Innovation as a driver of quality and productivity in UK healthcare

Creating and connecting receptive places

Emerging Insights Report

Sonja Marjanovic, Megan Sim, Talitha Dubow, Jennie Corbett, Emma Harte, Sarah Parks, Celine Miani, Joanna Chataway, Tom Ling

RAND EUROPE
Preface

The demand for health services in England is both growing and changing in nature, yet resources are limited in their ability to respond to the scale and scope of need. As a result, the NHS is under increasing pressures to realise productivity gains while continuing to deliver high-quality care. This defines the innovation challenge at the heart of this emerging insights report.

RAND Europe and the University of Manchester have been commissioned to conduct a three-year study to examine the potential of innovation to respond to the challenges the NHS faces, and to help deliver value-for-money, efficient and effective services. 'Innovation' in this study refers to any product, technology or service that is new to the NHS, or applied in a way that is new to the NHS, aimed at delivering affordable, excellent care. The research is funded by the Department of Health Policy Research Programme in close collaboration with NHS England and the Office of Life Sciences.

The three-year study consists of two stages. Stage 1 was a scoping stage and examined the implementation and outcomes of the Innovation, Health and Wealth strategy, which had set out the Department of Health’s delivery agenda for spreading innovation throughout the NHS, at the time.\(^1\) In stage 1, we explored the role of the Innovation, Health and Wealth strategy in the national health innovation landscape and its key associated initiatives for taking forward innovation in the NHS,\(^2\) with a view to capturing key lessons and informing the design and implementation of more in-depth work in stage 2. Given the evolution in the national policy landscape, particularly in connection with the Accelerated Access Review (AAR)\(^3\) and Five Year Forward View,\(^4\) the stage 2 design (discussed further in Section 2) takes account of learning from stage 1 but also focuses on a more comprehensive and timely set of issues.

This document presents the insights from interviews and stakeholder workshops that have been conducted as part of the second stage of this study.\(^5\) We share what we have learnt so far about the types of activities and initiatives that are taking place in the health system to try to support innovation, and highlight some areas to consider in future capacity-building efforts. In the next phase of the study, we will build on the insights gained thus far to identify what are likely to be the highest-impact actions that could enhance the contribution of innovation to health system performance. We aim to establish practical recommendations for stakeholders across policy and practitioner communities.

Following the report summary, Section 1 (Introduction) overviews the background and context to this work, and the study’s aims and conceptual approach. Section 2 discusses the methods used. Section 3 (Results) presents the emerging findings as they relate to a diversity of health innovation drivers (skills, capabilities and leadership; incentives and accountabilities; the information and evidence environment; engagement with patients and communities; networks and relationships; and financial resources, commissioning and the procurement environment). Section 4 (Discussion and Next Steps) offers a

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\(^1\) Department of Health (2011).
\(^2\) Bienkowska-Gibbs et al. (2016).
\(^3\) Department of Health (2016).
\(^4\) National Health Service (2014).
\(^5\) This phase of the work was led by RAND Europe.
reflection on the insights gained and their implications for the evolving health and innovation policy landscape, for health innovation practice and for the direction of the next phase of the research.

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For more information about this report, please contact Dr Sonja Marjanovic (smarjano@rand.org):

Dr Sonja Marjanovic
Research Leader, RAND Europe
Westbrook Centre, Milton Road
Cambridge, CB41YG
smarjano@rand.org
+44(0)1223 353329

Professor Tom Ling
Senior Research Leader, RAND Europe
Westbrook Centre, Milton Road
Cambridge, CB41YG
tling@rand.org
Summary

Study context, aims and approach

The NHS, as with all health and care systems, is under pressure to meet the growing and changing demand for services with limited resources. A growing proportion of the population in the UK is aged over 65 and people are more commonly living with multiple long-term conditions. More widely, the changing nature of the disease burden and more diverse service-user profiles add to the complexity of meeting health and social care needs. At the same time, new technologies, products, services and ways of working provide opportunities to respond creatively and effectively to growing demands from all age groups. The shaping of innovations to respond to changing health and social care needs must take place within well-recognised resource constraints and in accordance with efforts to achieve efficiencies in how healthcare is delivered. In this context, realising productivity gains while improving the quality, safety and effectiveness of care is a policy priority. Recent reviews, variously focused on improving quality or cost-effectiveness, include the Kennedy Report, the Berwick review, the Keogh review, the Francis enquiries, the Carter review and the Accelerated Access Review (AAR). In different ways, these reports (along with a much wider body of research literature) all inform thinking about how best to support improvement efforts and innovation in the health system. The AAR and the Five Year Forward View sharpen the focus of innovation by emphasising that it should reduce inequalities, improve access, strengthen quality and close efficiency gaps.

Against this background, RAND Europe and the University of Manchester have been commissioned to conduct a three-year study to examine the potential of innovation to respond to the challenges the NHS faces, and to help deliver value-for-money, efficient and effective services. ‘Innovation’ in this study refers to any product, technology or service that is new to the NHS, or applied in a way that is new to the NHS, aimed at delivering affordable and improved care. The aims and focus of this research also evolved on the background of this changing landscape. The three-year study consists of two stages. Stage 1 was a scoping stage and examined the implementation and outcomes of the Innovation, Health and Wealth strategy, which had set out the Department of Health’s delivery agenda for spreading innovation throughout the NHS, at the time. In stage 1, we explored the role of the Innovation, Health and Wealth strategy in the national health innovation landscape and its key associated initiatives for taking forward innovation in the

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6 Age UK (2017).
7 Appleby et al. (2014).
8 Kennedy (2009).
9 Berwick (2013).
10 Keogh (2013).
11 Francis (2013).
12 Carter (2016).
13 Department of Health (2016).
14 National Health Service (2014).
15 Department of Health (2011).
NHS, with a view to capturing key lessons and informing the design and implementation of more in-depth work in stage 2. Given the evolution in the national policy landscape, particularly in connection with the AAR and Five Year Forward View, the stage 2 design (discussed further in Section 2) takes account of learning from stage 1 but also focuses on a more comprehensive and timely set of issues.

This core aims of the stage 2 research will be achieved by answering four questions:

1. How do organisations working in, and closely with, the NHS perceive and understand innovation, and how does this influence their actions?
2. Who drives and contributes to innovation and how might successful innovation have greater scale, scope and impact?
3. Innovations deliver benefits through complex pathways involving many organisations, regulations, incentives and processes. What practical changes to policy, culture and behaviour can support system-wide improvements to these pathways?
4. How can we measure the contributions of innovation to the social and economic performance of the healthcare sector (i.e. how will we know whether we are innovating well)?

Central to answering these questions is a detailed understanding of what innovation-friendly environments look like and how they might be nourished. We recognise that support for innovation involves local, regional and national levels. Effective alignment between these levels has historically faced diverse challenges related to issues such as organisational structures, long-standing professional identities, a need for better-developed approaches to patient inputs, and a historical separation between innovation processes and the processes of commissioning and managing services. This study will be practical and pragmatic; it will identify lessons on how to improve the innovation process and its outcomes and impacts, and help identify the steps stakeholders need to take to catalyse more innovation-friendly environments. This is also an academically robust study intended to contribute to advancing knowledge about health innovation systems. Although the context in which this research was commissioned predates specific health innovation policy developments such as the AAR, it will interpret findings in light of the evolving policy landscape before making final recommendations. The policy interventions that may be introduced will impact on preexisting systems. A nuanced understanding of the structures, relationships and behaviours in the health system in which new policy will be implemented will provide important learning relevant for NHS receptiveness and implementation.

This document presents insights from interviews and stakeholder workshops that have been conducted as part of the second stage of this study. It covers one stage of the wider review. As an emerging insights report, it should be understood as an assessment only of the research completed to date and not as

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16 Bieńkowska-Gibbs et al. (2016).
17 Department of Health (2016).
18 National Health Service (2014).
19 The AAR reported just before our data collection for this stage of the research was completed. At its heart was a proposed Accelerated Access Pathway for strategically important and innovative products to deliver patient benefit as soon as possible. The work reported here complements this interest with a focus on the regional NHS settings within which innovation-oriented activities are organised and delivered, and their interaction with national policy.
20 This phase of the work was led by RAND Europe.
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an early draft of the final report. We share what we have learnt so far about the types of activities and initiatives that are taking place in the health system to try to support innovation, and highlight some areas to consider in future capacity-building efforts.

We cannot at this stage propose a final and definitive set of recommendations – the second phase of our study will be concerned with identifying solutions and priority areas for action. This stage of the research aims to understand the attitudes of those involved in innovating in and around the NHS. However, this emerging insights report goes beyond problem identification to include an understanding of what those engaged in delivering health innovation believe the potential solutions to be. We believe that their insights about what works and what could work better are a vital part of identifying realistic solutions. We also suspect that historical improvement and innovation approaches in the NHS have frequently been hampered by too little attention being paid to understanding the problem before arriving at perceived solutions. We pushed research participants to go beyond identifying only problems and encouraged them to identify potential solutions and share their experiences in this regard. In the next phase, we will build on the insights gained thus far.

Overall, we aim to gain a richer understanding of how national policy can support regional success, and how in turn regional policies and practices can help shape national policy and strengthen its implementation. We consider both regional and national policy through the prism of how they support actual and specific innovations on the ground (i.e. we are not assessing these against an abstract model of innovation but against their contribution to actual practice). We will look to identify and characterise the priority actions that stakeholders can take to catalyse more innovation-friendly environments in practice and in relation to different kinds of innovation. This will require considering what – among the diversity of current efforts and further capacity-building needs and opportunities that we have identified thus far (and discuss below) – is most relevant, feasible, acceptable, sustainable and likely to facilitate impact at scale and at pace.

We aim to establish practical recommendations for stakeholders across policy and practitioner communities. This will be done by: locating the analysis presented in this summary in the context of evolving national priorities; establishing new evidence and insights through qualitative case studies of the uptake of a range of innovations and through engagement with stakeholders to help prioritise actions to support innovation; developing supportive quantitative health economics analyses on the determinants of uptake of proven innovations and on the cost-effectiveness of innovation activity; and triangulating these new data against what we already know from the existing literature. Further detail on the study design and progress to date is presented in Section 2. Please note that a literature review is ongoing; it is not discussed in this emerging insights report, but will be included in the final study report.

As expanded on in Section 1 (Introduction), the study design is rooted in a systems perspective on health and innovation and adopts a mixed-methods approach (Section 2), applying qualitative and quantitative data-gathering and analyses (e.g. desk research, key informant interviews across stakeholder groups, case studies, economic modelling). This approach might encourage a longer-term and whole-system perspective (which we support) but we also recognise that decision makers (and commissioners in particular) need to make immediate decisions in the short term which can balance immediate pressures with long-term transformative goals.
This emerging insights report, based on the first phase of research, draws evidence primarily from workshops across four different regional health economies and key informant interviews with health and care providers, commissioners, higher education and research representatives, charities, patient and public involvement bodies, private-sector and local authority stakeholders, and innovation institutions and networks.

To select the regional sites, the research team conducted desk research and a document review, and consulted with representatives from the Department of Health, the Office of Life Sciences, NHS England and additional experts. The regional health economies were selected to reflect a range of experiences, approaches and geographies, and to solicit diverse stakeholder views on important areas and organisations to learn from. The four regions are: Eastern, Greater Manchester and North West Coast, South West, and University College London Partners (UCLP) and related actors. Through this process, we have engaged with 221 individuals with expertise and substantial experience relevant to health innovation. The scale and scope of this research have enabled us to establish a uniquely nuanced and intricate understanding of the different ways in which innovation manifests itself across professions, organisations, geographies and disciplines in England.

Caveats

There are some caveats to consider when interpreting the findings from the first phase of this study.

First, though we have engaged with a large number of stakeholders from four regional health economies, we recognise that there are still other individuals and organisations with valuable insights whose views we are yet to include. Our focus was largely on individuals who are in some way engaged with innovation and supportive of it (and who could help us understand enablers of good practice). We are aware that elsewhere, in and around the NHS, there may be other priorities – or even cynicism – and that innovation may be regarded with less enthusiasm. However, we have been struck by how much the individuals we have so far engaged with have both been aware of other views and recognised the diversity of contributions needed for the overall health innovation system to function effectively. Given the range and nature of individuals consulted, we believe we have obtained a balanced and rounded view of the current landscape and future opportunities. Going forward, we will aim to achieve additional nuance in stakeholder views on innovation-related issues in the coming phase, and enhance engagement of specific groups (e.g. patient and public representation, private sector) to complement the current focus on those working in and around the NHS.

Similarly, while the key messages arrived at largely apply across the regions with which we engaged, there are also specific regional differences which have implications for future capacity-building efforts. Some regions have historically focused on one or another aspect of innovation and are at different stages of capacity development for innovation. Similarly, there are differences in the scale of expertise and focus on product versus technology versus service innovation. Also, key innovation institutions within regions (such as Academic Health Science Networks [AHSNs] and Innovation Hubs) have played varying roles. As our work evolves in phase 2 of the study, we will explore these regional dimensions in greater depth through case studies and additional stakeholder engagement, to understand what they imply for the prioritisation of regional activities and for connections between regions.
However, while we recognise the importance of regional and national agencies and policies in delivering innovation, we are also well aware of the existence of a global health innovation system. Global R&D, global corporations and global markets all shape national and subnational innovation systems. Although we will discuss global innovation issues as they arise in our research, a specific focus on the global health innovation system is out of scope for this study. In addition, we recognise that variations occur not only in regional innovation systems but also by technology sector (e.g. medicines, devices, service model innovations, digital).

Finally, the emerging findings discussed in this report were derived from data collection conducted prior to the publication of the AAR final report, and prior to the announcement by the Department of Health England and the Department for Business, Energy and Industrial Strategy of: a new package of support for innovation (focusing on support for AHSN roles in innovation uptake; a digital technology catalyst; assistance to small and medium-sized enterprises (SMEs) to enter early-access pathways; and pathway transformation funding to help overcome practical obstacles, such as those related to training and skills).  

However, we believe the emerging findings presented below remain highly relevant and offer important insights on the implications, opportunities and challenges for policy. These include insights on the critical determinants of successful policy landing and implementation in practice, with stakeholders and in regions. We highlight some key issues for consideration below, and will be exploring them further, as well as developing practical recommendations, in the next phase of our study.

With these caveats in mind, the messages we identify below should be understood as well informed but provisional.

Key emerging findings: creating receptive places for innovation

Successful innovation happens when combinations of drivers come together. We are not alone in emphasising that there is no single ‘magic ingredient’. These combinations can be thought of as creating receptive places for innovation which have in common: (i) innovation skills, capabilities and leadership; (ii) networks and relationships that connect the different parts of innovation pathways; (iii) incentives and accountabilities in the system that reward managed risk-taking, long-term approaches and service transformation; (iv) financial resources, commissioning and procurement environments and associated governance and regulation that provide the necessary funding, time and permission from management to allow innovators to thrive; (v) engagement with patients and communities who can create added pull for patient-facing innovation at pace and scale; and, critically, (vi) an appropriate information and evidence environment in which to make sound decisions – locally, regionally and nationally.

In the content below, we summarise key insights and messages from the work we have so far conducted, as they apply to each of these drivers. We overview the types of initiatives taking place across the regions we engaged with to ensure vibrant health innovation ecosystems (these are further elaborated on in Section 3, Tables 4–15).  

This marks an important, extensive and, we believe, valuable drawing together

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22 Some of the initiatives span multiple innovation drivers.
of innovation-oriented activities taking place at (case-study) regional levels. This could support further learning. We also show what study participants highlighted as important areas to consider as this research evolves. However, we are aware that participants in this study, although diverse, were not fully representative of all stakeholders delivering (or resisting) innovation. In line with qualitative methods for conducting purposive sampling and interview-based studies in health, a deliberately non-random approach was used, aiming to capture diverse views and experiences but not a strictly numerically and statistically representative sample. We will consider potential gaps as the work progresses, and note (for example) the question of improving engagement with charities, patients and other public- and private-sector stakeholders.

Within these constraints, we aim to share learning that is relevant both for policy makers and practitioners of healthcare and innovation.

1) SKILLS, CAPABILITIES AND LEADERSHIP

A diverse but not infinite set of skills and capabilities are needed to deliver successful innovation in the health system. As overviewed in Box 1, a variety of initiatives at national levels, as well as in the regions we engaged with, are seeking to build innovation-related competencies. This includes strengthening the skills base via: (i) training and professional development programmes to support innovation supply or capacity for innovation uptake in the health system; (ii) leadership training, coaching and mentoring schemes; (iii) strengthening professional networks to create connected communities with sufficient knowledge-management capacity to access and use innovation-related information and evidence for responding to service improvement challenges; and (iv) well-facilitated problem-solving and idea generation events and forums bringing together entrepreneurs, healthcare professionals, investors, mentors and the wider health and care community. There was also a perception among the individuals we consulted that innovation capability-building in the UK has historically focused more on the supply side of the innovation pathway than on skills for adoption and scale-up. However, the perception was that this imbalance is gradually being redressed.

Our research to date also suggests that strengthening skills, leadership and capabilities for innovation may in addition require attention to be paid to the following aspects of capacity-building, to be examined further in phase 2 of the project:

- Scaling-up of skills and training programmes in specific aspects of innovation, including skills and capabilities for: needs assessment and problem articulation; networking, brokerage and leadership; matching innovation supply and demand; more sophisticated health economics analyses; enhanced evaluation and data analytics as well as interpreting and communicating evidence; implementation and change management; and making a more compelling business case for innovation uptake. These capability-building areas are all important when considering the scale-up or evolution of existing programmes (e.g. Clinical Entrepreneur training, the NHS Innovation Accelerator [NIA], regional Innovation Lead training) or the introduction of new skills-focused initiatives.

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23 Bowling (2002).
• Embedding innovation thinking and training into educational curriculums and Continuing Professional Development (CPD) for both clinical and management staff in the health system.

• Strengthening capacity to engage with innovation through cross-sector learning (e.g. greater engagement with the private sector especially around ways to conduct public sentiment analysis, and business case and commercialisation skills).

• Sustaining investments in existing regional institutions such as AHSNs and Innovation Hubs. These are important for strengthening skills to match innovation supply and demand, and to broker relationships and ensure a critical mass of connected innovation leaders, required for progressing innovations throughout the pathway from idea generation through to development, adoption, diffusion and scale-up.

2) MOTIVATIONS AND ACCOUNTABILITIES

There are diverse mechanisms within health and care organisations to incentivise innovation, although at present there is little evidence on the cost-effectiveness of different approaches. Improved quality of care for patients, financial incentives for individuals and organisations, opportunities for professional development, reward and recognition are seen to be key motivators for individuals and organisations to innovate. Other approaches to translate motivation into action include: releasing resources (time, funding) to incubate ideas and pursue innovation-related activity; sharing evidence on impacts from innovation; and establishing reward and recognition schemes, financial returns and performance-related incentives. Alongside such approaches designed to motivate innovation are diverse formal innovation roles and functions in provider organisations (e.g. Innovation Leads, Innovation Scouts, Directors of Innovation and Improvement). Often working together in regional and national networks, these seek collectively to support innovation-friendly environments.

However, despite the variety of individual and organisational motivations, there is a lack of scale, connectedness and consistency in these incentive mechanisms across regions and at the national level. Addressing this requires further system-level interventions to enhance incentives and accountabilities for innovation. In addition, approaches for further exploration as suggested by study participants include:

• Strengthening and scaling up permission to innovate in provider organisations. For example, some potential avenues that we will explore further in phase 2 of the project might include: (i) buying out programmed activities; (ii) embedding innovation into job descriptions and performance reviews; and (iii) funding incentives to address the upfront costs of innovation and to facilitate benefit-sharing.

• Mechanisms to build a collective identity and sense of community for innovating health and care professionals, including efforts aimed at health professionals’ education and early career development (e.g. visible and stable leadership for innovation at different organisational levels, teamwork on innovation challenges).

24 The scaling-up of permission to innovate is needed so that individuals can have more time and scope to engage with innovation, and so that a critical mass of interested and appropriate individuals can be offered innovation-related opportunities.
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- Addressing risk cultures in the NHS, through the promotion of responsible and accountable risk management (e.g. through the creation of standards, clear communication from leadership, and engagement with other sectors to exchange insights on risk management).
- Additional incentives for innovation uptake specifically, as well as associated decommissioning (e.g. awards for the uptake of proven, high value-for-money innovations developed elsewhere; improved information and evidence flows on innovation performance; performance indicators linking innovation to accountability).
- Additional incentives for being entrepreneurial, including through clarity around financial benefits and innovation priorities in the NHS, and clarity on NHS intellectual property (IP) policies and benefit-sharing arrangements for innovators.

3) INFORMATION AND EVIDENCE

The current knowledge exchange and knowledge management landscape on innovation is characterised by a plurality of efforts including: (i) regional innovation and health improvement networks which play a role in facilitating the spread of innovation-related information and evidence; (ii) individuals with innovation roles in regions who serve as an important go-to source of information and as boundary-spanners and entry points into relevant networks; (iii) regional- and national-level face-to-face and virtual platforms for sharing ideas and evidence of impact from innovation, within and between organisations (e.g. meetings, committees, institutional Boards, Trust websites, national platforms like the Academy of Fabulous Stuff); and (iv) legal mechanisms to reduce blockages to information- and evidence-sharing (e.g. Non-Disclosure Agreements [NDAs], royalty arrangements).

There is a wealth of information and evidence on innovation available in the health system, but the sources are fragmented and the content often lacks appropriate communication and targeting. Addressing this will require capacity-building to curate, interpret, translate and better target relevant information at various stakeholder groups. Among other steps, this will involve:

- Responding to key information priorities, including: (i) improved evidence on population needs as they pertain to proposed innovations; (ii) platforms for better signposting to identify innovation actors; (iii) information about innovation opportunities to raise awareness among frontline staff; (iv) information about available means of commercial support for innovators; (v) information about opportunities for bringing innovations into the NHS; and (vi) baseline and outcomes data (including real-world evidence) to inform decision making by commissioners and providers. Better evaluative evidence, including on factors for successful implementation, is also needed to support the commissioning and scaling-up of innovations in the NHS. It would also help to clarify to innovators the standardised expectations of the burden of proof required to justify innovations.
- A more explicit strategy for managing and communicating information and evidence at national and regional levels. This should be based on a mixed-methods approach combining digital and real-world face-to-face interactions. For example, there may be a role for a national but targeted and interactive information platform, complemented by strong regional information-exchange environments based on face-to-face interactions, and investment in
interoperable information technology (IT) systems for data-sharing and linkage. There is a need for an active strategy, rather than overreliance on passive communication mechanisms.

4) RELATIONSHIPS AND NETWORKS

The value created by the innovation landscape is in part determined by diverse initiatives, relationships and networks within and between regions. These span institutions such as AHSNs, Vanguards, Test Beds, Innovation Hubs and Catapults which are linked to national transformational initiatives but are managed at the regional level. In addition, there are various region-specific catalysts of innovation, including health R&D networks, patient safety collaboratives, quality improvement networks and entrepreneurial initiatives such as Accelerators and Incubators. Regional collaboration is increasingly central to the health innovation system’s architecture, with new and evolving roles for AHSNs and other actors.

Despite a fertile and diverse landscape of actors, it is not clear that the system – as it currently stands – has the capacity to manage and take full advantage of the complexity of opportunities and initiatives. In terms of future needs, stakeholders interviewed in our study or participating in workshops identified the following areas for further consideration as the research and policy landscape evolves:

- Clarifying and making more visible the roles, remits and complementarities of specific initiatives would reduce barriers to collaboration arising from exacerbated competition and unclear or duplicated mandates or remits.
- Scalable joint working mechanisms, such as secondments, dual roles and greater multiprofession representation at senior levels on Boards, should be considered as potential levers for further strengthening cross-network (e.g. AHSNs, Vanguards, Test Beds), cross-sector (e.g. NHS/health and social care and voluntary) and cross-profession (e.g. primary, acute care) collaboration. However, their feasibility, acceptability, appropriateness and sustainability will need to be further examined as the work evolves and they are not likely to work in isolation from other levers.
- In general, collaboration between the NHS and the private sector is perceived by study participants to be less developed than relationships between the NHS and universities, research institutes or charities. Areas for attention include capability in the private sector to articulate a compelling business case for the NHS (i.e. which addresses issues such as decommissioning needs and the practical realities of implementation), and improving the NHS’s ability to articulate its innovation needs to the private sector and clarify routes to the NHS market (including via broker organisations and networks such as AHSNs).
- Our respondents suggest that AHSNs are primarily geared towards providing information, evidence, network brokerage and innovation functions that can support the progression of innovations across the pathway. However, specific regions highlighted additional areas where AHSNs might also provide support, such as implementation, legal and IP advice and evaluation expertise. AHSN metrics will need to be revisited to reflect the evolution of their roles and to address some unintended effects of the current metrics approach (such as a lack of focus on incentives for uptake of innovations developed elsewhere – i.e. non-home-grown
innovations). AHSNs also need to be supported to work together as a national network, to exchange information and evidence of best practice, and to raise awareness of local priorities.

While most of our data collection involved individuals who are engaged in innovation activities, they were also well aware that the core functions of a far larger number of NHS staff do not include innovation. However, even those less directly involved have an important role to play in making the NHS, as a whole, a welcoming and receptive place for innovation. This has encouraged us to reflect that there is a division of labour in which a small number play a role fully committed to leading both innovation initiatives and cultural change in the NHS, with a larger and more distributed group routinely managing and facilitating innovation and a third, even larger group whose roles do not include innovating as a core function, but whose behaviour will determine whether the NHS is receptive to and uses innovation or not. Each group requires a different kind of engagement and each is important for overall success.

5) ENGAGING PATIENTS AND THE PUBLIC WITH INNOVATION

There is growing recognition that a sustainable and effective health innovation system needs to involve patients and the public throughout the innovation pathway (i.e. in prioritising needs, articulating demand, contributing to innovation programme and project implementation, and enabling and advocating for the uptake of effective innovations and their evaluation). Across the regions considered in our research, health and care actors are working to engage patients with health innovation through dialogue, awareness-raising, advocacy with the third sector and demonstrations of innovations at wider community events, or through web-based platforms and institutional patient and public participation or reference groups, as some examples.

However, and despite progress in the area, achieving effective patient and public involvement was seen to be very challenging, resulting in some concerns over tokenistic attitudes and limited, fragmented and highly variable practices. In terms of building further on current momentum and effort:

- Our insights suggest that the research and charity landscape, including the efforts of the National Institute for Health Research (NIHR) (e.g. INVOLVE, the James Lind Alliance), medical charities, umbrella organisations (e.g. National Voices) and patient engagement portals (e.g. Health Unlocked, Patients Know Best), offers lessons for patient and public engagement in the innovation space.
- In addition, many of the patient engagement initiatives that currently exist within regions span quality improvement, research engagement and innovation spaces, suggesting that a more coordinated approach to public and patient engagement across these complementary spaces might lead to greater efficiency and effectiveness.
- Insights from interviews and workshops highlight that empowering patients to engage with innovation requires improved information and evidence environments, multistakeholder commitments to involve patients at all stages of the innovation pathway and training programmes for effective engagement. These should be geared at both public and patient representatives and health professionals.
- Sharing examples and evidence of positive experiences and their outcomes was also seen as important for enabling wider-scale change in attitudes across the system.
6) FUNDING AND COMMISSIONING OF INNOVATION

The funding landscape for innovation is characterised by diverse sources of funding from both national funding pots and regional and organisational resources. However, this funding landscape is fragmented and often unable to achieve critical mass and scale to support innovations across the pathway – from idea generation through to uptake and scale-up across the system. There is a need for better visibility of the funding sources available and a mapping of where they sit in the innovation pathway, as well as for better coordination of current funding. This should happen within an environment that more explicitly recognises how commissioning and procurement can support innovation within the wider context of organisational, cultural and behavioural levers in the health system. New commissioning models which reward performance and evidence of impact on the healthcare system are being explored, and the scalability and uptake of some schemes (e.g. commissioning through evaluation, outcome-based commissioning) remain to be seen, given wider-level systemic changes that would need to happen concurrently (e.g. in terms of budget cycles and planning, decommissioning).

In terms of capacity-building, insights from our work to date suggest a need for commissioners and innovation funders to:

- Support promising innovations across the whole healthcare innovation pathway to ensure that promising innovations do not hit ‘valleys of death’ and that those with a low likelihood of success fail ‘smartly’. Achieving this will call for more strategic coordination between schemes and funders of different innovation pathway stages.
- Consider how longer-term needs and future scenarios can be factored into shorter-term commissioning decisions.
- Recognise the different timescales for the development and uptake of different types of innovations (e.g. medicines, digital, devices, diagnostics).
- Facilitate a hybrid model of governance and management of innovation funding at national and regional levels through a framework that would: (i) incorporate both national and regional elements in decision making and fund implementation and evaluation; (ii) consider accessibility by a broad range of actors to facilitate capacity-building for engaging with innovation across the system; (iii) balance nationally relevant and locally relevant needs, as well as recognising unmet niche areas and underserved groups; and (iv) balance support for transformation with meeting immediate financial targets.
- Respondents also highlighted the importance of factoring innovation into procurement and commissioning contracts – for instance, through the Innovation and Technology tariff, or by ring-fencing a proportion of commissioning budgets for commissioning by evaluation and outcome-based commissioning schemes. The successful implementation of such schemes will in part depend on the availability of a supportive data infrastructure.

