospital for Children.
- The use of Evolve has helped colleagues to understand the potential impact and increased the appetite for well-designed digital solutions.

Delivery plan:

- Evolve goes live in the Bristol Royal Infirmary, Bristol Heart Institute and South Bristol Community Hospital on 2 May 2017.
- Roll-out into the remaining sites: Bristol Dental Hospital, Bristol Eye Hospital and the Bristol Haematology and Oncology Centre, by the end of 2017.

Exclusions:

- Evolve has the capability to be used to create electronic forms but, apart from selected form types this has not been employed because it a) fragments the record across products and b) effectively creates 'electric paper' rather than procedural pathways that capture transactions rather than replicating paper forms.

Key Outcomes:

- Drastic reduction in the production, management, handling, loss and problems associated with using paper.
- Improvements in safety and quality of care associated with quicker and more reliable access to information.

- At the later stages of the project, reduced medical records staffing and use of real-estate for storage of notes.

Dependencies:

- None.

A.08 Bluespier Theatres

Description and scope:

Bluespier Theatres is a specialist third-party module sold by System C to integrate closely with Medway EPR. It delivers all functions expected within a dedicated theatre departmental system and will form the basis of an on-going theatre effectiveness transformation programme.

Current position:

- Bluespier was delivered by System C as a replacement for its interim theatre scheduling product originally delivered with Medway EPR in 2012.
- The first phase of the Bluespier roll-out concentrated on functionality for theatre booking, scheduling, list management and theatre whiteboard deployment.
- Theatres in the Children's Hospital have opted to continue using their 'T-card' system until the next phase of the Bluespier delivery has been completed.
- Department and CSIP teams have scoped Phase 2 of the project (clinical documentation, tracking and analysis) and detailed planning is under way.

Delivery plan:

- Phase 1 scheduled for sign-off June/July 17.
- Phase 2 scope and plan to be agreed May/June 17, with progressive delivery of new functions and associated equipment across UHBristols 30+ theatres through to Q4 17/18.

Exclusions:

- Bluespier is not currently used for pre-operative assessment. We will review this later in the year in the light of forthcoming demonstrations.
- Bluespier is not used in cardiac cath labs, which are being served by specialist systems.

Key Outcomes:

- Paper-free anaesthetic and theatre documentation across all departments.
- Better theatre and resource capacity utilisation as part of improvement in patient flow (within operating model programme).
- Incorporation of drug orders into request-driven task management within defined clinical pathways.

Dependencies:

- None.

A.09 Paediatric Oncology Prescribing

Description and scope:

The procurement and implementation of a paeds chemotherapy prescribing system has been accelerated by the agreement of an associated CQUIN. The system will manage chemotherapy for all UHBristol paediatric oncology patients.

UHBristol is implementing CIS Oncology as a 'hub and spoke' model wherein UHBristol will host and manage the system on behalf of seven other 'satellite' oncology units across the South West who are involved in the care of UHBristol patients who live in their areas.

Current position:

- Contract for CIS Oncology has been agreed, satellite organisations signed up, PID and plan are in advanced stage of development.
- CIS Oncology is already used within UHBristol's adult oncology service in the Bristol

Haematology and Oncology Centre (BHOC).
- Pharmacy has commenced the database build of the system ready for sign-off.

Delivery plan:

- Go-live of CIS Oncology in UHBristol is currently expected in August 17 with the satellite organisations adopting the system in the following two months to meet the CQUIN.

Exclusions:

- None relevant.

Key Outcomes:

- Paper-free prescribing and drug admin management for paeds oncology in compliance with the relevant CQUIN.
- Key safety and quality improvements.

Dependencies:

- None.

A.10 Paediatric Cardiology Imaging

Description and scope:

The paediatric cardiology department in the Bristol Royal Hospital for Children has managed for some years with a diverse collection of aging specialist imaging systems that lack reliability and compatibility between them. This has caused increasing risk of the loss of data and time wasted waiting or relocating to use a specific device.

Philips' CVS has been procured to provide a single, unified means for clinicians to capture report and investigate images from various modalities and secure images onto UHBristol's corporate imaging archive. It offers specialist imaging capabilities to help our clinical colleagues to care for children from across the South West of England and South Wales.

Current position:

- The contract for Philips CVS has been agreed, the PID and plan are in advanced stage of development.
- Detailed design for the most complex aspect of the project, integration with our core EPR, imaging modalities and other specialist systems, is underway.

Delivery plan:

- Delivery and go-live of Philips CVS is currently expected in August/September 17.

Exclusions:

- Migration of historical images, which will need to be conducted manually from the extensive library of CD and DVD-based data on an 'on demand' basis.

Key Outcomes:

- For the first time, a unified system for safely managing the diagnostic imaging of some of the sickest children across the South West.
- Key safety and quality improvements.

Dependencies:

- None.

A.14 Cardiology Management System

Description and scope:

The Bristol Heart Institute (BHI) has conducted a procurement to replace its aging/obsolete GE Carddas cardiac management system.

The scope of the new system will cover all scheduling, image management and reporting of images for cardiac cath labs, treatment planning, MDT support, and remote patient monitoring across the BHI.

Current position:

- The current Carddas system is obsolete and unsupported and is currently seen as a formal risk to the business.
- The procurement for its replacement is currently in the closing stages and a preferred bidder has been selected with contract negotiations in progress.
- Draft implementation plans have been devised with integration identified as a key area for risk of delay.

Delivery plan:

- Go-live of the new system, including migration of agreed data from Carddas, is currently expected in Q3/4 17/18.

Exclusions:

- Not yet agreed but likely to include some data migration components and external storage for imaging.

Key Outcomes:

- Resolution of significant risk of using obsolete solution.
- Integrated workflow management for cardiology pathways
- Key safety and quality improvements.

Dependencies:

- None.

A.16 Clinical Utilisation Review (CUR)

Description and scope:

The procurement and implementation of additional capacity for the CUR system recently piloted across four UHBristol wards to allow roll-out across the Trust.

Current position:

- The pilot was conducted to meet a CUR-based CQUIN mandated by NHS England. The Trust was initially reluctant to undertake the pilot but has been surprised to find that CUR has led to benefits on the pilot wards in spite of the pilot constraints (e.g. failure to discontinue existing local competing processes).
- The pilot recommendation report is in preparation, allowing UHBristol to successfully discharge the CQUIN requirements.
- Subject to Trust recommendation, the contract for Oak Group's MCAP will be extended to cater for all UHBristol beds.

Delivery plan:

- Roll-out of CUR across all UHBristol wards within a defined period to meet 17-19 CQUIN requirement.
- Current expectation is to roll-out progressively division by division to maximize patient flow benefits.

Exclusions:

- None relevant.

Key Outcomes:

- Consistent, evidence-based method for assessing patient qualification on ward and improvement of patient flow.
- Possible obsolescence of existing local processes currently in use.

Dependencies:

- Agreed recommendation report supporting adoption of CUR as Trust standard.

E.02 Dashboards and Whiteboards (WardView)

Description and scope:

The on-going development and delivery of dashboards and whiteboards based on our extensive business intelligence capability is seen as a 'generic' business-as-usual project that will progressively encourage our users to make more and better use of 'right here, right now' information.

One spin-off from this project is the development of our WardView product, which will deliver an interactive whiteboard tailored to the needs of each ward across the Trust. Fed with data from Medway, eHandover and other relevant sources, WardView also allows users to interact directly with the 'board to mimic the use of magnets on 'proper' whiteboards so that patient status can be maintained and accurately in real time.

Current position:

- The development of the WardView product has been completed and the first pilot wards have reported back on their experiences.
- Configuration of WardView for the remaining wards has commenced, with all wards being encouraged to adopt a 'standard' view to reduce additional development, but able to define additional content if required.
- Engagement and implementation plans have been prepared and the first crop of wards engaged to refine their requirements.

Delivery plan:

- All wards will be engaged and requirements captured by August 17.
- Wards not requiring additional content and development will be prioritized for delivery. It is hoped that most wards will be equipped by September/October 17.
- Delivery will involve mounting large touch screens in each ward location, requiring collaboration between IM&T, estates and the wards.
- Business continuity plans for each ward will be agreed and supported with a roll-up stand-by whiteboard. Just in case.

Exclusions:

- None relevant.

Key Outcomes:

- Real-time view of patient status allowing improvement in patient flow, discharge planning, bed availability and planning.
- Immediate, visible feedback driving 'in-the-moment' update and use of core information systems including Medway.
- Key safety and quality improvements.

Dependencies:

- As with any project that involves making holes in a wall, there is a risk that discovery of asbestos could hold back progress in some ward areas. This will be contained where possible with the use of large trolley-mounts for the screens, but these will not be appropriate in all areas.

The GDE Delivery Milestones

Six achievement-based delivery milestones have been identified as the basis for measurable progress and payment purposes. These milestones are outcome-based, so each line represents significant effort and the delivery of underlying products and technology components to make it work.

Annex I shows these milestones across the functional themes to illustrate the progression in each area. The next stage of planning will further define the deliverables and relate specific, measurable benefits to these outcomes. The Delivery Milestones and associated deliverables for GDE and directly-dependent CSIP components are shown below. Existing CSIP projects are not tied to the GDE delivery milestones and are therefore not shown in this table.

Delivery Milestone 1 – June 2017	Project
Careflow platform deployed and integration commenced providing platform for alerting, clinical collaboration, handover, task management, referrals	C.04
VitalPac e-Observations platform deployed and roll-out commenced	A.17
Community alerting and collaboration scope in draft and data sharing agreements reviewed and updated	C.04
Patient engagement strategy agreed and commenced to recruit initial users	D.01/02
Clinical engagement strategy agreed and commenced	N/A
Structured and unstructured Clinical noting scope agreed and configuration commenced	A.18/19
New Models of Care/Pathways candidate conditions identified and first 2 LTC's selected	D.03
Order Communications Gap analysis for full roll-out including mobile development complete	A.03

Delivery Milestone 1 – September 2017	Project
Roll-out of Careflow alerting integration supporting selection from, AKI, low/high K+, low Hb, Neutropenia, TNT, D-Dimer, availability of radiology reports, admissions, discharges and A&E attendances plus key admissions including COPD, Oncology, Congenital Heart Patients, Haemophiliacs and patients with learning disabilities	B.01
Roll-out of Careflow alerting, clinical collaboration, Hospital at Night and Handover-24 teams - information pushed to acute clinicians when they need it	B.01
Bristol care community integration layer deployed alongside Connecting Care - content assembled from providers across the care community at the point of care	C.04
Community-wide alerting and clinical collaboration scope agreed, DSA's approved, configuration complete	C.04
Patient-Held Record requirements agreed (Patient Access), initial pilot group (est. 250 - 500) recruited and pilot commenced	D.01/02
Requirements for acute appointment self-management agreed and build commenced	D.01/02
New Models of Care/Pathways scope agreed and build in progress	D.03
New Models of Care pilot patients identified and recruited	D.03
CSIP component dependencies for GDE functions: • Roll-out of Medway version 4.8 • ePMA Pilot functionality deployed • Commence PDS/Spine connectivity	DEP A.04

Delivery Milestone 3 – January 2017	Project
Community Collaboration rollout in progress to defined teams, agreed alerting	C.04

(e.g. GP notified of admission/discharge), clinical collaboration, single assessment, referrals and task management	
Admissions and Transfers electronically communicated to social care application worktray to enable seamless workflow and speed up the discharge process	C.03
Patient Held-Record/Patient Access pilot complete and lessons learnt under review - built collaboratively with patient engagement group, scope to view their own records from across the acute	D.01/02
Clinical Collaboration/reciprocal communication with Patients - scope agreed and configured ready for QA	D.01/02
Care Community Patient Access requirements agreed and DSA's reviewed - built collaboratively with patient engagement group, scope to extending access to view their own records from across the community	D.01/02
Structured Clinical Noting configuration complete ready for pilot	A.18/19
E-observations trust-wide rollout complete - improved visibility of inpatients and provide early alerting of deteriorating patients and identification of risk such as sepsis, AKI and infection	A.17
Integrated observations devices - pilot commenced	A.17
New Models of Care pilot commenced for first LTCs	D.03
Advanced Analytics and Business Intelligence first agile content deployed	E.03/04
CSIP component dependencies for GDE functions: • Medway Order Comms deployed and ready for roll-out to replace ICE • ePMA Pilot completed, lessons learnt and roll-out ready to commence	DEP A.03 A.04

Delivery Milestone 4 – April 2018	**Project**
Community Collaboration rollout complete to agreed teams supporting agreed alerting (e.g. GP notified of admission / discharge), clinical collaboration, single assessment, referrals and task management	C.04
Acute Clinical Collaboration with Patients pilot complete, lessons learnt and rollout commenced	D.01/02
Care Community Patient Access pilot complete, care community clinical collaboration scope agreed and configured ready for roll-out	D.01/02
New Models of Care/Pathways pilots completed, lessons learnt	D.03
Community BI Dashboards agreed, configured and deployed	E.03/04
Mobile Order Comms software deployed and ready for roll-out	A.03
Roll-out of mobile OCS in progress, mobile results reporting delivered and mobile requesting for pathology deployed	A.03
Structured clinical noting rollout commenced	A.18/19
Patient acute appointment self-management deployed and in pilot - for patient participation in their own care planning	D.01/02

Delivery Milestone 5 – January 2018	**Project**
Roll-out of Careflow alerting complete to all acute teams to support AKI, low/high K+, low Hb, Neutropenia, TNT, D-Dimer, availability of radiology reports, admissions, discharges and A&E attendances plus key admissions including COPD, Oncology, Congenital Heart Patients, Haemophiliacs and patients with learning disabilities (Project / Deliverable)	B.01
Roll-out of Careflow clinical collaboration, Hospital at Night and Handover to all teams complete (Project / Deliverable)	B.01
Roll-out patient access, including collaboration, to acute (est. 250-500 patients) (Project / Deliverable)	D.01/02
Design and agree patient access to clinical collaboration discussions (care	D.01/02

community) (Project / Deliverable)	
Configure patient access to clinical collaboration discussions (care community) (Project / Deliverable)	D.01/02
Inclusion of patients in clinical collaboration discussions (care community) with 50 patients (Project / Deliverable)	D.01/02
NMC/Pathways roll-out for selected pathway in progress (Project / Deliverable)	D.03
Roll-out of mobile OCS in progress, mobile results reporting delivered and mobile requesting for radiology deployed (Project Dependency)	A.03
CSIP component dependencies for GDE functions: • ePMA rollout complete to all Adult General wards.	DEP A.04

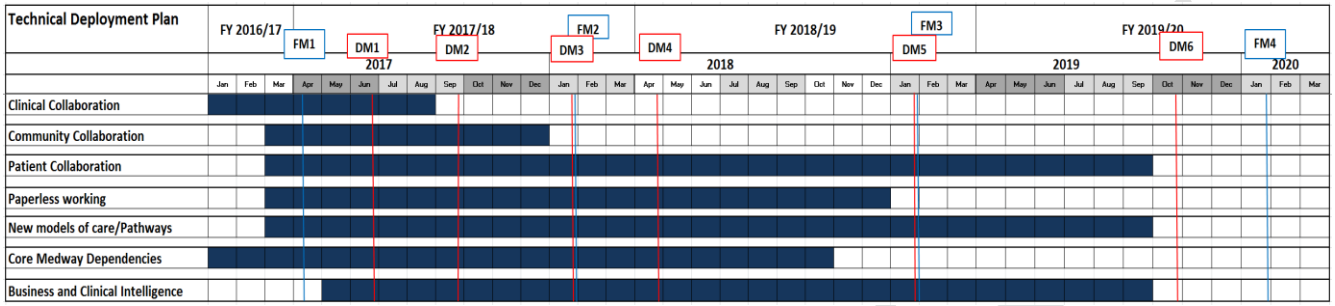
Delivery Milestone 6 – October 2018	**Project**
Roll-out of Careflow alerting complete to all acute teams to support AKI, low/high K+, low Hb, Neutropenia, TNT, D-Dimer, availability of radiology reports, admissions, discharges and A&E attendances plus key admissions including COPD, Oncology, Congenital Heart Patients, Haemophiliacs and patients with learning disabilities	B.01
Roll-out of Careflow clinical collaboration, Hospital at Night and Handover-24 to all teams complete	C.04
Roll-out patient access, including collaboration, to acute (est. 250-500 patients)	D.01/02
Design and agree patient access to clinical collaboration discussions (care community)	D.01/02
Configure patient access to clinical collaboration discussions (care community)	D.01/02
Inclusion of patients in clinical collaboration discussions (care community) with up to 50 patients	D.01/02
NMC/Pathways roll-out for selected pathway in progress	D.03
Advanced Analytics and Business Intelligence primary roll-out completed	E.03/04
Roll-out of mobile OCS in progress, mobile results reporting delivered and mobile requesting for radiology deployed	DEP A.03

3.2 The Plan

The deployment plan is illustrated in Annex I with achievement milestones that will drive the six main payment and funding points identified within this agreement.

The main GDE themes represented within the plan are centred on Paperless Working, Clinical, Community and Patient Collaboration, PHR with New Models of Care/Care Pathways, Core Medway functions (where these are dependencies for GDE components, e.g. EPMA and OCRR), and Business and Clinical Intelligence.

The following summary shows the high-level timelines and associated milestones for the GDE components. The detail can be found in Annex I, Tab B, Technical Deployment Plan.



3.3 Risk and Issue management approach

UHBristol is committed to proactive identification and management of risks posed to the achievement of our objectives. To do this we adopt best practice and employ proven technologies in risk management, and ensure our staff are aware of how to manage the risks associated with our activities.

We know that it is not possible or viable to eliminate all risks and we encourage positive risk-taking in keeping with our statement of risk appetite on opportunity risks—the 'upside' of risk, where pursuing risks might result in positive benefits for our patients, staff and visitors.

Healthcare is a risky business by its very nature and, given this context, effective risk management is critical to keep our service users and our workforce safe. UHBristol's positive and proactive approach to risk management helps us understand the range of risks we face and the extent to which we can contain these risks; a pre-requisite for the safe, high quality care we must offer.

Trust-wide Risk and Issue Management

An important source of information about risks the Trust carries is gained from the systematic analysis of actual and potential risks that are reported across the organisation originating from patient complaints, near-miss incidents, hazard logs, health and safety assessments, lessons learned feedback, 'never-events', safety thermometer audits, and standalone project risk and issue logs.

For effective enterprise-wide risk and issue management, UHBristol uses a centrally-managed web-based workflow tool, Datix, to manage all of its clinical and non-clinical risks and issues. Easily accessed and used by all staff, this system provides the means for recording and extracting information and producing real-time reports in user-friendly ways. Managed by the Trust Risk Manager, dashboard risk reporting with drill-down, reviewing and analysis functions through Datix makes managing incidents and risks much easier to do than through paper-based methods, and makes it more difficult to avoid reviewing and managing risk properly.

We are already using Datix for IM&T project and programme-related risks and issues to ensure that the development and implementation of containment measures are visible and

comply with the Trust's formal governance arrangements for risk and issue handling.

Risk Management Framework Components

- Risk Management Strategy
- Risk Management Policy
- Definition of the responsibilities and accountabilities at all levels in the organisation
- Ensuring Risk Management is embedded into all of the Trusts practices an processes, starting with an introduction to Datix within five days of every new employee to the Trust during induction
- Ensuring adequate resources and availability, led by a dedicated Trust Risk Manager;
- Ensuring staff have appropriate skills, experience and competence, supported by an e-learning product for risk and incident management and embedding these principles routinely into business-as-usual
- Establishing internal reporting processes to encourage accountability for, and ownership of, risk
- Establishing external communication and reporting mechanisms for all stakeholders, supported by the future expansion of Datix to report externally to our BNSSG partners

IM&T-Specific Departmental Risk and Issue Management

IM&T has a Clinical Patient Safety Officer who manages the Clinical Safety Assessments of all our technology projects with specific focus on new or changed processes that may impact the safety of our service users or workforce.

Periodic Datix dashboard reports are produced by PMO on all programme-level risks and significant project risks, escalated to the IM&T or CSIP Boards and then to the IT Management Group as the corporate governing body for IM&T, ensuring accountability to the Trust on delivery of IT and associated project services. Additionally, corporate reports are submitted to the Senior Leadership Team (SLT) detailing any project risks scored above a threshold level. Individual project managers are responsible for identifying, analysing, managing and escalating risks within their projects via PMO.

