NATIONAL INFORMATION BOARD

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Personalised Health and Care 2020

WORK STREAM 5 ROADMAP

Bring forward life-saving treatments and support innovation and growth

Chapter 9 of Personalised Health and Care 2020

September 2015

Final Version

CONTENTS

1 CONTEXT

This roadmap lays out in greater detail who will do what to 'bring forward life-saving treatments and support innovation and growth', (Chapter 9 of the original NIB Framework document), and also the support the wider NIB agenda of transforming care through digital technology and data.

The vision for Chapter 9 of Personalised Health and Care 2020 is to make England a leading digital health economy. It aims to maximise advances in digital technology and data science to support research into new medicines and treatments, including breakthroughs in genomic science, new methods of combatting long-term and mental health conditions and infectious diseases.

Chapter 9 sets out proposals which address both demand and supply issues that act as barriers to digital innovation across the health and care system. We have taken these proposals (listed in full in Appendix A) and developed this roadmap with those who will be delivering these actions. This roadmap describes the action that will be taken, by whom and when; in addition we have indicated what benefits and costs we expect to see and what available evidence has supported this approach.

Our assumptions about healthcare in 2020 are that citizens will expect that the health and care services they receive are of the highest quality and that they will use the most appropriate advanced technologies and medicines. We anticipate that this will be underpinned by digital technology and data. Traditionally, we have focused on achieving this by addressing issues from the perspective of patient and service demand. This is important, and many of the proposals laid out in the roadmap aim to promote innovation in this way. However, we also need to look at how positive interaction with industry can help us address challenges of the health and care system; engaging with the 'supply side'.

Our aim is that the proposals in this roadmap will support digital health throughout the innovation cycle from discovery, through validation and evidence generation, commercialisation and scale-up to ongoing development and further research and discovery. This will mean that:

- Health researchers and developers have improved access to national data assets for research and development.
- There are opportunities to test and gather evidence about the efficacy and cost implications of digital innovations in a clinical setting.
- Innovative companies can find prospective customers in the NHS and NHS structures allow procurers to identify and buy the best solutions.
- Successful UK companies are supported to export.
- Real-world evidence can be used to track the effects of treatments and support further innovation.

The diagram below illustrates how the proposals in Chapter 9 provide support throughout the cycle.

To help develop this roadmap, we have divided the proposals from Chapter 9 into 4 groups;

- Building partnerships with industry
- Making the health and care system innovation-ready
- Testing and scaling new innovations
- Becoming a world leader in health data innovation.

The rationale for this structure is that there are significant overlaps in the objectives, stakeholders and/or governance within each of these groups. Presenting them together therefore allows us to take advantage of these natural synergies. You can see a summary of proposals grouped as described above on page 8.

All of the actions above depend on us maintaining public confidence in how data is handled by the health and care system. We are working closely with other work streams to support and inform the public dialogue on this important issue.

We are carrying out engagement with stakeholders about these plans up to September 2015 where we are asking for feedback and comments.

2 STAKEHOLDER ENGAGEMENT

Work Stream 5 has engaged with representatives from across government, the health and care system and other arms-length bodies in producing this roadmap. We have been limited in our engagement externally due to the pre-election period but now have plans to engage with the digital health industry and stakeholders interested in health data through an external reference group over the summer. Asthma UK, the Royal College of Nursing, Cerner and the HSCIC have contributed through having independent members on the programme board.

Some of the stakeholders engaged to date include:

- Office for Life Sciences
- Medicines Healthcare Regulatory Authority
- Department of Health Innovation, Growth and Technology Directorate
- Department of Business Innovation and Skills Digital Economy Unit
- Clinical Practice Research Datalink
- Monitor
- National Institute for Clinical Excellence
- NHS England
- UK Trade and Investment (Life Sciences Organisation)
- Healthcare UK
- Innovate UK
- Association of British Healthcare Industries
- Tech UK
- University College London Partners
- Digital Health Institute
- Digital Catapult
- Public Health England
- Telecare Service Association
- Imperial College Health partners
- Medcity
- Digital Health and Care Alliance

3 RESEARCH AND EVIDENCE

3.1 Digital health

- The Office for Life Sciences has recently commissioned analysis into the digital health industry in the UK, focusing on articulating the scale of the economic opportunity and the relative strengths of the UK industry in different digital health sub-sectors.
- Other supporting evidence for action in this area is the Knowledge Transfer Network and the Digital Health Special Interest Group report of November 2014 on the digital health market in the UK that called for closer alignment across stakeholders/networks to support the growth of this sector.
- As part of the digital health industry strategy we will gather further evidence about the potential levers and barriers to growth of a UK digital health industry.
- Our evidence base for the impact of digital health on the demand side – on efficiency and patient outcomes - requires further development.
- McKinsey research on provision of digital information systems (rather than technological innovations) estimates that efficiencies of approximately £8-14bn could be generated for the NHS by 2020/21 from digitally enabled processes, transparency and participation. Their report also detailed the areas of greatest potential for technology-enabled home care.
- We will want to gather further evidence about the demand side needs that can be addressed by digital health, so that we could use the industry strategy to direct industry towards these areas.