Reflecting on the emerging insights and evolving policy landscape

Recent policy developments such as the AAR lay out a framework and process for addressing the diverse drivers of innovation discussed above in a more coordinated and streamlined way, across the entire xiii
innovation pathway. Central to the AAR framework is improved alignment between national policy and actors (e.g. regarding regulatory approval, the National Institute for Health and Care Excellence [NICE] Health Technology Assessment [HTA], NHS England commissioning and reimbursement), regional innovation activities and actors, and local diffusion. The interventions outlined in the AAR resonate with many of the findings highlighted in our research. In particular, this applies to the need for enhanced coordination and clarity about health innovation activities and closer relationships between key innovation practitioners, health system actors and national bodies.

There will inevitably be both synergies and tensions in approaches that seek to integrate (i) collaboration, (ii) coordination and (iii) a degree of competition. The balance between these three forces is a critical issue for the health system more widely, and for the successful landing of innovation policy and practice within it. Better-coordinated collaboration will be critical for effectively managing the interdependencies between the innovation drivers we have discussed above and for strengthening the combinatorial dimension of health innovation. Interventions highlighted in the AAR, including the Accelerated Access Partnership, regional innovation exchanges, new pathways for patient engagement, transformative innovation designations (announced earlier this year by NHS England), and distinct pathways of support for different types of innovations (including the Paperless 2020 initiative for digital innovations), lay out an enabling infrastructure and receptive environment that can respond to the coordination and collaboration challenges.

Our findings also suggest that getting the best returns from the UK’s health and care innovation requires designing approaches that:

1. **Use the interdependencies between health and care sectors as opportunities rather than barriers**, drawing on the expertise of both clinical and allied health and social care professions and focusing on cross-cutting and complementary health-sector priorities (e.g. prevention and early intervention, self-care and management of long-term conditions, patient safety and health data infrastructure). Many innovations (e.g. digital platforms) are likely to require engagement from multiple sectors in order to achieve needed impact. Similarly, population needs across health and social care are likely to influence prioritisation processes for innovation – at regional as well as national levels.

2. **Attend to, and take advantage of, the relationships between macro-scale change (i.e. new policy developments driven by the national level), meso-level regional structures and processes (e.g. interconnected regional institutions that are both receptive to national policy and can help shape it) and micro-scale interventions (e.g. centred around individual and organisational motivations and incentives)**. Enabling conditions and receptive environments at the organisational level – in commissioning groups, in individual provider organisations and within specific communities of practice – requires alignment and mutual adaptation across these levels. Successfully landing the recommendations in the AAR will depend as much on formal structures, processes and resources as on informal relationships and networks. Together these can create clarity and opportunity in an evolving policy environment.

3. **Use both structural and behavioural interventions to progress innovations across the health innovation pathway**. These include: institution-building (such as in the evolving role of
Creating and Connecting Receptive Places

AHSNs); nurturing boundary-spanning and brokerage roles; and supporting both formal processes and informal networks and communities of practice. Approaches will also allow individuals and groups to find the creative time to engage with innovation across acute, primary and social care pathways. A focus on creating enabling structures should not come at the expense of nudging behaviours across different levels in organisations, regionally and nationally.

4. **Coordinate innovation and improvement policies.** The links between these are critical when prioritising investments and coordinating complementary efforts. They are also important for making a more effective business case for innovation to the NHS. Historically, healthcare professionals have become more familiar with the discourse of improvement than innovation, and understanding the place of innovation within improvement landscapes and efforts will be essential for the creation of ‘receptive places’. As shown by the examples in Boxes 1–6, many initiatives simultaneously address both innovation and improvement issues.

5. **Adopt a portfolio approach to innovation – responding to both quality and cost considerations.** This is critical for the transformation of the health system and for creating receptive places for innovation. It requires first taking a view on the total size of the innovation portfolio and ensuring the system has the capacity to absorb such a volume. Secondly, it involves attending to the balance of the portfolio, having considered not only different levels of risk but also the motivations of different stakeholders. Our expert respondents also recognised that different types of innovation require different kinds of ‘receptive places’, and this needs to be considered in the planning of an innovation portfolio at national and regional levels. Medicines and vaccines, devices and diagnostics, service innovations and digital innovations all require the involvement of different scientific disciplines, patient and carer inputs, types of private-sector involvement, and delivery models.

Looking towards the next phase of this study

The next phase of our research will focus explicitly on what these (and other) issues imply for the development of targeted and actionable recommendations for stakeholders. These will build on the lessons gained thus far (as summarised in Figure 1) and respond to the recent policy developments, by bringing in new qualitative and quantitative insights. The focus will be on informing practical action, and on identifying and prioritising the highest-leverage combinations of actions that provider communities, commissioning bodies, innovators and patient and public representation bodies can take to ensure receptive environments at scale. Similarly, particular gaps highlighted by participants in the research (as summarised in Figure 2) will also be examined further in the context of arriving at capacity-building solutions and practical actions. At the same time, the goal will be to improve the evidence base on how national and regional bodies can work together most effectively. Last but not least, the detailed and comprehensive evidence we are gaining should enable us to contribute to a more interdisciplinary perspective on innovation theory and its links to improvement research as the next phase evolves.
Figure 1. Examples of existing efforts to create receptive places for innovation in health and care – priority and scalability to be explored in phase 2 of this study

AVSNs, Test Beds, Innovation Hubs, Catapults, Catalysts, Accelerators, Incubators, Vanguards, CLAHRCs, LEPIs, Knowledge Transfer Networks, AHSCs and other regional innovation and quality improvement organisations

National bodies with a stake in innovation, such as Office of Life Sciences, Department of Health, NIHR, NHS England, NCE, and Healthcare products Regulatory Agency (MHRA), Innovate UK.

Trust schemes to ‘buy out’ health professionals’ time (e.g. programmed activities) to engage with innovation.

Trade Associations such as the Association of British Pharmaceutical Industry (ABPI), the British In Vitro Diagnostics Association (BIVDA), the Association of British Healthcare Industries (ABHI) and others.

Dual roles for individuals (affiliations with more than one institution).

Exposing the public to innovations and engaging them as part of community events and activities of daily life (e.g. at football games, supermarkets).

Web-based platforms for patient and public engagement.

Patient engagement roles as part of Trust and CCG structures, AVSNs, Vanguards and Test Beds.

Collaboration with private sector for establishing new mechanisms of patient engagement (e.g. learning from consumer sentiment analysis).

Patient-driven innovations established in collaboration with regional research and innovation networks.


Private sector funding.

European Union framework programme and regional development funding.

Mini-competitions for seed funding in Trusts, CCGs and AVSNs.

Initiatives for greater pathway integration and new approaches to more patient-centred commissioning between health and social care.

Skills, capabilities, and leadership

Institutions in regions and at national levels with a role in brokering information and evidence – generally innovation or health improvement networks.

Innovative brokers of information and evidence and boundary-spanners belonging to multiple professional communities.

Virtual national or regional platforms providing information on innovation (i.e. websites).

Meetings and committees as information and evidence exchange forums.

Legal mechanisms to reduce blockages to collaboration and information-sharing (e.g. NDAs and benefit-sharing agreements).

New outcome-based commissioning models.

Monetary incentives via the COUPAs or Quality and Outcomes frameworks.

Commissioning through Evaluation scheme.

Motivations and accountabilities

Curlocation

Exposure to the public to innovations and engaging them as part of community events and activities of daily life (e.g. at football games, supermarkets).

Web-based platforms for patient and public engagement.

Patient engagement roles as part of Trust and CCG structures, AVSNs, Vanguards and Test Beds.

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Initiatives for greater pathway integration and new approaches to more patient-centred commissioning between health and social care.

Engaging patients and the public

Funding and commissioning of innovation

Relationships and networks

Information and evidence

Training programmes

Coaching

Mentoring

Professional networks and communities of practice

Problem-solving events

Idea-generation forums

Institutions providing knowledge and information exchange functions

Motivations and accountabilities

Curlocation

Exposure to the public to innovations and engaging them as part of community events and activities of daily life (e.g. at football games, supermarkets).

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New outcome-based commissioning models.

Monetary incentives via the COUPAs or Quality and Outcomes frameworks.

Commissioning through Evaluation scheme.
Figure 2. Specific capability-building gaps highlighted by participants in the research – to be explored in phase 2 of this study.

A need to clarify roles, responsibilities, remits, unique value-added and complementarities between specific institutions – to better coordinate the system and reduce unnecessary duplication.

Pursuing scalability of some operational mechanisms for enhancing collaboration and coordination.

Enhancing capacity of private sector to make a compelling business case to the NHs, and capacity of the NHs to articulate needs to innovators and clarify route to market.

Prospects for learning from the research and clarity sector experience with patient and public involvement.

Considering how existing institutions could respond to NHs needs for implementation support, legal and IP advice, evaluation expertise.

Considering prospects for coordinating public and patient engagement efforts between innovation, quality improvement and research spaces – for sustainability and scale.

Training programmes for the public, patients and health professions for effective engagement strategies and communication.

A need to share examples and evidence of positive experiences and successful outcomes.

A need to establish coordinated funding and regulation approaches to support promising innovations across the whole healthcare innovation pathway (so that high-potential innovations do not hit a ‘valley of death’ and that those with a lower likelihood of success fail ‘smartly’).

A need to recognise the different timescales for the development and uptake of different types of innovations.

Facilitating a hybrid model of governance and management of innovation funding at national and regional levels.
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Abbreviations

A&E  Accident & Emergency
AAR  Accelerated Access Review
AHSC  Academic Health Science Centre
AHSN  Academic Health Science Network
AQuA  Advancing Quality Alliance
CCG  Clinical Commissioning Group
CLAHRC  Collaboration for Leadership in Applied Health Research and Care
COPD  Chronic Obstructive Pulmonary Disease
CPD  Continuing Professional Development
CQC  Care Quality Commission
CUHP  Cambridge University Health Partners
GM  Greater Manchester
GP  General Practitioner
HEE  Health Enterprise East
HEI  Higher Education Institute
HTA  Health Technology Assessment
i4i  Invention for Innovation
IP  Intellectual Property
IT  Information Technology
KTN  Knowledge Transfer Network
LEP  Local Enterprise Partnership
LGA  Local Government Association
MIMIT  Manchester: Improving Medicine with Innovation and Technology
NDA  Non-Disclosure Agreement
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<th>Abbreviation</th>
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<tr>
<td>NIA</td>
<td>NHS Innovation Accelerator</td>
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<td>The National Institute for Health and Care Excellence</td>
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<td>NIHR</td>
<td>National Institute for Health Research</td>
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<td>PACS</td>
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<td>Peninsula CLAHRC</td>
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<td>PPI</td>
<td>Patient and Public Involvement</td>
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<td>R&amp;D</td>
<td>Research and Development</td>
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<td>SBRI</td>
<td>Small Business Research Initiative</td>
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<td>SME</td>
<td>Small and Medium-sized Enterprise</td>
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<td>STP</td>
<td>Sustainability and Transformation Plans</td>
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<tr>
<td>UCLP</td>
<td>University College London Partners</td>
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<td>VCSE</td>
<td>Voluntary, Community and Social Enterprise</td>
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1. Introduction

1.1. Background and context

The NHS is under pressure to meet the growing demand for healthcare services with limited resources. Innovation in the NHS has the potential to help respond to this challenge and to contribute to productivity gains and the efficiency and effectiveness of the NHS. ‘Innovation’ in this context refers to a product, technology or service that is new to the NHS, or applied in a way that is new to the NHS, aimed at significantly improving the quality, safety and/or cost-effectiveness of healthcare in that setting. Even without the current pressures on the NHS, the need to deliver good value for money would also imply the need to ensure that innovations should be exploited wherever they present more effective and efficient ways to meet needs. Although the health system in the UK has a history of pioneering health innovations, it has traditionally focused more on their development than on their adoption and diffusion.25

The Accelerated Access Review (AAR),26 Five Year Forward View,27 General Practice Forward View,28 Berwick review,29 Keogh Review,30 Francis enquiries,31 Kennedy Report32 and Carter review33 are examples of recent policy efforts to consider how to best respond to the challenges the health system faces and improve the way services are delivered, to ensure high-quality, safe, transparent, cost-effective and efficient care and to leverage productivity gains. Although these are not all explicitly focused on innovation (at least not to the same degree, or not in the same way), underlying them is a shared effort to improve and innovate in the way the health system functions and delivers value for patients, the wider society and, in the case of some reviews (e.g. the AAR), the economy.

For example, the AAR has considered how innovation – be it related to biopharma/medicines, diagnostics, devices, or digital technologies and their application in new service models – can play a more effective role in service improvement. To this effect, the Accelerated Access Review Final Report (2016)34 sets out a framework and process for ensuring the take-up of cost-effective, high-quality innovations into the NHS at pace and at scale, in order to improve efficiency and patient outcomes, and to strengthen the life-sciences sector as a vehicle for economic growth and competitiveness. The report highlights both general and specific policy support needed across these different types of innovations, with an emphasis on (i) regulatory pathway improvement; (ii) evaluation and evidence, including health data infrastructure and analytical capacity; (iii) requisite relationships and networks at national and local levels; and (iv) appropriate incentives for different stakeholders – most notably patients, health professionals, the NHS

26 Department of Health (2016).
27 National Health Service (2014).
28 National Health Service (2016a).
29 Berwick (2013).
30 Keogh (2013).
31 Francis (2013).
32 Kennedy (2009).
33 Carter (2016).
34 Department of Health (2016).
and innovators. A key need highlighted by the AAR is better alignment between regulatory approval, the National Institute for Health and Care Excellence (NICE), Health Technology Assessment (HTA), NHS England commissioning and reimbursement and local diffusion. The report emphasises that more cost-effective and faster adoption of innovation needs to be facilitated through streamlined mechanisms for prioritising new technologies, accelerated approvals and alignment of national organisations to enhance the ability of the NHS to rapidly adopt the right innovations, at scale.

Other policy developments address complementary system issues, and it is the interactions between innovation-specific policy initiatives and other health system transformation efforts which will ultimately underpin collective success in achieving improvement aims. For example, the Carter review (2016) has looked into operational productivity and performance. The NHS England New Care Model programme is supporting 50 Vanguard sites and seeks to support new and innovative models of healthcare so that previously separate services, such as physical health and mental health, primary and specialist care, and healthcare and social care work better together. The General Practice Forward View has outlined investment, workforce and workload, care-design and infrastructure needs and opportunities to realise improvements in general practice. The Berwick review into patient safety and the Keogh and Francis reports have all looked into priorities and actions that can reinforce commitments, ensure improvements in patient safety and quality of care and encourage a culture of learning and openness. Related to this, diverse institutions in the system and associated programmes are working to implement and strengthen policy in practice. Although by no means an exhaustive list, some examples include Academic Health Science Networks (AHSNs), Test Beds, Vanguards, Catalysts, Accelerators, Catapults, Innovation Hubs, devolution efforts in some regions and various other collaborative institutions and overarching organisations.

Despite such efforts in the system and the opportunities that they present, uncertainties remain as to how to translate existing policy developments into practical delivery of innovation in the health system at pace and scale, and into new and improved ways of providing health and care services on the ground. Central to success will be an intricate understanding of the structural and behavioural interventions that are needed at regional as well as national levels, and of how they interact with each other, in order to enable a feasible and actionable landing of policy developments in practice. We need a better understanding both of how national policy can support regional success and how regional policies and practices can help shape national policy and strengthen its implementation.

1.2. Aims of this study

Through a three-year embedded study, RAND Europe and the University of Manchester are working with regional health economies and national stakeholders to help develop specific and actionable recommendations for the health system on how to better innovate to respond to demands for productivity and high-quality care. The overall study will draw practical and pragmatic lessons on how to improve the innovation process and its outcomes and impacts in light of regional/local needs as well as national

35 There are seven NHS Regional Innovation Hubs: NHS Innovations East (Health Enterprise East), NHS Innovations North, NHS Innovations North West (Trustech), NHS Innovations South East, NHS Innovations South West (which, however, ceased trading in March 2017), NHS Innovations West Midlands and NHS Innovations Yorkshire and Humber.
priorities and policy developments. It will help identify the steps that stakeholders need to take to catalyse innovation in practice and to address pressing clinical and managerial needs, in their local context. We aim to identify ‘big ticket’ innovation issues and foster solutions across different aspects of healthcare pathways and different types of innovations. The project is funded by the Department of Health Policy Research Programme in close collaboration with the Office of Life Sciences and NHS England.

The aims and focus of this research evolved alongside the changing innovation landscape. Beginning as an evaluation of Innovation Health and Wealth,\textsuperscript{36} it developed into a wider review of the innovation landscape in and around the NHS with the four research aims listed below. This emerging insights report covers the first stage only of this wider review. More information on the research conducted thus far and the overall study design and methods (including what is yet to be conducted) is presented in Table 1, Section 2.1).

By the time it is completed (in early 2018) this research will address four overarching questions:

1. How do organisations working in, and closely with, the NHS perceive and understand innovation, and how does this influence their actions?

2. Who drives and contributes to innovation and how might successful innovation have greater scale, scope and impact?

3. Innovations deliver benefits through complex pathways involving many organisations, regulations, incentives and processes. What practical changes to policy, culture and behaviour can support system-wide improvements to these pathways?

4. How can we measure the contributions of innovation to the social and economic performance of the healthcare sector (i.e. how will we know whether we are innovating well)?

5. In order to deliver on these questions, this research adopts a multi-method, phased approach (described further in Section 2: Methods).

As illustrated in Figure 3, the study is phased in a way that enables the project to evolve over time:

1. From an understanding of the status quo and an examination of current efforts.

2. To channel out into a broad survey of further needs and the diversity of potential ways of addressing them that are being considered and/or implemented nationally and regionally, and then to funnel back in to prioritise potential solutions and establish targeted recommendations for practical actions based on their suitability, feasibility and acceptability.

\textsuperscript{36} Bienkowska-Gibbs et al. (2016).
In the phase of the research reported on in this emerging insights report, we have focused on the left side of the diamond, i.e. on understanding the current landscape and identifying efforts taking place on the ground to address the diversity of challenges in the health innovation system. Thus, the core focus has been on Questions 1 and 2 and an early examination of Question 3, as outlined on the previous page.

In the next phase (2017) we will focus on the right side of the diamond to prioritise and understand what are likely to be highest-leverage actions that need to take place in health system practice, based on what is most relevant, feasible and acceptable, and in light of the evolving policy architecture. This will enable us to provide targeted recommendations, considering also how these relate to recent developments announced in the AAR (and in any government response to it) and how the policy framework set out in that review is landed in practice.

1.3. The conceptual framework: a systems perspective on innovation in the NHS

Specific innovations happen within a greater and highly dynamic innovation system in which different actors, networks, ideas, capabilities and practices interact. Health innovation systems need to be viewed within the wider health systems context within which care is provided. Understanding the interactions within and between innovation systems and health systems is important for identifying opportunities for impact on healthcare quality, safety and cost-effectiveness. Such interactions can take place alongside shifting government priorities and policy regimes, subject to resource constraints, and influenced by diverse cultural, research and education, socioeconomic and political forces.37

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37 The literature on national systems of innovation is extensive, but see, for example: Lundvall (1992); Freeman (2008).
The benefit of adopting a systems perspective means that we can approach ways of measuring health innovation performance within a more realist framework, which considers a more dynamic set of phenomena.\textsuperscript{38} For example, impacts on cultural change and conditions for innovation in the NHS, on patient/public well-being or on NHS quality of care, safety, cost-effectiveness and patient experience become just as important as counting patents and regulatory approvals, job creation or attracting funding to develop innovations. The same applies to capacity-building impacts such as in governance, physical and information infrastructure, workforce skills or healthcare innovation financing systems, among other areas. Simply supplying innovations is insufficient for uptake, diffusion and spread; making innovations useful requires appropriate incentives, accountabilities, skills, capacities, leadership, relationships and networks to be in place in the system.

The development, adoption, diffusion and scale-up of innovation will occur across the healthcare (patient) pathway, i.e. spanning primary, specialist (acute and tertiary) and community care, diagnostics and emergency services. Innovation processes in specific parts of the healthcare pathway and across them will be nested in a wider system of \textit{drivers}. These span:

- Skills, capacities and leadership for innovation (e.g. leadership arrangements; organisational capacities such as finance, staffing, information systems and working practices; individual skills and roles).
- Relationships and networks (e.g. involving diverse stakeholders at local, regional, national and international levels).
- Information, evidence and resources for innovation (e.g. information and evidence on: innovative solutions that exist; the impacts of innovation; the business case for innovation; guidelines for implementation; and available financial resources).
- Motivations and accountabilities (e.g. as they relate to performance management, career-related factors, individual and professional identities). This will also bring into consideration policy and regulation.
- The landscape for public and patient engagement with innovation.
- Funding, commissioning and procurement environments.

Diverse stakeholders will interact and influence innovation pathways and how innovation activities manifest themselves in practice. Examples include NHS Trusts and acute care organisations (e.g. Teaching Hospitals, Specialist Hospitals, District General Hospitals), primary care and general practitioners (GPs), Clinical Commissioning Groups (CCGs), higher education institutes (HEIs), private-sector bodies, charities, local enterprise Boards, patient advocacy groups, regulators, funders and other organisations. Their interactions are not only embedded in overarching innovation policies and healthcare policy environments but also governed by specific healthcare and innovation institutions and networks (e.g. AHSNs, Vanguards, the Small Business Research Initiative [SBRI], National Innovation Accelerator [NIA], Clinical Entrepreneurs Programme, Test Beds, Innovation Hubs, as some examples). These interactions happen within and between different levels in the system (local, regional, national and international). The practical interventions (e.g. policy-related, strategy-related) influencing innovation

\textsuperscript{38} OECD (2010).
processes and outcomes will have both common and unique features across different types of innovations (drugs and vaccines, devices and diagnostics, service innovations, digital innovation), different therapeutic areas (e.g. cancer, cardiovascular, diabetes, dementia, obesity), cross-functional areas (e.g. patient safety, self-care, data governance), different aspects of innovation and healthcare pathways (e.g. development, adoption, diffusion stages of innovation; primary, acute and community care settings) and different levels in the healthcare innovation environment (system [national and regional], organisational/institutional and individual).

This understanding of the health innovation system, frames our evaluation enquiries and is illustrated in Figure 4 below.

Figure 4. The health innovation system
2. Methods

2.1. Methodological approach: an overview

As discussed in Section 1, the study aims to explore the potential of innovation to respond to the quality and productivity challenges faced by the health system. To do so, it draws on a mixed-methods approach with qualitative and quantitative elements as described in Table 1 (e.g. desk research, key informant interviews across stakeholder groups, case studies, economic modelling).

Table 1. An overview of methods for phase 1 and phase 2 of the second stage of the study, and of progress made to March 2017

<table>
<thead>
<tr>
<th>Qualitative research and analyses</th>
<th>Quantitative research and analyses, including metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Stakeholder workshops and interviews in regional health economies</td>
<td>B. Case studies of innovations in regional health economies</td>
</tr>
</tbody>
</table>

(1) To capture and synthesise the knowledge and experience of actors closely involved with innovation and to identify stakeholder perspectives to better understand regional and national health innovation issues as they relate to specific drivers in the health innovation system; (2) to identify current promising practices and perceived gaps (Completed and reported on in this document)

To identify insights into the often subtle process dynamics and contextual influences driving the progression from innovation development to uptake and diffusion in the NHS, as well as to identify reasons why uptake varies. This will be done through case studies of the uptake of innovations (positively appraised by NICE) within and across case-study regions. This will help understand how diverse factors interact and relate to each other to jointly enable an innovative health and care system. We will examine this learning in light of the evolution of the policy landscape and the implementation of policy developments such as the AAR and related policy developments. It will also include interviews with national-level stakeholders and workshops to help understand which actions for supporting innovation (among those identified in workstream A) are perceived to be the most relevant and feasible priorities for various stakeholders, and to examine how such learning relates to and informs the implementation of the AAR and related policy developments. It will also include interviews with national-level stakeholders.

To explore cross-cutting issues and the interplay between national and local policy, and to inform practical actions to facilitate innovation-friendly environments across the health system and across the health innovation pathway. This workstream will include a stakeholder prioritisation survey with regional and national stakeholders and workshops to help understand which actions for supporting innovation (among those identified in workstream A) are perceived to be the most relevant and feasible priorities for various stakeholders, and to examine how such learning relates to and informs the implementation of the AAR and related policy developments.

To examine (1) the uptake of innovations and related impacts, and the use of resources in the health system; (2) to identify ways in which decisions regarding healthcare innovation might be better informed in the future; and (3) to explore improved ways of evaluating innovation performance and associated metrics. This workstream will use quantitative analysis to provide insights on determinants and predictors associated with different uptake patterns, and complement the

An additional review of the SBRI scheme has been commissioned as part of this work and is being reported on separately, with the deliverable being produced at the same time as this report.
Progress to date

Our aim in this analysis of data from interviews and stakeholder workshops is to share what we have learnt so far about what helps to create ‘receptive places’ in the innovation landscape (and especially at regional levels) and how they might be enabled to further strengthen innovation. We cannot at this stage propose any definitive solutions – the next phase of our study will be concerned with recommendations and identifying priority areas for action.

Our work to date has identified diverse activities and initiatives, taking place both within the regions participating in this research and at a national level, that seek to support innovation-friendly healthcare environments. We have also been told of perceived gaps in provision and examined some of the issues facing future capacity-building. By bringing to the surface the experiences and knowledge of a wide variety of people engaged in these activities, this work to date has, we believe, brought additional nuance, empirical richness and explanatory power to existing knowledge about improving innovation in the NHS. As mentioned in the Summary, this report identifies insights from this first phase of research for stage 2 of the overall study, drawing evidence primarily from workshops across four different regional health economies and key informant interviews with health and care providers, commissioners, higher education and research representatives, charities, patient and public involvement bodies, private-sector and local authority stakeholders, and innovation institutions and networks.

In the context of the four core research questions presented in Section 1.2, the analysis of data from interviews and workshops conducted to date (i.e. workstream A in Table 1) has helped inform Question 1 (i.e. How do organisations working in, and closely with, the NHS perceive and understand innovation, and how does this influence their actions?) and Question 2 (i.e. Who drives and contributes to innovation and how might successful innovation have greater scale, scope and impact?). In Section 3 (Results), the narrative information presents key learning points to date, relating to the actions through which innovation is being supported in the regions participating in this study and to additional areas where capacity-building was said to be needed (as perceived by the individuals we consulted). This learning is discussed for individual categories of innovation drivers (as described in Figure 1) which collectively, and through combinatorial effects, determine health innovation system performance and impact. The tables
that accompany the core narrative in Section 3 provide concrete examples of initiatives taking place regionally to support each driver. Together, this emerging learning paints a picture of an evolving and dynamic system, but one where there is scope for prioritisation of activities and effort and for more coordinated collaboration both within regions and across them, in the light of national policy developments.

Although we cannot propose definitive solutions to the complexities of creating connected and receptive places for innovation in the health system at this stage of the research, we aim to ensure that the research and analysis that is to follow in the next stage of this study (i.e. workstreams B–D in Table 1) will help us arrive at prioritised recommendations and further mature learning on facilitating scale, scope and impact (which come under Question 2). This will require consideration of what – among the diversity of current efforts and further capacity-building needs and opportunities that we have identified thus far (and which we discuss below and summarise in Figure 2 of this document) – is most relevant, feasible, sustainable and likely to facilitate impact at scale and at pace. It will also require this learning to be considered in light of the evolving policy landscape. To this effect, the combination of workstreams which remain to be implemented – specifically: (i) quantitative health economics analyses on the determinants of uptake of proven innovations and on the cost-effectiveness of innovation activity (workstream D); (ii) qualitative case studies of the often subtle processes and contextual influences supporting the progression of proven innovations across the pathway from idea generation and development through to uptake and diffusion in the NHS (workstream B); and (iii) national-level analysis (survey, workshops and interviews with key stakeholders) to prioritise and inform national and regional actions and their implementation (workstream C) – will help us draw actionable recommendations to inform Question 3 (i.e. What practical changes to policy, culture and behaviour can support system-wide improvements?). Triangulating insights from workstreams A–C against what we know from existing literature, and considering improved ways of evaluating innovation performance and associated metrics (workstream D), will help answer Question 4 (i.e. How can we measure the contributions of innovation to the social and economic performance of the healthcare sector?/How will we know whether we are innovating well?).

Together, this learning will help identify what are likely to be the highest-impact actions to improve the contribution of innovation to the health system, provide insights to inform national policy and its implementation, and advance academic knowledge on innovation for improvement in the health system. For more detail on work packages, please refer to Table 1 above.

Together, these complementary methods aim to inform actionable and pragmatic recommendations that can capitalise on the potential of innovation for patients, providers and innovators, as well as wider society and the economy.