Inevitably, issues will occur and these are logged and managed on Datix by the Project Managers and fall into the same cycle of review and escalation as risks, starting at project-level and managed within the existing project boards through to full escalation at the IT Management Group.

3.4 Key Programme Risks and Issues

No specific GDE issues have yet been identified because the programme has not yet commenced at UHBristol. Issues related to the delayed preparation of this Funding Agreement have been captured within the CSIP programme.

An initial risk plan has been prepared and is presented in Annex I. This will be supplemented through a structured risk assessment exercise to examine areas of risk in greater detail, define containment options and assign risk owners and escalation, points once the Funding Agreement has been signed off by all parties.

It is noted that the majority of risks already identified relate to failures in stakeholder management, highlighting the importance of strong resourcing from the outset. The Trust will be required to increase its CSIP staffing level and up-skill existing staff to cope with the significantly increased and broadened workload. Whilst we will benefit from the presence of a standing deployment team from System C, the primary risk is still that of not progressing quickly enough and therefore failing to achieve the objectives within the agreed timescales. This could even lead to loss of the final milestone payment.

Containment of all risks will be agreed by the programme board at the outset and reviewed regularly. The ambitious pace of the programme indicates that some risks may be realised more quickly than usual, so a more frequent review cycle may be required.

For the purposes of national reporting back into NHSE and NHS Digital on risks and issues, the current GDE programme risks are shown in the table below. Risks are scored on the assumption that containment has been applied. Dependencies are not considered to be risks unless explicitly identified as such:

Description	Mitigation/containment	Impact	Likeli-hood	Score	Nat. Risk Score
That divisions have insufficient capacity to engage and work with the GDE programme	UHBristol has recently appointed CCIOs to lead clinical engagement in IT projects. The programme will engage with other HCP groups to maximise engagement and ensure success UHBristol will define a clear clinical collaboration engagement strategy as part of the programme	2	4	8	8
Of insufficient capacity within divisions to tolerate the rate of change (particularly during winter pressures) while maintaining necessary service levels.	Key milestones on the programme plan will be agreed in advance with the Trust's Service Delivery Group. The programme will be overseen by IT Management Group (a Trust-wide director-level governing body) that will support planning and prioritisation of key projects.	4	3	12	12
That key suppliers may be unable to deliver quality software within the agreed timeframes	UHBristol will work closely with its key suppliers to scope, design, develop and test new functionality to ensure problems with new versions of software are identified early in the development cycle. UHBristol will engage widely with relevant stakeholder groups throughout the process to ensure highest quality input through the development processes and to articulate clearly what will and will not be delivered.	5	3	15	15
That departure of key staff with specialist expertise within the IM&T department	UHBristol will review its staff structure and staff development programme to improve staff retention and ensure key expertise does not rest in single individuals.	5	2	10	10
That Partner organisations do not sufficiently support the implementation of the GDE programme.	UHBristol will align the improvement programme with the Connecting Care partnership UHBristol will seek support from the System Leadership Group to leverage commitment from partner organisations UHBristol will define a clear community collaboration engagement strategy as part of the programme	2	2	4	4
That Multi-agency agreement on community collaboration requirements could become protracted.	UHBristol will align the improvement programme with the Connecting Care partnership. Existing data sharing agreements can be used to expedite the process UHBristol will define a clear community	4	1	4	4

Description	Mitigation/containment	Impact	Likeli-hood	Score	Nat. Risk Score
	collaboration engagement strategy as part of the programme				
That Patient Collaboration elements do not provide required uptake to deliver meaningful benefits	UHBristol will engage with Patient Forums throughout the process and will involve patients within the project governance structure to ensure this is a project that is done with patients and not done to patients. UHBristol will define a clear patient collaboration engagement strategy as part of the programme.	2	1	2	2
That isolated working does not allow learning from external organisations with existing relevant knowledge, lessons and experience	Working with other providers selected to be part of this programme, we will attend and present at quarterly workshops organised by System C where all of their 22 Trusts and 80 councils will be invited to share planning and progress as the project evolves and to take input where appropriate	2	1	2	2
That the programme of works will not be communicated widely or effectively enough to ensure sufficient uptake	UHBristol will work with its internal communications department and will use its key suppliers marketing experts to ensure clear and active communications of the programme both internally and externally to create a sense of ownership across the whole community. We will run regular open days to share our achievements and learning.	3	3	9	9
That the programme of works involves a high degree of data sharing and collaboration which will involve complex Information Governance	UHBristol will define a clear IG strategy involving all stakeholders which clearly defines ownership of individual projects within the programme at the earliest opportunity.	3	2	**6**	**6**
NHS procurements can be costly and time consuming.	We have a flexible contract with System C that allows us to purchase additional integrated systems without going to competitive tender and most of the scope of this programme is in our joint roadmap, albeit unfunded. System C has indicated that it is willing to commence work 'at risk' in advance of formal contract completion.	5	2	10	10

3.5 Stakeholder Management

The GDE programme is based on the principle of collaboration. The diversity of this collaboration far exceeds anything that we have previously undertaken in the health informatics space at UHBristol yet pulls together strands and relationships that we already have in place. We must collaborate effectively within the programme to build and embed the digital capabilities that will, in turn, help us to collaborate and share at scale in our real line of business: the delivery of health and care to the population of Bristol.

The terms 'stakeholder engagement' and 'clinical engagement' have become euphemistic in health informatics circles thanks to their common use but frequent failure. UHBristol's CSIP programme has already experienced difficulties with the cycle of engagement in these areas, with the main adverse impacts being lack of knowledge and understanding amongst our users about what we're doing, why we're doing it, how they use the new tools and techniques, and even where they go to get help.

The result of these lessons is a robust governance approach that includes engagement within its terms of reference and a clear plan of how engagement will be achieved, who needs to be engaged, and who will be responsible for doing it. We are currently remapping our stakeholder groups and associated members to support a refreshed engagement 'push' at the outset of the GDE activity.

Key to this will be harnessing our funded CCIO team and their clinical networks to engage and collaborate widely across the clinical user base, promoting clinical champions and offering colleagues the opportunity for formal accreditation if required. This group will provide the 'power-house' for adoption and change across the Trust; exemplars within their own clinical communities and networks.

UHBristol is an active member of the National CIO and CCIO forums, which are the most active focal points for best practice and networking within the health informatics and digital leadership sector. Our CCIO team participates in the regional CCIO network sponsored by the West of England Academic Health and Science Network, and both CIO and CCIOs are regular contributors to the South West Regional Digital Leaders Forum. Through the Connecting Care partnership we also participate in the INTERopen group and a number of national initiatives for the development of digital delivery and professional leadership.

Our CSIP Business Change Team continues its systematic progress through the Trust, cataloguing current processes, systems and paper whilst conveying our vision of digital and paperless working to our clinical and admin colleagues. Our change management approach is described at 3.7.

We will establish a patient and public involvement workstream that will be intimately involved in the design, development and piloting of the patient-held record and collaborative care components listed in the milestones. We will call on this group to recruit individuals to work with us on the patient-facing elements of the new models of care to ensure that they will be fit for purpose and of direct benefit to our community. A stakeholder management plan will be produced and agreed by the end of March 2017.

Through the Connecting Care Partnership we will continue to collaborate with the other health and care organisations within BNSSG, now with the added motivation of a significant step-change in functionality that has been on our roadmap for some time. Connecting Care is the key to making the UHBristol Exemplar come to life outside of the Trust and also serves the same STP and LDR community, thereby ensuring that we can have maximum impact across BNSSG. The formal lines of governance across BNSSG, including Connecting Care, are described in section 8, below.

Key Programme Stakeholders

The following table provides a summary of the wide range of stakeholder groups that UHBristol engages for awareness and delivery of digital solutions.

Stakeholder Group	Current engagement channels for digital services	Planned additional channels to support GDE
All staff	• Trust-wide weekly 'Newsbeat' CEO briefing • Project-focused awareness workshops, poster campaigns and updates • CSIP project super-users in user departments • Mutual participation between Clinical Systems and Transformation Boards	• IM&T/Digital Services Newsletter • CIO Blog • Recruitment of GDE-focussed super-user groups • GDE-focussed briefing sessions and workshops • Lunchtime and after-hours awareness events • Case studies on benefits and usage of GDE and CSIP functions/products
Clinical staff	• Consultant Awayday (monthly briefing) • CCIO Web Pages and updates • CCIO Team's Clinical Advisory Forum • Medical Director and CCIO mailing list	• CCIO Blogs and briefings • Recruitment of clinical champions for GDE projects
Trust Leadership Teams	• Periodic briefings for Senior Leadership Team and Service Delivery Group • Periodic briefings for Governors and NEDS	• GDE-focused updates for all Trust leadership groups • Benefits monitoring and realisation report
Academic Partners	• Strong existing relationships with University of Bristol on Digital Strategy. • Close working relationships with West of England AHSN.	• Recruitment of research fellows for GDE monitoring and benefits realisation process
Other NHS organisations	• Conferences and best-practice webinars through national and regional networks • Contact and mutual support through supplier-focused user-groups	• Publication of GDE Blueprint News • Open days • Case studies • Direct collaboration with GDE First Followers using the same product blueprints
Our local area (BNSSG)	• Active participation in BNSSG's Connecting Care Partnership, Primary Care Interoperability Group and Bristol Health Partners (incl. Social Care colleagues) • UHBristol web site	• Introduce GDE-focused updates and promotional information • Open days • Case studies
Patients	• Periodic briefings on digital through 'Health Matters' events • Web site • Local press	• Increased direct public and patient awareness campaigns to support patient-facing GDE components such as PHR and New Models of Care in collaboration with WEAHSN

Stakeholder Group	Current engagement channels for digital services	Planned additional channels to support GDE
International partners	• Conferences	• We are currently agreeing a collaboration agreement with a paper-free teaching hospital in Holland. We do not currently envisage any US partnerships.
Suppliers	• Workshops • Meetings • Demonstrations • Reference site visits • Conference calls • User groups	• Direct collaboration in development and publication of GDE blueprint

3.6 Resourcing the GDE projects

We need a skilled, dedicated team of hands-on, can-do informatics and clinical professionals to make this programme work. Resourcing for this will be provided in several ways:

1. The CSIP Team

The existing CSIP team will continue its work of deploying new solutions and transforming care, with the current team structure being remodelled to take advantage of the rapid-deployment opportunities that the new products offer. This team will also be given an opportunity to up-skill in new techniques and, for some, greater responsibility that recognises what they have achieved to date.

2. Recruitment of new staff

We will recruit new staff into new positions across the CSIP team to handle the increased GDE workload. In addition to clinical systems specialists who will be configuring and rolling out the new products, this will include increasing the seniority of our project management team to provide better authority, additional senior programme management skills, and a substantial increase in practical change and transformation skills that will drive adaptive change, which has typically been provided from outside the Clinical Systems programme.

The cost of this additional resource will be shared between UHBristol's CSIP and the GDE programme funding for the term of the programme, but embedding and exploiting the new technology will require on-going resource commitment beyond the programme term.

3. The CCIO Team

Clinical engagement and leadership is provided through the funded CCIO team which consists of joint CCIOs (two consultant grade, each two PA per week), a CNIO (one 0.4wte) and a CTIO for Therapies/AHPs (one 0.3wte). This group is on the terms of reference for the CSIP Board and IT Management Group, and also promotes the wider involvement and participation of clinical colleagues in matters digital. The appetite for better technological solutions amongst clinicians has increased markedly since the appointment of the CCIO team, with several clinical champions now recruited and active in specialist areas with ten additional PAs funded for direct consultant participation and programme activities.

4. Super-users

Our use of super-users has generally been focussed within specific projects, for example, within the Bluespier theatre or Evolve electronic casenote projects, where they are made 'super' through additional training and coaching by the CSIP team and act as local experts for specific systems. However, as we roll-out more digital functions we have found that their specialisation within one system area has reduced their ability to support their colleagues as effectively as necessary.

We therefore plan to escalate the level of knowledge and training that our super-users have so that they can become 'super' within their operational area, understanding all of the system functions that may be used within, say, medical outpatients, paediatric critical care or adults ED. This will effectively devolve more support capability into the operational departments and improve their readiness to take on the new digital techniques.

5. System C deployment resources

In addition to the specialists who will be working on the programme from their office bases, System C will station a deployment team of five to six individuals on site in Bristol for the duration of the GDE activity. We have worked in this way with System C previously and know that it's the best way to build a strong, fruitful working relationship that can get things done. System C has shown that it has the capability and capacity to deliver given the right environment and a willing customer—UHBristol has similarly proven that it can provide those conditions. System C also has a Bristol-based development office that will allow close interactions between development and deployment teams.

6. UHBristol's transformation and improvement team

UHBristol has a dedicated transformation and improvement team that works across the Trust on a range of cost and process improvement programmes and has collaborated closely with CSIP on several projects including ward processes and the recent implementation of a new theatre management system. The Transformation Team's involvement in GDE activity will be two-fold: direct participation in delivery of some of the UHBristol-based objectives (to be agreed) and governance contribution to the assurance of the benefits management and realisation workstream.

The programme will be lead from Exec level by the Director of Finance and managed by the Trust's CIO/Clinical Systems Programme Director, with programme support and assurance through the CSIP PMO (see section 9). Governance within UHBristol and across the BNSSG/STP geography is described in section 8.

The structure and strength of the CSIP team, expanded to incorporate GDE activity, is illustrated in Annex I, with a summary shown below. It has been noted that we do not at this stage envisage an increase in IS training resource. This is because a) we already have a strong IS training team, and b) the 'consumer' nature of the GDE-funded components means that, by definition, user training is all but eliminated, with the emphasis on how to use the new Apps in best practice rather than what button to press.

The combined CSIP/GDE resourcing plan shown below does not include the IM&T department itself, which handles all technical operations (including desktop, server, storage and network infrastructure, support services, medical records (including the scanning bureau), clinical coding and telecommunications (approximately 160 people).

UHBristol has a dedicated corporate Transformation Team reporting to the Strategy and Transformation Director. We expect approximately three members of that team to participate in GDE and CSIP activity where this intersects with Transformation Priorities. This is, however, opportunistic resourcing to some extent, with CSIP's own Business Change Team carrying the bulk of the transformation activity alongside their colleagues in the SME teams.

3.7 Change Management

UHBristol's CSIP programme is mature and well-organised. The Programme and its constituent projects are run in accordance with MSP and Prince 2 practices, both of which feature clear guidance on how change management (and transformation) can be managed within the context of a wider programme. The change management approach described below has been adapted from MSP and Prince 2 and has been proven to work successfully in several of our projects to date.

The CSIP Business Change Team is a user-focused group of specialists that works with departments and stakeholders throughout the lifecycle of each project to identify, categorise and deliver sustainable business and process changes that will reduce project risk, improve outcomes and deliver benefits—quantitative and qualitative; efficiency and effectiveness.

This approach requires the Change Team to spend a lot of time with our operational departments in their working environments, so that a proper understanding of local working practises, pressures and idiosyncrasies are accurately captured and mapped.

The Team will develop targeted strategies for the deployment of each project to ensure the delivery of workstream outputs (products) according to project time-scales, quality requirements and in line with the overall CSIP Programme strategy.

In advance of each project engagement the Team will define a clear set of useful outputs/products, including:

- Understand and document the deliverables and dependencies for the Team's activity
- Organise the work of the team, allocating team members to appropriate departments and establishing schedules of work
- Create performance indicators to ensure the Change Workstreams can be properly monitored against the plan and accountable to the Project Board and wider organisation
- Give clear expectations to stakeholders about the level of engagement and resource they will need to commit to achieve the objectives of the project.

A good example of how the Change Team routinely works is the Evolve electronic casenote management system project, where they work with departments at a molecular level to investigate, define and produce the agreed Change Workstream products for each clinical and admin team affected by the project (we define a 'team' as any individual or group of individuals that work uniquely and have their own definable modus operandi). The most recent stage of this project was to remove paper casenotes from circulation right across the Bristol Royal Hospital for Children, a superb achievement that has set us on track to do the same, but bigger, across the Bristol Royal Infirmary in May 2017.

The Change Team worked across every department to produce agreed outputs for Consultant Teams, Outpatient Departments (nursing), Clinic Co-Ordinators, Clinical Nurse Specialist Teams, etc., describing every aspect of the changes including new procedures and what to do in the event of any uncertainty.

This work is signed off by the appropriate Clinical, Nursing and Management leads from within the department, and Change Team members maintain a relationship with their client departments throughout the project lifecycle, following up after go-live to tune processes and smooth out anomalies.

A more formal business change strategy aligned with appropriate clinical governance and the Trust's Transformation Programme will be established in support of the GDE programme as our methodology develops during the first year of the delivery.

Planning a Change Project

The initiation of each technology-based improvement project includes the production of a business analysis report that defines the Change resource required for the project based on:

- Scale of the anticipated process change

- Scale and type of engagement (clinical, non-clinical, medical-level, nursing-level, etc.)
- Scale of the behavioural and adaptive change that will be encountered
- Maturity of technology solution/s product being deployed

Where appropriate, this scoping exercise will also incorporate key qualitative and quantitative Benefits Realisation measures expected from the project, which will feed into the business change approach and working methodology for each project.

With the change resource identified, the Business Analysist and Project Manager will work with the Project's Change Management lead to draw up a Change Workstream approach/strategy, which provides a robust framework to ensure the delivery of workstream products according to the agreed time-scales, quality measures and in line with the project and overall CSIP Program approach.

- This strategy will include:
- Workstream Methodology (including completion of relevant Benefit Profiles)
- List of workstream Products
- Quality Assurance and Sign-Off
- Timelines
- Rationale and impact on wider CSIP Programme
- Patient Safety Risk Log

The Change Workstream will then engage with their target users and work alongside the other project workstreams, with day-to-day management of products and progress handled by the Business Change Manager with oversight from the Project Manager. The workstream lead is accountable to the Project Manager and Board.

The Patient Safety Risk Plan forms the basis for the Clinical Safety Assessment that is conducted prior to a project's go-live.

Change management is also referred to in association to Benefits Realisation in section 4.4.

4 Benefits Realisation and Management

4.1 UHBristol's Digital Vision

It is easy to overlook the fundamental fact that Healthcare is an information-driven activity. The better we manage our information, the better we can manage our patients and what we do with them. Good information management has the power to streamline our processes, reduce attendances, cut down lengths of stay, increase patient safety, and to improve patient outcomes—all fundamental benefits.

But information must be easy to record and practical to share. It must not introduce yet another new burden onto an already stretched workforce. It has to become part of our organisation's DNA, embedded culturally and practically in everything we do, used because it helps clinicians to do their jobs, because it helps to deliver better patient care, and because this is a big part of how we practice medicine at UHBristol.

This is our challenge and our vision. 'Doing GDE' will enable us to roll out a network of practical, innovative solutions that will integrate comfortably into the workflow and practices of our hospitals. We will make these systems easy to use by developing the infrastructure to support them, by ensuring that they are available on mobile devices at the point of care, by making sure they are fully interoperable, and by working to create seamless processes of care with information sharing at their core.

We will put information directly into the hands of the people who deliver care – the doctors, nurses and other care professional. We will give them the tools they need to do their job, saving them from the need to chase results, hunt for notes or wait for responses from a pager.

We will put information to use for patients. We are all information users now; we have seen the power of Amazon and Uber, we shop, bank, and book travel online. UHBristol will be in the vanguard of healthcare trusts bringing this revolution to patient care, engaging and empowering patients in their treatments and care.

Good information systems come at a cost, but the benefits they deliver will substantially outweigh those costs. But we will not be complacent about this. We will measure and assess benefits. We will establish a baseline of costs and activities and set targets for improving performance and releasing resource for other patient care projects.

We do not underestimate the effort and commitment that will be needed to deliver GDE at UHBristol. Some projects are already in progress, but most will be new. We will plan carefully and pragmatically. We will not set unrealistic objectives, but we won't delay. Every day we wait is a day the Trust is denied the best information services for the care of our patients.

This is our vision. And this is how we will deliver it...