3.2 Health data

3.2.1 Molecular pathology

- In 2012/13 the Human Genomics Strategy Group, chaired by Sir John Bell, considered methods to ensure better use of human genomic data generated by the NHS. They proposed a National (or NHS) Genome Informatics Network (NGIN). It would link laboratory data, patient outcome data and research data via a central coordinating hub which curated the data and was the main conduit linking to wider initiatives, such as the Health and Social Care Information Centre (HSCIC) and Clinical Practice Research Datalink (CPRD).

3.2.2 Maximising health data for research

- A workshop was held on the use of the health data for research in January 2015 by the Department of Health and industry under the direction of the Ministerial Industrial Strategy Group (MISG). Approximately 40 researchers, data holders and representatives of the health and care system attended. This allowed us to validate the main barriers to maximising data for research and consider some possible projects that could test how to

overcome them. Further engagement with key stakeholders validated these findings and led us to the conclusion that the key obstacles that we could address nationally were process barriers, including governance, technical barriers and regulatory barriers.

- The MISG data steering group carried out a consultation exercise with industry and academia to establish the priority data sets for researchers, so that we could convene the relevant data owners and initiate a discussion about how to overcome these barriers and facilitate fast, linkage-ready access to a set of priority data sets for research.

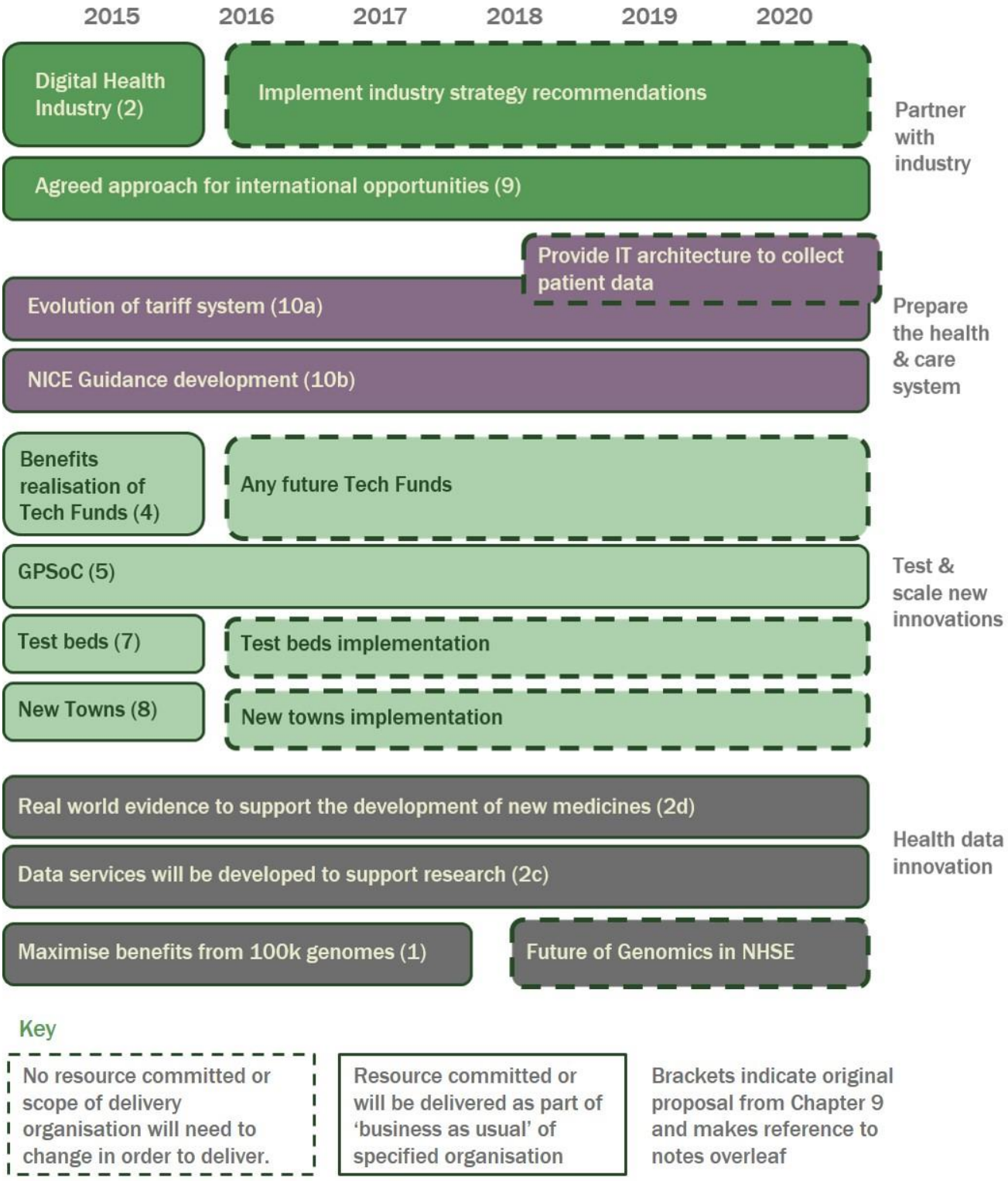
3.2.3 Real-world evidence

- Real world evidence can contribute to development of new treatments throughout the life cycle from defining patient populations to post marketing trials, studying safety and effectiveness through to patient follow up. Data from CPRD have been used for many years for determining burden of illness, treatment pathways, informing trial designs and monitoring drug safety.
- To date there have only been three clinical trials globally which have been based on studies of real patients recruited and monitored using real world clinical records. These have all been in the UK, demonstrating the UK's unique competitive advantage in leading cutting edge research in this area.

4 BUILDING THE PICTURE FOR DELIVERY

The roadmap, overleaf, lays out in detail who will perform, what action by when in order to deliver Chapter 9 of Personalised Health and Care 2020, 'Bringing forward life-saving treatments and supporting innovation and growth.'

4.1 Summary of proposals



4.2 A summary of actions and how they will be delivered:

4.2.1 Partner with industry

(2) Develop an industry strategy for digital health - Nicole Mather (OLS)

To be co-developed with industry and delivered by end of 2015; implementation of recommendations may require additional resource.