We briefly overview the methods of the workstream completed to date and overall caveats in the contents below. Ethical approval to undertake the study was granted by the research ethics committee of the Alliance Manchester Business School, University of Manchester.
2.2. Stakeholder workshops and interviews in regional health economies

We identified four regional health economies as ‘deep-dive’ sites for this phase of the research, and then conducted interactive workshops and key informant interviews in each of the regions. To select the regional sites, the research team conducted desk research and document review, and consulted with representatives from the Department of Health, the Office of Life Sciences, NHS England and additional experts. The regional health economies were selected to reflect a range of experiences, approaches and geographies, and to solicit diverse stakeholder views on important areas and organisations to learn from. The four economies are: Eastern, Greater Manchester (GM) and North West Coast (NWC), South West, and University College London Partners (UCLP) and related actors.

The insights from the regional interviews and workshops conducted in this phase of our study will be complemented by additional interviews with representatives from key national institutions in the next phase. Through this process, we will seek to engage with important institutions in the health innovation system outside of the selected deep-dive regions (e.g. other AHSNs, additional Test Beds, Innovation Hubs and Catapults) as well as national-level institutions.

2.2.1. Workshops

Facilitated by the AHSNs within the selected regional health economies, the research team conducted six workshops across the four case-study sites: Greater Manchester and North West Coast (two workshops held on 16 and 17 March 2016, respectively), UCLP and related actors (one workshop held on 19 April 2016), South West (two workshops held on 20 and 21 April 2016 in Plymouth and Taunton, respectively) and Eastern (one workshop held on 8 June 2016). We have included an indicative workshop agenda in Appendix A. Within each regional health economy, the workshop’s purpose was to:

- Establish a shared understanding of how innovation (development, adoption, diffusion) works in practice in participants’ professional contexts and region.
- Reflect participants’ experiences and views on ‘big ticket’ issues that affect healthcare innovation and its impact on patients and on the productivity and quality of NHS care. These included issues related to:
  - Different aspects of healthcare pathways (primary, acute, community healthcare)
  - Different types of innovation (drugs, devices and technology, service innovation).
- Share participants’ perspectives on best practice for supporting innovation activity in each region:
  - What works well, where scale-up is needed, what the gaps are.
  - Practical actions individuals and organisations can take to improve the innovation environment.
  - Implications for regional and national policy.
- Refine the questions/issues to examine in our research, based on participants’ experiences and needs for evidence.

Through the workshops, we engaged with 101 individuals from diverse stakeholder groups, including healthcare providers (acute, primary and community care), commissioners, industry representatives,
Table 2 presents the stakeholder groups represented at each of the regional workshops.

### Table 2. Stakeholder breakdown of regional workshop attendees

<table>
<thead>
<tr>
<th>Region</th>
<th>Eastern</th>
<th>GM/NWC</th>
<th>South West</th>
<th>UCLP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop</td>
<td>Eastern</td>
<td>GM</td>
<td>NWC</td>
<td>Plymouth</td>
<td>Taunton</td>
</tr>
<tr>
<td>CCGs</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Charity and patient advocacy</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>HEIs</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>NHS Trusts and primary care</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Private sector</td>
<td>1</td>
<td>4</td>
<td></td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Networks and innovation institutions</td>
<td>10</td>
<td>4</td>
<td>14</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Other(^b)</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>12</strong></td>
<td><strong>26</strong></td>
<td><strong>17</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

**NOTE:**

\(^a\) Examples in this category include stakeholders from institutions like AHSNs, Vanguards, Test Beds and other networked regional initiatives.

\(^b\) Examples in this category include stakeholders from local organisations (e.g. local councils) and NHS Innovation Accelerator (NIA) fellows.

### 2.2.2. Key informant interviews

The workshops set the foundation for understanding regional dynamics and for further exploring through key informant interviews how best to support innovation across the healthcare system. To date, we have conducted 30 interviews in each regional health economy (120 interviews in total). Each interviewee provided informed consent prior to the interview.\(^{40}\) The semi-structured interviews were conducted over the telephone, with the majority lasting between 40 and 70 minutes. The interviews explored: the incentives and accountabilities in place for innovation; skills, capacities and relationships; information and

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\(^{40}\) Before beginning the interview, interviewees either completed a consent form or were asked verbally if they consented to their interview being recorded for the purpose of analysis. Prior to giving consent, interviewees were informed that their comments would be kept confidential through anonymisation. Interviewees were provided with information on the purpose and content of the interview (by email in advance of the interview, and verbally before beginning the interview). The informed consent form is included in Appendix B.
resources for innovation; funding environments; procurement and commissioning; patient voice; and examples of impact from innovation efforts. They aimed to engage with interviewees’ perspectives on the status quo in each of these areas, examples of existing schemes in the system that seek to address challenges related to innovation, and views on needed interventions and potential solutions. The complete interview protocol is included in Appendix C.

The sampling criteria for the interviews were informed by the research team’s learning from the workshops, as well as by consultation with the AHSNs and other local networks where appropriate. We purposively sampled interviewees to ensure that we included all stakeholder groups as well as a range of organisations, roles and geographical locations. Table 3 presents the breakdown of stakeholders interviewed as part of the regional case studies. While several interviewees could be classified into multiple stakeholder groups on the basis of their affiliations, for clarity we have classified them by their current main role.

Table 3. Stakeholder breakdown of regional interviewees

<table>
<thead>
<tr>
<th>Stakeholder Category</th>
<th>Eastern</th>
<th>GM/NWC</th>
<th>South West</th>
<th>UCLP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCGs</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Charity and patient advocacy</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>HEIs</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>NHS Trusts and primary care</td>
<td>7</td>
<td>6</td>
<td>15</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Private sector</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Networks and innovation institutions\a</td>
<td>11</td>
<td>15</td>
<td>5</td>
<td>7</td>
<td>38</td>
</tr>
<tr>
<td>Other\b</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
<td><strong>30</strong></td>
<td><strong>30</strong></td>
<td><strong>30</strong></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

NOTE:

\a Examples in this category include stakeholders from institutions like AHSNs, Vanguards, Testbeds and other networked regional initiatives.

\b Examples in this category include stakeholders from local organisations (e.g. local councils) and NIA fellows.

Interviews were transcribed and data were analysed thematically using NVivo 10. The research team designed an initial coding framework using deductive and inductive logic, based on themes from the study’s research questions and the interview topic guide. The research team regularly reflected upon and refined the coding framework during the analytical process.
2.3. Caveats and limitations

In this section we present the caveats and limitations of the work we have conducted to date, i.e. the stakeholder workshops and interviews in the selected regional health economies, as well as how the next phase of our study will address these limitations.

First, the deep-dive sites focus on four regions in England, rather than on the UK as a whole, and the emerging findings in this report are informed by interviews with a selection of key stakeholders within the deep-dive sites. This enabled us to facilitate a balance of breadth and depth at this stage of the research. We have made every attempt to ensure a diversity of views and experiences are reflected by including individuals from a range of sectors and professions, in line with qualitative interview methodology. However, we acknowledge that some stakeholders’ views will inevitably have been influenced by their specific professional identities and interests, and that there are other individuals and organisations that could have offered insights of relevance to the study but were not consulted. As outlined earlier in this chapter, we will aim to complement these regional interview insights with additional interviews with key institutional representatives outside the deep-dive regions in 2017. Moreover, we believe that the diversity of individuals and stakeholders we have consulted to date paints a rich and multifaceted picture of the wider health innovation system, and the research benefited from the ability to interview many individuals who simultaneously hold multiple regional and national roles. However, we are aware that participants in this study, although diverse, were not fully representative of all stakeholders delivering (or resisting) innovation. In line with qualitative methods for conducting purposive sampling and interview-based studies in health, a deliberately non-random approach was used, aiming to capture diverse views and experiences but not a strictly numerically and statistically representative sample. We will consider potential gaps as the work progresses, and note (for example) the question of improving engagement with charities, patients and other public- and private-sector stakeholders deserving of further attention.

Secondly, while there are many similarities in the issues faced and emerging findings across the different regions, it is important to recognise that there are important regional differences that may have implications for future efforts to develop the innovation landscape. For instance, regions vary in terms of their focus on different types of innovations and different stages of the innovation pathway. Different regions are also at different stages of capacity development for innovation, and the strength and comprehensiveness of the relationships within regions, with other regions and with national actors, also vary. In the next phase of our research, we will further explore regional differences to understand their implications for the prioritisation of regional activities and for the nature of the links and exchanges between regions.

Finally, it is worth bearing in mind that the emerging findings discussed in this report were derived from work conducted prior to the publication of the final report of the AAR. The emerging findings are relevant and offer important insights on the implications, opportunities and challenges which may influence how this new policy development is interpreted and put in place across the country. We highlight some emerging relations and implications in this report. In the next phase of our research, we

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41 Bowling (2002).
42 Bowling (2002).
will further explore the links between our findings and the final report of the AAR, including practical recommendations (please see 'Study context, aims and approach' in the Summary and Section 4: Discussion and Next Steps for further details).
3. Results

3.1. Emerging findings – section overview

This section presents the emerging findings from our research, organised into subsections corresponding to specific innovation drivers as follows: skills, capabilities and leadership in Section 3.2; incentives and accountabilities in Section 3.3; the information and evidence environment in Section 3.4; engagement with patients and communities in Section 3.5; networks and relationships in Section 3.6; and financial resources, commissioning and the procurement environment in Section 3.7. We reflect on these findings and discuss their implications in Section 4: Discussion and Next Steps.

More specifically, for each subsection:

- We first consider what we have learnt about the current health innovation landscape (i.e. status quo) and also provide examples of existing initiatives and schemes to enable and catalyse a specific innovation driver in practice. The examples of what is happening on the ground are presented in table format for purposes of clear signposting. The examples seek both to bring life to the wider insights and analysis and to help share practical information for those innovation actors who may wish to reach out to new contacts and initiatives to learn more about how they are pursuing their activities, across regions.

- We also consider future needs and systemic interventions as they relate to a particular health innovation driver, and as identified by study participants. In doing so, we aim to both recognise the challenges and illustrate the diversity of efforts to address them that are taking place across the regions we have engaged with thus far.

Each subsection below starts with a summary of the key messages drawn from the analysis (see boxes) and concludes with a series of quotes which illustrate the dynamics of the landscape we describe. Within our findings, we have made every attempt to ensure that a diversity of views and experiences are reflected by including individuals from a range of sectors and professions in the research, in line with qualitative interview methodology. We are at this stage less concerned with evaluating the prevalences of different perspectives than with reflecting the richness and multifacetedness of experiences, but have included footnotes that provide an indication of the frequency with which a particular issue was raised.

In each section, interviewees associated with a particular statement are referenced in footnotes (these are given as numbers without further detail in order to ensure the full anonymity of study participants). Where a finding reflects the views of workshop participants, the workshop region and date is provided in a footnote. Where findings relate to both workshop and interview participants, they are referred to jointly as study participants. Where findings apply to a specific stakeholder group, this is indicated in the text.

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Bowling (2002).
3.2. Skills and capabilities

Box 1. Skills and capabilities: Key messages

1. The health and innovation system has historically placed greater emphasis on building capacity in supply-side skills that enable the development of innovations (e.g. technical, business development, commercial leadership, intellectual property [IP]) than in skills for uptake, spread and scale-up (e.g. leadership of change, implementation skills, real-world evaluation, innovation in economic assessment, evidence interpretation and consumer research literacy). In general, the skills landscape appears to be more mature for drugs than for devices, diagnostics, digital and service innovations.

2. A diverse skill set is needed to engage with innovation across different stages of the pathway. Despite multiple initiatives targeting the skills base for health innovation, the current landscape is fragmented and lacks critical mass and connectedness. Future investments in skills enhancement have a fertile base to build on. It will be important to consider the need and potential for scaling up existing schemes if evaluations show that they are delivering value. Equally, there are skills gaps to be filled with new interventions in key target areas.

3. Current flagship initiatives include national schemes (e.g. the NIA, Clinical Entrepreneur Programme) and a fertile range of smaller-scale regional initiatives (e.g. Innovation Scouts schemes; Innovation Leader training; enterprise hubs, idea labs, hackathons and ‘Dragon’s Den’ competitions to strengthen commercialisation capacities and build networking skills; coaching programmes and institutional capability-building initiatives in AHSNs and Innovation Hubs).

4. Key areas for capacity-building include: skills in needs identification and problem articulation; networking, brokerage and leadership skills; skills to match innovation supply and demand; more sophisticated health economics; enhanced evaluation and data analytics; implementation and change management; as well as skills in support of making a more compelling business case for innovation uptake. A greater understanding of innovation evidence and legal and IP issues by provider organisations was also highlighted as important by study participants. Capacity-building efforts for innovation skills and capabilities would benefit from increased cross-sector (including outside health) and interdisciplinary learning, exchange and collaboration.

3.2.1. Status quo and existing schemes to develop the skills and capabilities needed for innovation

A diversity of skills is needed for innovation across the pathway, and while the current skills base is responsive to needs, it requires greater connectedness for critical mass.

Evidence from our interviews and workshops highlights that a diverse skill set is needed to effectively engage with innovation. At national levels and within the regions that we engaged with in the research, there seems to have historically been more focus on the supply side – on skills and capabilities for the development of innovations (for example, technical, business development and IP-related skills) – than on skills to facilitate uptake, spread and scale-up, as highlighted by 15 interviewees as well as some workshop participants.44

On the innovation supply side of the skills pool, many interviewees highlighted a need for enhanced focus on skills related to IP, licensing, legal literacy and commercialisation in NHS Trusts, primary care and CCGs.45 These include skills for partnering with the private sector and for managing contracts.46

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45 4, 29, 33, 35, 36, 37, 56, 73. Note: This broadly applied across all the regions we engaged with, with some diversity within regions.
46 11, 113.
university hospitals were seen to have strong innovation skills, including with respect to translational research, but moving these along the pathway towards adoption to provide solutions for NHS staff and patients was perceived to be a slow and challenging process.\(^{47}\)

In the context of generating demand for and uptake of innovations, more sophisticated health economics skills were identified as a key gap by interviewees.\(^ {48}\) These were seen to be particularly important to enable a more compelling and convincing business case to be made for innovations, considering also issues such as costs of implementation and decommissioning needs.\(^ {49}\) Applying commercial acumen and lessons from the private sector was seen as important for strengthening capacity in this space.\(^ {50}\)

Building capability in evaluation and data analytics was seen as a priority for similar reasons.\(^ {51}\) Closely related was a need for investment in ‘evidence literacy’ among current and future consumers of health innovations.\(^ {52}\) This includes investment in capabilities to evaluate innovations in the real world and to analyse large amounts of fragmented and multilevel data, benchmarking skills and more living lab or pilot opportunities\(^ {53}\) to test innovations and provide evidence for further uptake, spread and scale-up. Some interviewees also highlighted a need for greater transparency and information-sharing around the innovation process and outcomes as essential for expanded diffusion across the system.\(^ {54}\)

Investing in change management, implementation and process improvement skills was considered important for facilitating sustainable adoption strategies within provider organisations and for scale-up, in addition to capabilities to decommission suboptimal practices.\(^ {55}\) Some interviewees highlighted that ‘implementation hit teams’ may be of more value than toolkits to smooth the process of implementation in the NHS.\(^ {56}\) Indeed, one innovator commented that his company had to employ a team embedded in the NHS to help redesign a service so that the company’s new technology could be used effectively.\(^ {57}\) Others emphasised a poor understanding of how change can be achieved within the health system as an impediment to innovation uptake.\(^ {58}\) This was reportedly partially linked to a lack of skills and vision for innovation among middle management, in terms of conducting transformation activities (e.g. workforce redesign)\(^ {59}\) and an inability to give priority to innovation among other demands and requirements (e.g. outcome frameworks, commissioning programmes, procurement).\(^ {60}\) Skills gaps were also reported at the CCG level, where workshop participants in some regions identified a limited staff capacity to engage with

\(^{47}\) 25, 82.


\(^{49}\) Workshops with Greater Manchester and North West Coast (16–17 March 2016) and Eastern (8 June 2016) regions.

\(^{50}\) 57, 71, 78, 84, 96, 103, 104, 106, 107, 116.

\(^{51}\) 31, 58, 102, 104, 113; workshops with Greater Manchester and North West Coast (16–17 March 2016), UCLP/London (19 April 2016) and South West (20–21 April 2016) regions.

\(^{52}\) 14.

\(^{53}\) Workshops across all regions.

\(^{54}\) 3, 4, 5.

\(^{55}\) 9, 16, 30, 44, 61, 65, 49, 51, 118, 70, 120, 99, 120, 7, 110; workshops with Greater Manchester and North West Coast (16–17 March 2016), Eastern (8 June 2016) and South West (20–21 April 2016) regions.

\(^{56}\) Workshop with in the North West Coast region (16 March 2016).

\(^{57}\) 19.

\(^{58}\) 8, 15, 28, 43, 113.

\(^{59}\) 110.

\(^{60}\) 33.
innovation and to fully understand the evidence, proposals and business cases upon which they make their decisions.61

The softer side of capacity-building is equally important in the skills landscape: networking, communication and leadership

Across the innovation pathway and across regions, interviewees recognised the importance of nurturing ‘softer skills’ such as interpersonal communication and networking,62 which were seen as essential for securing buy-in, mobilising engagement and conveying the business case for innovation uptake to diverse stakeholders.63 Successful innovation was seen as a combination of great ideas and skills, supportive teams and networks,64 and strong coaching and mentorship.65 Several dimensions of leadership were highlighted as central to facilitating innovation cultures and activities in healthcare organisations.66 Interviewees emphasised the importance of visionary and inspirational leaders who recognise and communicate the importance of change and act as role models in that regard67; who are open to insights and learning from other sectors68; who put the health system and patients above personal interests69; and who can establish effective strategies,70 shape organisational culture accordingly and create incentives that give individuals the confidence, time and permission to innovate.71 Many interviewees also highlighted the importance of leaders’ persistence, resilience72 and ability to navigate the interests of multiple professional communities and stakeholders with commercial savvy.73 Finally, interviewees indicated a need to enhance professional skills in project, programme and people management and in negotiating funding application processes.74

In general, the strengths and gaps in the skills landscape vary within and between regions.75 For example, in the Eastern region workshop participants noted that supply-side skills are advanced, reflecting their views on the quality and wealth of research expertise in the region’s universities, teaching hospitals and private-sector organisations.76 In the South West, some interviewees felt that the challenge lay less in the existence of skills, especially on the supply side, than in the ability to scale them up and connect individuals with specific and complementary skills in communities of practice.77 The Innovation Agency

61 36.
62 2, 3, 4, 8, 10, 12, 16, 26, 30, 36, 42, 55, 58, 65, 70, 76, 88, 89, 93, 104, 105.
63 1, 35, 37, 39, 102.
64 Workshop at UCLP/London (19 April 2016).
65 2, 8, 49, 51, 78, 83, 85, 88, 96, 97; workshops across regions.
67 8.
68 25.
69 19, 79, 82.
70 4, 9, 48.
71 2, 3, 16, 77, 82.
72 42, 105.
73 82, 93.
74 1, 37, 57, 110.
75 5, 17, 33, 35, 110.
in the North West Coast (previously called the NWC AHSN) has trained a cohort of Innovation Scouts who are working to bridge the gap between innovation supply and demand. However, critical mass and connectedness are still key challenges and the risk of Scouts being ‘lone voices’ in their organisations persists. The London stakeholders interviewed, including the UCLP AHSN, were making notable contributions in terms of skills for uptake (including via the NIA programme, which the UCLP AHSN runs nationally) but interventions were still relatively new or small-scale. In general, participants felt that the capacity landscape in the UK was seen to be more mature for medicines than devices, diagnostics, digital and service innovations, given the longer history and maturity of that sector.

Despite this patchy skills pool, there are a range of programmes aiming to address skills gaps across the health innovation pathway. Table 4 provides examples of some of the key national programmes and regional initiatives identified through our research to date, as they relate to supporting skills and capabilities for innovation.

Table 4. Examples of initiatives and programmes to enhance skills and capabilities for innovation

<table>
<thead>
<tr>
<th>Key national programmes</th>
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<tbody>
<tr>
<td>• The NIA supports an annual cohort of fellows to find a route to market for healthcare innovations assessed to have potential for high impact. Through mentorship, partnerships with the AHSNs and other bodies, peer-to-peer exchange and learning, educational events and bursaries, the NIA seeks to accelerate the NHS’s uptake of mature, evidence-based innovations at scale, and to foster a more innovation-friendly environment. The UCLP AHSN hosts the NIA nationally.</td>
</tr>
<tr>
<td>• The Clinical Entrepreneur Training programme aims to equip health professionals with the skills, expertise and capacities to develop as entrepreneurs and leaders within the NHS. It offers enhanced professional development opportunities and skill development to support the delivery of innovations into the healthcare system and to contribute to economic growth. Fellows are given time out from their clinical responsibilities and are supported by an integrated programme of mentoring and coaching, placements and internships, network facilitation, educational courses and events, and funding. The programme is managed by NHS England and Health Education England.</td>
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<table>
<thead>
<tr>
<th>Examples of regional initiatives</th>
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<tr>
<td>• Innovation leadership in Trusts in Greater Manchester and North West Coast: Innovation Scouts and Champions in Greater Manchester and North West Coast aim to equip individuals with the skills needed to broker relationships and bridge the gap between supply of and demand for innovations (including identifying available innovations and making a compelling case for adoption). While they focus on addressing cultural, structural and information-related barriers to uptake, they are still in need of connectedness for greater regional impact. Study participants also identified a need for more consistent funding and support for Scout activities across Trusts (e.g. some have time bought out, others do not).</td>
</tr>
<tr>
<td>• Training for Innovation Leads in Trusts in the South West: Since 2006, NHS Innovations South</td>
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</tbody>
</table>
West (NISW) had trained approximately 50 individuals (at least one person per Trust) through their Innovation Leaders training programme (subsequent to our period of data collection and analysis for this report, we have learned that NISW has ceased to exist). The aim of the Diploma in Innovation and Change was to enhance understanding of the innovation pathway, IP and making a business case for the NHS. NISW also received funding from NHS England to provide training online, thereby extending the programme reach, including to commissioning groups, and allowing participants to work on real innovation projects happening in their own organisations. The course focused more on supply-side and commercialisation skills than on skills for uptake and implementation, although some activities did consider change management issues.

- Hackathons and 'Dragon’s Den’ forums in the North West Coast, Greater Manchester and the South West offer problem-solving forums for healthcare professionals and innovators to pose questions, exchange views and collectively explore solutions. Hackathons for innovators to pitch ideas are organised by the Innovation Agency and the South West AHSN is currently testing a similar model. The Innovation Agency is also involved in training a pool of hackathon facilitators in order to roll the model out more widely. A ‘Dragon’s Den’ model of pitching innovation ideas is also in use in the UCLP, Greater Manchester, North West Coast and Eastern regions.

- Building commercialisation capacity in the Eastern region via enterprise hubs and idea labs: Health Enterprise East (HEE; an Innovation Hub) is investing in strengthening commercialisation skills in the region. It offers Continuing Professional Development (CPD)-accredited training which covers issues such as needs assessments to identify innovation gaps, as well as consulting services to help innovators with market research and to penetrate the NHS market. The University of Cambridge has set up an ‘ideaSpace’ which offers cheap desk space so that innovators can develop their ideas alongside peers, and with support from angel investors and other stakeholders. The Eastern AHSN is also launching a Primary Care Business Accelerator, which will facilitate access of GP practices to the skills needed to implement innovative concepts in primary care.

- Partnership working to plug knowledge and capability gaps: For example, in Greater Manchester, Trustech (an Innovation Hub) works with the GM AHSN and other bodies to supplement these organisations’ core capabilities. Trustech acts as a go-to source for information; it has worked with Oldham CCG to evaluate a number of innovations; it has developed a ‘league table of innovation’ with heads of procurement in order to foster a culture of procuring successful innovations; and it has created a ‘multi-stage programme of due diligence and evaluation’ to help ensure that evaluation resources are invested in the most promising innovative products. In addition, i-THRIVE is an NIA-funded service innovation in child mental health which has brought together a number of organisations working in partnership to provide ‘an innovation and implementation academy’, which provides training, teaching, coaching and mentoring, as well as a toolkit. Imperial College Health Partners has developed an ‘Intrapreneur Programme’ in partnership with WhatIf! Innovation, which builds the capacity of executives and frontline health professionals to systematically identify existing best practice and implement it effectively within their own NHS Trusts.

- An institutional approach to improving networking and brokerage skills: In London, the UCLP
AHSN brings information and network management skills into the health system: it coordinates information and evidence (accesses, assimilates, disseminates) and captures learning about implementation from its wider network. It also plays a ‘matchmaking’ role and works with the Vanguards, Test Beds, Innovation Hubs (membership model), various Accelerators, pharma companies and small and medium-sized enterprises (SMEs).

- **Establishing integrated and cross-disciplinary leadership capabilities**: Health Innovation Manchester is developing an integrated strategic leadership model which focuses on bringing together leaders with different skill sets and expertise and from different stakeholder groups to raise awareness of innovations and innovation opportunities and encourage timely discussion and planning on adoption pathways. ¹⁰⁰

**Other regional initiatives**

- Coaching on innovative service delivery: The Norfolk and Suffolk Dementia Alliance has developed a dementia care competencies framework and an innovative ‘train the trainer’-style care coach programme to upskill dementia care workers. Through this approach it has trained 500 clinical and care staff to act as coaches. ¹⁰¹
- The Clinical Effectiveness Group, based at Queen Mary, University of London, supports primary care professionals to develop their implementation skills, for example by increasing their information technology (IT) literacy. ¹⁰²
- In the UCLP and related actors’ region of influence, leadership groups of clinical networks bring people together to learn from each other’s experiences and build skills in influencing people, negotiating, and getting business cases signed off, all with the aim of increasing scale-up of promising innovations and practices. ¹⁰³
- The Board of Barts Health NHS Trust uses a pool of industry experts to access expertise and advice for clinicians on innovation issues. ¹⁰⁴

### 3.2.2. Exploring further needs and systemic interventions as they relate to skills and capabilities

Given the challenges, barriers and successes outlined above, our analysis of the insights from the interviews and workshops suggests that future investments in capacity-building need to consider six key areas in order to address the skills and capabilities gaps across the health innovation pathway:

- **First**, there is a need for more evidenced-based prioritisation and for related skills development in methods for identification of healthcare innovation challenges where there are gaps in solutions, needs assessment and problem articulation. In one region, interviewees highlighted that needs identification is at present particularly challenging in the digital innovation space. ¹⁰⁵
- **Second**, capacities to understand and match supply and demand need to be strengthened, and this calls for investments in existing regional institutions such as AHSNs and Innovation Hubs. ¹⁰⁶

Particularly relevant skills in this regard are information management, coordination and brokerage skills and IP and legal literacy. ¹⁰⁷

¹⁰⁰ 48.
¹⁰¹ 68.
¹⁰² 114.
¹⁰³ 34.
¹⁰⁴ 63.
¹⁰⁵ 11, 19, 52; workshop with Greater Manchester region (17 March 2017).
¹⁰⁶ Workshop with UCLP/London (19 April 2016).
¹⁰⁷ 33, 45, 110, 111.
• Third, improved access to skills in **health economics** is needed to enable the use of more sophisticated economic modelling of the whole-system costs and benefits of innovations in the real world.

• Fourth, skills in **evaluation and data analytics** need further investment, including capacities to assess value and costs across the health system and over time.

• Fifth, scaling up **leadership training** and developing a critical mass of innovation leaders connected through communities of practice are also key priorities, according to stakeholders in interviews and workshops.  

• Finally, **embedding innovation thinking into education** curriculums (clinical and managerial) and CPD programmes was seen as important for enabling gradual capacity-building and cultural change in order to embed innovation at the core of NHS activity across the regions.

It is apparent from the diversity of capacity-building initiatives geared specifically at the skills space that there is fertile ground for further development. Existing activities offer opportunities for scale-up and transferable learning between programmes and national and regional levels. At the same time, the potential for integrating activities across programmes, to engage a wider pool of participants, could be explored. New skills domains and activities within existing schemes may in particular be needed in areas such as innovative health economics, implementation and change management, needs assessment and prioritisation skills. At the national and regional levels, our insights suggest a need for investing in skills that can support innovation across the pathway – from problem identification through to development, regulation, uptake and spread.

In some settings, the challenge of a culture of inertia also needs to be overcome. With this in mind, structural responses will need to include complementary behavioural interventions, while taking account of the unique needs of different health innovation spaces (e.g. drugs, devices, diagnostics, digital, service model). Establishing the skill set needed to nudge cultural change forward and to comprehensively embed innovation in the NHS requires an openness to ideas, inspirations and skills from both within and outside the health sector. Engaging with the private and voluntary sectors to establish cross-sector and cross-professional exchanges was suggested by some interviewees, especially in relation to building new NHS capacity in market research and public sentiment analysis, business case and commercialisation skills.

Voluntary organisations and social enterprises and the telecoms and consumer sectors were all seen to offer potentially transferable skills and learning. See Figure 5 overleaf for a selection of interviewee quotes which illustrates some of the views on skills and capabilities presented in this section.