1. A 'Clinical Workstation' on smartphones, tablets and PCs

A clinical workstation will enable information about a patient to be summarised on a single screen regardless of where the data was first recorded. GP records, community data, and social care information may be as valuable to a doctor as the latest results from pathology or radiology. Clinicians need to be able to drill down into the information with a single click, and to add their own records and notes. Nurses need to be able to enter observations and capture early warning scores. Clinicians need to be able to order tests and examinations quickly without having to navigate different systems. All of this will be provided by the clinical workstation.

The clinical workstation will be the central information tool for clinicians. It will bring immediate benefits. It will cut, dramatically, the number of calls for information. It will help ensure that treatment starts earlier and will reduce lengths of stay. It will help to reduce admissions. It will help to improve out-of-hours support.

The clinical workstation will provide Trust-wide clinical noting, alerting, and task management, e-observations, assessments and ordering. It will streamline clinical activity. A doctor in one hospital will use the same tools and screens as every other doctor in every other part of the Trust. It will unify and harmonise the way we work.

2. Order communications, e-prescribing, and medicines administration

A clinical workstation needs powerful supporting applications. We will consolidate into the clinical workstation the work we are already doing to deliver trust-wide ordering for diagnostic tests and imaging, with tools to eliminate unnecessary or repeat tests. We will provide an application within the clinical workstation that will allow doctors to prescribe medications electronically at the point of care, with powerful algorithms to check doses, allergies, and drug to drug interactions. We will bring the administration of medicines into the information umbrella, providing secure processes that allow nurses to administer drugs safely, and all of this information will become part of the continuity-of-care record.

This ability will further reduce repeat tests. It will save money on buying and managing drugs charts and order forms. It will reduce the need for ward stocks of drugs, saving on wastage. By supporting the use of the patient's own medication, prescription costs will be reduced. The ability to adopt local formulary will make it easier to direct prescribers to alternative or generic medications. Even small percentage savings in the Trust's annual drugs bill will result in significant additional resources for patient care.

3. Collaboration - Community-wide alerting, eObservations, workflow, referral, task management and care pathways.

Putting information directly into clinicians' hands means giving them the best information and the best tools to do their jobs. We will introduce a mobile application that allows easy collection of observations at the bedside or in a clinic on a mobile phone or tablet. This App will alert clinical teams automatically when a patient is admitted to their care, or discharged, has abnormal results or a variation in their early warning score. It will allow teams to more effectively assign and share care tasks, manage handovers and to create and manage closed workflows, so that everyone knows what's happening and nothing gets missed.

Introducing these tools will allow collaboration between GPs and other care providers. It will allow people to communicate and share communication in their own time – avoiding bleep ping-pong, and it will help to improve patient safety, and improve patient flow.

4. The Person-Held Record (PHR)

The PHR, often referred to as the 'person held record', will give patients direct access to their records from organisations across BNSSG and contribute to their own records. This might not be the right approach for every patient, but those who use it will find that it helps them to engage with their care, becoming a key part of the team involved with their own treatment.

The USA has a longer experience than the NHS with the use of PHRs. We will learn from their good practice examples and other GDEs. PHR promotes patient choice, and leads to a reduction in appointment cancellations, and a reduction in inconvenience to patients. Personal engagement means better compliance with drug therapies and exercise regimes. It means fewer missed appointments. By providing an easy platform for patients to message their carers, it reduces emergency attendances and unplanned admissions. It also contributes to patient satisfaction, and this in turn boosts staff morale.

5. New Models of Care

The NHS Five Year Forward View (5YFV) made it clear that new technologies could and should support the introduction of new models of care.

One example is in the care and treatment of people with epilepsy. Traditionally a patient who has had a fit will be called for routine follow up appointments. But we will introduce a system that issues sufferers with a wristband that streams information back to the clinical team. Not only does this provide clearer feedback on the efficacy of the drug regime, but it means that follow up appointments are not needed unless a patient suffers another fit .

We will introduce, in collaboration and consultation with our own clinical colleagues, similar devices and processes for congestive heart failure, and potentially frailty and elderly care.

6. Dashboards - Business and Clinical intelligence

Business intelligence (BI) is about using the analysis of data to drive and measure change. While BI is traditionally seen as a reporting tool, it is increasingly used to support real-time 'right here, right now' dashboards – allowing managers and clinicians to understand at a glance what's happening in their department or hospital. We will use BI in this way, to provide real-time dashboards, including a picture population health and service activity across BNSSG.

The dashboards we will provide to service managers include:

- Bed states from across the care community including acute and community beds (and other – e.g. hospice beds)
- A picture of ED attendances and emergency admissions across the care community – expressed as a count for today and as a graph over time
- Emergency contacts including OOH calls, walk-ins and ED
- Referrals to and from different sources – hospitals, community, MH and social care – over time
- Community and social care visits and costs over time
- A shared, up-to-date picture of delayed discharges that can be shared across the community.

7. Supporting the Programme

This is a big, ambitious programme. We will support it with a well-staffed transformation and engagement team made up of senior clinicians and experienced informaticians and technologists from within the Trust and our selected supplier, responsible for designing and promoting best-practice use of the technology, and with an understanding of how to manage and use information properly through adaptive change. Our supplier will therefore play a key role in the process of identifying and pursuing the realisation of benefits associated with the roll-out of the GDE functions. Many users will welcome the switch from paper-based recording to real-time digital capture, but we will be ready to assist those who cannot readily adopt the new techniques.

The programme is built upon a strong patient and public engagement model, using people who have been intimately involved throughout. The programme will also lead to a far stronger collaboration model between all organisations within BNSSG. These relationships and collaboration models will continue to drive improvements in the delivery of care far beyond the completion of the GDE programme.

We will work very closely with our system suppliers, looking to them for support and advice, but also pressing them for timely delivery of robust, tested products.

GDE requires us to take on the responsibility of true pioneers. Most of what we do will be a first for our Trust; some of what we do will be a first for the NHS; and some innovations may truly be internationally ground breaking, e.g. the fully integrated communication and task-management platform Careflow. We will not take risks with patient care, or with patient data. But we will not step back from trying new things and backing some bold initiatives. We will seek advice and support from partner hospitals in Europe and America, and we will build a strong relationship with a network of local trusts and CCGs so that our successes can be turned into a blueprint than can be built upon by other organisations within our own community and across the NHS.

University Hospitals Bristol has always been an innovator. This programme will support our people and our patients with a set of powerful information tools. It will secure our status as a global innovator in the field of digital health.

4.2 Improving Outcomes

Clinical outcomes are generally focused around safety and quality, where we would seek to reduce the occurrence of harm and mortality whilst increasing the pace and success of treatment and care. Many of the benefits associated with these factors focus on cost avoidance through not having to spend time and resource investigating and remedying adverse events, and some relate to the opportunity cost of higher relative throughput.

Our CCIO Team is undertaking a specific task to identify areas where improved outcomes can be targeted and achieved with measurable results, which we expect to inform the agreement of the SOPB by March 2017 and to continue to identify emergent benefits throughout the programme. These will be incorporated into the Benefits Framework as they emerge, with the aim of repeating successful improvements across comparable departments over time.

Annex I includes a perspective view of 'What Good Looks Like', part of our vision for how CSIP and GDE will affect our staff and patient experience. This is how we will set our objectives and assess the outcome of our digital delivery by 2020.

4.3 Benefits Realisation Framework

UHBristol has recently adopted a benefits framework model used by our strategic supplier, System C, in their work with other Trusts. The Company has committed to working with our Business Change Team and colleagues from the Transformation Team to catalogue, baseline and monitor our benefits realisation for the duration of the programme and beyond. The high-level collation of this model is presented in Annex I.

Within the wider BNSSG community we will work with colleagues within the Connecting Care organisation to realise additional benefits and expect to work directly with colleagues in the West of England AHSN and the University of Bristol through our STP and LDR network to ensure that we can bring a wider perspective and academic rigour to our work on Benefits Realisation.

The benefits framework will require additional governance outside of the CSIP and ITMG structure through the Trust's Transformation Board, offering an invested but more independent perspective on the benefits commitment.

The main outcomes will be:

For Patients	For clinicians and staff	For UHBristol and BNSSG
Safer Care	Information available 'in the moment'	Fewer errors leading to fewer complaints
Better and easier communications - not asked the same question many times	Information captured once and easily shared, less duplication, saved time	Up to date information about patients and the business as a whole
Fewer delays	Improved decision making	Reduced litigation with improved evidence
More informed and involved in their care	Avoid harming patients	Improved reputation
Confidence in the health service	Increased confidence through informed best practice	Less waste and unnecessary variation in the system = lower cost
More control over their health and wellbeing	Easier access to evidence for revalidation	Better business sustainability
Healthier lives	Happier work environment	Happier and more motivated staff, less sickness

4.4 Delivering Business Change

The CSIP Change Team has been developed over the past two years, initially to spearhead the roll-out of our Electronic Document Management System, Evolve, across the Trust, and latterly to conduct the meticulous and detailed work required to migrate all of our processes, pathways, practices and thinking into a comfortable paperless state.

This work is on-going and the team will expand further to handle the more rapid systematic identification and delivery of business change and benefits realisation that we will achieve using the new digital products and techniques provided by System C as part of the GDE programme alongside the existing CSIP projects.

The Change Management process is described in section 3.7.

4.5 Moving to Business as Usual

As products and functions are completed and enter productive use, particularly in the early-adopter areas, super-users maintain frequent contact until the users can demonstrate that the products and their use are stable, at which point routine support is handed on to the IM&T Helpdesk and Clinical Systems Support Office. If the product has been identified as carrying a responsibility to deliver specific benefits the change team will be required to monitor progress by means of the agreed metrics, handing this information on to PMO to do the numbers and assurance with the benefit owners prior to any 'claims' being confirmed.

Operational review of all components is conducted periodically, ideally at three, six and twelve months after go-live of a product. This highlights any undetected requirement for retraining or change of use approach. It also allows us to uncover those benefits that have not been formally identified in the plans but which occasionally surface through routine use of a solution within the complex workflows we find within healthcare settings.

As deployment staff move onto new projects it can sometimes be difficult to ensure that transitioned products are properly monitored so that business-as-usual reflects best possible practice rather than a gradual slide into sub-optimal use where benefits are wasted. For this reason we will ring-fence staff-time for the duration of the programme to keep reviewing and driving our new products to deliver their promised benefits.

4.6 The Statement of Planned Benefits

In addition to efficiency savings derived from paperless working, UHBristol expects to gain substantial safety and quality benefits from the use of the new digital functionality. It has not yet been possible to assign a direct value to these particular benefits because they cannot be accurately quantified in terms of, for example, the reduction in serious incidents or variation requiring investigation by senior clinical and administrative staff and the associated costs thereof.

We will commit to maintaining a detailed baseline and benefits/savings monitoring regime as part of the transformation activity that will be an integral part of the programme. We also request that NHSE and NHS Digital assists in this particular area by providing a national lead in defining the formulae by which benefits can be calculated for the avoidance of morbidity, mortality and their associated unwanted impacts.

UHBristol is fortunate in that it has already commenced work in many of the functional areas that can traditionally render significant cash-releasing and efficiency savings and has achieved a high performance baseline in many areas. This affects our benefits case by reducing the scope and scale of the benefits available to be realised—the aphorism that 'one can only thresh the harvest once' applies in this area—and we have also accounted for some benefits yet to be realised. For example, the roll-out of our electronic casenote management system and development of an advanced electronic prescribing and meds administration system are well underway but, unfortunately, these particular projects were subject to tech funding and

their associated benefits have already been ‘harvested’ and are therefore not available under GDE.

The SOPB is submitted in draft form at this stage and we commit to refine and agree the content with benefit owners and NHS Digital colleagues by end of March 2017.

5 Procurement and Contract Management

5.1 Procurement and VFM

The GDE funding will be targeted specifically towards products, developments and services delivered by our strategic EPR supplier, System C.

The OJEU notice (reference 2010/S 200-305241) and subsequent procurement by Competitive Dialogue Process leading to our current contract with System C was published in the European Journal on 14 October 2010, with a tender document sent to bidders on 6 January 2011, updated on 15 March 2011. The Contract was concluded on 10 May 2011, based on the 'OGC Model ICT Contract version 2.3'.

The OJEU notice was explicit in stating that "the Trust is looking for Strategic Partners whose chosen solutions must be adaptable or extendable to meet the future needs of the Trust in building towards an Electronic Patient Record. The Trust therefore has the option to utilise additional existing and future functionality provided by the chosen supplier or suppliers", with provision for additional services in addition to a contract increase of 50% over the initial contract value.

However, the Trust has decided that it will address the possibility of challenge by conducting a thorough value-for-money assessment of System C's proposals, awarding directly only where it can be demonstrated that there are no other solution options that can achieve the same level of functional integration with our existing core EPR components. One functional area that is sufficiently open to competition is e-Observations, although there is still a high level of integration required. This will be applied to procurement framework to ensure that we can demonstrate competition has been engaged. The VFM and procurement exercise is expected to be completed by the end of May 2017 with the contract with our main supplier in place by the end of Q1 17/18, with the GDE milestones forming contractual markers. Both System C and UHBristol are proceeding with preliminary work at risk in advance of contract agreement. We do not consider achievement of this contractual arrangement to be a formal risk.

5.2 Contract Management

Subject to successful assessment of VFM, we will continue to work with System C to deliver the new functional components of the solution alongside the existing work-in-progress projects that are a standing part of the CSIP programme. As a long-term partner, System C is committed to this programme and we have worked closely at a senior executive level to pull together much of the vision and GDE plan.

System C's commitment to the GDE components of our CSIP programme includes delivery of all software components, design, development and implementation services, integration, data migration, hosting services and on-going support.

Through System C, we will establish the role of 'digital mentor' and work with other Medway customers, including Fast-Follower candidates, to share our experience, our techniques and our tools to help them make the very best use of the products emerging from the programme.

We will seek international partners to help us understand and adopt approaches and ideas that are outside of NHS mainstream thinking. We are currently looking toward European partners in this but would welcome advice from NHSE and NHS Digital on identifying other candidates and expect to confirm a partnership with a leading hospital group in the Netherlands in April/May 2017.

We will work with other GDEs who work and think in similar ways to make the most of the GDE opportunity and establish ways to share learning and experience.

5.3 Key Suppliers

All GDE components and resourcing will be provided under a single contract by the System C/Graphnet Alliance.

System C has concluded a Strategic Agreement with Microsoft that will form the basis of supply for underlying components of the GDE solutions, including Azure cloud services, Azure AI, and HealthVault. UHBristol is currently negotiating a long-term enterprise agreement with Microsoft for consumer and infrastructure licence products but this is not a core GDE component.

Other consumer products such as end-user devices, etc. will be sourced through the most favourable framework or procurement route available at the time of requirement.

6 Agreed Commitments

Funding will be subject to the following agreed commitments between Parties:

Mandatory Commitments

- To agree to scope the uptake within their organisation/region of national assets and systems to achieve targets
- To adopt national standards such as SNOMED CT and dm+d and Interoperability standards, framework and technology (see Annex E)
- Leadership for cyber security
- Agree to participate in digital blueprinting for dissemination across other NHS vendors
- Work with national teams who are evaluating the overall funded programme/project, providing access to key staff when requested, access to information and attendance at key meetings
- Share any information/collateral developed as part of the work with the wider NHS and to participate in the shared learning work across organisation/communities/ networks as agreed as part of conditions of funding
- Achieve HIMMS Level 7 or equivalent as a minimum
- Continued compliance to ongoing Tech Fund commitments

Commitments (Special Features) specifically relating to UHBristol's Global Digital Exemplar status have been included at Annex H, with notes on technical commitments provided by System C.

UHBristol will meet these Mandatory Commitments as follows:

Mandatory Commitment	UHBristol's Approach
To agree to scope the uptake within their organisation/region of national assets and systems to achieve targets	An active process is already in place to adopt national assets for applicable purposes across the Trust. Some national assets require specific capability to be embedded within our corporate information systems, e.g. PDS integration, and in these areas we are dependent on the relevant supplier of that system to help us achieve compliance. In this example, UHBristol is not able to commit to uptake and adoption by other organizations across the BNSSG region but will, wherever possible, lead by example in the productive use of these functions.
To adopt national standards such as SNOMED CT and dm+d and Interoperability standards, framework and technology	We are working progressively to integrate these standards and embed their use in appropriate processes. Annex H includes specific responses from System C on how these standards will be incorporated into their product sets.
Leadership for cyber security	We will appoint a dedicated Information Security Manager whose role as a senior manager within digital services will include direct responsibility for establishing a formal, effective set of cyber-security processes and counter-measures.
Agree to participate in digital blueprinting for dissemination across other NHS vendors	UHBristol is System C's premier reference site for its Medway PAS and EPR systems and has worked closely with System C since it started deployment of Medway back in 2011. Together, we are well placed to develop and refine the product and implementation methodology for other acute Trusts as a blueprint for the roll-out

Mandatory Commitment	UHBristol's Approach
	of products, techniques and the adoption of proven processes and pathways that will be available for dissemination across the NHS. Other NHS vendors may be able to take advantage of this material, although we are doubtful of the value of mix'n'match techniques being applied to product deployments by different vendors.
Work with national teams who are evaluating the overall funded programme/project, providing access to key staff when requested, access to information and attendance at key meetings	UHBristol agrees to work with NHS England and NHS Digital in this respect.
Share any information/collateral developed as part of the work with the wider NHS and to participate in the shared learning work across organisation/communities/ networks as agreed as part of conditions of funding	UHBristol commits to this knowledge-sharing objective alongside its supplier partner, System C, and will participate in digital mentoring of those organisations who adopt blueprint components.
Achieve HIMMS Level 7 or equivalent as a minimum	There is a growing consensus amongst CIOs that HIMSS L7 is not a suitable benchmark for digital maturity in English acute Trusts. UHBristol welcomes the prospect of an 'equivalent' and looks forward to more specific guidance on what this will be and commits to meeting the requirement as it applies. However, UHBristol's CSIP programme is already on track to delivering the spirit of HIMMS 7. Our aspirations for the GDE components are that they will not include specific level 7 components but, alongside the core CSIP components, streamline pathways and clinical processes to make them easier to use, manage and share within the Trust and across the community.
Continued compliance to ongoing Tech Fund commitments	Agreed.

7 Funding

7.1 The full costs of the programme/projects detailing funding sources will be attached in Annex C. Any match funding or contributions from organisations (providers and commissioners) should also be detailed. Recipients also need to indicate where funding has already been received for deliverables within the programme/project as duplicate funding will not be provided. A template has been provided in Annex A to document this.

7.2 Funding may be released in stages. Where this is the case it will be provided against the satisfactory confirmation of the achieved milestones detailed below. This should correspond to the key milestones outlined in the programme/project plan.

GDE Funding, Match Funding and Milestones

The GDE-funded programme activity will be rolled into the Clinical Systems Programme governance and management structure. The Financial Planning Template at Annex C shows that GDE funding is exceeded by match-funding of local capital and revenue input to the Clinical Systems Programme together with operational capital schemes for applicable digital programmes over the funding term. Applicable capital schemes allocated in later years will be offered as further evidence of matched funding.

Seven milestones have been identified for GDE funding and payment purposes. Milestones FM1 to FM4 reflect GDE funding drops; Delivery milestones DM1 to 6 will be used as delivery payment triggers for System C. The GDE funding drops are based on one quarter of funding up front, one quarter on achievement of each of two agreed interim milestones and one quarter on completion of the objectives, with the final milestone will be the checkpoint confirming that all GDE requirements have been met to that point. The following table illustrated the relationship between these milestones:

UHBristol GDE Milestone Timeline V3																																							
	16/17			17/18													18/19												19/20												
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Funding				FM1									FM2												FM3												FM4			
NHSE Cap				2200									1600												1600												1600			
NHSE Rev													1000												1000												1000			
Delivery						DM1			DM2				DM3			DM4									DM5								DM6								
System C						1567			1162				1162			828									828								1503								

Funding will be released in stages against satisfactory confirmation of the achieved milestones detailed below. This will correspond to the functional and product content of each milestone shown in section 6.

As a Foundation Trust we have discretion to carry over our own committed capital monies (but not PDC) into the following year. GDE funding received at commencement (FM0) will be matched against UHBristol's 2016/17 CSIP capital, with the balance of UHBristol's own capital investment carried forward from 2016/17 into 2017/18.