The industry strategy will be an enabling strategy to support the digital health industry in the UK; in particular it will focus on establishing a supportive policy framework and the business environment for growth and matching digital health companies to the most pressing health and efficiency challenges.

(9) Agreed approach for international commercial opportunities - Maddy Bose (Healthcare UK) and Anne Avidon (UKTI)

Ongoing programme of work to support innovative organisations to export, to attract foreign investment and to present trade and investment opportunities to companies, the NHS and the private sector on a regular basis.

A new agreed process for sharing opportunities and keeping track of the supply chain with a calendar of events to support these objectives will be implemented from December 2015.

4.2.2 Make the health and care system innovation-ready

(10a) Evolve the National Tariff System to take account of digital health and data - Catherine Pollard (Monitor)

Ongoing diverse set of work to improve the payment system over the next 5 years. The scope of this action refers to holistic reform; the interpretation of innovation is broad and encompasses all new ideas which ultimately deliver benefits to patients (including digital).

(10b) NICE guidance development programmes take account of digital health and data - Mirella Marlow (NICE)

Ongoing programme of work to ensure that aims of the Personalised Health and Care 2020 framework are reflected in NICE's outputs, including how the digital health agenda interacts with each guidance topic.

4.2.3 Test and scale new innovations

(4) Technology Funds - David Knight (DH)

This covers the benefits realisation of the Integrated Digital Care Fund and the Nursing Fund; any further Technology Funds will require additional resource.

Work Stream 2.1 elaborates further on the need for sustained investment and application of the learning from previous Tech Funds, so this is not covered in detail in this roadmap.

(5) Procurements under the General Practice Systems of Choice (GPSoC) - Tracey Watson NHSE

This action encompasses the ongoing improvement of the buying framework for every doctors' surgery in England to purchase digital primary clinical care software including appointments software, decision support tools and patient-facing services. A key component of the programme is the inclusion of interoperability services to help data flow between GP systems and other services.

(7) Test beds - Anne-Marie Hamilton (OLS), Michael MacDonnell (NHSE)

Originally laid out in the Five Year Forward View, the aim is to establish real world sites for evaluating combinatorial innovations that integrate new technologies and other novel approaches that offer the prospect of better care, and better patient experience of care, at the same or lower overall cost. Test bed sites will be designated in December 2015.