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109 12, 24, 33, 37, 39, 110; workshops across regions.
110 117.
111 78, 84, 96, 103, 104, 106, 107, 116.
112 6, 20, 33, 117; workshops with Greater Manchester and North West Coast (16–17 March 2016) and South West (20–21 April 2016).
**Figure 5. Interview quotes relating to the skills and capabilities needed for innovation**

<table>
<thead>
<tr>
<th>On skills and capabilities for innovation in the health system</th>
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<tr>
<td><strong>On identifying potential innovations</strong></td>
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<td><strong>On visionary leadership</strong></td>
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<td><strong>On distributed leadership</strong></td>
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<td><strong>On leadership in the presence of targets</strong></td>
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<tr>
<td><strong>On the power of networking and communication skills</strong></td>
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<tr>
<td><strong>On implementation support and skills</strong></td>
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<td><strong>On skills transfer and learning between sectors</strong></td>
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<td><strong>On changing attitudes to innovation</strong></td>
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<td><strong>On the need for cultural change from early in the career pathway</strong></td>
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3.3. Motivations and accountabilities

Box 2. Motivations and accountabilities: Key messages

1. Key motivations for individuals to innovate in the health system span a desire to improve the quality of care and do what is best for patients, financial incentives and professional development, and reward and recognition. At an organisational level, motivations also primarily relate to patient benefit and quality-of-care concerns, as well as to drivers for productivity and efficiency gains. The strength of incentives varies substantially between organisations within a region, related to factors such as mission, history, leadership, performance metrics and professional identities.

2. Diverse incentives to innovate can be in tension with each other, as innovations that improve quality do not necessarily reduce costs. With this in mind, there is a need for a portfolio approach to innovation within the health system, focused on the overall system-level outcomes and costs.

3. Supporting the uptake, diffusion and scale-up of proven quality-enhancing and cost-effective innovations requires a range of perverse incentives in the system to be addressed. These include unintended disincentives related to: (i) the investor not always being the beneficiary; (ii) competition between Trusts; (iii) the ‘not invented here’ syndrome; (iv) organisational inertia; (v) concerns over workforce implications; and (vi) fears of reputational risks and litigation.

4. Despite challenges, various schemes in the health system are incentivising innovation activity in provider organisations and in the system more widely. These include formal innovation roles and functions in Trusts; institutions and networks with an innovation remit; programmes providing training and networks and creating time and headspace for health professionals to engage with innovation; innovation funding schemes; recognition and reward schemes in Trusts; and some information and evidence initiatives. Despite the variety of approaches, there is a lack of scale and consistency in these incentive mechanisms and initiatives within and across regions, and at the national level. Overall, the motivations and incentives are in need of strengthening to achieve a critical mass of activity, release resources, raise the priority of innovation and nudge organisational cultures in the NHS.

5. Future system-level interventions to enhance incentives and accountabilities to innovate in the system need to address seven key areas, and various potential approaches to explore further were suggested by participants in this research. These are at this stage only ideas rather than solutions but include:
   - Scaling up permission to innovate across the system and build communities of practice (e.g. scale-up of national programmes which buy out the time of health professionals to engage with innovation, ideas-exchange forums and small funding pots within provider organisations).
   - Addressing risk cultures in the NHS (Board-level innovation responsibilities, embedding innovation into job descriptions and appraisal mechanisms).
   - Leadership for innovation: Visible and stable leadership for innovation was seen to require a combination of a top-down ‘mandate’ and a bottom-up/grassroots approach.
   - Additional incentives for uptake specifically, including for ‘borrowing with pride’ (common in other industries but not in the NHS). These could include key performance indicators linking innovation to accountability regimes, rewards for uptake of proven cost-effective innovations, enablers for decommissioning, or enhanced management of adherence to NICE guidelines.
   - Additional incentives for being entrepreneurial, for example greater clarity in NHS IP policies and benefit-sharing arrangements.
   - Funding incentives to: (i) address the upfront costs of innovation given short-term budgeting cycles in the NHS (including funding for uptake and longer-term funding schemes); (ii) enable upfront costs to be recouped by provider organisations through innovative payment arrangements and innovative commissioning (e.g. outcome-based commissioning, milestone-based schemes, recouping savings to channel back into other innovations, incorporating innovation in the tariff system); (iii) considering system-level benefit-sharing and joint investment decisions (potential may exist for example in Sustainability and Transformation Plans [STPs] and accountable care models).
3.3.1. Status quo and existing schemes to support motivations and accountabilities

The strength of motivations to innovate varies within regions and across organisations, and a range of conflicting and perverse incentives need to be addressed

Motivations to be innovative span a desire to do good for patients, financial drivers (e.g., connected to IP, royalties, bonuses, organisational and system-level efficiency and cost-effectiveness gains) and personal incentives (such as job satisfaction and professional recognition through awards and promotion). These incentives can be in tension with each other for both individuals and organisations, as innovations that improve quality of care do not always reduce costs.

In general, motivations to innovate are in need of strengthening in order to achieve a critical mass of activity, release resources and raise the priority of innovation within the health system, and nudge organisational cultures in the NHS. Some study participants noted differences in the strength of motivations to innovate within a region and between different localities and organisations. Our interviews also suggest that the incentives are affected by the nature of the innovation. For example, study participants highlighted that revenue-sharing is less likely to apply to service than product innovations and that the incentive pathway is more mature for drugs than for devices and medical technologies.

Across stakeholders, there was a relatively widespread view that innovation uptake in the NHS is more frequently a response to failure (e.g., a poor Care Quality Commission [CQC] rating) than driven by the pursuit of excellence. However, this was also said to vary across Trusts and to depend on issues such as leadership, resources, services delivered and culture.

General financial constraints facing the health system were sometimes seen as a driver to devise more cost-effective solutions to service challenges and efficiency savings, and there was a general perception that innovations which reduce costs are particularly attractive to the NHS at present. However, and as highlighted by one interviewee, it is important not to focus solely on the cost or benefits of individual

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114 7, 10, 13, 22, 23, 30, 35, 42, 48, 63, 69, 72, 73, 77, 108.
116 42.
117 Workshops across regions.
118 51, 64, 76, 78, 90, 100, 103, 104, 107, 115, 118, 120; workshops across regions.
119 Workshops with Eastern (8 June 2016) and South West (20–21 April 2016) regions.
120 Workshops across regions.
121 Workshops across regions.
122 Workshops across regions.
123 9, 13, 16, 36, 44, 47, 50, 59, 67, 74, 78, 102, 107, 110, 115, 120.
124 38, 77, 105; workshops across regions.
innovations, but rather to consider a portfolio of innovations within which a diversity of innovations offer different cost features.\textsuperscript{125}

In both workshops and interviews, stakeholders identified a number of perverse incentives to innovation diffusion and scale-up which need to be tackled. These arise due to: (i) the investor not always being the beneficiary, and the associated disincentives presented by the tariff system\textsuperscript{126} (one example given was of a mental health app keeping people out of hospital and therefore reducing a Trust’s income); (ii) competition between Trusts\textsuperscript{27}; (iii) the ‘not invented here’ syndrome\textsuperscript{128}; (iv) organisational inertia\textsuperscript{129}; (vi) concerns over effects on staff cuts if innovation replaces human roles\textsuperscript{130}; and (v) fears of bad publicity or litigation and associated risk avoidance.\textsuperscript{131} There is also an upfront cost to innovation, which can double running costs unless inferior practices or products are speedily decommissioned; the challenges of doing so can create disincentives for engaging in innovation and taking up new solutions.\textsuperscript{132} For example, there may be difficulties in reconciling upfront innovation uptake costs with NHS budgets and budgeting cycles.

\textit{Despite the challenges, we are witnessing growing attention to incentives for innovation and this has been accompanied by diverse schemes and initiatives which seek to create motivating and enabling conditions}

There are diverse formal innovation roles in the healthcare system that help promote motivations to innovate. These are sometimes distinct and sometimes part of improvement roles (e.g. Innovation Leads, Innovation Scouts, Directors of Improvement, Directors of Patient Experience, Innovation Panels).\textsuperscript{133} These functions were seen to have an enabling effect when accompanied by organisation-wide buy-in and not seen as a tick-box exercise to please regulators.\textsuperscript{134} Some concerns were raised about the limited authority associated with roles like Innovation Leads.\textsuperscript{135} More generally, our discussions suggest that there is more responsibility than accountability for innovation in the health system at present,\textsuperscript{136} although institutions with a formal innovation remit are held accountable to their Boards.\textsuperscript{137} In addition to formal innovation roles, evidence from our interviews and workshops identified a range of critical enablers which need system-wide support to scale up innovation in the NHS. At an organisational level, funding for innovation is also a critical enabler.\textsuperscript{138} Permission to innovate – in the form of bought-out time for

\begin{footnotesize}
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\item \textsuperscript{125} 4.
\item \textsuperscript{126} 2, 3, 15, 27, 30, 42, 44, 46, 58, 60, 61, 69, 77, 79, 87, 91, 92, 96, 98, 109.
\item \textsuperscript{127} 1, 4, 9, 12, 14, 20, 25, 30, 67, 119.
\item \textsuperscript{128} 5, 30, 49, 67, 71, 72, 108.
\item \textsuperscript{129} 30, 31, 38, 42, 87, 105.
\item \textsuperscript{130} 39; workshop with one region (anonymity required).
\item \textsuperscript{131} 6, 7, 20, 44, 74, 76, 85, 93, 105.
\item \textsuperscript{132} 11, 19, 28, 51, 55, 71, 76, 78, 91, 92, 103, 104.
\item \textsuperscript{133} 3, 10, 42, 44; workshop with UCLP/London (19 April 2016).
\item \textsuperscript{134} 31.
\item \textsuperscript{135} 15, 19, 20, 22, 37, 56, 73, 109.
\item \textsuperscript{136} 11, 15, 25, 34, 37, 39, 43, 109, 113; workshops across regions.
\item \textsuperscript{137} For example 9, 10, 12, 30, 31, 40, 42, 44, 46, 58, 61, 77.
\item \textsuperscript{138} 27, 100; workshops across regions.
\end{itemize}
\end{footnotesize}
clinicians to engage with innovation, as well as leadership and management support and expertise\textsuperscript{139} – was perceived as particularly important but is very limited at present (the NIA and Clinical Entrepreneur programmes were identified as key exceptions).\textsuperscript{140}

Despite the challenges highlighted above, there are currently a range of schemes and initiatives trying to nudge incentives and accountabilities for innovation, promote a culture of innovation in the health system and support the scale-up of innovation activity. Some examples of these highlighted by participants in our study are provided in Table 5 below.

Table 5. Examples of schemes and initiatives to support motivations and accountabilities to engage with innovation in the health system

- Trust schemes and programmes which buy out health professionals’ time and headspace to engage with innovation. At a national level, the NIA and Clinical Entrepreneur Training programmes give fellows time out from their clinical responsibilities. This protected time, in combination with the permission given to programme fellows to innovate and their sense of collective identity as innovators, was seen as a particularly important motivator.\textsuperscript{141}

- Formal innovation roles in (some) Trusts or innovation remits embedded within improvement roles, with responsibility for facilitating high-value innovation-related activities (e.g. Innovation Leads, Scouts or Champions, Directors of Improvement, Directors of Patient Experience, Innovation Panels). These roles were seen as important when accompanied by stable and influential leadership. However, concerns around the need to ensure accountability for innovation persists at organisational levels, even with the presence of roles such as those outlined above. Although rare, embedding innovation responsibilities in consultant job descriptions and appraisals was seen as a potential incentive,\textsuperscript{142} as long as this is not managed as a tick-box exercise or top-down mandate.\textsuperscript{143}

- Recognition and reward schemes for innovation activities in Trusts which facilitate professional development and enhance reputations (e.g. the Bright Ideas Scheme and Innovations Database competitions in the South West).\textsuperscript{144}

- Funding for innovation, including mini-competitions for seed funding in Trusts to incentivise a culture of innovation and the incubation of ideas (e.g. Dragon’s Den-style competitions in London, Greater Manchester, the North West Coast and the Eastern region).\textsuperscript{145} National funding programmes provide an important impetus (e.g. the SBRI, Invention for Innovation [i4i], Accelerators, Catalysts, Catapults).

- Financial incentives for organisations (e.g. royalties from innovation, system-level efficiency and cost-effectiveness gains, and outcome-based commissioning models – such as in Somerset and Torbay – that may help recoup upfront organisational investments in innovation\textsuperscript{146}). Study participants also mentioned monetary incentives via the Commissioning for Quality and Innovation (CQUINs) or the Quality and Outcomes frameworks as potential financial incentives for innovation at organisational levels.\textsuperscript{147}

- Financial incentives for individuals (e.g. royalties and licensing arrangements stemming from innovation).

\textsuperscript{139} 3, 9, 26, 29, 44, 69, 95, 108.
\textsuperscript{140} 2, 5, 12, 16, 25, 26, 27, 29, 51, 62, 78, 83, 84, 87, 90, 96, 107, 118.
\textsuperscript{141} 27; workshops across regions.
\textsuperscript{142} 3, 4, 7, 9, 36, 48, 69, 87.
\textsuperscript{143} 4.
\textsuperscript{144} 7, 73.
\textsuperscript{145} For example, in the Eastern region, as the result of a Dragon’s Den-style competition, a Trust implemented a very small idea which had no funding constraints or health and safety risks, namely to change the colour of the bags that were ordered to dispose of patients’ incontinence pads on a ward. This had a very positive effect on patient dignity [107]. Another interview pointed out that because the development costs and barriers for digital innovations are so much lower than, for example, those for new drugs or diagnostics, encouraging development in areas such as apps may prove particularly fruitful for embedding cultural change [96].
\textsuperscript{146} 57; workshop with South West region (20–21 April 2016).
\textsuperscript{147} 28, 34, 37, 43, 72, 113.
Data may also be used to identify opportunities for innovation. For example, in the South West, as part of the Somerset primary and acute care systems (PACS) Vanguard, the Clinical Support Unit collaborated with York University to provide user-friendly datasets on the whole of health and social care across Somerset. These showed resource use across the community and gave a comprehensive picture of likely challenges, population-based need and appropriate service design innovations.\textsuperscript{148}

Training for better risk management around innovation. One NIA-supported programme, i-THRIVE, runs training programmes on risk at two levels within organisations. The first supports individual clinicians to think differently about how they can be comfortable with risk, and the other supports the organisation to think about how they can work collaboratively and support individual clinicians to be able to manage risks associated with innovation.\textsuperscript{149}

Networked initiatives with a specific innovation remit (e.g. AHSNs, Innovation Hubs) and joined-up governance structures are considered to help strengthen accountabilities for innovation in the health system.\textsuperscript{150} Although still at an early stage, examples of such approaches may include those taken by Health Innovation Manchester\textsuperscript{151} and the Care City Test Bed in London,\textsuperscript{152} and in evolving roles for the AHSNs and STPs.

Metrics-based incentives: In order to track accountability, Manchester: Improving Medicine with Innovation and Technology (MIMIT) is working together with the Local Enterprise Partnership (LEP) to design the key collective metrics for driving health innovation and economic growth across the region.\textsuperscript{153}

Sharing successes and providing evidence of outcomes and impact to enable wider-scale innovation diffusion. For example, in the South West, Innovation Leads described a number of channels already established to share successes regionally and within organisations. These included the AHSN’s improvement database, newsletters and Innovation Breakfasts in Trusts.\textsuperscript{154} In the Eastern region, a Trust shared learning between two Trusts allowed improved efficiency in the implementation of an electronic medical records system.\textsuperscript{155}

3.3.2. Exploring further needs and systemic interventions as they relate to motivations and accountabilities

In terms of addressing further needs and potential future solutions, interviewees and workshop participants identified a diverse range of interventions, which broadly fall into seven overarching categories (as identified below). There was recognition among study participants that incentives need to consider all actors involved, in order to allow for the progression of innovations across the pathway.\textsuperscript{156} Key areas to consider in terms of potential future action include:

1. Greater consistency and establishing wider permission to innovate across the system.
   This was seen as crucial, given the barriers that a lack of time and headspace present. Some ways of achieving this, as identified by study participants – which would, however, require further research – include: the scale-up of programmes which buy out the time of health professionals to engage with innovation; away-days and ideas-exchange forums; and small

\begin{itemize}
  \item Workshops across regions.
  \item Workshops across regions.
  \item Workshops across regions.
  \item Workshops across regions.
\end{itemize}
funding pots within provider organisations.\textsuperscript{157} Related to this is a need for greater focus on creating an ‘identity’ and a community for innovative clinicians, which would help them to gain traction within broader provider communities.\textsuperscript{158}

2. **Addressing risk cultures in the NHS:** Across the regions we engaged with, it was recognised that new incentives and accountabilities at both individual and organisational levels would be needed to move from a culture of risk avoidance to responsible and accountable risk management\textsuperscript{159} (and to respond to the risks that not innovating would present to the future of NHS quality of care and productivity).\textsuperscript{160} One suggestion made was for standards to enable the better management of risk\textsuperscript{161} and enhanced communication about risk within organisations.\textsuperscript{162} Another interviewee proposed that Board members from other sectors/industries hold potential to nudge risk cultures in the NHS.\textsuperscript{163} Establishing Innovation Lead roles on Trust Boards was also proposed as a way to create a more favourable environment regarding risk management.\textsuperscript{164} Various interviewees felt that embedding formal roles for innovation into health professional job descriptions could also help with cultural change, if there was genuine buy-in for these activities at senior levels.\textsuperscript{165}

3. **Leadership for innovation:** Visible and stable leadership for innovation was seen to require a combination of a top-down ‘mandate’ and a bottom up/grassroots approach.\textsuperscript{166} Innovation requires distributed and coordinated leadership within and across different levels in organisations and in the system. Interviewees emphasised the importance of building a culture and momentum around innovation within organisations by demonstrating senior-level buy-in and through active leadership, encouragement, facilitation, implementation and communication about innovation issues.\textsuperscript{167}

4. **Additional incentives for uptake specifically, including for ‘borrowing with pride’** (common in other industries but not in NHS) were seen as crucial.\textsuperscript{168} Some interviewees and workshop participants saw potential for addressing this through key performance indicators linking innovation to accountability regimes\textsuperscript{169} and improved metrics systems more generally,\textsuperscript{170} and through rewards for the take-up of proven cost-effective innovations developed elsewhere.\textsuperscript{171} Uptake would also rely on enhanced incentives for decommissioning:

\textsuperscript{157} 1, 25, 27, 28, 35, 43, 51, 55, 60, 62, 65, 67, 81, 90, 92, 95, 96, 104, 113, 118.  
\textsuperscript{158} 97; workshop with Eastern region (9 June 2016).  
\textsuperscript{159} 6, 7, 20, 51, 59, 65, 74, 76, 93, 111, 120; workshops across regions.  
\textsuperscript{160} 20.  
\textsuperscript{161} Workshop with UCLP/London (19 April 2016).  
\textsuperscript{162} 8, 9; workshop with UCLP/London (19 April 2016).  
\textsuperscript{163} 22.  
\textsuperscript{164} 11.  
\textsuperscript{165} 7, 11, 36, 68, 70, 109, 113, 118.  
\textsuperscript{166} 70, 85, 100, 103, 107; workshops across regions.  
\textsuperscript{167} 14, 17, 56, 62, 71, 72, 85, 93, 96, 104, 107.  
\textsuperscript{168} Workshops across regions.  
\textsuperscript{169} 37; workshops with the South West region (20–21 April 2016).  
\textsuperscript{170} 15, 89.  
\textsuperscript{171} 30.
better monitoring and management of adherence to NICE guidelines was suggested by some interviewees as a potential enabler of this.\textsuperscript{172}

5. \textbf{Additional incentives for being entrepreneurial were also seen as important.} In particular, individuals referred to a need for greater clarity in NHS IP policies\textsuperscript{173} and benefit-sharing arrangements with innovators,\textsuperscript{174} and for non-disclosure agreements (NDAs) between collaborators.\textsuperscript{175} Workshop participants highlighted the importance of role models and effective messaging to ensure that financial benefit is not seen as incompatible with a desire to do good.\textsuperscript{176}

6. \textbf{Needs related to funding incentives centred on three key areas:} (i) \textit{addressing the upfront costs of innovation given short-term NHS budgeting cycles} (e.g. funding for uptake and longer-term funding schemes)\textsuperscript{177}; (ii) \textit{considering ways by which upfront costs can be recouped by provider organisations through innovative payment arrangements and commissioning} (e.g. outcome-based commissioning and milestone-based schemes,\textsuperscript{178} recouping savings to channel to other innovations,\textsuperscript{179} and incorporating innovation into the tariff system\textsuperscript{180} – which echoes the announcement of the Innovation and Technology tariff by Simon Stevens in June 2016); and (iii) \textit{considering system-level benefit-sharing and joint investment decisions.}\textsuperscript{181} Some individuals also saw opportunity in the STPs, and accountable care models more widely, to encourage innovation by introducing system-level rewards and accountabilities.\textsuperscript{182}

7. \textbf{Improved information and evidence environments} (discussed in more detail in Section 3.4). Many interviewees emphasised the importance of sharing innovation outcomes and success stories in order to raise awareness of ongoing activity and of the potential that innovative ideas can offer.\textsuperscript{183} This was considered a priority by study participants, who saw it as a key channel for strengthening engagement on innovation and for publicising available pathways, as well as gaining Board-level support. Additionally, interviewees described the value of joined-up, whole-care system data and analysis for improved decision making by commissioners and clinicians, especially as this relates to developing an accurate business case for new innovations, risk mitigation and service planning.\textsuperscript{184}

\begin{flushright}
\footnotesize{\textsuperscript{172} 62, 105.\\
\textsuperscript{173} Workshop with Eastern region (8 June 2016).\\
\textsuperscript{174} 7, 13, 22, 23, 35, 72, 73; workshops across regions.\\
\textsuperscript{175} 7, 47.\\
\textsuperscript{176} Workshop with Eastern region (8 June 2016).\\
\textsuperscript{177} 27, 76, 118; workshops across regions.\\
\textsuperscript{178} 27, 65; workshop with South West region (20–21 April 2016).\\
\textsuperscript{179} 21, 43, 55.\\
\textsuperscript{180} 46, 61, 108.\\
\textsuperscript{181} Workshops across regions.\\
\textsuperscript{182} 8, 11, 57, 103; workshop with UCLP/London (19 April 2016).\\
\textsuperscript{183} 7, 13, 23, 35, 37, 38, 56, 58, 69, 72; workshops across regions.\\
\textsuperscript{184} 36, 102.}
\end{flushright}
Some of these stakeholder views on strengthening motivations and accountabilities for innovation in the health system are presented overleaf in Figure 6.
Figure 6. Interview quotes relating to the motivations and accountabilities for innovation

<table>
<thead>
<tr>
<th>On motivations and accountabilities</th>
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<tbody>
<tr>
<td><strong>On organisational roles</strong></td>
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<tr>
<td>‘Successful organisations prioritise innovation: good leadership, good boards who encourage time for innovation, and [who] also go out and find out about stuff and bring it back’ – CCG representative (UCLP and related actors)</td>
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<tr>
<td><strong>On permission and valuing innovation</strong></td>
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<tr>
<td>‘I would say the most important motivator is just the basic recognition by your employer organisation that the innovation has value and…contributes to the development of the organisation. I think that is very motivating and powerful’ – NHS Trust representative (Eastern region)</td>
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<tr>
<td><strong>On the role of individual champions and communities of practice</strong></td>
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<tr>
<td>‘If people are working in a system where people all around them are innovating and, you know, doing stuff and starting up companies, then they follow’ – Higher education representative (UCLP and related actors)</td>
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<tr>
<td><strong>On the importance of engaging frontline staff to nurture a culture of innovation</strong></td>
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<tr>
<td>‘…the best thing it did really was put the message out there in the Trust that it doesn’t matter what level you are, if you’ve got a really good idea the Trust will get behind it’ – NHS Trust representative (Eastern region)</td>
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<tr>
<td><strong>On a portfolio approach to motivations and incentives</strong></td>
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<tr>
<td>‘I think it’s not a great idea to go down the route of using innovation to produce a 20 per cent cost improvement saving, because it’s the wrong way round… I see it as a portfolio of innovations, so some innovations will be cost neutral, some innovations will cost you very little, but give you a bit back, and some innovations will cost a lot, but give you a lot back, so it’s around having a portfolio and it’s managing that portfolio’ – NHS Trust representative (North West Coast and Greater Manchester)</td>
</tr>
<tr>
<td><strong>On the need to carefully consider the local economic and wider health system agendas</strong></td>
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<tr>
<td>‘The metrics need to help the AHSNs to work with innovations that are out of their own area… There’s a slight conflict…a potential conflict between what you might call the…local economic growth agenda and the… “what’s the best innovation for the healthcare system” agenda’ – Innovation network representative (North West Coast and Greater Manchester)</td>
</tr>
<tr>
<td><strong>On believing that innovation is possible in the health system</strong></td>
</tr>
<tr>
<td>‘The single most important incentive is the belief that you can get somewhere’ – Vanguard representative (UCLP and related actors)</td>
</tr>
<tr>
<td><strong>On financial incentives</strong></td>
</tr>
<tr>
<td>‘People appreciate that, even if healthcare benefit is very high on their [priority] list, when we’re trying to get other people to come forward with ideas, being able to show that everybody is happy for the innovators to get, not only a share, but a very generous share, is important…’ – Innovation institution representative (South West)</td>
</tr>
<tr>
<td><strong>On success stories as a key incentive</strong></td>
</tr>
<tr>
<td>‘What we need more than anything else are success stories, to be able to demonstrate that investment in innovation is more than just talk; it is something which can not only improve healthcare, but can also be revenue generating…’ – Innovation institution representative (South West)</td>
</tr>
</tbody>
</table>
3.4. Information and evidence

Box 3. Information and evidence: Key messages

1. The information and evidence environment is fragmented, with a diversity of views about the appropriateness of the nature and scale of information available. While some health innovation actors feel that there are deficits in the type and amount of information needed to facilitate an innovation-friendly NHS, others perceive an information overload. Managing this apparent paradox will be key to success in ensuring the availability of timely and useful evidence to support innovation, and will rely on capacity-building in the health system to coordinate, interpret, translate and better target relevant information to various stakeholders: providers, commissioners, innovators, policy makers, and patients and the public.

2. Different players in the innovation process identified different information and evidence needs – there is no ‘one size fits all’ reservoir of data that would be equally helpful for all. Information priorities include: (i) evidence on population needs as they pertain to innovation; (ii) signposting for actors involved in the system and greater clarity on their roles in facilitating progress through the innovation pathway; (iii) information about innovation opportunities to raise awareness among frontline staff; (iv) information about means of commercial support; (v) information about opportunities for entry into the NHS; and (vi) baseline and outcomes data for commissioners and providers to inform decision making.

3. The sources of information stakeholders currently consult vary greatly within and across stakeholder groups and include Internet search-engines, NHS Choices and NHS England portals, NICE and CQC, other institutional websites (e.g. AHSNs), conferences and trade shows, information via personal networks and Cochrane reviews as key examples.

4. Despite the diversity of needs, study participants expressed support for a national platform to enable better processing, filtering, targeting and signposting of information. This national capacity would need to be complemented by strong regional networks, interactive regional platforms and information-exchange relationships between regions that can anticipate users’ needs and respond to their priorities.

3.4.1. Status quo and existing schemes to improve information and evidence to support innovation

While there is limited agreement about what types of information are most important for innovation, there is a widespread sense among study participants that information to guide innovators and others through the innovation landscape is patchy and insufficient. While many workshop participants and interviewees pointed to information and evidence gaps, others acknowledged the large amount of information already available, both through formal and informal sources. Indeed, some interviewees described being overwhelmed by the quantity of unstructured information available, pointing to a need for better consolidation and synthesis of dispersed information in an accessible form, possibly using coordinated portals and platforms targeted at the needs of specific stakeholders.
Information to navigate the crowded and complex innovation landscape needs improvement

Several interviewees highlighted the importance of clear innovation pathways, especially in a crowded and fragmented innovation landscape. Key sources of information on innovation named by workshop participants and interviewees included: professional networks, CQC reports, mass media, AHSNs and AHSN websites, NICE, journals, conferences, Google, Twitter, Wikipedia, the NHS England portal, Innovation Scorecards, MedTech briefings, the Cochrane database and peer-reviewed journals.

Individuals innovating in healthcare need access to and improved signposting of a wide variety of information, including about the needs of the population, where to go for support along the innovation pathway, who the key decision makers in a local health economy are, and the processes involved in adopting and scaling up innovations.

Different innovation roles have different information needs

Frontline staff with no formal innovation roles have limited awareness of pathways and opportunities to drive forward innovative ideas. Those who attempt to develop innovations have specific information needs around both prototyping – how to progress from an idea to a product (e.g. how the innovation should be designed, which materials should be used) – and production processes (e.g. which suppliers to approach).