The GDE funding and delivery milestones are therefore:

Milestone	Amount	FY	Cap or Rev	Funding Source	Required evidence of milestone achievement	Date due
FM1		16/17	Capital	GDE	Funding Agreement signed by Trust Board and NHS England. Agreed Stakeholder plan, business change strategy and SOPB. Redraft ITMG and CSIP Board TORs.	31 March 2017
DM1		17/18	N/A	UHBristol	DM1 Acceptance criteria	June 2017

Milestone	Amount	FY	Cap or Rev	Funding Source	Required evidence of milestone achievement	Date due
					achieved	
DM2		17/18	N/A	UHBristol	DM2 Acceptance criteria achieved	September 2017
DM3		17/18	N/A	UHBristol	DM3 Acceptance criteria achieved	January 2018
FM2		17/18	Capital Revenue	GDE	DM1, DM2, DM3 Acceptance Criteria achieved	January 2018
DM4		18/19	N/A	UHBristol	DM4 Acceptance criteria achieved	April 2018
DM5		19/20	N/A	UHBristol	DM5 Acceptance criteria achieved	January 2019
FM3		18/19	Capital Revenue	GDE	DM4, DM5 Acceptance Criteria achieved	January 2019
DM6		19/20	N/A	UHBristol	DM6 Acceptance criteria achieved	October 2019
FM4		19/20	Capital Revenue	GDE	DM6 Acceptance Criteria achieved	January 2020

7.3 Other specific terms and conditions relating to the receipt and payment of funding are outlined at Annex B.

8 Governance

8.1 GDE Governance within UHBristol and across BNSSG

Governance within UHBristol

Governance and assurance of the GDE programme components will fit within the existing framework that manages all Information Management and Technology business and the Clinical Systems Programme.

The IM&T Board and CSIP Programme Board report into the IT Management Group which, in turn, reports to the Trust Board under Chief Exec, Robert Woolley. The Exec responsible for digital delivery is the Trust's Director of Finance and IM&T, Paul Mapson. GDE will be operated by the Clinical Systems Programme under the leadership of the Programme Director and CIO, Steve Gray, alongside the Head of IM&T, Andrew Hooper.

UHBristol's Exec Director of Strategy and Transformation, Paula Clark, leads the Trust's Transformation and Improvement Team, which be responsible for specific deliverables within the programme, including assurance of Benefits Management. The Transformation Programme Director attends CSIP Board and the Clinical Systems Programme Director attends Transformation Board.

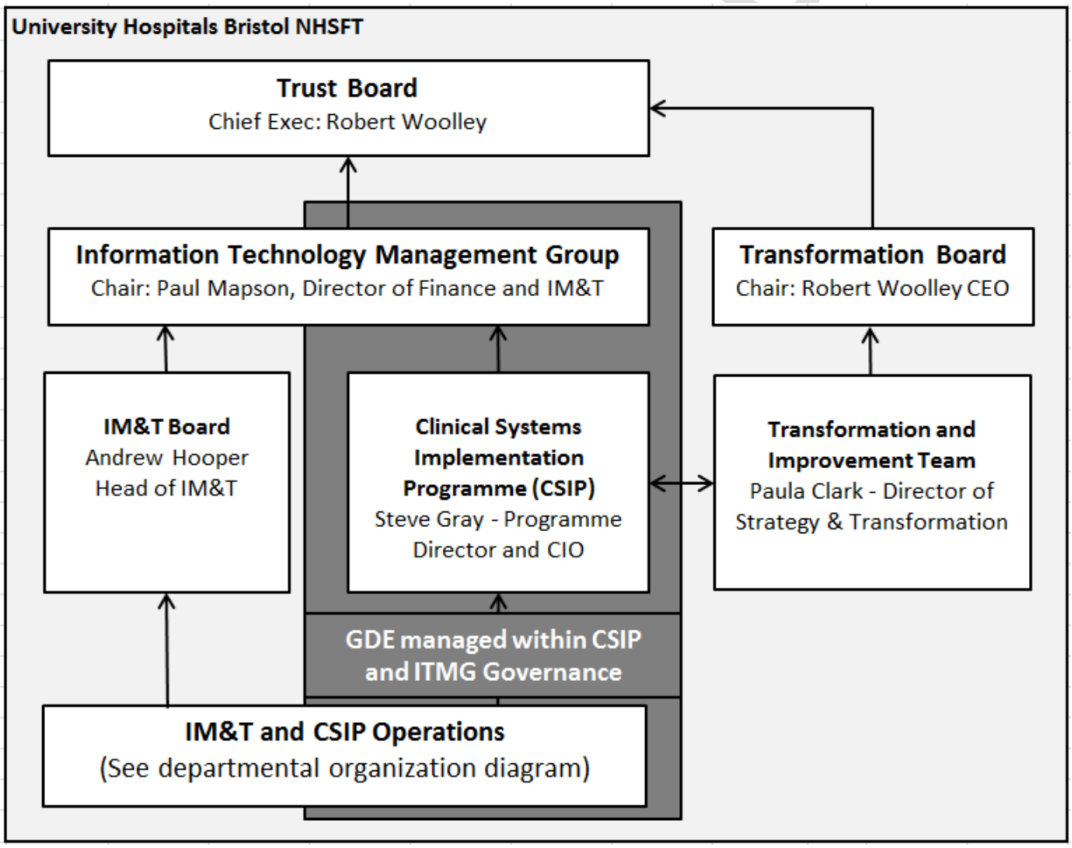


Figure 8.1 - IM&T and CSIP Governance Structure

The Clinical Systems Programme (CSIP) has been in place for five years and is generally accepted as the 'face' of digital within UHBristol. This relationship will be leveraged for GDE, so we will add a supplier, NHS England/Digital and Connecting Care representative to the CSIP Board to ensure broad governance.

Clinical engagement and governance leadership is provided through the funded CCIO team which consists of joint CCIOs (two consultants, each at two PA per week), a CNIO (one 0.4wte) and a CTIO for Therapies/AHPs (one 0.3wte). This group is on the terms of reference

for the CSIP Board and IT Management Group, and also promotes the wider involvement and participation of clinical colleagues in matters digital.

Operational liaison between the overall Trust CSIP projects is conducted at the level of the Trust's Service Delivery Group (SDG), which advises and takes communication responsibility for all matters relating to the day-to-day running of the Trust. So, for example, SDG is consulted with regard to system go-live dates, planned downtime and fundamental changes to systems and software, ensuring that the business is kept up to date.

Governance within the BNSSG STP Health and Care Community

An important feature of UHBristol's commitment will be the delivery of GDE-funded functionality into the BNSSG community. The governance of these aspects of our programme will be delegated through the System Leaders Group to the Connecting Care Board, which oversees the development and operations of BNSSG's Shared Record Programme and associated technical solutions, Connecting Care.

UHBristol's CEO, Robert Woolley, is also Chair of the Connecting Care Partnership Board, with Steve Gray as a member alongside senior business and technology representatives from the 15 active members of the Partnership. The GDE programme will therefore have 'a seat at the table' of the Partnership Board.

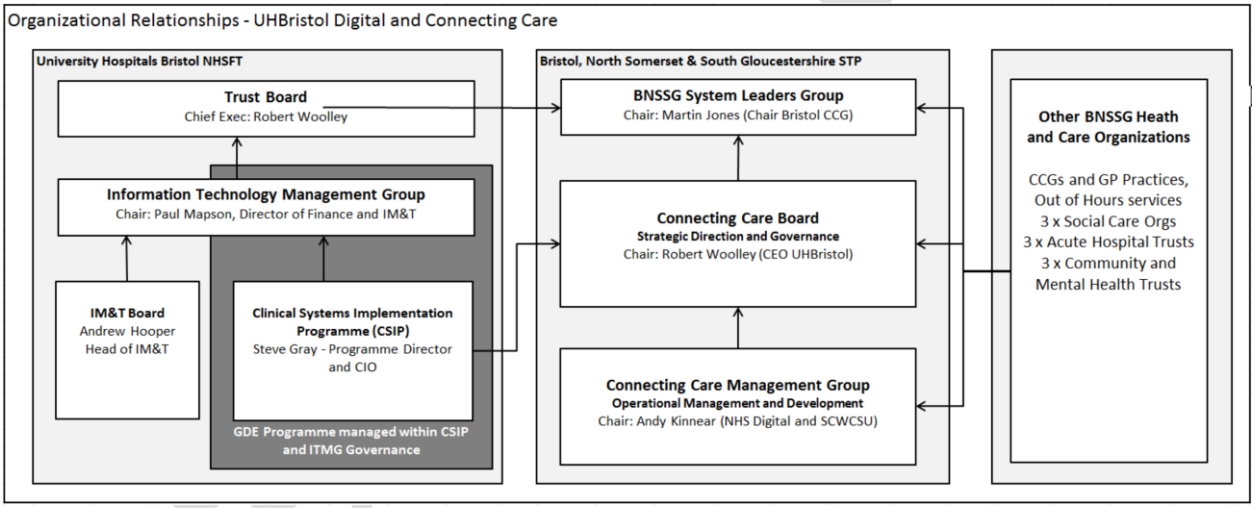


Figure 8.2 - GDE Governance across BNSSG

8.2 The Parties will agree an appropriate assurance and reporting framework for this Funding Award. Detail of the agreed assurance and reporting framework are attached in Annex C of this Funding Agreement. This also includes arrangements for reporting Delivery Confidence (risk stratification), benefits realisation, risk and issues and for exception reporting. A template has been provided in Annex A to document this.

9 Responsibilities of the Recipient

9.1 Programme/Project Assurance:

9.1.1 Change Control

Any change to the programme/project deliverables (time, cost, scope or quality) will be agreed between the Parties and where appropriate, recorded in a Change Control Notice (CCN). The template for this is provided in Annex A of this Agreement and details of the agreed governance framework for reporting lines/timescales have been outlined in Annex C.

It is the responsibility of the Responsible Officer(s) detailed in Section 11 to ensure this happens at the earliest opportunity.

9.1.2 Tracking and Reporting

An assurance, reporting and benefits update framework for frequency and agreed milestones will be agreed by the Parties, based upon a Delivery Confidence (risk stratification) assessment that incorporates the associated risks that may affect the likelihood of success and/or previous performance of the Recipient

The Delivery Confidence Assessment (risk stratification) will be agreed between the Parties as part of this funding agreement and will establish an appropriate layer of assurance that suits the programme/project and organisational capability to deliver. This Delivery Confidence Assessment (risk stratification) will also establish frequency of reporting.

The Recipient is obliged to provide the reports and benefits updates listed in the Assurance, Reporting and Benefits Update Framework attached in Annex C. It is the responsibility of the Responsible Officer(s) detailed in Section 11 to ensure this happens.

The Parties commit to jointly agreeing Delivery Confidence (risk stratification) prior to submission of all reports. Any changes to Delivery Confidence (risk stratification) will impact on assurance approach and reporting frequency. Any changes will be recorded via the CCN process and jointly agreed between Parties.

9.1.3 Programme Assurance - CSIP PMO Responsibilities

Under the leadership of the Programme Director, the Clinical Systems PMO will take primary responsibility for GDE programme assurance, detailed tracking, progress reporting and liaison with other partners as stipulated within this agreement. The PMO has successfully managed a comparable process for five years and has a reputation for ensuring that appropriate process is followed correctly. For GDE, we expect to engage an external party to provide stand-off, independent assurance and will seek assistance from NHS England/Digital in appointing to this function.

Operations of the Programme Management Office (PMO)

- **Programme and Project Assurance**

  The CSIP PMO works alongside the CSIP Delivery Team to ensure projects are managed in a controlled manner and that they are maintained in line with the agreed objectives and tolerances. This close relationship ensures that project issues are brought to the PMO's attention for the purpose of escalation, containment and resolution.

  In the context of GDE, the CSIP PMO will maintain all reporting and monitoring activity agreed through this FA and provide the primary point of contact between UHBristol and NHSE and NHS Digital for GDE matters.

- **Corporate Reporting**

  PMO supports the IT Management Group and Clinical Systems Implementation Programme Board, reporting on Service Delivery and CSIP Project progress and also on progress to other corporate bodies such as the Senior Leadership Team (SLT). This will help to ensure that GDE Objectives remain in alignment with the Trust's Strategic Direction

- **Risk Management**

  PMO monitors CSIP Programme and Divisional Level Risks and ensures that risks to GDE programme components are actively managed and brought to the attention of the CSIP Board for oversight and intervention as required.

- **Financial Management**

  PMO is responsible for monitoring and forecasting programme expenditure and identifying potential overspends.

- **Benefits Realisation**

  PMO will ensure that the benefits realisation commitment is maintained through the Benefits Framework and SOPB, tracking and reporting as appropriate to provide an overarching understanding of the benefits of the GDE Programme.

- **Admin Support for Delivery Teams**

  PMO supports the CCIOs, CIO and Project Delivery Teams in meeting their obligations within the governance arrangements of Project Boards, Project Teams and associated clinical and technical groups.

9.2 Programme/Project Support:

9.2.1 Programme Support and Assurance

Where applicable, the Recipient will implement all recommendations arising, and report progress on implementation, in line with the assurance and reporting arrangements agreed at Section 8 above.

The Authority may have programme support resources available to support the implementation of the programme/project. If applicable and justifiable, the Parties will agree the appropriate level of support and details will be attached in Annex C of this Funding Agreement. A template to document this is available in Annex A.

The Recipient is obliged to adhere to the required and agreed assurance and transformation support regime so that the Parties mutually work towards increasing likelihood of success.

The Recipient is obliged to notify the Authority through exception reporting of any fundamental risk or issues identified that may impact on programme success. The Recipient can request support from the Authority to jointly address any identified risks or issues.

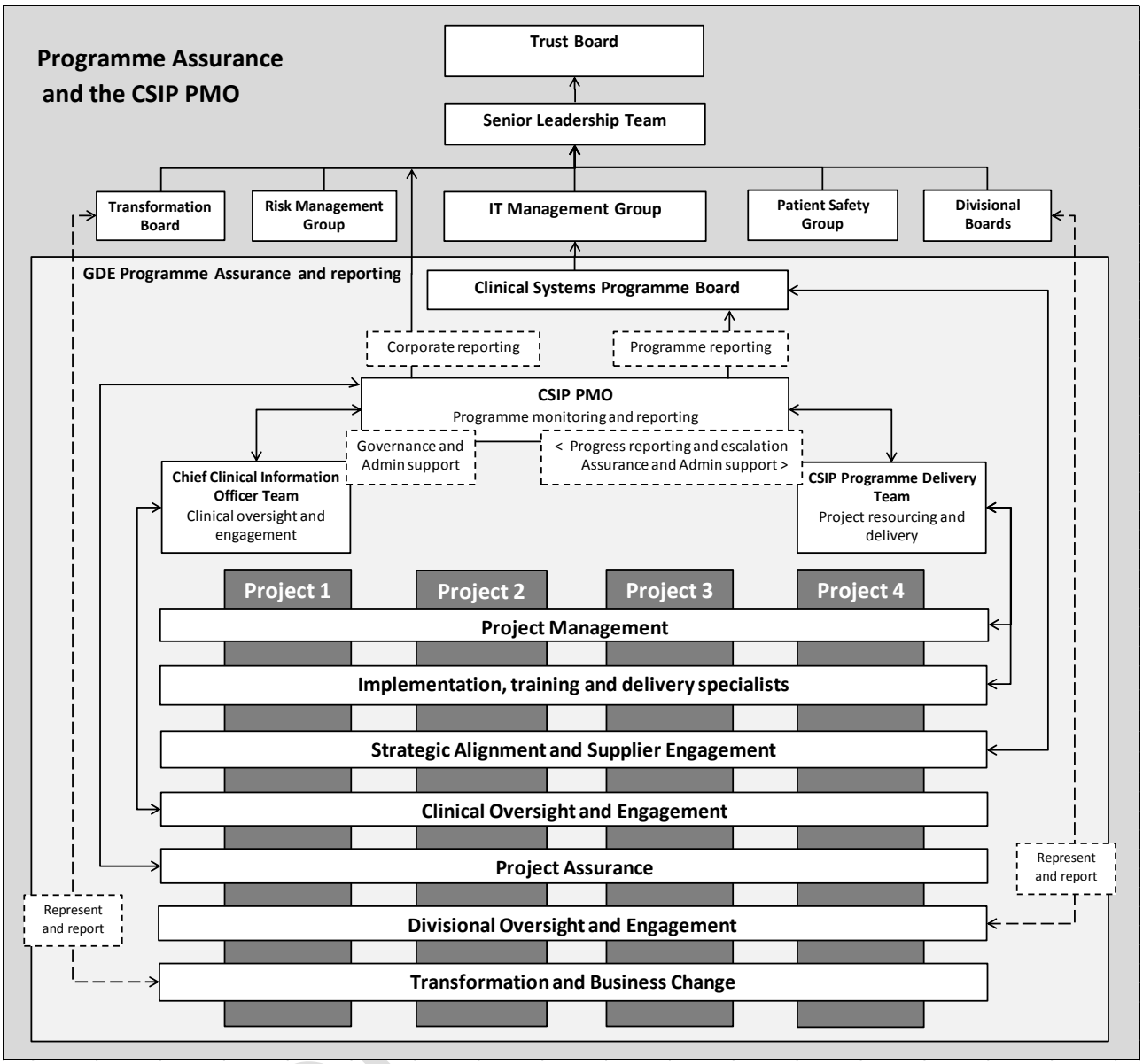


Figure 9.1 – Programme Assurance and the CSIP PMO

10 Terms and Conditions of the Award

Full terms and conditions of this award are given in Annex B.

11 Identification of Parties

The Parties approving this Funding Agreement are as follows:

Area of Responsibility	Name	Position	Signature
SIGNED by NHS England on behalf of the Secretary of State for Health acting by:			
SIGNED by the Recipient Accountable Officer (Board Level) by:	Paul Mapson Robert Woolley	Director of Finance and IM&T; SRO Chief Executive Officer	

The nominated Responsible Officers of the Parties for the day to day management of this Funding Agreement, including reporting, benefits realisation and assurance as agreed, as follows:

Name	Title	Organisation	Area of Responsibility
Steve Gray	Programme Director	UHBristol	Clinical Systems Programme Director and CIO
TBA	General Manager (IM&T)	UHBristol	Manager of PMO and assurance
Matt Steel	PMO Manager	UHBristol	Programme assurance and reporting
Cathy Francis	Regional Director, Patients and Information	NHS England	NHS England regional representative
Sue Thompson	Head of Programme	NHS Digital	GDE Accountable Officer for links into NHSE and NHS Digital
Jaynie Fabershak	Programme Manager	NHS Digital	GDE Responsible Officer for links into NHSE and NHS Digital

Where there are any changes to the nominated Responsible Officers, these need to be notified to the Authority at the earliest opportunity and updated in this Funding Agreement in line with the agreed governance framework outlined in this document.

12 Fast Followers

The following Fast-Follower candidates have been identified as a potential participants within the GDE programme. Agreement to their inclusion will be subject to further due diligence and associated funding agreements. Any such change to this Agreement will be handled through change control.

23 Trusts expressed an interest in becoming a Fast Follower and have said that they would like to adopt all or part of the UHBristol blueprint. Of these Trusts, a shortlist of five was agreed between System C and UHBristol:

Western Sussex Hospitals NHS Foundation Trust
The Whittington Hospital NHS Trust
Poole Hospital NHS Foundation Trust
Gateshead Health NHS Foundation Trust
Barnsley Hospital NHS Foundation Trust

Of these, we now have firm intent and agreement to proceed to due diligence with:

The Whittington Hospital NHS Trust
Barnsley Hospital NHS Foundation Trust

Subject to the outcome of appropriate due diligence, Weston Area Health Trust has also expressed an interest in adopting UHBristol's GDE blueprint. This is of particular interest because Weston is in the same STP footprint as UHBristol and is an active member of the Connecting Care Partnership.

Annex A: Templates

The Recipient must complete the following mandatory documentation in accordance with the agreed Assurance, Reporting and Benefits Update Framework attached in Annex C.