(8) New Towns - Michael MacDonnell (NHSE)

Originally laid out in the Five Year Forward View, this programme will introduce health-promoting design features into one or more new housing developments of medium to large scale, including consideration of neighbourhood and town master planning, physical and technological infrastructure, built environment, housing quality and model of public services.

4.2.4 Become a global leader in health data innovation

(2d) Real-world evidence can be used to support the development of new medicines and treatments - Janet Valentine (MHRA)

Ongoing programme of work to support the use of real world data in the development of new medicines and treatments.

(2c) Data services will be developed to support discovery science - Nicole Mather (OLS) and Peter Knight (DH)

Ongoing programme of work; the scope has been expanded to include all research rather than just discovery science. This work builds on work by the Ministerial Industry Strategy Group which aims to maximise the UK's health data assets for research.

(1) NHS is capable of supporting the future agenda on genomics and molecular pathology datasets - Mark Bale (DH) and Sue Hill (NHSE)

The working group that will be set up to deliver this action aims to ensure the NHS has sufficient data capabilities and to maximise the benefits from the 100,000 genomes project.

5 BENEFITS

The benefits expected from realising the vision of Chapter 9 include establishing England as one of the world's leading centres for innovation in digital health. Specifically, Chapter 9 will support the supply side through the industry strategy to provide digital health products, services and treatments which meet the requirements of the health and care system over the next 5 years. To

ensure that the health and care system is ready for that innovation, this roadmap also describes how changes to the tariff payment system and NICE guidance programmes will strengthen the 'pull' through from healthcare providers and commissioners by creating the right incentives ecosystem.

Secondly, the New Towns, Test Beds and Tech Fund programmes offer a real opportunity to try new innovations, gather evidence about their effectiveness and then to scale-up these programmes to benefit the NHS and society at large.

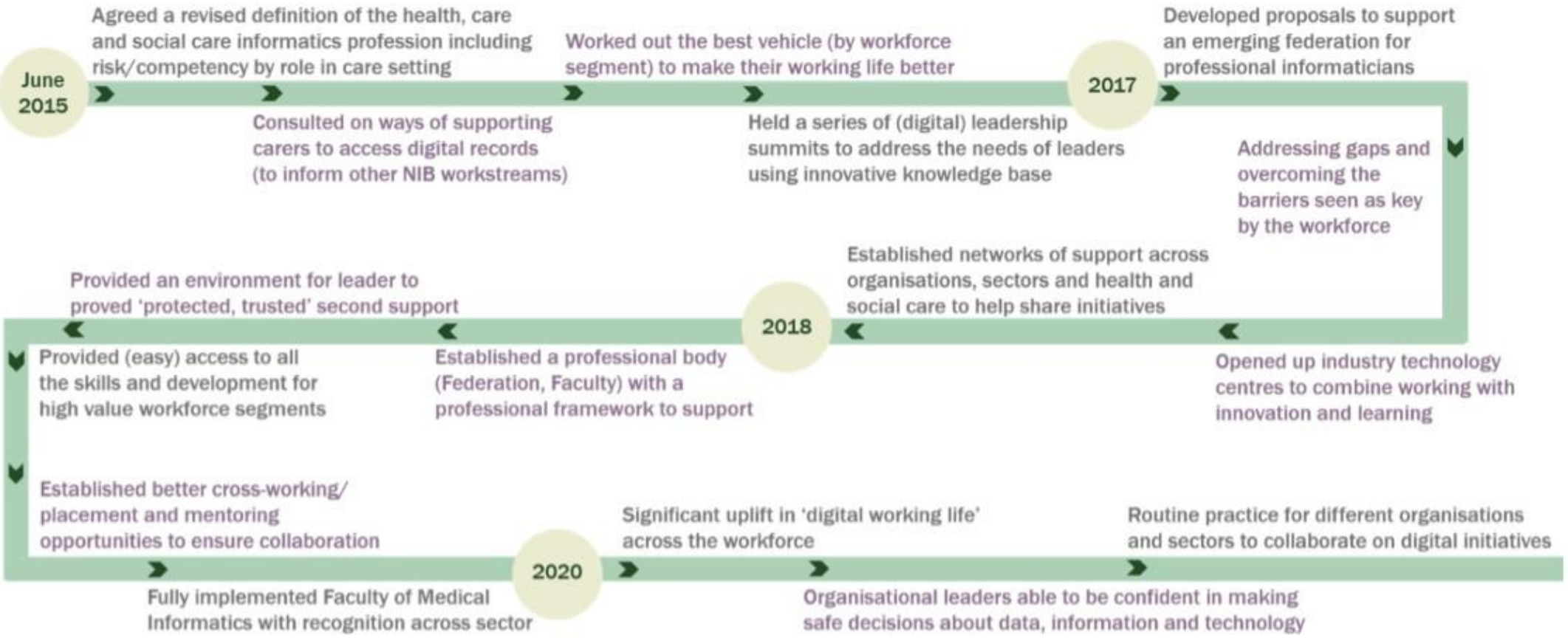
In addition to these benefits, Chapter 9 aims to maximise the benefits from the health data revolution, which underpins all digital health innovation. The focus of the actions in this group is to ensure that the right structures and processes are in place to allow researchers and clinicians to extract the maximum value from that data for the benefit of the patient and citizen.