Innovators within the NHS need information support around networks of support, the commercial aspects of innovation, such as the commercial viability of an idea, and the legal aspects of innovation development such as contracts, non-disclosure documents and IP. One innovator stressed the importance of getting critical feedback on ideas, and argued that innovators should carry out market research and seek relevant advice as to whether an idea is worth pursuing from early on in the development process. However, the informant pointed out that because of the complexities associated with IP, innovators can be disincentivised from discussing their ideas with people who could help provide important feedback.

For those adopting and scaling up innovations, interviewees highlighted that it is important to share information on best practice or on innovation outcomes within and beyond the local region, which may already be happening informally within clinicians’ own networks. Interviewees also perceived a lack of
information on how to adopt and scale up different types of innovation. For example, with regard to digital innovation specifically, one interviewee expressed the need for more information on governance and the security of patient data. Workshop participants also echoed the need for further direction on information governance from national levels.

Ease of access to information also depends on the organisation in which individuals work. For example, one interviewee commented that staff in large Trusts or universities are likely to have better access to information and business development than GPs, due to more established support structures. For organisations external to the NHS, such as SMEs, interviewees identified a lack of clarity on the routes into the NHS market and bureaucratic barriers to access. One interviewee from the voluntary, community and social enterprise (VSCE) sector also identified a need for improved data-sharing mechanisms between NHS partners and the voluntary sector and for feedback from the NHS on the utility and impact of VSCE activities.

The importance of promoting and making the case for innovation

Making the case for the adoption of an innovation requires high-quality information, including evidence of effectiveness, an understanding of the business model behind an innovation, and outcomes data (including cost implications and changes in practice). One interviewee noted that while the information and evidence necessary for successful innovation exists, it is not being used effectively, as people do not have the skills to interrogate or present the data in a useful way. Interviewees named a number of issues with health and care data, including that it is not available in real time. Developing the evidence to support adoption can be challenging, particularly without specific funds or time for evaluation, or if external partners with evaluation expertise are needed. Implementers also need information on how innovations are implemented in practice and the skills to be able to interpret that information in their own context. A commonly cited obstacle for innovators was a lack of clarity around the nature and burden of evidence that is required to convince commissioners and other decision makers to adopt a product.
A more strategic approach to communication of innovation-relevant information is needed in regions, between regions and at national level

In addition to the challenge of fragmented information sources, a number of interviewees noted information flows were disjointed and that it was often difficult to get information on innovation to frontline staff. Currently, information on innovations tends to be communicated in an ad hoc fashion through meetings and connections across organisations and networks. Some interviewees felt that the importance of investing time in meetings and conferences, and in building relationships that allow for sharing across localities, was not sufficiently recognised. Barriers to communication also related to the (at times dispersed) geography of each region, as well as to interorganisational competition. However, competition between Trusts – though still strong – was said to be being gradually mitigated by the financial challenges driving the need to cooperate more closely.

One interviewee felt there was a need for communication of information on innovations by high-profile individuals, which would ‘raise people’s expectations and get more engagement and more buy-in from staff.’ However, others expressed concern that the language around innovation and improvement was not necessarily understood and was a barrier to information-sharing, regardless of the source of such information. Moreover, insufficient levels of information-sharing were seen to result in a lack of awareness about activities within individual organisations, within regions and countrywide, and it was suggested those interested in adopting solutions do not have enough of an awareness of good practice or lessons learned. Interviewees reported that tapping into networks and reaching out across organisations could allow information to spread between key regional institutions such as AHSNs and help reduce the likelihood of duplication.

3.4.2. Existing schemes to support access to and exchange of information

Despite clear recognition of the scale of the challenge related to information and evidence for innovation stakeholders, many study participants gave examples of existing schemes and initiatives which were helping in this regard. For example, Table 6 (below) overviews some of the ways in which different AHSNs are supporting the exchange of information and evidence between innovation stakeholders. In addition to the activities of the AHSNs, some further examples of initiatives to improve the information and evidence environment that are taking place within the regions we engaged with are highlighted in
AHSNs

Fifteen AHSNs were established by NHS England in 2013 to spread innovation at pace and scale to catalyse innovation in health and social care across health and care economies with a specific remit to lead regional networks to this end. The examples below highlight their role in information and evidence exchange. Their overarching roles are discussed in Section 3.6: Relationships and networks.

- In the South West, the AHSN has provided support to organisations regarding engagement with industry, legal and IP issues and technical expertise where needed. One interviewee credited the AHSN with building greater visibility in recent years around the innovation capability and network in the region. The regional NDAs initiated by the AHSN were regarded as a valuable tool to encourage the sharing of early-stage innovations between organisations and help them gain access to the most relevant regional experts without worrying about loss of IP. However, there was seen to be a need for more clarity on the current role of the AHSN, with, for example, NISW (a private, not-for profit company limited by guarantee) representing another key innovation body until recently when it ceased trading. The respective aims and complementarities between these two bodies were mentioned as an area for further clarity. NISW offered access to expertise and information on IP and legal issues and disseminated information on funding opportunities through a monthly grant scanner.

- In the Eastern region, the AHSN is looking to establish quarterly meetings which would bring people together to look at data and dashboards and prompt thinking and discussions around activities in the context of the new STPs, and is aiming to facilitate greater coordination across some STPs. It also seeks to explain information and evidence requirements to companies, which can sometimes (especially when new to the NHS) struggle to understand these. This is common to regions across the country.

- The UCLP AHSN was seen to bring information and network management skills in a number of ways: it coordinates information and evidence (accesses, assimilates, disseminates), and also seeks to share information about the implementation of innovations through gradual learning and capturing the learning from its wider network. It also has a ‘matchmaking’ role. The AHSN works with the Vanguards, Test Beds, Innovation Hubs, various Accelerators, pharma and SMEs as key collaborators.

- The Greater Manchester AHSN is both part of a network of AHSNs in the North West and works adjacent to organisations such as AQuA (Advancing Quality Alliance; an NHS health and care quality improvement organisation aiming to support the transformation of safety and quality of healthcare in the North West) and Knowledge Transfer Network (KTN). One interviewee suggested investment at the centre of the AHSN network could resolve some of these issues by formalising how information is shared and strategically ensuring that the AHSNs address all gaps in the health agenda, which would subsequently make signposting easier for external organisations. Datawell is an informatics project led by the AHSN to share patient data across NHS organisations. The project will draw together different types of

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224 AHSN Network (2016).
225 13.
226 72.
227 45.
228 35.
229 23.
230 97.
231 Workshop with Eastern region (8 June 2016).
232 61.
233 16.
information on health and, ultimately, social care (e.g. GPs’ electronic health records, PAC-level information). Innovation exchange platforms have been launched by a number of AHSNs in the area, including the Innovation Agency, the West Midlands AHSN and the Yorkshire and Humber AHSN.234
Table 7. Examples of initiatives happening on the ground and aimed at improving information and evidence for innovation

- Regional innovation and health improvement networks play an important role in facilitating the spread of information on innovation opportunities, evidence of impact and stakeholders to contact for innovation support:
  - In Greater Manchester and North West Coast, KTN produces a monthly national newsletter with information on relevant innovation initiatives and funding sources/competitions (KTN is the networking partner of Innovate UK). \(^{235}\)
  - As mentioned in Table 6, until recently NISW (an Innovation Hub) disseminated information on funding opportunities for innovation through a monthly grant scanner. \(^{236}\)
  - Health Innovation Manchester is developing a strategy for appropriately cascading relevant information to partner organisations.
  - In the North West, AQuA also works to (among other things) help sift and structure information for innovation. \(^{237}\)
  - A former East of England Stroke Forum was mentioned as an example of a high-impact network in the Eastern region, which brought together people from acute and community Trusts, physios and other allied health professionals, along with representatives from pharma, who met at regular intervals to share good practice and explore ideas for how to do things differently. This network eventually became self-funding and was able to pay for experts to come and share their skills and experience, because the relevant stakeholders perceived it as very good value for money. \(^{238}\)
  - Also in the Eastern region, the Local Government Association (LGA) Health Integration Network brings together different stakeholders involved in health and social care (with increasing engagement from housing as part of the preventative care agenda), including from CCGs, to share good and emerging practice around healthcare funding and delivery and to prevent duplication of efforts. \(^{239}\)
  - The three Academic Health Science Centres (AHSCs) in London meet each month to share information and evidence for innovation. \(^{240}\)
  - London Cancer has pathway Boards and expert reference groups for different types of cancer, which each support clinical leadership within the region to define best practice. There are plans to integrate commissioner and primary care representation. \(^{241}\)

- Information-exchange forums (face to face and virtual) for sharing ideas and evidence of impact from innovation, within and between organisations. Examples include:
  - Innovation meetings and roundtables in Trusts (e.g. ‘Innovation Breakfasts’ in the South West were seen to help raise awareness of pathways and opportunities among clinical staff, and knowledge cafes or ‘randomised coffee trials’ in the Eastern region were seen to facilitate the flow of information across staff groups within Trusts). \(^{242}\)
  - Digital platforms, such as the Academy of Fabulous Stuff, at a national level. GrantFinder, a web-based search system for finding small pockets of funding, was also mentioned as a useful source of information on research and development (R&D) funding opportunities, although it is more widely used for research grants. \(^{244}\)
  - At a regional level, some examples of digital platforms include:

\(^{235}\)46, 23623, 23758, 23890, 23985, 24055, 24125, 24245, 243107, 2443.
Creating and Connecting Receptive Places

- LifeSystem, developed by the AHSN in collaboration with a web company, and now used in over 12 AHSNs in England. The software serves as a quality improvement project portal, enabling NHS staff members to plan, manage and record quality improvement projects.245
- An idea management system managed by NISW that captured and shared new models of care around primary care.246
- Jive, an internal social media platform used by partners in the South Somerset Symphony Programme Vanguard to share documents and discuss key issues.247

- **Individuals with formal innovation roles help raise awareness of innovative activity and play an information brokerage role between relevant networks.**248 (e.g. Innovation Scouts and Leads, Directors of Innovation and Improvement, and Innovation Panels in Trusts). The multidisciplinary make-up of innovation panels and support groups was also seen as important to innovators looking for the right kinds of information to bring an innovation forward, such as guidance on IP and licensing.249

- **Formal mechanisms (e.g. legal instruments, commercial advice) to facilitate the sharing of information on innovations, when potential sensitivities may apply.** Study participants found the regional NDAs, set up by the South West AHSN and signed by the leadership of its 18 members, to be very helpful in enabling feedback between Trusts on early-stage innovations and encouraging stronger collaborative relationships between the region’s Innovation Leads and support groups.250 Other Trusts’ acting as ‘critical friends’ for innovators’ ideas was reported to mitigate risk for investors and give a clearer sense of the value of a given innovation. NISW also provided information on IP and legal issues.

### 3.4.3. Exploring further needs and systemic interventions as they relate to information and evidence

**Need for a national but targeted and interactive information platform, complemented by strong regional information-exchange environments**

Several interviewees expressed a desire for a centralised, high-profile, national repository of information on innovation and best practice, as well as potential industry partners.251 There was also recognition that one national portal could never address all information and evidence needs, but that it could help towards achieving a better-coordinated information and evidence environment than currently exists if it were able to provide filtered and accessible information, particularly for clinicians and frontline staff who may not have the time to digest large amounts of detailed data.252 One interviewee suggested that such a repository could also allow NHS staff to find out what was going on in the innovation space around the country, which could aid adoption and scale-up.253

As noted previously, the needs of those who contribute at different stages along the innovation pathway – innovators, front-line staff, commissioners, evaluators – all require different kinds of information,
including about clinical and unmet needs. Some interviewees felt that responding to diverse needs could be facilitated through an interactive website that supports effective searches and meets the needs of distinctive profiles. It was suggested that any effort made to educate or broaden knowledge needs to be highly personalised in order to cater to different stakeholders’ particular information needs. Investment in interoperable IT systems for data-sharing and linkage was also mentioned as a necessary investment by interviewees, within a context that recognises the importance of building public trust in the NHS’s use of data in order to allow such sharing within and outside of the organisation.

However, there was no expectation among study participants that a centralised information portal would be sufficient. It was also suggested that an improved culture of information-exchange and knowledge-sharing was needed within regions. Such a culture might be fostered through the creation of regional networks or forums for greater sharing of information and cross-fertilisation of ideas.

**Better evaluative evidence to support commissioning and scale-up**

Across interviews and workshops, participants highlighted a particular need for better evaluative evidence that could consider decommissioning needs, reflect the true costs of implementation and consider whole-system effects (rather than cost-benefit calculations for only one part of the healthcare system and healthcare pathway). One interviewee suggested that more funding should be directed into ex-ante impact assessments, literature reviews and evaluation in order to provide better evidence on innovations, as decision makers did not draw enough benefit from academic expertise when it came to supporting evidence-based decisions. A further prominent view among study participants outside the NHS was that standardising evidence requirements, or establishing a burden of evidence ‘stamp of approval’, would greatly accelerate the NHS adoption process by bringing clarity around the evidence required to get an innovation adopted.

Participants felt that commissioners in particular need better information and evaluative evidence to help them understand whole-system and long-term costs and benefits and fulfil their potential roles as drivers of the innovation agenda. This is undoubtedly the case, but it is also necessary to respond to these long-term aims through short-term and annual budgets. In an uncertain environment, how and by whom are longer-term aims chosen, and how might decision makers mobilise resources today?

Figure 7 (overleaf) presents some of the views of interviewees as they relate to the information and evidence needed to support innovation in the health system.

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254 9, 46.
255 37, 45, 73, 117.
256 76.
257 99, 103, 106.
258 120, workshop discussions across regions.
260 115.
261 84.
262 20, 70, 74, 93, 96, 104, 111, 118; workshops with the South West region (20–21 April 2016).
Figure 7. Interview quotes relating to the information and evidence needed for innovation

**On information and evidence**

**On metrics and reporting**

‘...[to] enhance that information-sharing on a national basis, we have to have one clear and relatively light set of metrics that we can all report into with clear definitions, to show the impact of innovation. And it doesn’t necessarily mean that we’re all one organisation, but that we agree that we all report in the same manner.’

— Innovation institution representative (North West Coast and Greater Manchester)

**On the importance of data and analytics to inform adoption**

‘...I’d want access to clinical information systems that could allow me to assess the impact of the innovation in real time and accumulate knowledge as to how it was helping or harming...’

— Higher education representative (Eastern region)

**On the importance of targeted and well-communicated information flows**

‘Any effort made to educate or broaden knowledge needs to be very personalised’

— National-level innovation institution representative

**On information gaps and timelines of information exchange**

‘...there is a big gap between the people who make these decisions and the clinicians at the coal-face...because I think by the time information circulates to the top levels to commission and procure, they will have ended up procuring and commissioning something totally [different]’

— NHS Trust representative (South West)

**On the need for spanning the clinical and non-clinical spheres in knowledge-sharing**

‘From my point of view I think that innovators need a broad spectrum of knowledge right across clinical and non-clinical environments. I talk to people that have got an innovation badge and they’re non-clinical or haven’t been exposed clinically and they miss so much of these real aspects of innovation in healthcare itself’

— NHS Trust representative (South West)

**On skills to understand evidence, conduct relevant evaluations and facilitate whole-system impacts**

‘In some ways it’s about being able to interpret information and maybe evaluations and understand when proof of impact might come through, and being able to adjust expectations in light of that knowledge...’

— NHS Trust representative (South West)

**On the need for interdisciplinarity**

‘If you could bring together engineers and clinicians more, you might well get the clinicians better at articulating the problems, thinking about them from an engineering perspective, and have the engineers understand the clinical problems’

— Higher education representative (Eastern region)
3.5. Patient and public voice in innovation

Box 4. Patient and public voice: Key messages

1. There is growing recognition of the importance of patient engagement with innovation, but practice is still limited, fragmented and highly variable across different organisations, regions, stages of the innovation pathway and therapeutic areas. Moreover, concerns over tokenistic attitudes persist. Sharing examples and evidence of positive experiences and of their outcomes could help enable wider-scale change in attitudes across the system.

2. Diverse initiatives to engage patients with innovation exist, but there are questions about their sustainability and potential for scale-up. Many of these initiatives span quality improvement, research engagement and innovation spaces and are relatively nascent. They include: web-enabled channels for engagement; community-based exposure to innovation activities (e.g. at supermarkets, football tournaments); compensated and innovation-specific real-world patient engagement (e.g. via Citizen Juries and various committees); networked patient engagement initiatives within regions (e.g. cross-GP collaboration; AHSN, Collaboration for Leadership in Applied Health Research and Care [CLAHRC] and Healthwatch collaborations); NHS collaboration with the private sector on patient engagement issues (e.g. new means of soliciting patient perspectives); patient-driven innovation; and other Trust, charity- or local authority-based channels (patient and public reference or participation groups).

3. Empowering patients to engage with innovation requires improved information and evidence environments, multistakeholder commitments to involve patients at all stages of the innovation pathway and training programmes for effective engagement, geared both at public and patient representatives and the health professionals they engage with.

4. Achieving critical mass and representativeness, as well as effective coordination, is central to high-impact patient engagement. Online engagement platforms (e.g. Health Unlocked, Patients Know Best) or umbrella organisations of medical charities or patient engagement groups (e.g. National Voices, INVOLVE) are seen to be important in this regard, as well as scaled-up Patient and Public Involvement (PPI) activity within CCGs and Trusts.

5. Financial resources and clear governance of innovation funding will be needed for wider-scale and more consistent patient engagement. Formal public funding requirements may be needed, and IP and legal concerns of private-sector innovators and Trusts may need to be addressed in order to ensure patient involvement.

3.5.1. Status quo and existing schemes to facilitate patient engagement with innovation

Our interviews suggest that patient and public engagement with innovation is limited and fragmented in terms of the opportunities, scope and scale of activities across different organisations and regions, stages of the innovation pathway and therapeutic areas. Views and attitudes regarding the adequacy of the status

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263 Patients need to be empowered to know where to access information and evidence on innovation issues, activities and opportunities for engagement, as well as to better understand such information. This requires better targeting and signposting of information and evidence, communication of such information in a way that patients can understand, feedback on and explanation of any decisions made, and considered upfront management of expectations.

264 For patient engagement to be meaningful, it needs to span all stages of the innovation pathway. This implies a move from a consultation to a co-production culture where multiple stakeholders commit to engaging with patients and the public: industry, the research community, service providers and clinicians, and patients themselves.

265 Training programmes on effective patient engagement exist in the health system and may be transferable or adaptable to the innovation context (e.g. NICE processes for patient engagement with guideline reviews; National Voices patient participation principles and other charity approaches; ‘train-the-trainer’ methods).

266 19, 22, 34

267 4, 16, 30, 31, 34, 38, 53, 105.
Innovation and Connecting Receptive Places

While there has been increased recognition of the importance of patient engagement with innovation among policy makers and practitioners, and in some innovation projects and service transformation areas, there are concerns that patient and public engagement practices are not given due importance and can be tokenistic in many instances. There is patient and public representation on various health and care Boards and in various networked initiatives (e.g. PPI representatives on CCG or Trust Boards, on CLAHRC or AHSN committees, in cross-GP consortia), but it is generally not innovation-specific. Rather, this representation tends to be embedded in roles pertaining to engagement with research or improvement initiatives. Some interviewees highlighted that engagement is more likely at research-intensive stages of innovation projects due to funding requirements for PPI in research grants, and suggested that similar systematisation regarding innovation may enable more consistent practice, at scale. Study participants also emphasised that a positive experience with patient and public engagement on innovation issues helps promote further engagement with and focus on this aspect of innovation processes, due to learning around the value that the patient voice can bring. Despite a patchy patient engagement landscape, interviewees identified a diversity of potentially promising and innovative patient engagement approaches being implemented across different institutions and regions, as illustrated in Table 8.

Table 8. Examples of initiatives to engage patients with innovation activity

- **Embedding exposure to health innovation into aspects of everyday living:** In Greater Manchester and North West Coast, as well as in the South West, health and care actors are working with other local institutions to engage communities with innovations as part of their daily lives and routines (e.g. at football tournaments; through housing associations and rental agencies; as part of theatre, arts and storytelling groups; through mocked-up home environments, for example at supermarkets, which demonstrate and allow patients to try out innovative products).

- **Web platforms for patient and public involvement:** The NHS Academy of Fabulous Stuff celebrates innovative ideas and solutions in the NHS and makes this information available to the wider public. The Patients Know Best platform is a forum for soliciting patient-led ideas. Interviewees highlighted other virtual platforms for patient engagement (e.g. Health Unlocked, Q&A portals on Trust websites), which were said to hold potential provided that they can attract a critical mass of users and information governance issues regarding privacy, security and data-sharing are addressed. Some Trusts are considering how internal ‘bright ideas’ schemes might be extended to patients, enabled by digital platforms. Taunton and Somerset NHS Foundation Trust (FT) has licensed a touchscreen Friends and

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268, 269 For example, interviewees in one region highlighted stronger patient and public engagement in mental health, rare diseases, chronic disease, cancer and transplants compared to some other areas, such as A&E, acute care, general services and care of the frail and elderly. This was seen to be due to these being more readily identifiable patient groups with longer-term conditions and greater personal interest in and/or ability to engage with helping to improve care (13, 49, 64, 68, 71, 76, 103, 117).

270 9, 12, 21, 27, 28, 31, 40, 45, 51, 55, 59, 62, 66, 70, 78, 86, 89, 114, 116.


272 9, 17, 46, 102.

273 4, 42, 66, 81, 86.

274 28, 34, 53, 54, 66, 82, 92, 113.

275 2, 41.

276 4, 10, 26, 29.

277 22.

278 6.
Family Test using its 3S online Survey Tool, which allows real-time feedback from patients and families to be sent directly to hospital management. Torbay CCG is using social media to secure patient feedback on cross-cutting issues, including innovation.279

- **Trust-based, charity and local authority efforts**: Patient reference groups widely exist in Trust and CCG structures but are not particularly active on the innovation front. However (although still at a very small scale), Trust patient reference groups and CCG Boards across the country are mobilising PPI engagement around innovation issues,280 and Directors of Patient Experience in Trusts are being asked to consider innovation within their patient engagement activities. Charities and the third sector are also seen as a key vehicle for addressing issues of critical mass and representativeness,281 which include local Healthwatch organisations in some areas.282

- **Private-sector involvement with patient voice in innovation**: In the Eastern region, the AHSN has channelled efforts into exploring engagement with consumer-led private-sector organisations that can help NHS providers to better capture customer experiences and perspectives on improved efficiency, flow and patient outcomes.283 In the South West, health providers have engaged in discussions with John Lewis in order to draw transferable learning from its approach to public sentiment analysis that could be applied to patient and public engagement in the health and care context. In addition, Torbay and South Devon Hospital is working in collaboration with industry partners to explore how best to take value and learning from patient stories and storytelling.284

- **Patient-driven innovation**: Despite challenges, examples of patient-driven innovations highlight the value of patient engagement in improvement efforts.285 Some examples highlighted by South West interviewees include: a patient-designed keyring to relieve anxiety; a bungee cord fixed to a belt that helps patients suffering from multiple sclerosis to walk; protective Kevlar socks designed by a patient with fragile skin; and a patient—Peninsula CLAHRC (PenCLAHRC) collaboration to develop a new approach to preventing acute urinary retention.

Other regional examples of networked engagement:

- In London, the Care City Test Bed has developed a model of community dialogue which involves mapping both community 'hubs' (e.g. pubs, voluntary organisations, faith groups) and available population and health data, in order to present community members with a detailed picture of the community’s health and care provision, as well as needs. Presented with such a picture, communities have responded to the challenge with a wealth of ideas on how health and care delivery in their area could better meet their needs; residents of a Barking estate, for example, came up with 25 ideas, focusing particularly on social inclusion and support to older people.286 Within City and Hackney, GP practices all have their own patient participation groups, which feed into consortia-wide patient groups that interact with the Patient Participation Committee within the CCG. Such a model allows the views of patients to be gathered at scale across the area, as well as at individual-practice level. The CCG has allocated small pots of money to the Patient Participation Committee, which the patients may bid for in order to try out and evaluate small-scale innovations.287 In Tower Hamlets, a patient leadership programme has been set up to give patients the skills needed to engage with general commissioning processes and decision making.288 Some London Healthwatch organisations are helping to coordinate patient engagement activities, in particular to engage harder-to-reach groups that might not usually be easily contactable through NHS Trusts.289

- In the South West, the AHSN has a Patient Experience function290 and the PenCLAHRC has established a
network of skilled patients, although their engagement is at present focused more closely on research than on innovation issues. Devon Partnership Trust is working with Oxford University to use linguistic processing to extract narratives from patient records.

- In the Eastern region, the Citizens’ Senate has recruited a diverse range of people with an active interest in the NHS generally, as opposed to individuals looking to drive single-issue campaigns. The Senate works to enhance the quality and value of patient and public inputs into innovation pathways through efforts to disseminate information about regional initiatives, national policy and clinical research and innovation developments.

- The Citizens’ Jury is run by the Innovation Agency as part of the Connected Health Cities Project. The Jury recruits members of the public to act as jurors on innovations. During four-day sessions, expert witnesses are invited to present evidence on the innovations under discussion, allowing the Jury to make informed verdicts. In contrast to typical patient voice initiatives, the Citizens’ Jury has been budgeted within the overall contract so that jurors are compensated for their time.

3.5.2. Exploring further needs and systemic interventions as they relate to patient and public engagement

Towards the informed and empowered patient

Patients and the public need to be empowered to understand what innovation means, what opportunities and challenges it presents, how it relates to quality-improvement aims, and how they can best contribute to and benefit from engaging with different innovation types. Insights from our interviews highlight the need to better target and signpost the availability of innovation-relevant information and evidence, and to communicate this information in an accessible way that avoids the use of jargon and acronyms, and which considers both verbal and non-verbal means of communication. Patients and public representatives must also be better informed regarding how their inputs and advice have been taken up and acted upon. Ensuring effective responses and feedback on decisions taken, and the careful management of expectations, was seen as central to building trust and buy-in in engagement processes. Empowering patients to be more meaningfully involved in innovation pathways may also rely on patient training or upskilling activities. It was suggested that there may be some transferable learning to be taken from, for example, the implementation of such activities in NICE patient engagement processes for

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291 7, 14.
292 Workshops with the South West region (20–21 April 2016).
293 88.
294 40.
295 12, 87, 108.
297 For example, through the use of graphics (53, 54).
298 There was little clarity among interviewees on where patients go to access information related to innovations, although it was suggested that information sources might include web platforms, health professionals and social networks (insights from workshops). The emphasis so far seems to be more on the provision of information than on helping patients and the public to understand and assimilate this information, although our interviews suggest that various portals may have a potential role in helping to communicate information and translate evidence in ways which are more meaningful to patients going forward. Existing examples include NHS Choices and the INVOLVE website, but a future option may be a national innovation portal for patients, which could build on the NIHR Dissemination Centre.
300 6, 22, 33, 56.
reviewing clinical guidelines.\textsuperscript{301} Similarly, some charities and umbrella organisations such as National Voices also have principles for patient engagement which may offer transferable lessons,\textsuperscript{302} and charities were highlighted as having the skills and resources to inform this capacity-building strategy and process.\textsuperscript{303} ‘Train-the-trainer’ approaches may also be appropriate here. For example, although not innovation-specific, a Healthwatch prisoner engagement scheme being rolled out by other local Healthwatches (and which has received national recognition) trains prisoners as ‘Well-being Reps’. These reps deliver peer-to-peer support, gathering the views of prisoners on the delivery of health and social care in prison and helping them to more effectively communicate their needs and ideas for improvement.\textsuperscript{304}

A need for patient engagement as standard practice and for enabling financial resources

Some interviewees suggested that the emerging governance structure around innovation could learn from the requirements of health and clinical research governance around patient and public involvement in funded projects. These individuals proposed that tenders for funding could mandate more meaningful demonstration of user involvement, citing the sea-change in thinking on patient involvement in research that has been precipitated by the inclusion of such requirements in the National Institute for Health Research’s (NIHR) calls.\textsuperscript{305} Regarding innovation specifically, the NIA programme requires applicants to include patient and service user involvement in the design and development of their products,\textsuperscript{306} but innovation programmes more widely do not seem to mandate patient engagement.

Concerns were also raised over the need for ring-fenced patient engagement funds or other means of ensuring resource availability to facilitate patient engagement capacity-building for innovation.\textsuperscript{307} One interviewee suggested that exploring practices used in other sectors could reveal new resource allocation mechanisms (e.g. points or voucher-based systems for PPI).\textsuperscript{308} The feasibility, acceptability and relevance of any new mechanism would need to be tested, but the idea is an example of creative thinking that merits further exploration.