Documentation	Template
Monthly/Quarterly Highlight Report including Lessons Learned and Risk and Issues	Provider Digitisation Highlight Report Tem
Exception Report	Provider Digitisation Exception Report v1.
Statement of Planned Benefits and Benefits Tracker – this document will be attached to Annex C once completed	Provider Digitisation SoPB Benefit Tracker
Financial Planning Template – this document will be attached to Annex C once completed	Financial Planning Template.xlsx Revised version
Annual Spend Report	Provider Digitisation Annual Spend Report
Assurance, Reporting and Benefits Update Framework – this document will be attached to Annex C once completed	Provider Digitisation Assurance Reporting
Programme/Project Support & Assurance Resource Plan – this document will be attached to Annex C once completed	Provider Digitisation Support and Assuran
Change Control Notice (CCN)	Provider Digitisation Change Control Notic
Dispute, Escalation and Resolution Notice Template	Provider Digitisation Dispute Notification T

Annex B: Terms and Conditions of the Award

B.1 The annex provides further terms of the award.

B.2 PURPOSE OF AWARD

B.2.1 The Recipient shall use the Award only for the delivery of the programme/project and in accordance with the terms and conditions set out in this Agreement.

B.2.2 The Recipient shall not make any material change to the scope of the programme/project without the Authority's prior written agreement.

B.2.3 Where the Recipient intends to apply to a third party for other funding for the programme/project, it will notify the Authority in advance of its intention to do so and, where such funding is obtained, it will provide the Authority with written details of the amount and purpose of that funding. The Recipient agrees and accepts that it shall not apply for duplicate funding in respect of any part of the or any related administration costs that the Authority is funding in full under this Agreement.

B.2.4 Subject to clause B.2.3 above, where the Recipient has obtained funding from a third party in relation to its delivery of the Programme/project (including without limitation funding for associated administration and staffing costs), the amount of such funding shall be included in this Funding Agreement (and clearly identified as third party funding) together with a clear description of what that funding shall be used for and any relevant obligations or duties owed to the fund provider. For the avoidance of doubt, in the event of default or other liability to any third party by the Recipient, the Authority will not become liable on behalf of the Recipient in this regard.

B.3 PAYMENT OF AWARD

B.3.1 Subject to clause B.16 – Withholding Payment, where the Recipient is a NHS Trust or Foundation Trust, the Authority shall pay the Award to the Recipient in accordance with the following:

B.3.1.1 subject to clause B.3.1.3 below, funding is provided only for the financial year(s) in which it has been allocated as specified this Agreement should not be regarded as a commitment or representation on the part of the Authority (or any other person) that funding or CRL/EFL cover will be made available in future years. If the Recipient believes that the programme/project may run into a year other than the year(s) the Recipient must promptly alert the Authority through highlight reporting and their Trust and/or NHSI as appropriate;

B.3.1.2 the Parties acknowledge that during the Award Period the profile of the funding for each financial year may change (subject always to the agreement of the Parties) but the amount of the Award shall remain fixed;

B.3.1.3 once the allocations have been agreed, a schedule of the Recipient's anticipated cash requirements will be created based on the milestones set out in this Agreement at Section 7. Based on this a cash limit will be set. It is against this limit that requests for PDC will be assessed.

B.3.2 The Authority shall be entitled to repayment of payments incorrectly claimed by the Recipient or issued by the Authority.

B.3.4 The amount of the Award shall not be increased in the event of any overspend by the Recipient in its delivery of the programme/project.

B. 3.5 The Recipient acknowledges and agrees that:

B.3.5.1 funding will only be drawn down on the achievement of the Achievement Criteria for the relevant milestones as set out in this Funding Agreement;

B.3.5.2 where there are concerns of Recipient's ability to afford Matched Funding the Authority reserves the right to seek additional assurances.

B.4 USE OF AWARD

B.4.1 The Award shall be solely used by the Recipient for the delivery of the programme/project and no other programmes/projects or initiatives.

B.4.2 Any liabilities arising at the end of the programme/project including any redundancy liabilities for staff employed by the Recipient to deliver the programme/project must be managed and paid for by the Recipient. There will be no additional funding available from the Authority for this or any other purpose unless agreed under a separate agreement.

B.4.3 The Award must be used to meet the commitments outlined in Section 6 of this agreement.

B.4.4 Any VAT owing is payable by the Recipient.

B.5 TERM AND TERMINATION

B.5.1 Subject to Clause B.29 of Annex B, unless terminated earlier, the terms of this Agreement shall apply from the Commencement Date until the End of the Award period.

B.5.2 The Authority reserves the right to terminate this Agreement prior to the End of the Award period for breach, misrepresentation or for failure by the Recipient to adhere to the terms of this Agreement defined in clauses B.2.1, B.2.2, B.2.3, B.4.1, B.15, B.17, B20.1.1, B.20.1.5, B.20.1.6, B.20.1.7 and B.20.1.13 contained in Annex B.

B.5.3 For any matters arising under clause B.5.2 which the Authority at its sole discretion considers have or are likely to have a serious negative impact on its reputation and public perception, the Authority reserves the right to provide 1 month's written notice of its intention to terminate this Agreement.

B.6 ACCOUNTS AND RECORDS

B.6.1 The Recipient shall keep separate, accurate and up to date accounts and records of the receipt and expenditure of the Funding Award monies received by it.

B.6.2 The Recipient shall keep all invoices, receipts, and accounts and any other relevant documents relating to the expenditure of the Award for a period of at least six years following receipt of any Award monies to which they relate. The Authority shall have the right to review, at the Authority's reasonable request, the Recipient's accounts and records that relate to the expenditure of the Award and shall have the right to take copies of such accounts and records. Any costs in relation to this review will be met by the Parties themselves.

B.6.3 The Recipient shall comply and facilitate the Authority's compliance with all statutory requirements as regards accounts, audit or examination of accounts, annual reports and annual returns applicable to itself and the Authority at no further cost to the Authority.

B.7 MONITORING AND REPORTING AND LESSONS LEARNT

B.7.1 The Recipient shall closely monitor the delivery and success of the programme/project throughout the Award Period to ensure that the aims and objectives of the programme/project are being met and that this Agreement is being adhered to. The Recipient will report on achievement of programme/project milestones, risk and issues and lessons learnt arising as detailed in Annex C. This will be done via completion of Highlight Reports and other templates provided in Annex A of this document.

Reporting for the programme/project shall continue beyond the date when the solution is fully deployed until all activities have been completed to secure the full potential of the benefits. This status should be identified by the Recipient in the Highlight Report. The Authority should then confirm that reporting is no longer a requirement, although in exceptional cases, may request it to continue.

B.7.2 Highlight Reports shall reference progress against the standard milestones provided in this document. All mandatory programme/project milestones as agreed by the Parties shall be reported for the programme/project by the Recipient's Responsible Officer.

B.7.3 The Recipient shall provide the Authority with an Annual Spend Report by the end of June of the respective award year, setting out in detail what the funding award has been used for. Where procurement has taken place, confirmation of delivery, confirmation of payment, the supplier(s), any procurement frameworks used and the prices paid must also be provided. A template for the Annual Spend Report is provided in Annex A of this document which shall be used by the Recipient.

B.7.4 The Recipient shall provide the Authority with a Statement of Planned Benefits at the Commencement Date of this Funding Agreement. This will include benefits descriptions, values (quantitative and qualitative/non-financial), measurements, timescales, supporting evidence, interdependencies and ownership. A template is provided in Annex A and shall be used by the Recipient unless otherwise agreed by both Parties. Benefits tracking information should be submitted in line with the agreed Assurance, Reporting and Benefit Update Framework detailed in Annex C.

B.7.5 At no further cost to the Authority, the Recipient shall on request provide the Authority with further information, explanations and documents as the Authority may reasonably require in order for it to establish that the Award has been used properly in accordance with this Agreement.

B.7.6 The Recipient shall take part in meetings with the Authority in order to confirm the status of the programme/project, track progress against plan and discuss any programme/ project matters arising. Key meeting details have been outlined Annex C.

B.7.7 Should the Authority have significant concerns following such a meeting, it may request, and the Recipient shall permit, reasonable access to the Recipient's employees, agents, premises, facilities and records, and shall, if so required, request appropriate oral or written explanations from them.

B.7.8 The Recipient shall maintain a record of Lessons Learned with regards to the programme/project and shall share these with the Authority on request with further information, explanations and documents as the Authority may reasonably require.

B.8 INDEMNITY

B.8.1 Without prejudice to any rights or remedies of the Authority, the Recipient agrees to indemnify the Authority against all actions, demands, losses, expenses and costs (including legal costs) which the Authority may suffer or incur as a result of or in connection with any breach of this Agreement by the Recipient.

B.8.2 Nothing in this Agreement shall exclude or limit the liability of any Party in respect of fraudulent concealment or fraudulent misrepresentation.

B.8.3 If this Agreement is found by any court or administrative body of competent jurisdiction to be illegal, invalid or unenforceable, and the provision in question is not of a fundamental nature to this Agreement as a whole, the legality, validity or enforceability of the remainder of this Agreement shall not be affected and shall remain in force.

B.8.4 The failure to exercise, or delay in exercising, a right, power or remedy provided by this Agreement or by law shall not constitute a waiver of that right, power or remedy. If either Party waives a breach of any provision of this Agreement this shall not operate as a

waiver of a subsequent breach of that provision, or as a waiver of a breach of any other provision.

B.9 ACCOUNTABILITIES AND RESPONSIBILITIES

B.9.1 This Agreement must be signed by a board-level representative of the Recipient.

B.9.2 In scenarios where eligible recipients have applied as a lead partner on behalf of a consortium of local health providers, the lead partner may deploy technology procured with Department of Health funding across those providers. However, for the avoidance of doubt, the lead partner who submitted the Application (being the Recipient) will be held accountable for the obligations set out in this Agreement. Local arrangements between the lead partner and the other organisations will be required to agree where assets, funding and costs are recorded and responsibility for any consequential costs arising from the Award. Benefits should be tracked by the lead partner across all organisations in which they arise.

B.9.3 Key individuals with specific accountabilities and responsibilities related to this Agreement have been detailed in Section 11 of this document.

B.10 CONTRIBUTING TO THE KNOWLEDGE BASE

B.10.1 The Authority intends to develop a technology Knowledge Base, accessible on the Internet to the NHS.

B.10.2 The Authority intends to publish in the Knowledge Base a summary of each programme/project funded including contact details for each Recipient.

B10.3 The Recipient shall provide the Authority with information on how they have spent the Award. This will be through the Annual Spend Report outlined in clause B.7.3. The Authority intends to analyse the data from the Annual Spend Report submissions from all Awards and reserves the right to make this available in the Knowledge Base in aggregated and anonymised form.

B10.4 The Recipient shall, upon request by the Authority, submit and or contribute to the development of formative and summative case studies and Lessons Learned of their programme/project for publication in the Knowledge Base and shared with communities of practice and mutually agreed events.

B10.5 The Recipient shall reflect in their future Digital Maturity Assessment submissions the progress enabled by the Award.

B10.6 The Recipient shall, upon request by the Authority, commit to a national evaluation of the Award. Such an evaluation may be undertaken by the Authority or by a third party.

B.11 ACKNOWLEDGMENT AND PUBLICITY

B.11.1 The Recipient agrees to participate in and co-operate with promotional activities relating to the programme/project that may be instigated and/or organised by the Authority. The Recipient shall comply with all reasonable requests from the Authority to facilitate visits, provide reports, statistics, photographs and case studies that will assist the Authority in such promotional activities. The Recipient shall comply as 'good will' to these requests.

B.11.2 Any financial gain made by the Recipient on the eventual disposal of any asset acquired under this Agreement must be notified to the Authority for audit purposes.

B.11.3 The Authority may publicly acknowledge the Recipient's involvement in the Award as appropriate without prior notice. The Authority shall however endeavour to notify the Recipient in advance of any publicity which is to be released in relation to the Recipient's

involvement in the Award, and where possible to obtain its input to the proposed communication.

B11.4 Notwithstanding clause B.12 (Confidentiality and Disclosure), the Recipient shall acknowledge the existence of the Award and the support of the Authority in any materials that refer to the programme/project and in any written or spoken public presentations about the programme/project.

B11.5 In using the Authority's name and logo, the Recipient shall comply with all reasonable branding guidelines issued.

B.12 CONFIDENTIALITY AND DISCLOSURE

B.12.1 For the purpose of this Agreement, Confidential Information shall mean any and all information, which is supplied or disclosed, directly or indirectly, in writing or in any other means, by each Party to any other including, but not limited to, any documents, drawings, sketches, designs, materials, samples, prototypes, data, know-how, and which at the time of its disclosure or supply is identified as confidential.

B12.2 Subject to clause B.14 (Freedom of Information), each Party shall during the term of this Agreement and thereafter keep secret and confidential all IPRs or Know How or other business, technical or commercial information disclosed to it as a result of the Agreement which is designated confidential or which ought reasonably be considered to be confidential and shall not disclose the same to any person save to the extent necessary to perform its obligations in accordance with the terms of this Agreement.

B.12.3 For the purpose of this Agreement "the Receiving Party" shall mean the Party receiving the Confidential Information disclosed by any other Party ("the Disclosing Party"). The Receiving Party shall:

B12.3.1 undertake to use the Confidential Information solely for the purpose of this Agreement and not to make any other use, whether commercial or non-commercial, without the prior written consent of the party disclosing it.

B.12.3.2 undertake to keep the Confidential Information confidential and not to disclose it nor to permit the disclosure of it to any third party, except in accordance with clause B12.4, and not to make it available to the public or accessible in any way, except with the prior written consent of the Party disclosing it;

B.12.4 The obligation of confidentiality contained in this clause shall not apply or shall cease to apply to any IPRs, Know How or other business, technical or commercial information which:

B.12.4.1 at the time of its disclosure by the Disclosing Party is already in the public domain or which subsequently enters the public domain other than by breach of the terms of this Agreement by the Receiving Party;

B.12.4.2 is already known to the Receiving Party as evidenced by written records at the time of its disclosure by the Disclosing Party and was not otherwise acquired by the Receiving Party from the Disclosing Party under any obligations of confidence; or

B.12.4.3 is at any time after the date of this Agreement acquired by the Receiving Party from a third party having the right to disclose the same to the Receiving Party without breach of the obligations owed by that party to the Disclosing Party.

B.12.4.4 the recipient proves the Confidential Information has been developed independently by its employees, who had no access to any of the Confidential Information disclosed by the Party disclosing it to the Receiving Party.

B.12.5 The Receiving Party shall limit and control any copies and reproductions of the Confidential Information. The Receiving Party shall return all records or copies of the Confidential Information at the request of the other party and if required, on termination of this Agreement. This shall not apply to Confidential Information or copies thereof which

must be stored by the Receiving Party according to mandatory law, provided that such Confidential Information or copies thereof shall be subject to an indefinite confidentiality obligation.

B.12.6 The Receiving Party undertakes to disclose the Confidential Information only to its staff (employees and contractors) who:

B.12.6.1 reasonably need to receive or access the Confidential Information for the purpose of this Agreement; and

- have been informed by the Receiving Party of the confidential nature of the Confidential Information under the terms of this Agreement; and
- have been advised of and agree to be bound by equivalent obligations to those in this Agreement.

B.12.7 All Confidential Information shall remain the exclusive property of each Party as well as all patent, copyright, trade secret, trade mark and other intellectual property rights therein. The Parties agree that this Agreement and the disclosure of the Confidential Information do not grant or imply any license, interest or right to the Recipient in respect to any intellectual property rights of the other Party.

B.13 INTELLECTUAL PROPERTY RIGHTS (IPR)

B.13.1 The Parties are required to secure value for money for the wider NHS through adopting appropriate IPR ownership and licensing arrangements in respect of any works, software, databases or other materials produced during the programme and/or created with the benefit of the Award (the “Programme Materials”). The Recipient is invited to set out any IPR arrangements it has or intends to put in place in respect of the Programme Materials, including that with any supplier they already have engaged. Any financial gain made by the Recipient on the eventual disposal of any asset acquired under this Agreement must be notified to the Authority for audit purposes.

B13.2 If, pursuant to Clause B13.2 (and subject to Clause B13.3), the Parties agree that the Recipient should own the IPR in the Programme Materials, then it shall grant to the Authority a non-exclusive, transferrable, irrevocable, royalty-free licence to use and to sub-license to others the right to use the Programme Materials.

B.13.3 The Recipient must comply with Cabinet Office, Government Digital Services, Digital By Default Service Standard #15 (Make all new source code open and reusable, and publish it under appropriate licenses (or give a convincing explanation as to why this can’t be done for specific subsets of the source code)) (https://www.gov.uk/service-manual/digital-by-default)

B.14 FREEDOM OF INFORMATION

B.14.1 The Parties acknowledge that each Party is subject to the requirements of the Freedom of Information Act 2000 (“FOIA”) and the Environmental Information Regulations 2004 and shall assist and co-operate with the other Party to enable such other Party to comply with these information disclosure requirements.

B.14.2 On receipt of a request regarding the other Party, the party receiving the request (“the Receiving Party”) shall:

B.14.2.1 transfer the request for information to the other Party (“the Disclosing Party”) as soon as practicable after receipt and in any event within three Working Days of receiving a request for information;

B14.2.2 provide all necessary assistance as reasonably requested by the Disclosing Party to enable the Disclosing Party to respond to a valid request for information within the time for

compliance set out in section 10 of the FOIA or regulation 5 of the Environmental Information Regulations 2004.

B.14.3 The Disclosing Party shall be responsible for determining at its absolute discretion whether the information:

B14.3.1 is exempt from disclosure in accordance with the provisions of the FOIA or the Environmental Information Regulations 2004;

B14.3.2 is to be disclosed in response to a request for information.

B.14.4 In no event shall the Receiving Party respond directly to that request for information unless expressly authorised to do so by the Disclosing Party.

B.14.5 The Recipient shall ensure that all information produced in the course of the Agreement or relating to the Agreement is retained for disclosure and shall permit the Authority to inspect such records as requested from time to time.

B.15 DATA PROTECTION

B.15.1 The Recipient shall (and shall procure that any of its staff involved in connection with the activities under the Agreement shall) comply with any notification requirements under the Data Protection Act 1998 ("DPA") and both Parties will duly observe all their obligations under the DPA, which arise in connection with the Agreement.

B.16 WITHHOLDING, SUSPENDING AND REPAYMENT OF AWARD

B16.1 PDC can be paid only after spend has been incurred. The Authority will pay funding in accordance with Section 7 and clause B.3 of this Agreement against the satisfactory confirmation of the achieved milestones, however, without prejudice to the Authority's other rights and remedies, the Authority may at its discretion withhold, reduce or suspend payment of the Award and/or require repayment of all or part of the Award if any of the following apply:

B.16.1.1 no confirmation has been received by the Authority that spend has been incurred;

B.16.1.2 the funding provided has led to the purchase of assets (building and equipment) later determined to be spent without the appropriate due diligence or not to have achieved the benefits set out in this Agreement;

B.16.1.3 the Recipient obtains duplicate funding from a third party for the programme/project;

B.16.1.4 the Recipient obtains funding from a third party which, in the reasonable opinion of the Authority, undertakes activities that are likely to bring the reputation of the programme/project or the Authority into disrepute;

B.16.1.5 the Recipient knowingly or negligently provides the Authority with any materially misleading or inaccurate information;

B.16.1.6 the Recipient commits or committed a Prohibited Act;

B.16.1.7 the Recipient breaches or is found to have breached any of the warranties in clause 19 (below);

B.16.1.8 any member of the board, employee or volunteer of the Recipient has:

- acted dishonestly or negligently at any time either directly or indirectly to the detriment of the programme/project; or
- taken any actions which, in the reasonable opinion of the Authority, bring or are likely to bring the Authority's name or reputation into disrepute;

B16.1.9 the Recipient ceases to operate for any reason, or it passes a resolution (or any court of competent jurisdiction makes an order) that it be wound up or dissolved (other than for the purpose of a bona fide and solvent reconstruction or amalgamation);

B.16.1.10 the Recipient becomes insolvent, or it is declared bankrupt, or it is placed into receivership, administration or liquidation, or a petition has been presented for its winding up, or it enters into any arrangement or composition for the benefit of its creditors, or it is unable to pay its debts as they fall due;

B.16.1.11 the Recipient fails to comply with any of the terms and conditions (including Monitoring and Reporting) set out in this Agreement and (where capable of remedy) fails to remedy any such failure within 30 days of receiving written notice detailing the failure; or

B.16.2 Without prejudice to clause B.16.1, where following the Annual Spend Report detailed in clause B.7.3 the Authority believes (in its sole opinion) that any of the provisions set out in clause B16.1.1 may apply, the Authority reserves the right to request a meeting with the Recipient. At this meeting the Parties will discuss in good faith whether, in the circumstances any reimbursement of funding that the Authority has provided under this Agreement is appropriate.