For patients, this will mean access to the best new treatments and healthcare, including greater control over their own health.

For the taxpayer, this will mean benefitting from health and care cost savings.

For wider society, this will mean more high-value jobs, increased labour force productivity and economic growth.

6 TIMELINE OF WORK STREAM 5



APPENDIX 1: PROPOSALS IN FULL FOR CHAPTER 9

Our proposals for bringing forward life-saving treatments and supporting innovation and supporting innovation and growth are listed below.

i. NHS England and DH will set up a working group with Genomics England, the HSCIC and other relevant scientific bodies to ensure that the NHS is capable of supporting the future agenda on genomics and molecular pathology datasets at scale, building on the current programme to sequence 100,000 whole human genomes.

ii. DH will work with industry representatives, the AHSNs and Academic Health Science Centres, the NIB and cross-government partners to develop an industry strategy describing how:

- the health and care system will work to encourage partnership with the consumer digital and data industries;
- barriers to innovation will be removed;
- data services will be developed to support discovery science;
- real-world evidence can be used to support the discovery and development of new medicines and treatments;
- an online 'matching' service will be developed that will offer health and care organisations and suppliers (particularly small and medium enterprises) the chance to share information about needs, requirements and offers.

iii. DH will engage NIB members, industry, the research community and the public on the appropriate commercial arrangements for accessing and using data assets held by the HSCIC and other public bodies in the care sector, to ensure that these assets are used to the greatest advantage of the country as a whole while ensuring citizen concerns are addressed.

iv. From April 2016 currently available Technology Funds, and any new ones, will be invested in innovative solutions, to support existing service providers to implement significant service change, and to stimulate new offerings that enable integration and care coordination between services, where individual citizens and their carers through access to information are enabled active partners in their health and care.

v. Further procurements under the General Practice Systems of Choice (GPSoC), up to April 2018, will be used to stimulate the supply of new and innovative systems for out-of-hospital services, with a particular focus on integrated care services and supporting citizens and carers. In addition new forms of 'software-as-a-service' clinical systems to support new providers of primary care services will be encouraged. NHS England and the HSCIC, in consultation with service users and suppliers, will publish a prospectus for these new requirements by June 2015.

vi. In partnership with the AHSNs, the London Health Commission, the HSCIC, NHS England and Public Health England will together support the development of five further Technology for Care

innovation centres, where possible based on existing, successful local centres, such as the Catapult centres.

vii. NHS England with other members of the NIB, including DH, will develop a small number of 'test bed' sites alongside our AHSNs. They would serve as real-world sites for 'combinatorial' innovations that integrate new technologies, bioinformatics, new staffing models and payment-for-outcomes. UK and international innovators will be able to bid to have their proposed discovery or innovation deployed and tested in these sites. We will involve frontline staff to an unprecedented extent in the design of innovations, and in implementing the necessary system changes.

viii. The NIB will explore the contribution of information and technology to the development of health and care 'New Towns' announced in the Five Year Forward View.

ix. The NIB will work with Healthcare UK to agree a joint approach to developing commercial and international opportunities for exploiting the innovations and experience of using data and technology from across the English health and care system.

x. Each of the members of the NIB have a key role in creating and supporting opportunities for innovation and stimulating demand for the adoption of new service models enabled by information technology and data. Monitor will play a key role in setting tariffs, which can be used in innovative ways to improve models of care, such as integrated care pathways. The new National Tariff System will enable future tariffs and payments to be more flexible and enable more cost-effective and efficient care. NICE will extend its guidance development programmes to further support innovation.