The culture of patient and public engagement needs to consider a shift from consultation to co-production, underpinned by critical mass and representativeness

Meaningful patient engagement needs to span all stages of the innovation pathway – from needs assessment and prioritisation, through to the design and development of innovations, to uptake, scale-up and spread.\textsuperscript{309} This implies a move from a consultation to a co-production culture,\textsuperscript{310} in which multiple stakeholders (e.g. industry, research communities, service providers, clinicians, and patients themselves)
invest in patient engagement. Closely related to this are issues of critical mass and representativeness. Scaling up PPI representation on CCG and Trust Boards was one suggestion, and umbrella organisations (e.g. National Voices, INVOLVE), online engagement platforms (e.g. Health Unlocked, Patients Know Best) and medical charities were seen by some to be particularly well positioned to reach out to underrepresented and harder-to-reach populations, and to coordinate engagement efforts at scale. Other opportunities for enabling two-way dialogue are presented by clinician–patient consultations in clinics and other improved mechanisms to capture and process patient ideas and feedback. However, interviewees pointed out that while some patients may actively research their conditions – for instance on the Internet – many do not, and that clinicians may not always engage patients sufficiently around their innovation-related desires and needs.

Concerns were also voiced about the feasibility of managing, processing and integrating the patient insights gathered through online platforms and/or social media, and through the media more widely, into decision making. Several interviewees noted the importance of ensuring patient voice is not driven by particular patient profiles or the specific agendas of those patients who are most vocal about their needs. The Manchester AHSC has produced heat maps which map patient engagement across different parts of a region (e.g. central and harder-to-reach areas) against the burden of disease. These show a misalignment between areas where patient representation is strongest and those where the burden of disease is highest. Such heat maps merit further consideration as a tool for evidence-based and representative patient engagement strategies.

As regards the private-sector perspective, including in the context of some NHS Trust commercialisation strategies, some interviewees highlighted the IP challenges of wider-scale patient engagement and the need for careful consideration of NDAs and benefit distribution in this context. One stakeholder highlighted that healthcare professionals can be reluctant to share early-stage innovation ideas which would benefit from patient feedback due to IP-related concerns and concerns over asking patients to sign legal documents.

Figure 8 (overleaf) presents some of the views of interviewees on patient and public engagement in the innovation agenda, including on opportunities to strengthen patient voice.

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311 31, 38, 40, 41, 87.
312 27, 68.
313 19, 22, 34.
314 88.
315 6, 51.
316 7, 37, 59, 65, 67, 76, 117.
317 4, 16, 32, 41.
318 73.
319 4, 5, 9, 26, 32, 58, 77.
320 9.
321 23, 56, 73.
322 23.
Figure 8. Interview quotes relating to the patient and public voice in innovation

**On patient and public voice**

**On resources for patient and public engagement**

‘I think engaging with patients is a very specific skill and I think that, you know, there are definitely [learnings to be done] there. But I also think that it comes down to resources… I think it does come down to resources… and the ability of staff to have meaningful engagement and to feed into the beginning of pathways…’ – Charity and patient advocacy representative (Eastern region)

**On exploring creative ways to engage with patients and the public**

‘…but where we get real benefit is by engaging with people through the things that those people like to do and need to do. So we’ll engage with citizens through the services that they engage with, through the houses that they live in, through the activities that they are enjoying, whether that’s football, music or what have you. So we really max our community assets in that respect…’ – CCG representative (North West Coast and Greater Manchester)

**On recognising patient experience**

‘We make a lot of assumptions about what our patients and the public need and want. Sometimes we treat them too paternalistically, and we don’t give them credit for the knowledge that they have. And at other times we don’t actually give them the information that they really need’ – Innovation network representative (North West Coast and Greater Manchester)

**On the complexity and fragmentation of routes for patient engagement**

‘…I think there are many opportunities for patients to involve themselves in the innovation pathway and they will happen in various different ways in various different places. I think one of the problems is it’s very complicated… there’s a very, very complex set of people and organisations… trying to engage the patient voice’ – Innovation institution representative (North West Coast and Greater Manchester)

**On representativeness**

‘I think that there are many opportunities for the patient and the carer voice to be heard. I think, unfortunately, what tends to happen is that it is the usual suspects that engage’ – Charity and patient advocacy representative (Eastern region)

**On avoiding jargon in communications**

‘…if you train them they become, they start to become professionals and experts and… they start to use those acronyms and that language and the whole point is the other way round, it is [up to] the system to talk in plain English to people’ – Charity and patient advocacy representative (UCLP and related actors)

**On engaging with and incentivising third-sector support for patient and public engagement**

‘So I think there probably also needs to be networks of third-sector organisations who are perhaps interested in supporting innovation…. Maybe with some awards for it just to get interest and to attract attention. Or even some sort of funding support’ – Charity and patient advocacy representative (Eastern region)

**On learning from some universities on how to engage the public in health debate**

‘…they did a lot of work on how they got people in, how they selected them, how they trained them. It was effectively a professionalised activity rather than just bringing a group of people into a room and assuming that you could get a patient perspective by just getting people in the same room’ – Higher education representative (North West Coast and Greater Manchester)
3.6. Relationships and networks

Box 5. Relationships and networks: Key messages

1. The innovation landscape is characterised by a significant diversity of initiatives and networks within and between regions. Many initiatives are still establishing their identity and articulating their unique value added within regional health economies. Clarification of the roles, remits and complementarities of different actors is required to help signpost the actors available to provide support for particular innovation needs, and to help address barriers to collaboration which can arise from exacerbated competition when mandates or remits unnecessarily overlap.

2. Collaborative relationships were seen to be important from the earliest stages of innovation development all the way through to uptake, diffusion and spread. In addition to formal institutional collaborations, informal personal relationships, funding for collaborative efforts, co-location and attention to clear lines of responsibility and accountability in collaborations are important for sustaining collaborative innovation initiatives and supporting efforts for impact. Joint working mechanisms such as secondments, dual roles and greater multiprofession representation at senior levels on Boards were identified as potential levers for further consideration in efforts to strengthen cross-network (e.g. AHSNs, Vanguards, Test Beds), cross-sector (e.g. NHS/health and social care and voluntary) and cross-profession (e.g. primary, acute) collaboration.

3. In general, collaboration between the NHS and the private sector is less developed than relationships between the NHS and universities or charities. Areas for attention include building capability in the private sector to articulate a compelling business case for the NHS (i.e. including issues such as decommissioning needs, practical realities of implementation), and improving the NHS’s ability to articulate its innovation needs to the private sector and clarify routes to the NHS market (possibly via broker organisations and networks such as AHSNs).

4. Regional collaboration is central to the health innovation systems architecture, with new and evolving roles for AHSNs and other actors (e.g. Vanguards, Test Beds, devolved health and care models). AHSNs are primarily geared towards providing information, evidence, network brokerage and innovation functions that can support the progression of innovations across the pathway. However, specific regions highlighted additional areas of desired support from AHSNs such as implementation, legal and IP advice and evaluation expertise. AHSN metrics will need to be revisited to reflect the evolution of their roles and to address some unintended effects of the current metrics approach (such as a lack of focus on incentives for uptake of innovations developed elsewhere (i.e. non-home-grown innovations in a region). AHSNs also need to be supported to work together as a national network, to exchange information and evidence of best practice and to flag priorities.

5. Joint accountability models and clarity regarding the evolution of STP footprints will be important for the longer-term sustainability of collaborative innovation efforts within regions. In relation to this, initiatives have different funding models (e.g. some from central funding pots, others from membership fees for consulting services) and this will need to be considered in the delivery of more integrated innovation pathways.

3.6.1. Status quo and existing schemes to facilitate relationships and networks for innovation

The collaboration landscape has many actors, some of which are still establishing their unique identity and/or evolving in focus, scale of engagement and remit

Underpinning all efforts to embed innovation into regional health economies and nationally are a diverse set of institutions, organisations, initiatives and networks. Our interviews and workshops provided evidence of a core set of key actors across regions, spanning AHSNs, Vanguards, Innovation Hubs, Test
Beds, CLAHRCs, universities, LEPs, charities, local authorities, individual provider organisations, commissioning bodies and specific private-sector actors spanning large pharma, medtech, digital providers and SMEs. Each region also has additional unique networks bringing together individual organisations around concrete initiatives. Table 9 (below) presents some examples of networks and organisations that are actively engaging in the innovation agenda in each region, as identified by our study participants. It points to a diverse landscape of actors across different stakeholder groups and the public, private and third sectors. However, it is important to interpret this table with caution, as it is not an exhaustive list of all organisations and institutions involved with innovation in the regions we have engaged with in the study thus far, and nor is it indicative of the scale and precise nature of engagement in and of itself (please see note by Table 9 for further detail). Rather, it highlights those organisations identified and discussed by interviewees, workshop participants and other local networks that we engaged with as part of this study, recognising the boundaries of a case-based approach. The table is for illustrative purposes only and should not be used to make any inferences on scale or impact of innovation from this data alone.

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523 Where these are in place.
Table 9. Some examples of innovation actors highlighted by study participants

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<thead>
<tr>
<th>Eastern</th>
<th>Greater Manchester and North West Coast</th>
<th>South West</th>
<th>UCLP and related actors</th>
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<tr>
<td>Networks and innovation institutions</td>
<td>- Eastern AHSN</td>
<td>- Innovation Agency (AHSN)</td>
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<td>- SBRI</td>
<td>- Trustech</td>
<td>- NISW (subsequent to data collection, we have learned that NISW has recently ceased to exist)</td>
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<td></td>
<td>- LEPs</td>
<td>- Innovation Scout network</td>
<td>- Commercial Advisory Network</td>
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<td>- NIHR Clinical Research Network Eastern</td>
<td>- Lancaster Health Hub</td>
<td>- Innovation Leads network</td>
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<td>- East of England Strategic Clinical Network</td>
<td>- Manchester AHSC</td>
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<td>- Innovation Scouts Network</td>
<td>- AHSC Health Technology Hub, which runs MIMIT</td>
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<td></td>
<td>- Cambridge University Health Partners (CUHP) (AHSC)</td>
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<td>- NIHR CLAHRC East of England</td>
<td>- Northern Health Science Alliance</td>
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<td>- The Health Innovation Alliance</td>
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## Creating and Connecting Receptive Places

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<td>Nimbus Medical</td>
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<td>British Heart Foundation</td>
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<td>Macmillan</td>
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<td>Wellcome (supports the Stevenage Bioscience Catalyst)</td>
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<td>Flyde Coast Vanguard</td>
<td>Torbay and South Devon NHS FT</td>
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<td>Better Care Together (Morecambe Bay Health Community)</td>
<td>Somerset Partnership NHS FT</td>
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<td>South Somerset Healthcare</td>
<td>Royal Free London Vanguard</td>
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## Creating and Connecting Receptive Places

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<td>- Tower Hamlets Integrated Provider Partnership</td>
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<td>- West Suffolk NHS FT</td>
<td>- Institute of Cardiovascular Medicine and Science</td>
<td>- Barking Haveridge and Redbridge Accountable Care Organisation</td>
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<td>- Norfolk and Norwich University Hospitals NHS FT</td>
<td>- Alder Hey’s ‘Institute in the Park’ and Innovation Hub</td>
<td>- London Cancer (part of the National Cancer Vanguard)</td>
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<td>- East and North Herts NHS Trust</td>
<td>- Countess of Chester Hospital NHS FT</td>
<td>- Barking and Dagenham, Havering and Redbridge System Resilience Group</td>
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<td>- Stowhealth</td>
<td>- The Christie</td>
<td>- Barts Health NHS Trust</td>
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<tr>
<td>- Cambridgeshire Community Services</td>
<td>- Stockport NHS FT</td>
<td>- University College London Hospitals NHS FT</td>
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<tr>
<td>- Chronic obstructive pulmonary disease (COPD) Test Bed</td>
<td>- Greater Manchester West Mental Health Trust</td>
<td>- North East London NHS FT</td>
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<tr>
<td>- Cambridge Urgent and Emergency Care Vanguard</td>
<td>- Lancashire Care NHS FT</td>
<td>- Barking, Havering and Redbridge University Hospitals NHS Trust</td>
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<td>- Bedoc Out of Hours</td>
<td>- Lancashire Teaching Hospitals NHS FT</td>
<td>- Moorfields Eye Hospital NHS FT</td>
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<td>- Colchester Hospital University NHS FT</td>
<td>- East Lancashire Hospital NHS Trust</td>
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<td>- Ipswich Hospital NHS FT</td>
<td>- University Hospitals Morecambe Bay NHS FT</td>
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<tr>
<td>- Norfolk Community Health and Care NHS Trust</td>
<td>- Liverpool Women’s Hospital (based at Liverpool Women’s Hospital, the Regional Genetic Service is running the 100K Genomes Project as part of a partnership across the North West Coast.</td>
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<td>- Chester Hospital NHS FT</td>
<td>- Salford Royal NHS FT</td>
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<td>- Salford Together</td>
<td>- Stockport NHS FT</td>
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<tr>
<td>- Institute of Cardiovascular Medicine and Science</td>
<td>- Pennine Acute Hospitals NHS Trust</td>
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<td>- Alder Hey’s ‘Institute in the Park’ and Innovation Hub</td>
<td>- Pennine Care NHS FT</td>
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<td>- Countess of Chester Hospital NHS FT</td>
<td>- Liverpool Heart and Chest NHS FT</td>
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<td>- The Christie</td>
<td>- Liverpool Heart and Chest NHS FT</td>
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<tr>
<td>Eastern Coast</td>
<td>Greater Manchester and North West Coast</td>
<td>South West</td>
<td>UCLP and related actors</td>
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<tr>
<td>- The Walton Centre NHS FT</td>
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**CCGs**
- Cambridge and Peterborough CCG
- Ipswich and East Suffolk CCG
- East and North Herts CCG
- West Essex CCG
- Liverpool CCG
- Oldham CCG
- Central Manchester CCG
- NHS Heywood, Middleton and Rochdale CCG
- Salford CCG
- Lancashire North CCG
- Warrington CCG
- East Lancashire CCG
- Liverpool CCG
- South Devon and Torbay CCG
- Somerset CCG
- Northern, Eastern and Western Devon CCG
- Kernow CCG
- Gloucestershire CCG
- City and Hackney CCG
- Camden CCG
- Greenwich CCG
- Newham CCG
- Tower Hamlets CCG
- Herfordshire Valleys CCG
- Mid Essex CCG
- Redbridge CCG
- West Essex CCG

**HEIs**
- University of Cambridge
- University of East Anglia
- University of Bedfordshire
- University of Hertfordshire
- Health Education East of England
- Sensor City
- Liverpool John Moores University
- University of Manchester
- Manchester Business School
- University of Salford
- University of Lancashire
- University of Liverpool
- Edge Hill University
- Lancaster University
- University of Exeter
- Plymouth University
- University of St Mark and St John
- Queen Mary’s University London
- University College London
- King’s College London
- Imperial College London
- London School of Hygiene and Tropical Medicine
## Creating and Connecting Receptive Places

### Eastern Greater Manchester and North West Coast

<table>
<thead>
<tr>
<th>Other local organisations</th>
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<tr>
<td>Cambridge and Peterborough LEP</td>
<td>Beds and Herts Local Medical Committee</td>
<td>East of England LGA</td>
<td>Norfolk County Council</td>
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<tr>
<td>Beds and Herts Local Medical Committee</td>
<td>East of England LGA</td>
<td>Norfolk County Council</td>
<td>Suffolk County Council</td>
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<tr>
<td>East of England Collective Procurement Hub</td>
<td>Public Health England</td>
<td>Lancashire LEP</td>
<td>Cumbria LEP</td>
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<tr>
<td>Public Health England</td>
<td>North West</td>
<td>Cumbria LEP</td>
<td>GM Connect</td>
</tr>
<tr>
<td>Central Bedfordshire County Council</td>
<td>NHS England local representatives (e.g. Lancashire, Cheshire and Merseyside, Cumbria)</td>
<td>Manchester City Council</td>
<td>Manchester Inward Investment Agency (MIDAS)</td>
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<tr>
<th>National-level actors – some examples highlighted in our study to date</th>
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</table>

### South West

- Somerset Together
- Good Economy
- Livewell Southwest
- South Somerset Together
- Local Professional Networks
- Devon County Council
- Plymouth Council
- Somerset Local Medical Council

### UCLP and related actors

- London Borough of Havering
- London Borough of Barking and Dagenham
- London Borough of Tower Hamlets
The scale and nature of engagement by different organisations is variable within and between regions. At the level of individual organisations, various functions were seen to collaborate around innovation and improvement agendas, spanning R&D departments, service delivery teams/frontline clinicians, IT support, transformation and improvement teams and Innovation Leads, as some examples. Despite the diversity of actors in the wider innovation landscape, many initiatives are still finding their unique identity and some interviewees pointed to a need for clearer signposting on the specific remits, roles and skill sets of individual initiatives to help innovators navigate a complex and evolving landscape.

Collaborative relationships from the earliest stages of innovation development all the way through to uptake, diffusion and spread were widely viewed as important (but challenging to identify and nurture upfront, when innovations are being designed and developed). They were said to be critical for securing buy-in for innovation efforts from different stakeholders, for brokering contacts with individuals and organisations that could provide needed skills (e.g. technical, business development and commercialisation-related, IT, manufacturing, procurement and commissioning-related) and for spreading risk. Various operational ways of coordinating interactions and fostering collaboration exist within the system (operational, physical, relational). Some workshop participants highlighted the enabling role that co-location can play in helping to catalyse and coordinate regional relationships and communities of practice. Informal personal relationships were also seen as a key enabler of collaboration within and in addition to formal networks. Study participants highlighted other forums for shared learning and exchange, such as individuals sitting on each other’s Boards and joint attendance at health and innovation system events.

**The importance of regional collaboration and the role of AHSNs**

Interviewees felt strongly that the regional dimension to collaboration is key, and highlighted current challenges to scaling up relationships and networks much beyond the regional level at present. For example, one interviewee pointed out that, because the AHSNs operate at a local level, they have local relationships that allow innovations to become embedded in a way that national programmes do not permit at present. However, there was also a clear recognition of the need for better coordination and collaboration between regions and the centre.

As principal innovation actors, the roles that AHSNs assume in different regions vary and are evolving, although there is a core set of common functions related to information and network brokerage. Table 10 (below) illustrates the different focuses of the AHSNs studied, and how these have evolved within their

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324 35, 36, 56, 74.
325 1, 23, 35, 51, 78, 100, 106.
326 Workshops across regions.
327 Workshop with the South West (20–21 April 2016) and Eastern (8 June 2016) regions.
328 51, 116.
329 2; workshops across regions.
330 28.
331 Workshops across regions.
332 19, 28, 43; workshops across regions.
333 25, 27, 34, 52, 64, 71, 84, 88, 96, 99, 103, 106, 115; workshops across regions.
respective local health economies (stakeholder views on how the roles of the AHSNs should develop going forward are discussed in Section 3.6.2).

In general, AHSNs have focused on particular thematic areas of primary concern for their populations.\textsuperscript{334} Overall, the researchers’ experience from workshops with AHSNs suggests that AHSNs’ assumed routes to impact were more often implicit than explicit, perhaps related to their evolving roles and identities. (At the time of this research, some of the AHSNs we spoke to were adapting their strategies and priority focus areas.) One interviewee highlighted that judging AHSNs against a metric of local growth can act as a disincentive for AHSNs to promote ‘borrowing proudly’ in their brokerage functions and to help match supply to demand, if they are not also rewarded for taking on and embedding innovations from elsewhere. Thus, it was suggested by one interviewee that the metrics system should encourage AHSNs to focus on more than just home-grown innovations.\textsuperscript{335}

Table 10. Core AHSN roles and functions as perceived by study participants – based on case-study AHSNs only

<table>
<thead>
<tr>
<th>AHSNs</th>
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<tr>
<td>• In the South West, the AHSN has recently shifted its focus from supporting the development side of innovation to a greater facilitation of demand, uptake and diffusion.\textsuperscript{336} Its focus over the next five years is on prevention/early intervention and person-centred coordinated care, as well as on forming closer relationships between its 18 member organisations. The South West AHSN consists of three interlinking hubs of expertise: intelligence (predominantly focused on data analytics and evaluation); improvement (looking at how to embed and support quality improvement processes and capability within the NHS); and innovation. The AHSN articulates three main strategic aims for its innovation work: (1) helping to create conditions for the adoption and acceleration of innovation from external markets, such as industry and VCSE, within the health and care system; (2) accelerating the development of innovations which have some existing evidence of effectiveness; and (3) accelerating the adoption of innovations into practice in the South West and facilitating spread both across the region and outside it.\textsuperscript{337}</td>
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<td>• In the Eastern region, the AHSN was historically seen as a ‘matchmaking’ platform for innovators and funders, including through hosting the SBRI scheme\textsuperscript{338} as a source of seed funding and health economics support for innovators, and as a platform facilitating NHS engagement with the private sector. The AHSN recently adapted its focus from particular clinical pathways to acute and primary care. Participants highlighted this recent step change and new leadership vision as creating opportunities for enhanced collaborations with a wider set of innovation actors in the region, including across the entire territory.\textsuperscript{339} These include closer working relationships with the regional CLAHRC to provide a coordinated offer to innovators.\textsuperscript{340} Current leadership sees the role of the AHSN as being to create a culture and infrastructure that promotes the penetration of innovation into the NHS by: helping to link innovators outside of the system with relevant stakeholders within the NHS; helping innovators within the NHS to navigate the innovation pathway outside of the NHS (i.e. around IP, procurement) while maintaining effective relations with their Trust; mapping the innovation landscape in the Eastern region to see who is engaged and</td>
</tr>
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\textsuperscript{334} For example, in the South West, priorities have included areas such as the care of frail and elderly patients, telemedicine and accident and emergency care, but also some systemic cross-cutting issues in line with an agenda for transformational change (e.g. new models of commissioning and information governance).

\textsuperscript{335} 5.

\textsuperscript{336} 7, 14, 37, 39, 56, 117.

\textsuperscript{337} 57.

\textsuperscript{338} The Eastern AHSN hosts the national SBRI healthcare scheme, providing funding and support for the early-stage commercial development of innovations.

\textsuperscript{339} The Eastern AHSN is trying to meet regularly with the LEPs, the CLAHRC and HEE.

\textsuperscript{340} 116.
available to contribute, and bringing these people and organisations together; and carrying out needs-identification to help match solutions to needs.\textsuperscript{341}

- **UCLP** sees its primary remit as connecting actors and innovation initiatives with a view to enabling uptake, adoption, diffusion and scale-up. It works with Vanguards, Test Beds, Innovation Hubs (membership model), various Accelerators, pharma and SMEs as key collaborators. In addition to its ‘matchmaking’ role, UCLP has invested particularly in assimilating and disseminating information and promoting evidence-based best practice.\textsuperscript{342} In particular, UCLP seeks to capture learning around the implementation of innovations to share with its wider network. UCLP also hosts the national NIA programme.

- The **Innovation Agency** in NWC is seen as particularly proactive in brokering relationships and providing funding for the development and testing of innovations.\textsuperscript{343} The Innovation Agency has outlined four principal goals for 2016–2018 in consultation with its stakeholders: accelerating the delivery of safer, better care; developing a network of health innovation centres; supporting economic growth through SMEs and industry; and driving digital innovation that empowers citizens and the workforce. The Innovation Agency aims to achieve these goals by building on three core capabilities: brokering collaboration and networks; showcasing high-impact innovations; and putting innovation into practice and evaluating the impact.\textsuperscript{344}

- The **Greater Manchester AHSN** has a key role in supporting networks in the region and improving the flow of information and data.\textsuperscript{345} The Greater Manchester AHSN (GM AHSN) is working together with the Greater Manchester Health and Social Care Partnership to shape and develop a pipeline of innovation that can be supported at the regional level.\textsuperscript{346} Working together with Trustech (an Innovation Hub), the Greater Manchester AHSN also hosts the Innovation Nexus, which helps companies with innovative products and services engage with the NHS.\textsuperscript{347} In its Business Plan 2016/17, GM AHSN outlined nine programmes of work, including programmes on research, informatics, industry and wealth, health and implementation, communications and engagement and patient and public engagement.\textsuperscript{348}

In addition to the AHSN roles discussed above, Tables 11–14 provide examples of other regional networks and relationships being catalysed in practice that study participants highlighted. These tables also emphasise some of the ways in which regional actors are seeking to develop more collaborative, more integrated working across organisations and sectors within their regions.

\textsuperscript{341} 97.
\textsuperscript{342} 19, 25, 50, 53, 81.
\textsuperscript{343} 10.
\textsuperscript{344} Innovation Agency (2016).
\textsuperscript{345} 12, 38, 108; workshop with Greater Manchester (17 March 2016).
\textsuperscript{346} 108.
\textsuperscript{347} 12, 46, 69, 77.
\textsuperscript{348} Greater Manchester AHSN (2016).
Table 11. Other examples of collaborative innovation efforts in the South West regional health economy highlighted by study participants

Collaborative innovation efforts in the South West

- The integrated care organisation operating in Devon and the Somerset Symphony Programme Vanguard were given as examples of innovative models for strengthened collaboration between providers and CCGs. The Somerset Vanguard was also cited as an example of an initiative offering a new approach to regional needs assessment which is informed by both health and social care data.

- Local networks have been created to discuss innovation opportunities. For example, Torbay and South Devon NHS FT and South Devon and Torbay CCG hold a monthly community-wide panel with primary care, local authority and private-sector representatives working alongside the provider and commissioner teams. It is a broad network which focuses largely on product innovation and links into service improvement work. A consultancy service is made available to discuss areas of change.

- In the South West, the Handiapp for reducing paediatric admissions was developed in Taunton and Somerset NHS FT to prevent unnecessary admissions and promote patient education around appropriate service use. It was adopted and promoted, in particular, by the Northern, Eastern and Western Devon CCG and was subsequently taken up by other CCGs. The successful spread of the Handiapp highlights the importance of aligning innovations with organisations’ strategic aims.

- A shared strategy has been developed by the CCGs of Devon and Cornwall to instigate strategic innovation on their patch.

- NISW (an Innovation Hub) focused on providing support for innovation development and commercialisation, including on IP, legal issues and wider support to take viable ideas into the marketplace.

- The PenCLAHRC was highlighted as actively facilitating NHS–university collaboration in the region in a range of clinically relevant areas.

Table 12. Other examples of collaborative innovation efforts in the UCLP and related actors regional health economy highlighted by study participants

Collaborative innovation efforts in the UCLP and related actors region of influence

- The three AHSCs in London meet each month to discuss collaboration.

- i-THRIVE is an NIA-funded service innovation which focuses on improving outcomes for children and young people with mental health problems. The programme includes involving children and young people in the design of services, and collaborating across the care pathway. This model is being tested around the country.