B.16.3 Where the Parties agree to such a reimbursement they will also agree how such reimbursement will be made. For the avoidance of doubt the Authority, acting reasonably, will have the final decision in respect of any such reimbursement due.

B.16.4 Wherever under the Agreement any sum of money is recoverable from or payable by the Recipient (including any sum that the Recipient is liable to pay to the Authority in respect of any breach of the Agreement as defined in clause B.5, the Authority may unilaterally deduct that sum from any sum then due, or which at any later time may become due to the Recipient under the Agreement or under any other agreement or contract with the Authority.

B.16.5 The Recipient shall make any payments due to the Authority without any deduction whether by way of set off, counterclaim, discount, abatement or otherwise.

B.16.6 Should the Recipient be subject to financial or other difficulties which are capable of having a material impact on its effective delivery of the programme/project or compliance with this Agreement it will notify the Authority as soon as possible so that, if possible, and without creating any legal obligation, the Authority will have an opportunity to take action to protect the Authority and the Award monies.

B.17 ANTI DISCRIMINATION

B17.1 The Recipient shall not unlawfully discriminate within the meaning and scope of any law, enactment, order, government policy or regulation relating to discrimination (whether in race, gender, religion, disability, sexual orientation, age or otherwise).

B.18 STANDARDS

B.18.1 The Recipient will use the NHS Number as the primary identifier in all clinical correspondence along the care pathway across health and care services.

B.18.2 The Recipient confirms that the programme/project and all systems supported by the Award will hold the NHS Number, use this as the primary identifier and all organisations will be able to retrieve all clinical activity relating to a patient using their NHS Number in order to be able to share this information.

B.18.3 The Recipient confirms that the programme/project and all IT systems supported by the Award should use Open APIs where available as per Open API Policy (https://www.england.nhs.uk/digitaltechnology/info-revolution/interoperability/open-api/)

Where Open APIs are not currently available, a clear roadmap for when they will be available will be required for each system supported by the Award.

B.18.4 The Recipient confirms that the programme/project will use published national standards and that national interoperability specifications as detailed in Annex E.

B.19 LIMITATION OF LIABILITY

B.19.1 The Authority accepts no liability for any consequences, whether direct or indirect, that may come about from the Recipient running the programme/project, the use of the Award or from withdrawal of the Award. The Recipient shall indemnify and hold harmless the Authority, its employees, agents, officers, suppliers or sub-contractors with respect to all claims, demands, actions, costs, expenses, losses, damages and all other liabilities arising from or incurred by reason of the actions and/or omissions of the Recipient in relation to the programme/project, the non-fulfilment of obligations of the Recipient under this Agreement or its obligations to third parties.

B.19.2 Subject to clause B.19.1, in so far as is permitted by law the Authority's liability under this Agreement is limited to the payment of the Award.

B.19.3 Subject always to the above clause and except in respect of liability under Confidentiality, in no event shall any Party be liable to any other Party for:

B.19.3.1 any indirect, special or consequential loss or damage; and/or

B.19.3.2 any loss of profits, turnover, business opportunities, anticipated savings or damage to goodwill (whether direct or indirect); and/or any loss of data.

B.19.3.3 any funding spent without the appropriate due diligence or charges rendered unnecessary and/or incurred by the Recipient arising from the Recipient's Default to the extent that such expenditure or charges can be shown to be direct losses provided that the Recipient shall use all reasonable endeavours to avoid and/or mitigate such costs or expenses.

B.20 WARRANTIES

B.20.1 The Recipient warrants, undertakes and agrees that:

B20.1.1 it has full capacity to enter into and receive funding under this Agreement;

B.20.1.2 this Agreement is executed by a duly authorised representative of the Recipient;

B.20.1.3 as at the Commencement Date all statements and representations provided to the Authority are to the best of its knowledge, information and belief, true and accurate and that it will advise the Authority of any fact, matter or circumstance of which it may become aware which would render any such statement or representation to be false or misleading;

B.20.1.4 it has and will continue to have all necessary resources and expertise to deliver the programme/project;

B.20.1.5 it has not committed, nor shall it commit, any Prohibited Act;

B.20.1.6 it shall at all times comply with all relevant legislation, all applicable codes of practice and other similar codes, recommendations and the Standards, and shall notify the Authority immediately of any significant departure from such legislation, codes, recommendations or Standards;

B.20.1.7 it shall comply with the requirements of the Health and Safety at Work Act 1974 and any other acts, orders, regulations and codes of practice relating to health and safety, which may apply to employees and other persons working on the programme/project;

B.20.1.8 it has and shall keep in place adequate procedures for dealing with any conflicts of interest;

B.20.1.9 it has and shall keep in place systems to deal with the prevention of fraud and/or administrative malfunction;

B.20.1.10 it is not subject to any contractual or other restriction imposed by its own or any other organisation's rules or regulations or otherwise which may prevent or materially impede it from meeting its obligations in connection with the Award;

B.20.1.11 it is not aware of anything in its own affairs, which it has not disclosed to the Authority or any of the Authority's advisers, which might reasonably have influenced the decision of the Authority to make the Award on the terms contained in this Agreement;

B.20.1.12 since the date of its last accounts there has been no material change in its financial position or prospects; and

B.20.1.13 it shall at all times comply with the law including (but not limited to) the Public Procurement Regulations (where appropriate).

B.20.2 NHS England warrants and represents that it has full capacity and authority and all necessary consents to enter into and to perform this Funding Agreement and that this Funding Agreement is executed by a duly authorised representative of NHS England.

B.21 SUPPLIER TERMS

B.21.1 The Recipient shall ensure that its terms and conditions with any provider or supplier of services for the programme/project include all relevant terms set out in this Agreement.

B.22 COLLABORATION

B.22.1 The Recipient recognises that collaboration between the various contracting authorities engaging the same supplier could yield service improvement savings, economies of scale or cost of delivery reductions to the Recipient, the Supplier and the other contracting authorities that may not otherwise be possible without such collaboration taking place. Such savings would allow the supplier to deliver a higher standard of service as more resource would be available for other activities (e.g. product development and customer support). Similarly the Recipient and the other contracting authorities would directly benefit from such an approach by more effective services and reduced charges.

B.22.2 The Recipient warrants that it will take the necessary steps to undertake and participate in the process of collaboration in order to:

B.22.2.1 encourage and incentivise all suppliers engaged under separate contracts under the terms of this Funding Agreement to use best practise experience to deliver strategic outcomes based on effective processes, services and pricing structures to all its health economy customers;

B.22.2.2 encourage the supplier to actively support collaboration between its health economy customers;

B.22.2.3 include collaboration clauses with suppliers who are awarded contracts under the terms of this Award. Clauses for inclusion are outlined in Annex D.

B.23 SUBCONTRACTING

B.23.1 The Recipient shall not subcontract any of its obligations under this Agreement, except as contemplated as part of the programme/project, without first obtaining the Authority's written approval.

B.24 ASSIGNMENT

B.24.1 The Recipient shall not sub-license or declare a trust in respect of its rights under all or a part of this Agreement or the benefit or advantage hereof without the consent of the Authority first being obtained in writing.

B.24.2 The Recipient may not, without the prior written consent of the Authority, assign or in any other way transfer to any third party the benefit and/or the burden of the Award or this Agreement or, except as contemplated as part of the programme/project, transfer or pay to any other person any part of the Award.

B.24.3 In the event the Recipient is acquired by a third party or suffers a change of control, the party acquiring control of the Recipient ("the Acquiring Party") shall either:

B.24.3.1 subject to provision of any remaining funding by the Authority agree to be bound by the Recipient's commitment to provide the agreed deliverables in accordance with section 6 of this Funding Agreement and thereby agrees to be bound by the terms and conditions of this Funding Agreement unless agreed otherwise by the Authority, such agreement not to be unreasonably withheld, or

B.24.3.2 within fourteen (14) days of the formal Date of Acquisition, provide the Authority with its formal intention to cancel the programme/project and terminate this Funding Agreement.

B.24.4 Any costs incurred by the Recipient in accordance with the performance of activities under this Funding Agreement up to and including the Date of Acquisition will be met by the Authority.

B.24.5 Should the Acquiring Party serve notice to terminate this Funding Agreement in accordance with Clause B.24.3.2 or in the event that no communication has been received by the Authority from the Acquiring Party within a reasonable timeframe (not to exceed 1 (one) calendar month from the Date of Acquisition) as to its intention, any monies committed under this Funding Agreement by the Recipient but where the corresponding milestone as defined in Clause 7.2 has not been completed by the Date of Acquisition will be referred to the Authority for review and decision as to payment.

B.24.6 Notwithstanding Clause B.24.3.2, for the avoidance of doubt if the Acquiring Party continues to draw down funding as awarded under this Funding Agreement, the Acquiring Party will be considered as if it were the Recipient and agrees to be bound by the responsibilities and terms and conditions of this Funding Agreement.

B.24.7 The Authority reserves its right to assure itself that the Acquiring Party agrees to be bound by the terms and conditions as defined in Clauses B.2, B.12, B.13, B.14, B.15, B.17, B.19 and B.30.

B.24.8 The Acquiring Party agrees on a best endeavours basis to mitigate and reduce any actual or potential financial losses which may occur after the Date of Acquisition under the activities outlined in this Funding Agreement. For the avoidance of doubt, under the terms of this Agreement best endeavours is defined as convening, facilitating and attendance at a governance meeting where financial commitments and risk are discussed with the Authority within 1 (one) calendar month of the Date of Acquisition and an action plan is agreed.

B.25 WAIVER

B.25.1 No failure or delay by either Party to exercise any right or remedy under this Agreement shall be construed as a waiver of any other right or remedy.

B.26 NOTICES

B.26.1 All notices and other communications in relation to this Agreement shall be in writing and shall be served by delivering it personally or by sending it by pre-paid first class post, recorded delivery or registered post or by email (england.ccio@nhs.net) and for the

attention of the relevant party specified in this Agreement (or such other address as that party may stipulate in accordance with this clause).

B.26.2 A notice shall be deemed to have been received:

B.26.2.1 If delivered personally, at the time of delivery;

B.26.2.2 In the case of pre-paid first class post, three Working Days from the date of posting;

B.26.2.3 In the case of email, at the time that the email enters the information system of the intended recipient if sent before 16:00 hours of any Working Day and otherwise at 09:00 hours on the next Working Day and provided that no error message indicating failure to deliver has been received by the sender and provided further that within twenty four hours of transmission a hard copy of the email signed by or on behalf of the person giving it is sent by pre-paid first class post, recorded delivery or registered post to the intended recipient.

B.26.3 In proving service, it shall be sufficient to prove that the envelope containing the notice was addressed to the relevant Party at its address previously notified for the receipt of notices (or as otherwise notified by that Party) and delivered either to that address or into the custody of the postal authorities as pre-paid first class post, recorded delivery, registered post or airmail letter, or that the notice was transmitted by fax to the fax number of the relevant Party at its fax number previously notified for the receipt of notices (or as otherwise notified by that party).

B.27 DISPUTE ESCALATION AND RESOLUTION

B.27.1 The Parties will attempt in good faith to resolve any Dispute arising out of or in relation to this Agreement initially through the regular programme governance process.

B.27.2 The Dispute Escalation and Resolution procedure can be initiated if either Party believes a Dispute exists or is likely to exist. A template has been provided in Annex A to support this process.

B.27.3 Any Dispute which has occurred or, in the opinion of either Party, is likely to occur must be confirmed to the other Party in writing (“Dispute Notification”). The Dispute Notification must include:

- Date of Dispute
- Cause of Dispute
- Categorisation of Dispute:
    - Internal (between programme stakeholders) or
    - External (across the supply chain and/or with other third parties)
- Interpretation of events leading to the Dispute
- Where possible, documented evidence of events leading to the cause of the Dispute
- Expected outcome of the Dispute if not resolved
- Outline proposal for resolution of the Dispute

B.27.4 If the Dispute cannot be settled amicably as defined in Clause B.26.1 within seven (7) days from the date on which either Party has served a Dispute Notification on the other then the remaining provisions of this Clause B.26 shall apply.

B.27.5 Dispute Resolution has 3 stages as follows:

1. One to One interaction
2. Group Involvement
3. Forced Resolution

B.27.5.1 Stage 1a: One to One Interaction

Should the actions outlined under Clause 26.4 fail to deliver a resolution, within seven (7) days of the outcome of Clause 26.4 the Authority’s representative and Recipient’s

Programme Manager will convene a meeting of the necessary parties to seek to understand their viewpoints and the implications for them, record the facts, propose solutions and act as mediator with the sole intention of reaching a resolution.

B.27.5.2 Stage 1b: One to One Interaction

Should stage 1a fail to deliver a resolution, after seven (7) days the Authority's representative will escalate to the Authority's Programme Director and Recipient's nominated executive who will convene a meeting of the necessary parties to seek to understand their viewpoints and the implications for them, record the facts, propose solutions and act as mediator with the sole intention of reaching a resolution.

B.27.5.3 Stage 1c: One to One interaction

Should stage 1b fail to deliver a resolution, after seven (7) days the Authority's Programme Director (or their nominated representative) and Recipient's CEO (or their nominated representative) will convene a meeting of the necessary parties to seek to understand their viewpoints and the implications for them, record the facts, propose solutions and act as mediator with the sole intention of reaching a resolution.

B.27.5.4 Stage 2: Group Involvement

Should stage 1c fail to deliver a resolution, after seven (7) days the Dispute will be escalated to the Authority's Programme Director by the Recipient's CEO who will provide the facts, options and implications to Programme Governance (Programme Board), via NHS SRO, and request specific decisions. They should set the timetable and prepare the disputing parties for group negotiations in advance of the Board. At the Board recommendations and actions made will be recorded and progress reviewed at the next Board if not sooner.

B.27.5.5 Stage 3: Forced Resolution

Should stage 2 fail to deliver a resolution during the timetable set by the parties under Clause B.26.5.4, the Dispute will be escalated to the NHS SRO by the Recipient's CEO who will provide the facts, options and implications to the NHS Digital Delivery Board ("DDB"), via the NHS CCIO, and request specific decisions. They should set the timetable and prepare conflicting parties for group negotiations in advance of the Board. At the Digital Delivery Board recommendations and actions made will be recorded and progress reviewed at the next Board if not sooner. The DDB can mandate action or advise on third party options to assist reaching resolution, giving the pros and cons of adjudication, arbitration, and judiciary and provide the necessary parties (mediators, arbitrators) with the appropriate facts.

B.27.6 The Parties agree that a decision from the outcome of Stage 3 on a Dispute shall be final and binding and shall be enforceable as if it were an agreement made directly between the Parties.

B.27.7 Unless this Agreement shall have been repudiated or terminated and notwithstanding that a Dispute remains unresolved, the Parties shall continue to carry out their respective obligations in accordance with this Agreement during the process of Dispute Resolution.

B.27.8 Any costs incurred by the Parties in undertaking the Dispute Escalation and Resolution Procedure as defined in this Clause B.26 shall be met by the Party incurring those costs. Any joint costs incurred shall be divided equally between the Parties.

B.28 NO PARTNERSHIP OR AGENCY

B.28.1 This Agreement shall not create any partnership or joint venture between the Authority and the Recipient, nor any relationship of principal and agent, nor authorise any Party to make or enter into any commitments for or on behalf of the other Party.

B.29 FORCE MAJEURE

B.29.1 Subject to the remaining provisions of the Escalation and Dispute Resolution Procedure either Party to this Agreement may claim relief from liability for non-performance of its obligations to the extent this is due to a Force Majeure Event.

B.29.2 A Party cannot claim relief if the Force Majeure Event is attributable to its wilful act, neglect or failure to take reasonable precautions against the relevant Force Majeure Event.

B.29.3 The Affected Party cannot claim relief as a result of a failure or delay by any other Party in the performance of that other Party's obligations under a contract with the Affected Party (unless that other Party is itself prevented from or delayed in complying with its obligations as a result of a Force Majeure Event).The Affected Party shall give the other Party written notice of the Force Majeure Event as soon as reasonably practicable. The notification shall include details of the Force Majeure Event together with evidence of its effect on the obligations of the Affected Party, and any action the Affected Party proposes to take to mitigate its effect.

B.29.4 As soon as practicable following the Affected Party's notification, the Parties shall consult with each other in good faith and use all reasonable endeavours to agree appropriate terms to mitigate the effects of the Force Majeure Event and to facilitate the continued performance of this Agreement. The Parties shall take all reasonable steps to overcome or minimise the consequences of the Force Majeure Event.

B.29.5 The Affected Party shall notify the other Party as soon as reasonably practicable after the Force Majeure Event ceases or no longer causes the Affected Party to be unable to comply with its obligations under this Agreement. Following such notification, this Agreement shall continue to be performed on the terms existing immediately before the occurrence of the Force Majeure Event unless agreed otherwise by the Parties.

B.30 SURVIVORSHIP

B.30.1 The following clauses shall survive the termination or expiry of this Agreement:

B.5 (Accounts and Records), B.11 (Acknowledgment and Publicity), B.12 (Confidentiality and Disclosure), B.13 (IPR), B.14 (Freedom of Information), B.15 (Data Protection), B.19 (Limitation of Liability), B.26 (Notices), B.27 (Escalation and Dispute Resolution) and B.32 (Governing Law).

B.31 CONTRACTS (RIGHTS OF THIRD PARTIES) ACT 1999

B.31.1 This Agreement does not and is not intended to confer any contractual benefit on any person pursuant to the terms of the Contracts (Rights of Third Parties) Act 1999.

B.32 GOVERNING LAW

B.32.1 This Agreement shall be governed by and construed in accordance with the law of England and the Parties irrevocably submit to the exclusive jurisdiction of the English courts.

Annex C: Assurance, Reporting and Support Requirements

Assurance, Reporting and Benefits Update Arrangements:

Provider Digitization Assurance Reporting.

Draft Statement of Planned Benefits and Benefits Tracker:

Draft Financial Planning template:

Removed, not required in this version

Programme/Project Support and Assurance Resource Plan:

The Parties have agreed the following support resources for the programme/project:

- Support for the development of a detailed benefits realisation framework and SOPB
- UHBristol may also request other programme support resource at a later stage in the programme.

The draft Assurance Resource Plan is attached below:

Support and Assurance Resource

Annex D: Collaboration clauses for inclusion in supplier contracts

The Recipient is encouraged to include specific collaboration clauses in its contracts with suppliers under the terms of this Funding Agreement. Collaboration between the various contracting authorities engaging the same supplier could yield service improvement savings, economies of scale or cost of delivery reductions to the Recipient, the supplier and the other contracting authorities that may not otherwise be possible without such collaboration taking place. Such savings would allow the supplier to deliver a higher standard of service as more resource would be available for other activities (e.g. product development and customer support). Similarly the Recipient and the other contracting authorities would directly benefit from such an approach by more effective services and reduced charges.

For the purposes of this Annex D:

- the buyer is referred to as “the Authority”
- the supplier is referred to as “the Supplier”
- buyers using the same supplier are referred to as the “Contracting Authorities”
- the parties who will work together collaboratively (which includes Contracting Authorities, the supplier and very likely any number of material sub-contractors) are referred to as the “Collaborating Parties”.

Clauses for inclusion are specified below:

1. The Authority is bound, under its terms of business with NHS England (“Funding Agreement”), to identify on-going benefits and efficiency savings by collaborative working with its suppliers, partners and the Supplier’s contracting authorities. In order to help the Authority to do so, the Supplier recognises that collaboration between the various contracting authorities to whom it supplies goods and services (“Contracting Authorities”) could yield service improvement savings or cost of delivery reductions to both the Supplier and the Authority that may not otherwise be possible without such collaboration taking place.

2. For the purposes of this Agreement:
    a. collaboration is defined as enabling the Contracting Authorities to work together to produce a common service, outcome or deliverable which will reduce risk and/or provide tangible benefits;
    b. the parties working in collaboration may, from time to time, include the Contracting Authorities, the Supplier and material subcontractors within the supply chain (“Collaborating Parties”) as appropriate;
    c. collaboration will begin on the Commencement Date and will endure for the duration of this Agreement unless otherwise specified.

3. The Supplier confirms that its business model, pricing structure and approach to risks are geared towards helping to deliver the strategic benefits of the Authority and its collaborative partners and as such supports the concept of collaborative working outlined herein.

4. In order to facilitate collaboration between the Contracting Authorities and the Supplier:
    a. the Contracting Authorities shall appoint an individual (the “Contracting Authorities’ Agent”), to represent the interests of the contracting authorities,
    b. for the avoidance of doubt, the Contracting Authorities’ Agent shall have the full authority to act for and on behalf of each of the Contracting Authorities and, for the purposes of this Agreement, act as the Authority’s representative for collaborative matters,
    c. the Supplier will facilitate and chair quarterly meetings with the Contracting Authorities’ Agent to discuss and agree any proposed efficiency savings or matters relating to collaborative working.

5. Any efficiency savings will be assessed and a recommendation to proceed will be agreed between the Supplier and the Contracting Authorities' Agent in terms of implementation and delivery costs, risk and expected benefit.

6. Any costs and expenses incurred by the Collaborating Parties engaged in delivering goods and services as part of collaborative working will be divided in proportion to costs incurred by each of the Collaborating Parties subject to agreement to incur such costs has been pre-approved by the Contracting Authorities' Agent and the Supplier.

7. In addition, any net benefit (i.e. after costs have been apportioned) shall be divided appropriately between the Collaborating Parties, subject to agreement between the Contracting Authorities' Agent and the Supplier.

8. In circumstances where IP has been jointly developed and funded by the Contracting Authorities, ownership of the IP will be assigned according to the specific contract terms agreed by the Collaborating Parties.

9. Any charges or funds which result from the sale, licencing or other exploitation to any third parties of IP developed under this Agreement will be apportioned amongst the Contracting Authorities.

10. For the avoidance of doubt, any collaborative or joint working performed under this Agreement does not create a partnership, joint venture or any other relationship.

11. Each of the Collaborating Parties agrees to be bound by the terms of Confidentiality, Force Majeure, Limitation of Liability and Misrepresentation outlined in this Agreement.

12. The Collaborating Parties represent and warrant to each other that:
    a. each is free to enter into the collaboration terms outlined in this Agreement;
    b. all contributions developed under collaborative working are original or all necessary permissions and releases have been obtained and paid for; and
    c. no intellectual property rights have been infringed upon or other laws violated.

13. Each of the Collaborating Parties agrees to indemnify the other(s) for any loss, liability or expense resulting from the actual breach of these warranties.

Annex E: Interoperability Standards

All organisations are expected to work towards achievements of Interoperability standards and practices e.g. sharing of structured documents for all transfers of care, near-real time export of information, using of FHIR based APIs and SMART technology.

Confirmation of plans to achieve these goals will be shared between Parties, and consideration of appropriate scope, timescales and risks to achieving the interoperability standards and process will be identified for resolution.

We would anticipate exemplar organisations working towards achieving the interoperability features below. UHBristol confirms that, alongside its supplier partner System C and the Connecting Care Partnership, it is able to meet all of the stated criteria during the lifetime of the GDE programme.

Interoperability Features:

- Sharing of events between EPR and local economy at points of care; e.g. requests for service, admissions, discharges, and other transfers of care reports and updates (e.g. encounters and lab results)
- Integrated workflow across care settings through notification and alerting to professionals as part of the care process
- Access to structured data about a patient from primary care and other care settings in real-time (including in-episode and post episode care) e.g. exposure of GP record in EPR or EPR record in GP systems
- Appointments management with primary care and across care settings
- Ability to locate and access care records from across localities
- Integration with key national services such as eReferrals, Summary Care Record and the Electronic Prescription Service
- A common data sharing agreement and consent approach across the economy
- Correspondence and test results available to patients via open interfaces
- Reciprocal communication with care teams for patients
- Enabling patient access to information from across care settings – developing and trialling use of emerging standards such as SMART
- Supporting information sharing through a set of structured open FHIR APIs for sharing key elements of the care record e.g. medications, allergies, problems, diagnosis, encounters
- Export of full and configured sub data set to local/regional data platform for population health management to enable near-real time insight at the point of care
- Reporting and contract submissions directly from clinical systems to support service planning and quality improvement using the NHS Number as the link key

Data Security Features:

- No unsupported operating systems, software or internet browsers used within the IT estate
- A credible plan to respond to threats to data security with senior board accountability

Annex F: Risk Stratification and Risk and Issue Monitoring

The Parties will risk stratified the Programme/Project using the delivery confidence criteria below. The agreed risk stratification for the programme/project has been detailed in Annex C.

Colour	Delivery Confidence Criteria Description
G	Successful delivery of the project/programme to time, cost and quality appears highly likely and there are no major outstanding issues that at this stage appear to threaten delivery significantly
A	Successful delivery appears probable however constant attention will be needed to ensure risks do not materialise into major issues threatening delivery
A	Successful delivery appears feasible but significant issues already exist requiring management attention. These appear resolvable at this stage and if addressed promptly, should not present a cost/schedule overrun
A	Successful delivery of the project/programme is in doubt with major risks or issues apparent in a number of key areas. Urgent action is needed to ensure these are addressed, and whether resolution is feasible
R	Successful delivery of the project/programme appears to be unachievable. There are major issues on project/programme definition, schedule, budget required quality or benefits delivery, which at this stage do not appear to be manageable or resolvable. The project/ programme may need re-baselining and/or overall viability re-assessed

The agreed risk stratification for the programme/project will be detailed on the front tab of each highlight report. A date for review of the risk stratification has also been agreed and detailed in Annex C. However, if the programme/project encounters a high proportion of red risk/issues the risk stratification may need to be revisited sooner. Agreement to undertake an unscheduled review of the risk stratification will be agreed by the Parties upon submission of the highlight/exception reports.

Risks and issues must be reported consistently. Please ensure that any risks and issues use the following criteria:

The following tables provide guidance on what the various likelihood and impact values might be and must be referred to when assessing a risk.

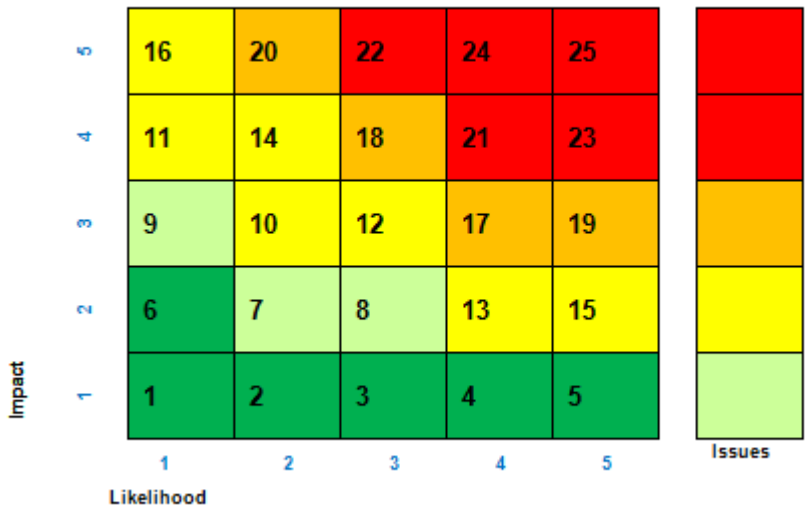
It must be emphasised that this is **guidance**, and at all times common sense is expected to be applied when assessing a risk.

Likelihood Guide	
Rare (1)	<10% chance of occurrence -or- Has not occurred within last 3 years
Unlikely (2)	11-33% chance of occurrence -or- Has occurred within last 3 years and could occur again
Possible (3)	34-67% chance of occurrence -or- Has occurred in last year and could occur again
Likely (4)	68-89% chance of occurrence -or- Has occurred 2 or more times within in last year and could occur again
Almost Certain (5)	>89% chance of occurrence -or- Has occurred within last 6 months and could occur again

Impact Guide							
Score	**Cost**	**Quality**	**Schedule**	**Benefits**	**Reputation**	**People**	**Clinical**
1	Corporate/ Directorate: <£1m Division/Programme: <£100k Functional Unit/Project: <£50k -or- Up to 3% of budget	Minor impact on single functionality/ capability -or- Minor weaknesses (observation) identified at Gateway review or audit	<1 week delay -or- 3% delay in plan -or- Impacts project non-critical path milestone (within tolerance)	Minor impact on single programme benefit -or- 3% reduction in forecast benefit	Requires Deputy Director's/ Project Manager's response -or- Results in local news coverage -or- Little or no social media coverage	Effect on an individual member of staff	Minor adverse impact on the public
2	Corporate/ Directorate: £1m - £10m Division/Programme: £100k - £1m Functional Unit/Project: £50k - £100k -or- Up to 5% of budget	Failure to achieve a single deliverable to time/ cost/ quality -or- Minor impact on multiple functionalities/ capabilities or moderate impact on single functionality/ capability -or- Moderate weakness (GREEN) identified at Gateway review or audit	1-2 weeks delay -or- 5% delay in plan -or- Impacts project non-critical path milestone (out of tolerance)	Minor impact on multiple benefits or moderate impact on single programme benefit -or- 5% reduction in forecast benefit	Requires Director's/ Programme Manager's response -or- Results in regional news coverage -or- Minimal social media coverage	<5% staff affected	Adverse impact on<5% of public
3	Corporate/ Directorate: £10m - £50m Division/Programme: £1m-£5m Functional Unit/Project: £100k-£500k -or- Up to 17% of budget	Failure to achieve multiple deliverables to time/ cost/ quality -or- Moderate impact on multiple functionalities/ capabilities -or- Severe weaknesses (AMBER) identified at Gateway review or audit	3-5 weeks delay -or- 7% delay in plan -or- Impacts project Critical Path milestone	Moderate impact on multiple programme benefits -or- 7% reduction in forecast benefit	Requires Executive Director's response -or- Results in national news coverage -or- Moderate social media coverage	6-10% staff affected	Adverse impact on 6-10% of public
4	Corporate/ Directorate: £50 - £100m Division/Programme: £5m-10m Functional Unit/Project: £500k-£1m -or- Up to 10% of budget	Failure to achieve a single key deliverable to time/ cost/ quality -or- Major impact on single functionality/ capability -or- Critical weaknesses	6-12 weeks delay -or- 10% delay in plan -or- Impacts Programme non-Critical Path milestone	Major impact on single key strategic benefit -or- 10% reduction in forecast benefit	Requires Chief Executive's response -or- Results in prolonged national news coverage -or- Significant social media coverage	11-15% staff affected	Adverse impact on 11-15% of public

Impact Guide							
Score	**Cost**	**Quality**	**Schedule**	**Benefits**	**Reputation**	**People**	**Clinical**
		(RED) identified at Gateway review or audit					
5	Corporate/ Directorate: >£100m Division/Programme: >£10m Functional Unit/Project: >£1m -or- Over 10% of budget	Failure to achieve multiple key deliverables to time/ cost/ quality -or- Major impact on multiple functionalities/ capabilities -or- Failure to pass Gateway review or audit	>12 weeks delay -or- Over 10% delay in plan -or- Impacts Programme Critical Path milestone	Major impact on multiple strategic benefits -or- Over 10% reduction in forecast benefit	Requires Ministerial response -or- Results in international news coverage -or- Social media coverage goes "viral"	>15% staff/ affected	Adverse impact on >15% of public

Risk Matrix



Annex G: Definitions, Interpretations and Glossary

In this Agreement the following terms and abbreviations shall have the following meanings unless the context requires otherwise:

INTERPRETATION
As used in this Funding Agreement:

- the terms and expressions set out in this Annex G shall have the meanings ascribed herein;
- the masculine includes the feminine and the neuter;
- the singular includes the plural and vice versa;
- the words "include", "includes", "including" "for example", "in particular" and words of similar effect are to be construed as if they were immediately followed by the words "without limitation".

A reference to any statute, enactment, order, regulation or other similar instrument shall be construed as a reference to the statute, enactment, order, regulation or instrument as amended by any subsequent statute, enactment, order, regulation or instrument or as contained in any subsequent re-enactment thereof.
Headings are included in this Funding Agreement for ease of reference only and shall not affect the interpretation or construction of this Funding Agreement.

DEFINITIONS:

Term	Definition
Accountable Officer (AO)	The Accountable Officer is responsible for the management of the Agreement and related governance issues of their organisation/partnership
Achievement Criteria	Takes the form of a set of milestones as set out in the Agreement
Affected Party	The Party or Parties adversely affected by a Force Majeure Event
Annual Spend Report	The report to be produced by the Recipient in accordance with this Agreement using the template provided
Application	The formal application submitted by the Recipient in relation to the programme/project
Authority	NHS England acting on behalf of the Secretary of State for Health
Award	The aggregate of the payments to be paid to the Recipient as detailed in accordance with this Agreement
Award Period	The period from the Commencement Date to the End of the Award in accordance with this Agreement
BCC	Bristol City Council
BNSSG	Bristol, North Somerset & South Gloucestershire, the health economy in which UHBristol operates for local services and its STP footprint
Bribery Act	The Bribery Act 2010 and any subordinate legislation made under that Act from time to time together with any guidance or codes of practice issued by the relevant government department concerning the legislation
Capital Funding	Funding to fund the purchase of assets (building and equipment) which support the provision of clinical services. Financial controls are in place to ensure that approved capital schemes are progressed effectively and that budgets, phasing and cash flows are properly monitored. Formal monitoring of the Capital Programme should take place
Commencement Date	The date of signature of this Funding Agreement and start date for the programme/project funding
Date of Acquisition	The date a change of control occurs in the event a Provider is acquired by an external third party.
CSIP	Clinical Systems Implementation Programme, the home of UHBristol's Digital Strategy and Delivery
Provider Digitisation	The terms and objectives used to describe the National Information Board (NIB) sponsored programme for Provider Digitisation to support achievement of the Paperless 2020 Agenda

Term	Definition
Digital Maturity Assessment (DMA)	The Digital Maturity Assessment measures the extent to which healthcare services in England are supported by the effective use of digital technology
Default	Any breach of the obligations of the relevant Party (including but not limited to fundamental breach or breach of a fundamental term) or any other default, act, omission, negligence or statement of the relevant Party, its employees, servants, agents or Subcontractors in connection with or in relation to the subject-matter of this Agreement and in respect of which such Party is liable to the other
Department of Health (DH)	The Department of Health (DH) is a department of the United Kingdom government for government policy for health and social care matters for the National Health Services (NHS) in England
Dispute	Any issue, difference or question of interpretation arising out of this Agreement which has or is likely to have a negative or adverse impact on one or both Parties' ability to deliver the services, products and outcomes of this Agreement. A Dispute may occur with, but is not limited to: • Disagreement over scope • Disagreement over metrics and their interpretation • Disagreement over utilisation of resources, including funding • Lack of clarity on allocation of risks • One party breaking the predefined rules • Lack of clarity on acceptance criteria/benefits • Lack of clarity on who is responsible for what • Interpersonal differences and attitudes • Ethical dilemmas between allocated tasks and individual values • The balance of 'business as usual' and project work.
End of the Award	The date the Funding Award and funding for the programme/project ceases
Financial Planning Template	Total projected programme/project costing details to be provided by the Recipient at commencement of the Funding Agreement. Details will include those for external funding as well as sources of internal/match funding
Force Majeure Event	Any event or cause affecting the performance by a Party of its obligations arising from acts, events, omissions, happenings or non-happenings beyond its reasonable control, including acts of God, riots, war or armed conflict, acts of terrorism, acts of government (excluding DH), local government or regulatory bodies, fire, flood, storm or earthquake, or disaster but excluding any industrial dispute involving employees of the respective Party
Funding Agreement	This document
Highlight Report	The report to be produced by the Recipient in accordance with clause 7.1 of this Agreement using the template provided in Annex A and in accordance with the timescales agreed in Annex C
HL7	(Health Level 7) means the HL7 framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information. These standards define how information is packaged and communicated from one party to another, setting the language, structure and data types required for seamless integration between systems. HL7 standards support clinical practice and the management, delivery, and evaluation of health services, and are recognised as the most commonly used in the world
Intellectual Property Rights (IPR)	All patents, rights to inventions, copyright and related rights, moral rights, trademarks, trade names and domain names, goodwill and the right to sue for passing off or unfair competition, rights in designs, rights in

Term	Definition
	computer software, database rights, rights to preserve the confidentiality of information (including the Know How and trade secrets) and any other intellectual property rights, in each case whether registered or unregistered and including all applications (or rights to apply for and be granted) and all renewals or extensions and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world and rights to bring any proceedings in relation to all of the foregoing rights
Interoperability Toolkit	A set of common specifications, frameworks and implementation guides to support interoperability within local organisations and across local health and social care communities
Know How	Information, data, reports, documents, procedures, forecasts, technology, know how or experience whether patentable or not and including but not limited to any technical and commercial information relating to research, design, development, manufacture, use or sale
Knowledge Base	A repository of information on technology, part of NHS England's "Community of Practice", accessible to the NHS via the Internet.
Local Digital Roadmap (LDR)	Document setting out how an organisation will achieve the ambition of 'paper-free at the point of care' by 2020
LDR Footprint	The geographic area covered by a LDR including all the health and social care organisations within the area
Lead Partner	The partner who submitted the Application (being the Recipient) will be held accountable for the obligations set out in this Agreement. The Application may have been submitted by the Recipient on behalf of a consortium of local health providers
Matched Funding	The funding to be provided by the Recipient in relation to the programme/project, being a sum equivalent to the sum of the Award (being paid by the Authority to the Recipient pursuant to this Agreement). Such Matched Funding can be a mixture of Revenue and Capital Funding
NHS Digital	Formerly known as the Health and Social Care Information Centre. The national provider of information, data and IT systems for commissioners, analysts and clinicians in health and social care
NHS England (NHSE)	The National Health Service Commissioning Board established under the NHS Act 2006 as amended by the Health and Social Care Act 2012
NHS Improvement (NHSI)	Support foundation trusts and NHS trusts to give patients consistently safe, high quality, compassionate care within local health systems that are financially sustainable
NHS Number	Primary identifier on all patient data and correspondence
Party	The parties to this Agreement, and 'Parties' shall be construed accordingly
Patient Related Outcomes Measures (PROMs)	PROMs and clinical outcome measures throughout a number of statutory datasets can be used as measures or specific measures can be mandated through baselining for a 'study group' (i.e. the affected services). These types of measures will drive an evidence base on quality of care delivered and drive wider adoption/optimisation
Programme/Project	The programme/project described in this Agreement
Programme/Project Milestones	The milestones agreed between the Authority and the Recipient in relation to delivery of the programme/project, as set out in Section 7 of this Agreement
Public Procurement Regulations	means the Public Contracts Regulations 2006 (as amended) or any other equivalent or successor legislation
Open APIs	(the term API stands for Application Programming Interface) means the sets of technologies that enable information systems to interact with each other
Open Source	Open Source Software (OSS), often referred to as just 'open source', or Free / Libre Open Source Software (FOSS or FLOSS), is computer