- The Care City Test Bed is developing an ‘Innovation Exchange’ to bring partners and practitioners together with the community, with the aim of shaping what the market develops. The Innovation Exchange will consist of workshops, meetings and electronic networks through which stakeholders will: (1) develop an understanding of where innovation might be targeted to alleviate challenges in the system; and (2)
scope the marketplace for existing solutions and, if no appropriate innovations can be found, put out a call for innovators to create a solution.\textsuperscript{357}

- King’s Health Partners is leading the development of clinical academic networks, termed ‘institutes’. Each of these institutes will provide tertiary services and be responsible for the outcomes of every patient in their thematic pathway across the full geography of collaborators in the network.\textsuperscript{358}

- The Health Innovation Network collaborates with its local CLAHRC, in particular using its expertise in implementation science methodology to test implementation projects.\textsuperscript{359}

- DigitalHealth.London, set up in response to a recommendation in the London Health Commission’s report to the Mayor of London in 2015, is a collaboration between the three London-based AHSNs, AHSCs, the Mayor’s Office and other bodies, which aims to make the city an internationally recognised centre for both the development and the uptake of digital health technologies. It will bring together patients, citizens, entrepreneurs, health and social care providers and commissioners, academics and industry.\textsuperscript{360}

- In Hackney CCG all pathways are led by GP-consultant pairs. The GP and consultant sit down together to identify areas in each pathway where improvements are needed. These pairs then collaborate to develop solutions.\textsuperscript{361}

Table 13. Other examples of collaborative innovation efforts in the Eastern regional health economy highlighted by study participants

<table>
<thead>
<tr>
<th>Collaborative innovation efforts in the Eastern region</th>
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<tr>
<td>- HEE has developed a package of support for product and technology developers, including for clinicians seeking to commercialise innovations.\textsuperscript{362} The Eastern AHSN is working with HEE to establish a network of clinical entrepreneurs across the region (e.g. through forums for networking and information exchange). The aim is to bring together people who are already innovating, in order to build a sense of group identity, develop group momentum and make it easier to identify how organisations such as the Eastern AHSN can best support these individuals. This network will link with the national Clinical Entrepreneur Programme.\textsuperscript{363} HEE has also recently launched the MedTech Accelerator, in collaboration with the Eastern AHSN and local LEPs. The MedTech Accelerator offers proof-of-concept funding to progress medical technologies and software innovations that address unmet clinical need in the NHS.</td>
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<tr>
<td>- The Eastern ASHN has proposed and is working up a case for the set-up of a ‘Service Improvement Laboratory’ to provide a thinking space for innovators working alongside NHS teams. The goal will be to improve efficiency and flow while introducing incremental and disruptive innovation and technology.\textsuperscript{364}</td>
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<tr>
<td>- The Eastern AHSN is discussing prospects for working with the University of East Anglia on a University of East Anglia Health Partners Model in Norfolk, which would have strong potential to help build critical mass between CUHP, Anglia Ruskin Health Partners, the University of Hertfordshire and the Stevenage BioScience Catalyst.\textsuperscript{365}</td>
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<tr>
<td>- Building on the opportunities presented by the STPs, the Eastern AHSN has developed an ‘STP Offer’ or portfolio of activities: in collaboration with the regional supply chain it will identify needs and challenge businesses to provide solutions as part of a ‘Provider Efficiency, Effectiveness and Quality’ programme, and funds will be provided to allow industry to come into Trusts and work with them on these solutions over an 18-month period. As part of this STP Offer the AHSN is also running a ‘Primary Care Accelerator’</td>
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\textsuperscript{357} 95.
\textsuperscript{358} 21.
\textsuperscript{359} 28.
\textsuperscript{360} 28; Health Innovation Network, South London (2016).
\textsuperscript{361} 114.
\textsuperscript{362} 27, 51, 70, 71, 76, 83, 115.
\textsuperscript{363} 97.
\textsuperscript{364} Workshop with Eastern region (8 June 2016).
\textsuperscript{365} 97.
which will facilitate GP practices to access the skills that they need in order to more rapidly develop as community-focused businesses.366

- The Norfolk and Suffolk Dementia Alliance has engaged with national and local government, providers and commissioners in both health and social care, voluntary and third-sector organisations, local media organisations and private companies (Phillips, BT, the Co-op) as part of its work to improve the quality of life of people living with dementia, and their carers.367

Table 14. Other examples of collaborative innovation efforts in the Greater Manchester and North West Coast regional health economy highlighted by study participants

Collaborative innovation efforts in Greater Manchester and North West Coast

- The Lancaster Health Hub comprises ten partners (including Lancaster University, the University of Cumbria and NHS organisations across Lancashire and Cumbria) working to increase collaborative research and knowledge exchange. The Hub aims to stimulate and support the growth of locally led research, and is a strategic partner in initiatives including the Lancashire and Cumbria Innovation Alliance Test Bed, the Fylde Coast Vanguard, the Better Care Together Vanguard and Connected Health Cities.368

- The Innovation Agency’s Innovation Scout network is enabling the formation of new collaborations through the scouting and brokerage function.369

- The MedTech Centre, an incubator based at Manchester Science Parks, is a joint venture between the Central Manchester NHS FT and Manchester Science Parks, which offers small spin-out companies incubation support services.370

- The Northern Health Science Alliance was seen as valuable to SMEs especially. It was set up to facilitate scale-up and make the North of England competitive in the global health innovation sphere.371

- The North West Healthcare Science Network brings together healthcare scientists working in different areas in order to share cross-disciplinary learning around innovation issues, e.g. accessing patient records.372

- The Genomic Alliance Network in the North West has set up a Translational Research Laboratory, funded by its member NHS organisations, and works closely with the Centre for Genomic Research, funded by NIHR. Close collaboration between the two has enabled the testing of different genomic sequencing platforms at pace and scale, enabling more fit-for-purpose decision making around which platforms to implement.373

- The Innovation Agency has led the piloting of the rapid turnaround open innovation approach. The approach was developed at the Berkeley Institute (California) and involves inviting a few representatives from the business sector to visit a hospital Trust for the day and discuss problems with relevant stakeholders there, before working together to find solutions.374

Across regions, collaboration between the NHS and universities375 was seen as more developed than that between the NHS and the private sector.376 Some workshop participants highlighted that the business

364–97; see also: Eastern Academic Health Science Network (2016).
367 68.
368 3; Lancaster University (2016).
369 3, 10.
370 12.
371 64, 69.
372 32.
373 32.
374 29.
375 73, 102; workshops with the South West region (20–21 April 2016).
376 16, 25, 55; workshops with the South West (20–21 April 2016) and UCLP/London (19 April 2016) regions.
cases and rationales for adoption developed by the private sector to sell products to the NHS do not take account of the incentives and information needs of commissioners, procurement and Trusts. These commercial business cases may not always or consistently consider the practical realities of implementation in the NHS and the associated disinvestment demands, or the short-term investments needed for implementation, in order to realise longer-term benefits. Interviewees also highlighted the way in which industry actors’ perceptions of the sheer complexity of selling to and working with the NHS, as well as the unpredictability of NHS priorities, acts as an impediment to collaborative working. This is particularly the case for medical diagnostics, devices and digital technologies, where the collaboration landscape is less mature than in the pharmaceutical industry. The challenges to collaboration (both informational and financial) were seen to be more acute for SMEs than for large pharmaceutical companies.

### 3.6.2. Exploring further needs and systemic interventions as they relate to relationships and networks

There is a need to clarify the roles and complementarities of distinct networks within regions, in order to strengthen a culture of collaboration and to address disincentives

Strengthening the degree of collaboration between AHSNs, Vanguards, CCGs, Trusts, primary care, local authorities, charities and the private sector was widely recognised as important in the innovation space, perhaps unsurprisingly, given the relative nascence of some initiatives in the health system. Clarifying the roles and remits of innovation actors needs to happen at both regional and national level, in order to help facilitate more appropriate coordination of activities to mitigate the risks of individual actors ‘feeling lonely in a crowded landscape’, of unnecessary duplication of effort by different actors and of competition at the expense of collaboration. Further clarity on how different networks complement each other and add value to the overall landscape of a region would also be conducive to facilitating communities of practice and achieving critical mass. Policy developments such as the AAR were expected to try to address some of these issues. Study participants also suggested various mechanisms for strengthening collaboration: forums for meetings and ideas exchange, and also wider-scale and system-level incentives and structural interventions to facilitate collaboration at scale. In particular, improved mechanisms for learning and exchange between different AHSNs and other regional actors were identified as important (while recognising the need to manage potential sensitivities related to competitive dynamics for funding). At the time of these interviews, the consideration given to AHSNs by the AAR to strengthen collaboration between regions was expected to be significant.
Future roles of AHSNs are expected to evolve in light of the changing national landscape.\textsuperscript{387}

In addition to their core roles in mobilising information and evidence and catalysing relations and networks to progress innovations along the pathway (roles around which there was wide agreement), regional interviewees highlighted their desire to see the AHSNs take on certain additional functions. For example, in the South West, providing skills support in areas such as business and legal advice was identified as important\textsuperscript{388}; it was also felt that the AHSNs should do more to raise awareness of their role and activities more widely.\textsuperscript{389} Going forward, interviewees expressed appetite for an AHSN role in stimulating the SME sector in order to encourage greater dynamism in the NHS supplier pool, as well in providing a regional voice for brokering relationships with industry to facilitate inward investment.\textsuperscript{390} One interviewee felt that their local AHSN could raise further awareness of the services it offers and the ways in which organisations can access and benefit from its resources and capabilities\textsuperscript{391}; it was also suggested that the AHSN could perhaps become more involved in the evaluation of innovations.\textsuperscript{392} In another region, some interviewees wanted the AHSN to adopt a more active role in facilitating implementation,\textsuperscript{393} to channel funding for adoption and spread\textsuperscript{394} and to ensure capacity for mentorship and coaching support across the innovation pathway (including for the translation of insights/information/evidence in a way that stakeholders can more easily understand and digest\textsuperscript{395}).\textsuperscript{396} Interviewees also expressed a desire for AHSNs to focus on coordinating and brokering information on innovation, including brokering to the public,\textsuperscript{397} and felt it would be helpful for AHSNs to contribute to strategic issues more widely in their respective regions,\textsuperscript{398} while the Innovation Agency focuses on developing relationships with academic partners\textsuperscript{399} and building capacity for innovation.\textsuperscript{400} When considering the scale and scope of AHSN resources, there was also recognition that these resources must not be spread too thinly,\textsuperscript{401} but that the distribution/concentration of resources should also ensure full regional coverage and inclusion in order to avoid the dominance of particular parts of a region.\textsuperscript{402}

Finally, study participants highlighted the potential value of greater cross-AHSN exchange and strengthened national NHS network identity for the dissemination of information and experience, and for flagging priorities across and between regions.\textsuperscript{403} Overall, and reflecting the evolving landscape, AHSN
evaluation metrics will need to be revisited to ensure that they are fit for purpose and to mitigate unintended effects (such as the lack of incentives for the uptake of innovations developed elsewhere).

**Relations with actors outside the NHS and across disciplines within the health system need renewed consideration**

Strengthening strategic relationships with those external to the NHS (universities, the VCSE sector and industry in particular) was considered essential for the facilitation of risk-sharing and for opening paths to commercialisation and idea generation.\(^{404}\) Many study participants also underlined the importance of strong interdisciplinary and cross-sector links. Innovation support groups, bringing together representatives from CCGs, Trust leadership, procurement and IT professionals, were one idea to promote greater interdisciplinary working around innovation, as was strengthening links across organisations and with improvement networks for communication and feedback (possibly facilitated by regional NDAs).\(^{405}\) It was suggested that secondments, dual roles and greater multiprofession representation at senior levels could also help to embed cross-sector collaboration and cross-professional working in innovation.\(^{406}\) Greater engagement with GPs was also seen to hold untapped potential.\(^{407}\)

**Joint accountability models and clarity on how STP footprints will evolve will be important for the longer-term sustainability of collaborative innovation efforts in regions**

Given a degree of competition for funding and influence,\(^{408}\) and in some instances the lack of a history of collaboration and trust,\(^{409}\) there is a clear need for stronger collaborative working between individual NHS organisations as well as with social care.\(^{410}\) Devolution models, although at early stages of consideration, were seen to hold promise in this regard, but only if accompanied by joined-up governance that can resolve silo accountability.\(^{411}\) Study participants were cautiously optimistic that STPs could be an enabler of greater coordination.\(^{412}\) This is because competition between organisations may be reduced as financial accountability moves away from the level of individual institutions (e.g. hospitals) towards broader financial accountability ‘across the footprint’. It is also expected that organisations will be held to account if they do not collectively contribute to improved health system performance and outcomes.\(^{413}\) However, there was also general recognition of the need to see how STPs will unfold in reality. The sustainability of key institutions and networks within this landscape was also of concern to study participants; for example, some networks receive central funding while others have to rely on membership and consulting fees. Interviewees therefore highlighted the need to revisit these funding models, with greater consideration of sustainability and legacy financial planning.\(^{414}\)

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\(^{404}\) 73, 102; workshops with the South West region (20–21 April 2016).

\(^{405}\) Workshops with the South West region (20–21 April 2016).

\(^{406}\) 2, 82, 84, 103, 116.

\(^{407}\) 43, 101; workshops with the South West (20–21 April 2016) and Eastern (8 June 2016) regions.

\(^{408}\) 1, 16, 18, 21, 24, 33, 49, 57, 74, 76, 80, 104, 113, 114, 119, 120.

\(^{409}\) 16, 119.

\(^{410}\) 2.

\(^{411}\) 77, 108.

\(^{412}\) 76, 103, 115.

\(^{413}\) 76, 103.

\(^{414}\) 20, 23, 35, 36, 45, 56, 72, 74.
Figure 9 (overleaf) presents a selection of key quotes from interviewees as they relate to the importance of building networks and relationships for innovation.
### On relationships and networks

#### On collaboration

‘Currently there are many levels of collaboration and coordination but it is not joined up and there are lots of parallel conversations and duplication’
– Vanguard representative

#### On the need for greater clarity on existing innovation support and available pathways for innovators

‘…most of the people that I speak to who are innovators… don’t know who the [relevant institutions] are… [or] that there’s an innovation support group that they can talk to… and get advice… [P]eople just don’t understand what’s available in their region’
– Primary care representative

#### On leadership for collaboration

‘I think that absolute clarity from some of the key senior figures around the city […] on getting this “joined-up-ness” and kind of synergy across the various organisational silos is a priority. …I think getting that…top-down message is really important’
– Innovation network representative

#### On creating a shared understanding of organisational identities and remits

‘We’ve done a lot of work over the years on clarity around organisational roles, responsibilities and boundaries so that we almost work as a seamless continuum, and I think it’s absolutely essential, otherwise you get everyone tripping over each other’
– Innovation network representative

#### On the importance of breaking down barriers

‘…it would be nice to think that we could overcome that silo mentality just by better partnership working, but sometimes I think you need a bit of leverage and that’s either through funding – which we know is in sort of scarce supply in the sector – or through having a governance structure that allows you to do that’
– Innovation network representative

#### On the need for a shared understanding of respective value

‘… what we hear…is businesses and social enterprises and charities saying, “the NHS doesn’t understand the value that I’m creating for them.” And my response to that quite often is, “…it’s your job as a business to understand [how the NHS measures value] and to create a product that meets that market requirement.” So there is a two-way thing here’
– Innovation network representative

#### On the need to move from a transactional to a collaborative relationship with industry

‘…what we have at the moment culturally is a system that predominantly looks inward and tries to solve problems itself and sees [working with] industry…, or [with] innovation from outside the NHS, as very much a transactional relationship’
– Innovation network representative

#### On learning through communication

‘…we’ve spent a lot of time in each other’s offices when we’ve trodden on each other’s toes [saying], “well, we didn’t get that right this time, what can we do to move it forward?”
– Innovation network representative
3.7. Financial resources, commissioning and procurement

Box 6. Funding, commissioning and procurement of innovation: Key messages

| (1) | The funding landscape is characterised by diverse sources of funding, but is fragmented and limited in its capacity to develop the critical mass necessary for innovation and support innovations across the pathway – from idea generation through to uptake and scale-up. There is a need for better coordination of current funding options, and for pragmatically minimising the bureaucracy associated with current processes. Innovation funding needs to be considered within a context that recognises more explicitly the determinants of success that relate to innovative means of commissioning and procurement and the wider context of organisational, cultural and behavioural levers for innovation in the health system. |
| (2) | Innovators find NHS commissioning and procurement processes difficult to navigate. Although commissioning and procurement hold significant potential to support an innovation-friendly NHS, this is rarely realised due to: (i) a lack of resource allocation for innovation by commissioners; (ii) short contract periods and funding pressures to achieve short-term savings being incompatible with the need for longer-term needs to be factored into more immediate commissioning decisions; and (iii) limited evidence provided to commissioners that specifies whole-system costs and cash-releasing (as opposed to hypothetical) savings. Procurement processes are seen as overly inflexible and prescriptive, focused on process outcomes rather than taking account of the value offered by innovations. Study participants felt that there is a need for much more strategic procurement of solutions and for closer links between procurement and commissioning. |
| (3) | New models utilising outcome-based commissioning and commissioning through evaluation were generally seen to have potential to facilitate innovation, if scale can be achieved and if risks associated with these models can be addressed (e.g. related to the upfront costs needed to support smaller-scale pilots and the introduction of innovation into the NHS). |
| (4) | Any potential new funding scheme for innovation would need to include in its design a rigorous assessment of existing funding schemes in order to effectively address gaps and gain synergy. This may call for both analysis of existing environments and foresight analysis of future needs. Successful funding approaches would consider: |
|  | a. **Areas of focus**: funding should support the progression of promising innovations across the pathway, address cross-cutting health system challenges and respond to emerging or distinct local or regional needs. |
|  | b. **Size and duration**: funding should provide support that recognises the different scales of funding needed and the speed of development for different kinds of innovation. |
|  | c. **A hybrid model of governance and management**: governance and management of innovation do not sit comfortably with existing structures. In particular, a more adequate framework would: (i) incorporate both national and regional elements in decision making, fund implementation and evaluation; (ii) consider accessibility to a broad range of actors to facilitate capacity-building for engaging with innovation across the system; (iii) balance nationally relevant and locally relevant needs, as well as recognising unmet niche areas and underserved groups; and (iv) balance support for transformation with meeting immediate financial targets. |
|  | d. **Procurement and commissioning contracts**: innovation should be factored into contracts through, for example, the Innovation and Technology tariff, or by ring-fencing a proportion of commissioning budgets for commissioning by evaluation or innovative service development. A ‘league table of innovation’ could be available for commissioners. |
| (5) | Transparency in selection criteria and feedback around funding decisions are important for potential innovators. This applies both to dedicated innovation funds and to commissioning and procurement approaches designed to strengthen innovation. Options for innovation fund models identified by informants spanned challenge funds, prize funds, social investment fund models and progressive milestone-based approaches. There is also a need to consider innovative risk-sharing arrangements and payment and reimbursement mechanisms, including for commissioning and procurement arrangements. |
3.7.1. Status quo and existing schemes for funding and commissioning innovation

Participants in our research highlighted that diverse sources of funding exist for health innovation, but that they are fragmented. Examples of this diversity of available funding sources, at both the regional and national level, are given in Table 15 below. As a result of this fragmentation, promising innovations are seen to lack support across the innovation pathway.\footnote{25, 28; workshops across all regions.} Study participants felt that funding had historically focused more on capacity for innovation development than on uptake, spread and scale-up.\footnote{Workshops across all regions.} Despite the central importance of funding as an impetus for innovation within the health system, study participants also emphasised that financial challenges need to be interpreted in the context of other challenges (organisational, structural, cultural and regulatory).\footnote{2, 9, 119; workshops across all regions.}

Interviewees stated that the NHS procurement and commissioning structures are difficult to navigate.\footnote{9, 119; workshops across all regions.} Study participants noted a lack of information on procurement and commissioning processes, and this was particularly challenging for private companies trying to get their innovations commissioned by the NHS. There was a sense that they lacked a ‘route map’ into the NHS, making it difficult to access the appropriate resources and authority to procure or commission a new product, technology or service.\footnote{112.} This was seen to be a particular barrier for less established small organisations with limited resources to invest.\footnote{6, 33, 72, 93.} Procurement processes were generally seen to be too inflexible and prescriptive, and focused on process outcomes rather than taking account of the value and impacts that are being procured.\footnote{6, 33, 47, 87.} Interviewees felt that there is a need for much more strategic procurement of solutions with a specific impact, and for closer links between procurement and commissioning. Interviewees emphasised that the potential costs and benefits of innovations across the whole pathway must be visible to commissioners and felt that an integrated system (such as that associated with devolution efforts in Manchester and the Devon integrated care organisation in the South West) was an opportunity to reshape the fragmented landscape and enable a more holistic perspective on innovation.\footnote{47, 57.} Study participants mentioned other innovative approaches to commissioning, such as the commissioning through evaluation scheme, outcome-based commissioning models in the South West\footnote{10; workshops with the South West region (20–21 April 2016).} (see Table 15) and the Test Beds initiative.\footnote{23, 74.}

Some concerns were expressed over the sustainability of current funding earmarked specifically for innovation, and the impact of wider health system instability on efforts to scale up innovation was raised repeatedly by study participants.\footnote{23, 74.} An additional concern was the time-consuming bureaucracy associated with funding applications,\footnote{10, 12, 22, 35, 47, 51, 74, 76, 88, 104, 107, 119; workshops across all regions.} and some interviewees suggested alternative models which favoured face-to-
face dialogue with funders over written applications, although the implications regarding the time demands of such a model are not clear. In terms of overcoming the disincentive of paperwork, it was felt that the amount of funding available should be commensurate with the resource investment required to ensure that applying was a worthwhile effort.

Table 15. Examples of funding and commissioning schemes and initiatives to support innovation in the health system

<table>
<thead>
<tr>
<th>Funding for innovation development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• National funding schemes included the SBRI, Innovate UK Funding (e.g. grants for health and life science enterprise), NIHR (e.g. i4i), NHS England Innovation Funding, the NIA and Clinical Entrepreneur programmes, Accelerators, Catalysts, Catapults and Vanguard funding support for service-related innovations.</td>
</tr>
<tr>
<td>• European Union funding programmes, including framework programmes and European Regional Development Funds.</td>
</tr>
<tr>
<td>• Private-sector funding</td>
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<tr>
<td>• Philanthropic funding, e.g. through the Health Foundation and medical charities.</td>
</tr>
<tr>
<td>• Regional funding initiatives: seed funding provided through AHSNs, Accelerator funding (e.g. the digital accelerator in the UCLP and related actors region of influence, and joint-venture partnerships such as the Eastern region MedTech Accelerator.</td>
</tr>
<tr>
<td>• Organisational-level funding initiatives: Dragon’s Den-style competitions within Trusts, and small pots of ring-fenced Trust and CCG funding, such as that put aside by City and Hackney CCG.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Commissioning for innovation</th>
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<tbody>
<tr>
<td>• The commissioning through evaluation scheme allows innovations to be commissioned at a small scale in the first instance (akin to a commissioning pilot) to deliver innovative products or services in return for providing data about their effectiveness, in order to evaluate their potential to be implemented more widely. However, awareness of the scheme was low.</td>
</tr>
<tr>
<td>• Outcome-based commissioning: for example, in the South West, new outcome-based commissioning models are being developed by the AHSN and Somerset CCG. Somerset Together is working towards a full outcomes-based structure for the local population in the next year with a hybrid approach intended to release innovation in the system by providing an outcomes bonus on top of the traditional activity payment. For its part, the South West AHSN is exploring outcomes-based commissioning projects targeted at specific high-need populations and responding to broader social determinants of health, with the provider then paid on delivery of both outcomes achieved and system change.</td>
</tr>
<tr>
<td>• Similarly, in Tower Hamlets confederations of GP practices were commissioned to reduce cholesterol and blood pressure in patients with diabetes and heart disease. Thirty per cent of the payment for this contract</td>
</tr>
</tbody>
</table>

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427 76.
428 50, 53, 79, 114.
429 46; workshops across regions.
430 2, 10, 30, 46, 119.
431 3, 46, 61; workshops with Greater Manchester and North West Coast regions (16–17 March 2016).
432 28.
433 27, 83, 107, 114.
434 National Health Service (2016c).
435 10.
436 57.
437 57.
hinged on the clinical outcomes of all patients in the region, meaning that all practices had to work together and engage with innovation to meet this target.\(^{438}\)

- GP commissioning in City and Hackney: in City and Hackney, GP practices are commissioned under a Clinical Behaviours Contract, which specifically pays GPs to improve quality of care. It thus incentivises GPs to adopt a more innovative mindset, engage in reviews of clinical practices and referrals, attend monthly CCG meetings and pathway launches and use the Consultant Advice Line.\(^{439}\)

**Exploring further needs and systemic interventions as they relate to funding, commissioning and procurement**

Some study participants emphasised that innovation should be factored into procurement and commissioning contracts, for example through the Innovation and Technology tariff or by ring-fencing a proportion of commissioning budgets for commissioning by evaluation or innovative service development.\(^{440}\) They felt that innovation would be made more attractive to commissioners if ‘hard’ targets (such as cost savings and patient health outcomes) could be demonstrated alongside ‘soft’ targets such as positive impact on staff culture.\(^{441}\)

Some workshop participants and interviewees also highlighted the importance of other innovative payment and reimbursement models, ranging from revenue share and royalty agreements for innovators, to milestone-based payments, to risk-sharing arrangements between collaborators and the funnelling of revenues back into NHS funding pots.\(^{442}\)

Improving commissioning and procurement processes with more joined-up and earlier communication between innovators, NHS providers, commissioners and procurement functions (including regarding the business case for innovation) was seen as important for identifying potential risks and market realities in a timely manner.\(^{443}\) In addition, study participants saw a need to more systematically engage with industry and the private sector early in the innovation pathway, from the generation of commercialisable ideas to translation into practice.\(^{444}\) Some interviewees suggested that it might be possible and more efficient to broker deals above the level of individual commissioners,\(^{445}\) which could result in economies of scale\(^{446}\) and also overcome the cultural and administrative barriers to the NHS working with commercial companies.\(^{447}\)

Study participants also emphasised the need for enhanced focus on foresight analysis in the health system.\(^{448}\) One stakeholder described a ‘league table’ of innovations developed with procurement leads in

\(^{438}\) 54.
\(^{439}\) 114.
\(^{440}\) 3, 4, 32.
\(^{441}\) 3, 32.
\(^{442}\) 112; workshops with the South West region (20–21 April 2016).
\(^{443}\) 23.
\(^{444}\) 16, 112.
\(^{445}\) 38, 44, 77.
\(^{446}\) 44, 77; workshop with the Greater Manchester region (17 March 2016).
\(^{447}\) 38.
\(^{448}\) 90, 116.
the Greater Manchester and North West Coast region to encourage procurement of successful innovations.449 Interviewees also felt that simplification and consolidation of the current array of funding sources could make it easier for those engaged in innovation to understand what is available to them.450 Building a centralised website or other platform for this purpose was suggested as a possible solution.451 Across stakeholders, there was broad support for more innovation-specific funding in the health system,452 although one interviewee felt that ring-fencing innovation funding could counteract efforts to embed innovation in everyday NHS activities, remits and cultures of a broad range of actors.453 Some interviewees also flagged that any new innovation funding scheme would need to be designed with due consideration of the complexity of the current funding landscape, with a thorough understanding of how current schemes complement each other and how a new fund would add value.454 Our research identified a number of critical factors to consider for any potential designated innovation funding scheme. These are: focus; governance and management of access; implementation and evaluation; and size and duration of funding.

• **Funding priorities:** Study participants noted a range of differing priorities that were important for funding (e.g. proof of concept,455 uptake,456 support functions such as IP and legal costs457; networking, coaching and mentoring fund;458 buying out innovator time in the NHS459; evaluation and implementation support funds460; facilitating patient engagement461; and specific aspects of care pathways462). Priorities often reflected stakeholder and professional identities and local and regional experiences of accessing innovation development funds; however, there was a strong recognition of the need for a systems approach to support promising innovations acting across the pathway, i.e. milestone- or deliverable-based models,463 which might accelerate such innovations while filtering out initiatives with less potential more efficiently.464 Any centralised funding would need to be large enough to support such a pathway approach,465 have a long-term orientation466 and offer a mix of short-, medium- and longer-term success criteria and outcome measures.467

449 12.
450 1, 37, 47, 51, 68, 78, 103.
451 51, 68, 78, 103.
452 Insights across workshops with regions engaged with in the study.
453 30.
454 25, 28, 46, 50, 113.
455 1, 6, 7, 13, 22, 23, 24, 30, 35, 39, 45, 56, 63, 77, 107, 115, 117.
456 2, 4, 5, 27, 44, 53, 75; workshop with UCLP/London region (19 April 2016).
457 26, 33, 45.
458 3, 83.
459 6, 33, 36, 37.
460 19, 34, 51, 109.
461 40.
462 27, 70, 76.
463 13, 20, 24, 37, 45, 59, 67, 68, 70, 99, 112, 117; workshops across regions.
464 3, 12, 77, 119.
465 89, 113, 114; workshops across regions.
• **Thematic focus:** There was widespread recognition of the need for funding schemes to remain open and responsive to emerging needs, with some provision for addressing national priorities as well as distinct, local needs. Cross-cutting national priorities that were shared between regions would need to be reflected as part of any national, ring-fenced funding scheme (for example, self-care, integrated care pathways, patient safety, digital innovation, prevention). Study participants also felt that it would be important to be able to support distinct local needs outside of these areas, and there was no clear consensus on the balance of funding between these aims. 468

• **Timeframe and duration:** Participants highlighted than any new innovation funding scheme should reflect realistic innovation lifecycles, recognising that some types of innovations may have longer development timeframes (e.g. medicines) than others (e.g. some service innovations or digital solutions) 469 and that the upfront costs of innovation uptake in the NHS also need to be considered. 470

• **Management and governance:** Study participants noted the importance of ensuring clear management and governance arrangements, and accountability for use of innovation funds in order to avoid the redirection of funding for other purposes. 471, 472 Across stakeholders, the need for a hybrid management and governance model incorporating both national and regional elements came through strongly. 473 Related to this, some interviewees highlighted the importance of innovation funding being accessible to a broad range of actors in order to promote a culture of innovation across the health system, rather than only in key centres of excellence or among the ‘usual suspects’. 474 Similarly, many interviewees recognised the need to balance support for transformational innovations, 475 with smaller-scale grassroots initiatives which show promise for high impact locally or for particular underserved groups. 476 This was supported by views on the need for a mix of large-scale funding and some flexible, accessible small-scale sources of individual project support. 477 Selection criteria would need to be transparent and agreed at national levels and within regions, but with some regional autonomy for distribution and ultimate selection. 478 The NIHR Research for Patient Benefit Scheme was mentioned by one interviewee, as an example of a hybrid national and regional selection process and model which might offer transferable insights for managing an innovation fund. 479

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466 19, 34, 43, 113.
467 6, 13, 17, 102.
468 27, 68, 70, 71, 84, 93, 106, 118, 120.
469 9, 10, 12, 42, 44.
470 9, 99, 100, 104; workshops across regions.
471 2, 31, 105; workshops across regions.
472 51, 103.
473 45, 56, 93; workshops across regions.
474 4, 20, 22, 23, 30, 47, 56, 93.
475 31, 105.
476 3, 100; workshops across regions.
477 100, 105; workshops across regions.
478 34, 53, 114.
479 Workshops with the South West region (20–21 April 2016).
Suggested options for administration models spanned challenge funds, prize funds, social investment fund models or staged and milestone-based progressive funding schemes.⁴⁸⁰

On the following pages (Figure 10), we present a selection of interview quotes that illustrate stakeholder views on the funding, commissioning and procurement of innovation.
## 75

**Figure 10. Interview quotes relating to the funding of innovation**

### Financial resources

#### On the importance of “reinvestment”

> ‘Invest for change, but harvest back for reinvestment in change elsewhere’
> – Private-sector representative (UCLP and related actors)

#### On the need for more whole-system thinking to enable a fuller understanding of innovation, impact, cost and benefit

> ‘In mental health many of the innovations that we might see and even those that come to us from, [for example] the voluntary and community [sectors] or from industry, are much more about cost reduction than cash-releasing. And there’s not a maturity in the conversation around cost-reduction and how you describe the benefits of something that... might reduce cost when you can’t see whether those costs will actually come out of the system or... might come out of a different system...’
> – NHS Trust representative (South West)

#### On the need for business acumen

> ‘...representation from someone who understands about scale-up, not just of things but of processes and so on, someone from industry... Then you could get some really good spend, really good impact...’
> – Higher education representative (South West)

#### On the value of small amounts of readily available funding to promote cultural change

> ‘...so if it’s a certain amount of funding to action very simple ideas, that’s part of the empowerment process, isn’t it? If people can apply for that funding in a really straightforward manner. And obviously as the funding goes up then the application process becomes more complicated’
> – NHS Trust representative (Eastern region)

#### On the sustainability of funding

> ‘...how do you make sure these just aren’t cul-de-sacs with your funding, if that makes sense? So, how do you move away from having the funds, grant funding, on to something which is self-sustaining over time? I think that would be the other key principle for me’
> – Higher education representative (North West Coast and Greater Manchester)

#### On accountability for the use of funds

> ‘The money has to be ring-fenced. And there have to be rules that, if it’s going to be for an innovation, it is for the innovation; it’s not to prop up a failing system somewhere else...’
> – CCG representative (South West)

#### On longer horizons for returns on investment

> ‘...the restrictions that we often see around funding which are “What is the return on investment for this particular bit of funding? What is the projection? When is the deadline?” etc., are potentially stifling for some of the most innovative ideas that people might have...’
> – Primary care representative (South West)
Creating and Connecting Receptive Places

**Commissioning**

**On making the case for commissioning**

“It’s very easy at the moment to say “No, I don’t want to include digital”, or “No, I don’t want to do it”...Whereas if you can say actually “80 per cent of kids [suffering] depression between 12 and 18 would really value and want a digital service”, then it’s really difficult for a Commissioner not to commission that”

– Private sector representative (UCLP and related actors)

**On the potential of commissioning by evaluation**

“What we need is a model that is a bit like they have in specialised commissioning [i.e.] “Commissioning to Evaluate”, so that someone can say “We want to use up a third of our “Commissioning to Evaluate” budget to commission a hundred thousand units from this company to see if it really does do what it did in the pilot.”...My understanding is that this practice exists in pockets of the system but not at scale, but if it were to exist at scale it would, I think, ...be revolutionary”

– Innovation institution representative, North West Coast and Greater Manchester

**On outcomes-based commissioning**

“The more we can move towards commissioning that is based on outcomes or bundles, whole pathways of care together, to encourage different parts of the provider landscape – whether it’s primary care, secondary care, specialist care, community care – to actually come up with different ways of working together so that we can operate within an envelope payment for an entire pathway – those are things which we need to do in the NHS. I think this year has been probably the first year since the white paper reforms back in about 2011/12 where the commissioning sector has actually begun to settle down and developed some organisational maturity”

– NHS Trust representative (UCLP and related actors)

**On the need for more integrated commissioning**

“I think we need to look at things in an integrated way, a pathway approach or a patient-centred approach, and the costs and the benefits must be seen across the whole pathway and indeed across the patient’s lifetime”

– Innovation institution representative (North West Coast and Greater Manchester)

**On short-term budget cycles as a barrier to commissioning of innovation**

“There are examples of good innovations which will have good returns on your money, but normally it's two or three years. Now if you’re in a business, ...and someone says “Listen, I can double your money in two to three years,” you’d be out at the bank manager saying “Come on, give us a loan”. Not the NHS. The NHS says “No, you can’t do that, you’ve got to have financial balance”...It’s an enormous barrier”

– CCG representative (South West)

**Procurement**

**On the challenges of current procurement processes, in relation to innovation**

“Each organisation has got a massive process manual for procurement, to make sure that you don’t end up inadvertently breaking the law, but sometimes that can take your attention off what the intention of the commissioning is – what you’re actually trying to achieve with this bit of commissioning,...So you might have a very innovative intention, but if you commission it poorly it won’t work out...”