Term	Definition
	software for which the human readable source code and various other rights are made available in the public domain under the terms of a licence that meets the Open Source Definition (OSD), the custodian of which is the Open Source Initiative (OSI) (www.opensource.org/about)
Provider	Means a NHS Trust or Foundation Trust
Prohibited Act	(a) offering, giving or agreeing to give to any representative of the Authority any gift or consideration of any kind as an inducement or reward for: (i) doing or not doing (or for having done or not having done) any act in relation to the obtaining or performance of this Agreement or any other contract with the Authority; or (ii) showing or not showing favour or disfavour to any person in relation to this Agreement or any other contract with the Authority; (b) entering into this Agreement or any other contract with the Authority where a commission has been paid or has been agreed to be paid by the Recipient or on its behalf, or to its knowledge, unless before the relevant contract is entered into particulars of any such commission and of the terms and conditions of any such contract for the payment thereof have been disclosed in writing to the Authority; (c) committing any offence: (i) under the Bribery Act; (ii) under legislation creating offences in respect of fraudulent acts; (iii) at common law in respect of fraudulent acts in relation to this Agreement or any other contract with the Authority; or (iv) defrauding or attempting to defraud or conspiring to defraud the Authority
Recipient	The Accountable Organisation for receipt of the funding award
Responsible Officer	The Responsible Officer is responsible for ensuring that a programme/project meets with its obligations and commitments as detailed in this Agreement
Revenue Funding	Funding for business activities and operations
SNOMED CT	Stands for the 'Systematised Nomenclature of Medicine Clinical Terms'. This is an internationally recognised standard that consists of comprehensive scientifically validated content including items such as presenting symptoms, procedures, diagnoses, medications and medical devices that are vital for electronic medical records
Special Features	The commitments and special features relating to Global Digital Excellence (GDE) funding as detailed in Annex G
Statement of Planned Benefits (SOPB)	The total benefits (expressed in £) that are expected to be realised over the term of this Agreement. It is the responsibility of the Local SRO to be accountable for the realisation of benefits in line with the SORP as defined in the Agreement
UHBristol	The University Hospitals Bristol NHS Foundation Trust.
WEAHSN	West of England Academic Health and Science Network.
Working Day	Any day other than a Saturday, Sunday or public holiday or bank holiday in England

Annex H: Commitments and Special Features Relating to Funding

The commitments and special features relating to GDE funding are as follows:

GDE Sustainability	• We commit to being a GDE and maintain this status beyond the life of this programme. • We commit to investing in Clinical Informatics, Informatics and Clinical Leadership maintaining and developing these resources (as per Wachter recommendations and workforce capability) beyond the life of this programme.	UHBristol's commenced stronger investment in Clinical Informatics more recently than some other GDEs but has nevertheless demonstrated its commitment and capability to sustain this delivery within and beyond the term of the GDE programme through its Clinical Systems Implementation Programme. We are proud of our position as a leader in Clinical Informatics within our health community and commit to using GDE as the means to push our practice across our community and into System C fast-followers and other organizations that wish to benefit from our blueprint.
Defined Success	• We will provide a clear GDE vision rooted in our clinical service strategy. • We will define and agree our GDE success criteria reflecting these ambitions and the objectives of the GDE programme. • We will become a lead GDE provider for a particular business transformation opportunity on behalf of the community as a whole – e.g. Population Health, Patient Activation, and Addressing Variation.	Our progressive digital vision is built on the foundations of System C's Medway EPR and the on-going delivery of planned developments over the next few years meshes perfectly with the principles of the GDE programme. UHBristol is leading in the delivery and contribution of our Connecting Care shared care record partnership and commits to pushing the value of our unique proposition across the BNSSG health and social care community.
Partnerships	• We commit to developing and/or continuing International Partnerships as leading health care providers delivering world class care enabled by digital technology.	We will seek international partners to help us understand and adopt approaches and ideas that are outside of NHS mainstream thinking. We are currently looking toward European partners in this and expect to confirm a partnership with Gelderland Valley, a leading hospital group in the Netherlands, in April/May 2017.
Paper Free @ Point of Care	• We will ensure our programme delivers the six digital core capabilities enterprise wide within the 3½ year term of the GDE programme.	UHBristol is already well advanced on the road to being paper free at the point of care. The proposed GDE components will see all of our nursing, allied health professionals, pharmacy and inpatient clinical notes becoming electronic. However, our strategy is not simply to replace paper but to make paper redundant by 'doing the right digital things'—a subtle but important distinction.

HIMMS Level 7 or comparative measure	• We commit to achieve equivalent to HIMMS level 7 digital maturity model within the GDE programme timeframe of 3½ years. We will contribute to the development of a maturity model which will be used to assess our digital maturity at place/ beyond our organisational boundaries.	There is a growing consensus amongst CIOs that HIMSS L7 is not a suitable benchmark for digital maturity in English acute Trusts. UHBristol welcomes the prospect of an 'equivalent' and looks forward to more specific guidance on what this will be and commits to meeting the requirement as it applies. However, UHBristol's CSIP programme is already on track to delivering the spirit of HIMMS 7. Our aspirations for the GDE components are that they will not include specific level 7 components but, alongside the core CSIP components, streamline pathways and clinical processes to make them easier to use, manage and share within the Trust and across the community.
Standards and Interoperability	• We will require our suppliers to adopt Interoperability standards, frameworks and technology. • We commit to developing and sharing enhanced information and data standards to support clinical and business drivers/need. • We commit to adopting and implementing nationally mandated standards	As detailed below in this in Annex H, UHBristol and its main supplier, System C, already uses and is committed to maintaining nationally-mandated standards for clinical content, interoperability, frameworks and technology. A significant proportion of GDE deployment activity will be related to the provision and embedding of such standards in practical use across the Trust.
Data Security and Cyber Security	• We commit to demonstrate leadership in data and cyber security • We commit to demonstrate best practice in data and cyber Security as part of our implementation of the National Data Guardian review standards and subsequent implementation guidance • We commit to use CareCERT services and contribute to their ongoing development • We commit to driving behavioural change by ensuring staff and security professionals undertake nationally available training • We commit to be early adopters of the new IG toolkit and contribute to its development	UHBristol is committed to developing and sustaining our current information and cyber security controls. We will recruit a dedicated Information Security Manager as part of our digital senior management team. We are users of CareCERT and CareCERT React and participate directly with our IG Team (UHBristol maintains a healthy separation between IG and digital delivery teams) through the Information Risk Management Group, which is chaired by the Director of Finance and Information. Reporting through the Trust Secretariat, the IG team will work with us to take responsibility for the development and delivery of the new IG Toolkit.
Outcomes	• As part of our GDE programme, we will deliver the approved Statement of Planned Benefits.	UHBristol commits to deliver the Statement of Planned Benefits. The CSIP programme team will work closely with the Trust's Transformation Team on this particular aspect of the GDE programme.
Governance/	• We will commit to regular and standardised GDE reporting for the	UHBristol commits to meeting reasonable governance and assurance

Assurance	life of this programme and beyond. • We will commit to being transparent to ensure we jointly understand the outcomes of our mutually beneficial assurance activities. • We will offer resources to support assurance and other supporting activity to other NHS providers, thus creating a network of peer assurance and best practice dissemination. • We commit a seat on our governance boards for the programme to a representative from the Provider Digitisation team.	responsibilities as described in Section 8 of this Agreement. We will work closely with our supplier, System C, to establish resource to support GDE activity with other NHS providers. The Director of Finance and Information will be the SRO for the GDE programme. A member of the Provider Digitization team will be welcome to attend the monthly Clinical Systems Implementation Programme Board, which will have responsibility for the delivery of GDE.
Milestones	• We will work with Provider Digitisation programme to agree funding milestones based upon achievements. We will commit to evidencing this as part of programme reporting.	Funding milestones have been defined and will be incorporated into the overall GDE programme plan as described in Section 7. Progress towards achievement of the funding and delivery milestones will be included in the agreed programme reporting.
Match Funding	• We will ensure and evidence central and matched funding expenditure. • We acknowledge that the funding will be broadly split into four parts reflecting 3½-year delivery timescales.	UHBristol commits to the match funding expenditure as stated in the financial planning template and the funding split described in section 7 of this Agreement. Evidence will be presented to support tracking and audit of expenditure.
Blueprinting	• We will work to develop and sign off a specific digital blueprint for deployment and dissemination across other NHS provider organisations covering for example: ○ Solution Build ○ Solution Configuration (Including Reference Data) ○ Clinical and Operational Workflow ○ Conditions (e.g. AKI/Sepsis) ○ Capability (e.g. ePrescribing) ○ Specialty (e.g. Cardiology) ○ Clinical Pathway(e.g. Diabetes) • We will collaborate with our Vendor partner to develop specific configurations reflecting the above. • We will support twinning (pairing) and provide support as a hub of technical/business change expertise for NHS providers rolling out our primary vendor solutions.	UHBristol is System C's premier reference site for its Medway PAS and EPR systems and has worked closely with System C since it started deployment of Medway back in 2011. Together, we are well placed to develop and refine the product and implementation methodology for other acute Trusts as a blueprint for the roll-out of products, techniques and the adoption of proven processes and pathways that will be available for dissemination across the NHS.
Blueprint deployment	• We commit to supporting deployment of our solutions to other providers (via hospital chains/STPs/partnering) to help meet GDE programme aspirations	30 English acute Trusts have currently expressed an interest in the UHBristol/System C blueprint, with around 15 able to qualify with a financial commitment to take appropriate product and deployment components.

	more widely.	Our primary fast follower is The Whittington Hospital (a Medway site), with the secondary site Barnsley (a non-Medway site). In addition, two other fast-followers of other GDEs have expressed a wish to take System C-supplied blueprint components. Outside of the supplier customer base, UHBristol will seek to roll-out value and blueprint components across its own care community as part of the core programme.
Data Models	• We will ensure we have data models and SUS style extracts specified so to ensure the flow of good data for care, management and contracting.	UHBristol already has, and will sustain, good data flows and models for patient care, management and contracting.
Digital Academy	• We commit to investing in developing our CIO and CCIO workforce capability, investing in formal academic development of our staff and contributing to the development of the Digital Academy.	UHBristol has interpreted the requirement to develop a 'digitally-ready workforce' as a local objective to make 'every user an expert user'. As part of this we wish to contribute and draw from the digital academy to strengthen the capability of our CCIO, CNIO and associated roles and have budgeted specifically to achieve this.
Building an evidence base	• We will provide assist in the creation of an evidence base on improved clinical and other outcomes from our GDE programme.	Through its work with the Connecting Care Partnership UHBristol seeks to partner with the Academic Health Sciences Network and colleagues in the Health Informatics department of the University of Bristol to evaluate practices and outcomes associated with the deployment of GDE components.
Technology Sharing	• We agree to document and share approaches on interoperability across the wider NHS. • We will share developed technology solutions where we own the IPR across the wider NHS.	UHBristol is committed to share information with other NHS organisations in line with the blueprinting process described above. We do not anticipate UHBristol ownership of any IPR arising from our GDE activity. However, if this position changes we will agree to share this with other NHS organisations within agreed constraints (e.g. no secondary commercial gain).
Research and Evaluation	• We will actively participate in the research and evaluation of the GDE programme	See 'Building an Evidence Base'
Knowledge Sharing	• We will share at no cost programme materials including (at a high level) those pertaining to blueprinting and transformational change. • We commit to developing, at no cost, case studies and lessons learnt materials, and contributing to the learning of others via workshops, events, webinars,	UHBristol commits to this knowledge-sharing objective alongside its supplier partner, System C, and will participate in digital mentoring of those organisations who adopt blueprint components. It should be recognised, however, that the Trust cannot commit to unlimited involvement elsewhere and that organisations that are not formal fast-

	webexs etc. supplying appropriate resource as necessary. • We will contribute to the creation of GDE clinical communities of practice and participate as required. • We commit to mentoring, coaching and supporting the development of our digital workforce including current and future leaders.	followers who wish to adopt the blueprint may be expected to contribute to UHBristol costs.
Reference Site	• We will act as a reference site for our implemented solutions. • We will host reference site visits on behalf of the NHS and internationally where required.	UHBristol commits to acting as a reference site for GDE and its supplier partner, System C.
Health and Social Care economy	• We will facilitate and commit resource to a business transformation/digital transformation activities across our STP/LDR to assist on the creation of new models of care.	UHBristol will sustain its position as a leading participant in the Connecting Care Partnership and delivery of the BNSSG STP's Digital Workstream.

Notes on technical commitments

UHBristol and System C will agree a back-to-back contract against this Funding Agreement that explicitly deals with meeting technical commitments described in this section and Annexes D and G. The following section provides outline notes to how some of these commitments will be met.

Interoperability with National Assets

Medway PAS/EPR has direct interoperability with:

- DBS
- ERS
- PDS
- Birth Notifications
- CP-IS (currently subject to NHSD Dev Mac).
- DTS (MESH compliance Q1 2017)
- One-click SCR access (Q1 2017)

We request that other existing national services that require specific compliance under this programme should be explicitly identified. The supplier will work with the Trust to incorporate use of other national assets into its solutions.

SNOMED-CT

System C has committed to the adoption of SNOMED-CT across its product range, using common components wherever possible. The first developments include integrated SNOMED-CT for ED in accordance with the revised ED Data Set requirements and Maternity for Maternity MDS requirements. This will be followed by the ability to capture and embed SNOMED-CT terms within clinical noting functions across the product portfolio. The approaches being adopted initially are:

- Browser enabled selection of coded terms and retention of both the selected text and underlying code for e-communications, reporting and analysis purposes.
- Flagging, Tagging and Mapping of clinical data items to support use of local terms mapped to SNOMED-CT and support filtering and analysis in any 'free text' context.
- Picklists e.g. OP procedures will be able to be mapped to SNOMED-CT again for analysis.

The target for compliance is April 2018 in accordance with the Transfers of Care requirements. The ED dataset requirements were due to be the same deadline but recently these were withdrawn from the NHS-D website and we understand are subject to review.

The potential exists for NLP integration and this could be also tied into voice recognition, a pilot for which has been established between System C and Nuance (although UHBristol uses M*Modal for speech recognition).

dm+d

The emerging digital medicines agenda involves a broad framework that includes dm+d (and SNOMED-CT by extension), Scan4Safety (GS1 and PEPPOL), the falsified medicines directive and other associated requirements that will have a direct impact on our pharmacy and prescribing systems

The development of our Medway EPMA solution includes the adoption of dm+d by enabling us to select the base medicines and devices dictionary and also the choice of vendor for clinical decision support e.g. FDB, BNF. The intention of this independence is to anticipate the possibility that dm+d may at some point offer the scope to act as an alternative to our current FDB dependency.

HIMSS Level 7 or Equivalent

There is a growing consensus amongst CIOs that HIMSS L7 is not a suitable benchmark for digital maturity in English acute Trusts. UHBristol welcomes the prospect of an 'equivalent' and looks forward to more specific guidance on what this will be and commits to meeting the requirement as it applies.

HIMSS and medical devices driven by conditional logic

The following registered medical devices are incorporated into our informatics solutions:

- VitalPac provides clinical decision support and automated alerting through conditional logic.
- FDB's Multilex is used within Medway EPMA.
- Careflow within the AKI app.

Medway Maternity may be registered because the workflows are designed around NICE guidelines driven by conditional logic.

We are currently reviewing with System C whether similar conditional logic provided by System C or as a consequence of user design is within the capabilities of Medway's clinical noting module, not just for assessments but also to provide a degree of 'intelligent prompting' as part of workflow recording. We appreciate that HIMSS is looking for evidence of a single Controlled Medical Vocabulary on which a rules engine operates to deliver Clinical Decision Support, but the Medway suite is already delivering a degree of this and it is extending into most modules, e.g. Order Communications.

Interoperability – timescales and content

A key commitment within the GDE vision is around the adoption of FHIR-based APIs and SMART Technology as the underlying framework for interoperability. The Trust has examined System C's intentions and development roadmap to compliance of interoperability functionality and that this will be done in line with national initiatives. The following is System C's commitment (which will underpin the planned activities and deliverables within their standard product offering and is not therefore explicit in our local plan).

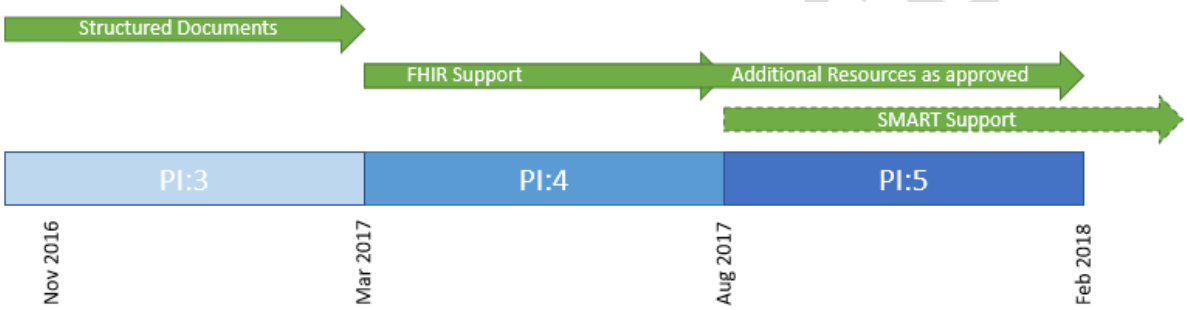
As a software development company, System C uses the SAFe Agile methodology, and delivers software changes through Program Increments (PI) that last approximately 22 weeks. The timelines for delivering key interoperability features would be aligned with this process with implementation (deployment) following the Trust's UAT and roll-out process. There are three

distinct release cycles within which to deliver interoperability features: March and August 2017 and February 2018. Implementing structured documents through the transfer of care requirement is in the current PI and will be available from March 2017.

As members of the INTEROPen Community we are monitoring, reviewing and contributing to the UK profiling of FHIR resources. We have internal test environments based on the Furore Spark model implementation and are pushing data to and from this implementation as part of our review process. Incorporation of this into our service is being prioritised for PI4 to be available from August 2017. Trust priorities and the availability of PRSB-ratified UK FHIR profiles may affect this date as well as the scope, but continued use of the reference server would allow us to pull in definitions as they are released and increment support outside of the PI pipeline. It also allows initial use of the DSTU3 standards where there is a clear demand for the resource it defines, though we are sensitive to the need to avoid local/proprietary extensions. Development needed within Medway or other Alliance products to push into the repository would still be aligned with the PI dates.

Our authentication stack supports OAuth2, and having FHIR as the data exchange medium, provides a strong baseline for our adoption of SMART, but we would not expect to begin this work until August 2017.

Summary Timeline:



The following background is offered as context for the foregoing:

The INTEROPen community is working on a number of UK profiles for FHIR resources based on the HL7 published standards. There are approximately 120 in the HL7 list coming up for DSTU level 3 approval, of which 6 are being actively looked at in the community:

- CareConnect-AllergyIntolerance-1
- CareConnect-Condition-1
- CareConnect-MedicationOrder-1
- CareConnect-MedicationStatement-1
- CareConnect-Observation-1
- CareConnect-Patient-1

As these reach maturity, they are being presented to the Professional Records Standards Body (PRSB) for approval. NHS Digital and the community are converging the GP Connect-defined resources with those of Endeavour Health and revising the GP Connect contract accordingly. The initial GP Connect profiles covered Access (summary of data), Appointments and Tasks.

The administrative data resources in FHIR follow the US model and it is difficult to neatly match Encounter and Episode of Care with UK concepts. This also makes it difficult to drive functionality from the FHIR Resource representation, for example changing a Patient's Ward could be the 'POST' of an encounter at that location which feels awkward at best. These differences, as well as data model inconsistencies, would require fundamental rewrites of most administrative modules to support FHIR natively within Medway. Use of a reference server such as Spark by Furore is therefore the preferred option.

The FHIR reference server provides a standard set of resource definitions and associated insert/update/delete/search functions. It is predicated on MongoDB which is a Document DB, so there is an associated risk around support and maintaining performance. We would build

extensions into the server in order to propagate changes that need to go to Medway such as evaluating a POSTed Encounter to enact a Ward Transfer in Medway. The FHIR server itself can then be seen as an intermediary store and search engine, with extensions into Medway and other Alliance applications/services.

SMART is a kind of third-party plug-in framework that would allow small specialised components to be used within the EPR. There are a few examples, but we have no direct experience of these or whether they add value and fit within the overall user experience.

We have other commitments to deliver FHIR support within the CareCentric service pool for interaction with GPs as well as to support third-party interoperability at other Trusts. This will involve Medway having to support four of the six UK resources as well as DSTU3 versions of Encounter and Episode of Care. Support for the Medications resources will be incorporated into the EPMA development.

Annex I: Supplementary Information

What Good Looks Like – Four Years On	 Four Years On - What Good Looks Lik
UHBristol GDE Delivery Plan, including deployment milestones and objectives	 UHBristol GDE Outline Plan V1.11.xls UHBristol GDE Outline Plan V1.11.xlsx
UHBristol Benefits Framework Model (WIP)	 UHBristol GDE Benefits Framework UHBristol GDE Benefits Framework v1-3.xlsx
Terms of reference for IT Management Group and CSIP Board	***Removed, not relevant in this version***