– Charity and patient advocacy representative (UCLP and related actors)

**On reforming the nature of procurement**

“The NHS must “procure for a solution” rather than for a product”

– Private sector representative (Eastern region)

**On innovating in procurement**

“So instead of bulk-buying wheelchairs because they get good value [for them], they’re almost like bulk-reserving X number of wheelchairs and then they’re calling them up, as they need them. So it means then, if a new cushion comes out or a new design comes out, they’ve not bought the old product, they’re buying what’s currently there. So that’s about innovations being brought into procurement”

– Innovation institution representative (Greater Manchester and North West Coast)
4. Discussion and Next Steps

4.1. The combinatorial nature of health innovation

This study starts from a practical recognition that the success or failure of efforts to improve and innovate depends on the extent to which they enable participants to act differently, by allowing and incentivising them to make more informed choices and by providing the resources (financial, informational, relational and social, time and headspace, physical, etc.) and enabling institutions that are needed for individuals to act on these choices. Participants in our study consistently highlighted that a combination of forces is required for them to be innovative and transformative. The learning from the data we have analysed suggests that the UK’s becoming ‘the best place in the world to design, develop and deploy’

transformative health innovation will require: timely and relevant information and evidence; skills, capabilities and leadership; motivations and accountabilities; relationships and networks; patient and public engagement architecture; and financial resources, commissioning and procurement landscapes. These all interact with each other to enable or constrain innovation efforts at different levels in the system (organisational, regional, national, international). This ‘combinatorial’ thinking is helpful for practitioners seeking to marshal their resources, but challenging for policy makers, evaluators and academics, since it requires the simultaneous pursuit of macro-, meso- and micro-scale change, and of structural as well as behavioural transformation.

This perspective on the combinatorial relationships and interdependencies that are needed for successful innovation, as highlighted by our study participants, also adds a somewhat more nuanced though complementary dimension to the way the term ‘combinatorial innovation’ has been conceptualised in much recent health-policy thinking, ensuring that the ‘combinatorial’ feature applies as much to the social and institutional arrangements, and culture and value systems underpinning innovation development, adoption and spread, as to the physical ingredients and interactions between specific innovations. This interface between the physical and social nature of innovation is not new in innovation theory. The term ‘social technologies’ invokes its counterpart ‘physical technologies’ to suggest that institutions and social interactions are not only important to factor into policy thinking, but that they co-evolve with the physical technologies – i.e. the innovations themselves. As explained by Chataway et al.: ‘Nelson and Sampat point out that much of what goes on in institutions is difficult to codify and takes the forms of specialised routines. They make reference to the tacit skills required to bring a cooking recipe to fruition and explain why the concept of social technologies is useful with reference to the limitations of a written recipe: “...a recipe characterisation of what needs to be done represses the fact that many economic activities involve multiple actors, and require some kind of coordinating mechanism to assure that the various aspects of the recipe are performed in the relationships to each other needed to make the recipe work. The standard notion of a recipe is mute about how this is done...”[We] propose that it might be useful to call the recipe aspect of an activity its

481 Department of Health (2016).
482 National Health Service (2014).
484 Chataway et al. (2012, 736).
“physical” technology, and the way work is divided and coordinated its “social” technology”. In addition, the ‘physical combinatorialism’ – i.e. increased recognition of the need for multiple innovations to work together to provide needed solutions, as manifested in the Test Beds initiative – creates new complexities in terms of the social nature of combinatorialism, as the increasing number of innovations calls for new ways of sifting, filtering, combining and recombining innovation-related information and evidence, requiring both foresight and increased attention to new means of evaluation.

This focus on the combinatorial nature of innovation also allows us to identify the sorts of ‘receptive places’ where innovation might flourish. In this emerging insights report we have begun to identify the characteristics of such places, based on what many of those most closely involved in delivering healthcare innovation in England – across stakeholder groups and geographic boundaries – believe is important. We hope, as the next phase of our project evolves, to begin to identify workable solutions based on this better understanding of the nuances and intricacies, and of the scale and scope of the opportunities to achieve innovation-friendly environments. Creating such environments can be achieved alongside delivering transformative innovations (indeed, specific innovations can sometimes foster ‘receptive places’). We are already learning more about the practical steps needed to establish a health system that embraces innovation as a core feature of its identity and function. As illustrated throughout our report (see Tables 4–14, Section 3), we are learning about how different regions (as well as national-level initiatives) are seeking to harness the drivers of innovation in practice and capturing how the various initiatives ‘on the ground’ directly respond to specific health innovation drivers. This empirical richness has helped us tease out the multifaceted nature of health innovation and creates fertile ground for the next phase of our study.

The challenge ahead will be to prioritise and identify which of the diversity of initiatives and approaches we have identified has the greatest potential for impact at scale and sustainability. To do this, we need to consider criteria such as the relevance of an approach, its short-, medium- and long-term feasibility, acceptability, scalability and sustainability, and these considerations will inform the next phase of our work.

### 4.2. Creating receptive places for innovation

**The 1:9:90 view of engagement in innovation**

Reflecting on the evidence described in this report, but not directly demonstrated by it, we suspect that there will be different levels of involvement in receptive places for innovation, with each level supported differently. For example, it is claimed that in the running of Wikipedia, 1 per cent of users actively create new material, 9 per cent edit and improve material they are interested in and 90 per cent use the online material.485 By extension, we might argue that innovation involves 1 per cent who are centrally involved in leading, designing, developing and deploying innovations, 9 per cent who play a significant role in facilitating this activity as part of their routine work, and 90 per cent who use the innovations and are receptive to an innovative organisation. Clearly, the precise numbers are not crucial; nor are they directly transferable to the context of innovation in the NHS – but the concept highlights the importance of recognising different levels of engagement and different capabilities required at each level. The ‘1 per cent’

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will be the key leaders who link across organisations and mobilise innovation within them. The 9 per cent are likely to also lead at different levels in the system and to organise and manage the process of innovation, while the 90 per cent are those whose work sustains a health and care system that is innovation-friendly. Supporting the 1 and 9 per cent groups to develop the skills needed is important, but so too is a consideration of the 90 per cent, whose role is likely to be crucial for determining success, especially as innovations come to be deployed.

Segmenting the participants in this way is, we think, helpful. We anticipate taking this idea further in the next stage of our research but at this interim stage we emphasise only that it would be helpful to explore a targeted approach to support different levels and natures of engagement with the innovation pathway rather than taking a ‘one size fits all’ approach. In particular, our first phase of work has collected a great deal of information about the 1 per cent and some about the 9 per cent, but it is plausible that the 90 per cent perceive innovations differently, approach adoption differently and view spread and replication differently. It is also likely that initiatives that only improve innovation pathways for the 10 per cent but do not address the 90 per cent will fail.

**Aligning and coordinating between regional and national priorities, institutions and interactions is essential for creating ‘receptive places’**

We know that ‘receptive places’ for innovation will need to align national, regional and local innovation priorities, and support evidence-based and stakeholder-inclusive processes for determining what those priorities are in a timely manner. Insights we have gained during this phase of our research suggest that there will be shared, cross-cutting national priorities (for example in areas such as patient safety, self-care, digital health and data infrastructure), as well as priorities specific to a locality or particular population group. If and when priorities are agreed (which will require both learning from past experience and horizon scanning for needs and solutions), these ‘receptive places’ will need evidence of what works and how, and incentives – for example to adapt ‘proven’ innovations developed elsewhere to local circumstances. They will also need clear signposting to identify existing networks, groups and organisations to engage with, and clarity about who is accountable for what and with what consequences. These requirements, we were told, generally need to be aligned in local and regional settings. These settings are currently evolving and being transformed through the activities of and relationships between diverse regional initiatives including AHSNs, Test Beds, Vanguards, Innovation Hubs and various other regional innovation and quality improvement networks (some examples were identified in Table 9; see Section 3.6 above). Ensuring clarity in the roles of individual actors, complementarity and a shared overarching vision for how innovation can help improve the health system was widely seen as important for impact by the individuals engaged with in our research thus far.

Our workshops and interviews also point to the need for regional initiatives and institutions to be supported to work together as a national network, to exchange information and evidence on best practice and to flag priorities. The Innovation Exchanges and the Accelerated Access Partnership suggested in the AAR offer a framework for facilitating improved coordination in this regard. How they are implemented in practice will depend as much on establishing formal structures, accountabilities, processes and resources for collaboration as it will on informal relationships and networks. In turn, these will also be shaped by the degree of shared understanding and clarity in health policy and innovation policy. Greater clarity
would help coordination among regional and national innovation activities, providing simultaneous support from new national policy developments, regional structures and processes (e.g. connecting regional institutions that are both receptive to national policy and help shape it); and very local interventions (giving staff time provisions for innovation activities, establishing joint roles and secondments for individuals, providing organisational innovation funding pots, etc.). Together these could help create enabling conditions and receptive environments – for example in commissioning groups, in individual provider organisations and within specific communities of practice. There will inevitably be both synergies and tensions at play in approaches which seek to integrate collaboration, coordination and a degree of competition. The balance between these three forces is a critical issue both for the health system more widely and for innovation policy and practice within it, and will be important to consider in regard to how policy developments play out in practice.

A ‘whole-pathway’ approach to health innovation is important for ensuring vibrant and sustainable ‘receptive places’

‘Receptive places’ would also support promising innovations across the innovation pathway – from idea generation and articulation through innovation development, testing, evaluation and ultimately adoption, diffusion and potential modification over time, as new real-world evidence becomes available. While the same individuals and organisations do not have to be involved throughout the pathway, it needs to be organised such that participants know how to navigate it. Our respondents described a variety of boundary-spanning activities and cross-organisational ways of working to support efficient and effective progression through the pathway. The Accelerated Access Partnership, whose establishment was recommended in the recent AAR, is another step in this direction. Health innovation pathways differ according to local circumstances but are also shaped by national priorities and initiatives, especially when these come with strong incentives and establish new accountabilities. They have been shaped by (for example) AHSNs and Test Beds at the regional and local levels and the contributions of (for example) NICE evaluation activities and Innovation Tariffs at the national level.

Different regional health economies are organising their health innovation pathways in their own, sometimes distinctive, ways. We were told that these pathways are becoming better known and more visible. However, we were also told that a need to align individual, organisational and system-level interests across multiple stakeholder groups persists. There is no need for each stakeholder group to lose its unique identity, but there is a need for an overarching shared vision for the innovation system. This vision is facilitated when leaders and brokers help create ‘ecosystems’ where these different interests and organisations can negotiate and work together. Similarly, while regional health innovation pathways should reflect local circumstances, it is also important for regions to share experiences, where appropriate aligning to work better together and to contribute to national policy making.

Patient and public involvement is widely accepted as an essential part of creating receptive environments, yet it is still particularly underrepresented. We have begun to understand the diversity of initiatives that currently exist (as discussed in Section 3.5) to engage patients and the public, and which seem to span quality improvement, research engagement and innovation. We have identified scope for closer collaboration and coordination across these three spaces and across different types of engagement platforms (e.g. web-enabled, community-based, committee-based; patient and public reference or
participation groups), including through umbrella organisations. We will explore patient and public perspectives further in the next stage of the research.

**Linking innovation and improvement is important for ‘receptive places’ and the efficiency and effectiveness with which they function**

‘Receptive spaces’ will connect innovation pathways to healthcare improvement pathways, adding value and/or reducing costs. This intersection between innovation and improvement is both central to successful innovation and, in our initial analysis, less well understood than other aspects of successful innovation. In a narrow sense, this concerns developing a business case for the innovation which makes a clear case for investment based on identifiable returns – both social and economic – and in light of both quality-of-care and cost considerations (including assessments of decommissioning needs). Given the uncertainty surrounding innovation in general, receptive spaces (and supportive innovation frameworks and institutions) also need to engage with real-world evaluation, allowing for the business case to be revisited over time, to consider appropriate risk-sharing arrangements between actors and to respond to the inherent uncertainty of innovation, and to the risks of not innovating. In a wider sense, the issue is cultural and historical. The separation of innovation and improvement in policy and practice inhibits coordinated and complementary efforts.

**A portfolio approach to innovation is important in receptive places**

A portfolio approach to the suite of innovations in any one region, as well as in national-level decision making, would help spread risks and opportunities across stakeholder groups and potentially balance high-risk (but potentially high-gain) projects with safer opportunities and ‘low-hanging fruit’. The diversity of incentives for innovation attach different weights to individuals, organisations and stakeholders (those working within the NHS as well as external innovators and patients) and can be in tension with each other. An effective portfolio approach to innovation will not prioritise on a case-by-case basis but will support a balance of both quality and cost considerations and productivity improvements. Towards this end, interviewees saw potential in the whole-system thinking behind STPs and planned devolution and integration efforts.

Our respondents also recognised that different types of innovation require different kinds of ‘receptive spaces’. A balanced portfolio would address the different opportunities for innovative drugs and vaccines, devices and diagnostics, service innovations and digital innovations. These all require the involvement of different scientific disciplines, different patient and carer inputs, different kinds of organisation and different clinical settings. In turn these disciplines and associated supports will be available in varying degrees in each locality.

A whole-system, balanced approach is possible because the NHS operates across disciplines and clinical settings and has close links to academic institutions that can support the science, as well as to companies, patient groups and charities. However, though the NHS is potentially one of the most integrated health systems in the world, with access to the cutting edge of the health data revolution, a coherent approach to innovation is still emerging.
4.3. On reflection

Our emerging insights report identifies an innovation landscape that in recent years has taken on many more of the characteristics needed to create a ‘receptive space’ for innovation. This stage of the research aims primarily to understand the attitudes of those inside and driving innovation in and around the NHS. However, the emerging insights report goes beyond problem identification to include an understanding of what those engaged in delivering health innovation believe the solutions to be, along with a rich set of examples. We believe that their insights about what works and what could work better are a vital part of identifying realistic solutions. Furthermore, we suspect that historical improvement and innovation approaches in the NHS have frequently been hampered by too little attention being paid to understanding the problem before arriving at perceived solutions.

Towards the very end of our data collection for this phase of work, the AAR was published. This introduces a further and substantial effort to transform this innovation landscape and it is important to acknowledge its potential in relation to the issues we have outlined in this emerging insights report. Central to the AAR framework is improved alignment between national policy and actors (e.g. regarding regulatory approval, NICE HTA, NHS England commissioning and reimbursement), regional innovation activities and actors, and local diffusion. The interventions outlined in the AAR resonate with many of the findings highlighted in our research. In particular, these include the need for enhanced clarity about and coordination of health innovation activities and closer collaboration between key innovation practitioners, health system actors and national bodies to support promising innovations across the entire health innovation pathway, at pace and at scale. Some of the suggested initiatives and support mechanisms of most relevance to this report identified in the AAR include:

- The designation of transformative innovations (5–10 annually) with potential for high impact, which will receive support to be identified early, and will be tested promptly in the NHS to generate evidence of impact, evaluated and approved with innovative reimbursement plans.

- Support for conditional licensing and other early-entry arrangements, including in combination with innovative and flexible pricing arrangements to streamline reimbursement for innovators (e.g. differential pricing for different indications, volume-based contracts, outcome-based contracts, annuity-based contracts, Innovation Tariff support).

- A more prominent role for NHS England to engage with actors across the innovation pathway, working closely with other key agencies such as NICE, the Medical and Healthcare products Regulatory Agency and NHS Improvement, and working locally with AHSNs, Test Beds, Innovation Hubs, NHS Trusts, teaching hospitals and clinical leadership, as well as NHS Improvement.

- A refreshed AHSN network as a key structure to support more integrated local health.

- Mechanisms to enable the NHS, patients and innovators to work more closely together at local and national levels, especially to identify innovation priorities and to provide evidence on how innovations will change pathways and improve outcomes. Such mechanisms would
enable take-up, commissioning and diffusion of innovations, and would also be strengthened by an improved horizon-scanning process.

- Distinct pathways for different types of innovations, including new regulatory arrangements for digital technologies (e.g. Paperless 2020).
- Freed-up financial resources to support the AAR implementation processes, an essential part of which will be decommissioning drugs and technologies which no longer have utility.

These initiatives and support mechanisms highlight the critical need for a whole-pathway approach that ‘connects’ supply and demand and recognises their mutual interdependence. In their respective introductions to the AAR, Sir John Bell and Simon Stevens identify the overarching issues that would need to be addressed for its successful ‘landing’. First, according to Bell, the NHS would need to provide strong support in terms of engagement with the framework that has been outlined. Second, there would need to be a process for identifying and pulling diverse types of innovation into the NHS at pace and at scale. Third, there would need to be early dialogue between innovators and the NHS and close collaboration between NHS England and NICE as part of this process. Fourth, decisions across the first three areas would need to be supported by the availability of an enhanced data infrastructure to help decision making. Should all these issues be addressed, this would provide ‘a first essential step’ to ensuring that the life-sciences sector in the UK leads to strong economic growth and to patients accessing improved treatment and care at prices the NHS can afford.

During the final phases of producing our emerging insights report, the Department of Health England and the Department for Business, Energy and Industrial Strategy announced GBP 86m of new funding to support innovation in the health system. Key areas of support include GBP 39m of funding for AHSNs to devote to enabling uptake of proven’ innovations; GBP 35m to support digital innovation capacity – through a digital health technology catalyst; up to GBP 6m of assistance for SMEs to test innovations in the ‘real world’ and to facilitate participation in early-access schemes; and GBP 6m for a Pathway Transformation Fund to tackle additional systemic obstacles, including those related to practical skills for effective innovation uptake and diffusion in the system. This seems to respond to many of the focal areas of the AAR (especially related to AHSN roles, early-access mechanisms and support for SMEs, capacity-building for digital innovation and tackling some skills gaps).

In addition to ensuring a whole-pathway approach to innovation (from idea generation through to development, adoption, diffusion and scale-up), taking forward current policy developments, building on the current momentum and successfully landing policy in practice will also require careful consideration of relationships and interdependencies between health and care sectors, between clinical and allied health and social care professions, and between different cross-cutting and complementary health-sector priorities (e.g. prevention and early intervention, self-care, patient safety, managing long-term conditions, health data infrastructure). Because this will involve working very differently, non-traditional actors will need to be heavily engaged in the transformation process – actors from social care, actors from the digital technology space and even actors from the wider commodities sector perhaps, who may have been

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tackling some of the issues the NHS is currently trying to better understand (e.g. representativeness in engaging population views, managing commercial risk, regulation of digital technologies).

Finally, and crucially, there is a need for policy to focus equally on structural and behavioural interventions. This will include considering structural and behavioural aspects of the evolution of institutions within the current health, research and innovation systems architecture (for example in relation to the evolving role of AHSNs); nurturing boundary-spanning and brokerage roles between them and with other actors at regional and national levels; and supporting both formal processes and informal networks and communities of practice. It will also include creating more permissive organisational environments – in the context of incentives, rewards, cultural change, leadership, training and skills – to ensure the space to engage with innovation across acute and primary, as well as social care pathways. In practice, we also need to better understand the scale of investment into these areas, which is critical for the structural interventions to be effectively embraced and effectively adopted across the health system.

The next phase of our research will focus explicitly on what these issues imply for the development of targeted and actionable recommendations that build on the learning we have gained thus far. It will also respond to the policy developments following the AAR (such as the new funding and associated initiatives made available to support health innovation, as discussed above). There will continue to be a focus on practical action on the ground – in provider communities and commissioning bodies, for innovators and patient and public representation bodies – along with support for improving further how national and regional bodies work together. Central to this will be a focus on high-impact, feasible, sustainable and acceptable actions that can respond to the need for: (i) both structural and behavioural change in line with a 1:9:90 approach as outlined above; (ii) linking innovation and improvement agendas; (iii) macro-, meso- and micro-scale actions; (iv) regional and national collaboration; and (v) a carefully considered portfolio approach to innovation support in our evolving health system. Last but not least, the detailed and comprehensive evidence we are gaining should enable us to contribute to a more interdisciplinary perspective on innovation theory and its links to improvement research as the next phase evolves.
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## Appendix A: Workshop agenda example

### Agenda (17 March 2016 1 p.m.–5 p.m. at CityLabs, Manchester)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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| 13:00–13:30 | **Welcome and introduction**  
|           | - Introductions of participants  
|           | - Overview of project and workshop agenda  
|           | - Expectations from the day                                               |
| 13:30–15:00 | **Innovation in your setting – how it works and what matters**  
|           | Working in three groups – organised around a primary focus on drugs, medical device/technology, or service innovation – we will explore:  
|           |  - Who contributes to innovation in your region and how (groups, organisations, roles)  
|           |  - How key drivers of innovation play out in practice and impact on innovation in your setting:  
|           |    o the role of information and resources – ‘is the right information available at the right time in the right places?’  
|           |    o skills, capacities and relationships – ‘are individuals and organisations equipped to act on the opportunities available?’  
|           |    o motivations and accountabilities – ‘there are many motivations in healthcare; how strong is the motivation to innovate and are people and organisations held to account for doing so?’  
|           |  - Examples of successful, high-impact actions and initiatives  
|           |  - Gaps to tackle                                                         |
| 15:00–15:20 | **Break**                                                                |
| 15:20–16:50 | **Going forward: pragmatic steps for facilitating progress and impact in your region:**  
|           |  - What are the ‘big ticket’ issues to address (i.e. can you identify areas where innovation, if successful, would significantly improve the quality, safety and/or cost-effectiveness of healthcare)?  
|           |  - How common/unique are they across different types of innovations, different parts of the healthcare pathway, stakeholders, therapeutic areas?  
|           |  - Interplay between national and regional policy: What has to happen nationally and what locally/regionally for the overall system to work? |
| 16:50–17:00 | **Wrap up and next steps**                                               |

For further information on the project please visit the RAND Europe website:  
Appendix B: Interview informed consent

Evaluation of strategies for supporting innovation in the NHS to improve quality and efficiency

(Regional case study component of evaluation)

CONSENT FORM

If you are happy to participate please complete and sign the consent form below.

An original copy of the participant information sheet and consent form will be given to the participant in addition to the copy retained by the researcher.

<table>
<thead>
<tr>
<th>Please initial box</th>
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<tbody>
<tr>
<td>1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.</td>
</tr>
<tr>
<td>2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to me. If I withdraw from the study all of my data will be deleted. I understand that it will no longer be possible to withdraw my data from the study after findings have been published.</td>
</tr>
<tr>
<td>3. I understand that the interviews will be audio-recorded.</td>
</tr>
<tr>
<td>4. I agree to the use of anonymous quotes.</td>
</tr>
<tr>
<td>5. I agree to take part in the above project.</td>
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</table>
This Project Has Been Approved by the Alliance Business School, University of Manchester.
Appendix C: Interview protocol for regional case studies

INTRODUCTION

BACKGROUND
1) Can you please briefly tell us a little bit about yourself – especially in terms of your role and experiences as they relate to innovation in the health system?

SKILLS AND CAPABILITIES
We are interested in better understanding whether individuals and organisations have the skills and capabilities to engage with innovation (as they apply to both the supply side and to the adoption, diffusion and scale-up side of innovation).

2) With this in mind, to what extent do you think that the skills and capabilities needed for an innovation-friendly NHS are already present in your region and to what extent do specific skills need strengthening and how can this be done?
   Potential skills and capabilities might relate to:
   o identifying need/problem definition
   o matching supply with demand/identifying solutions
   o information and network brokerage
   o leadership skills (e.g. individual, collective, etc.)
   o skills and capabilities for
     ▪ evaluating the real world impact of innovations
     ▪ implementing innovations in real world NHS settings and within current architectures

INFORMATION AND RESOURCES

We are also interested in better understanding the types of information on innovation that different groups in the NHS need to make better informed decisions related to innovation and to better engage with innovation activity (e.g. CCGs, Trusts, primary care/GPs, patients, industry, academic organisations, charities, other).

3) With this in mind, do you personally have access to the type of information you need?
   • What types of information do you need and where do you seek it out?
   • Are there any issues with information you access (e.g. issues of reliability, information governance issues)?

4) What needs to happen to facilitate improvement in the information environment? How do information flows around innovation work within your organisation and your network?

RELATIONSHIPS, COLLABORATION AND COORDINATION IN THE SYSTEM

So far we have learnt that there are many initiatives which aim to increase connections between different sectors or between different organisations within the same fields or sectors, and it is important for institutions to carve
out their own identity and be able to clearly articulate the value they add as well as to coordinate activities – to mitigate risks of ‘initiativesitis’ and to maximise impacts.

5) What unique value do key organisations/networks involved with health innovation in your region add and how do they complement each other and collaborate and coordinate activities?

6) Are there any areas where you see scope for improved collaboration and coordination of activities (to allow for more efficient and effective progression of innovations through the pathway – from inception and development through to adoption and diffusion)? Please elaborate. (discuss how this could be achieved)

**Diverse roles and value contribution of AHSNs**

7) We recognise that AHSNs are diverse and that there is no one-size-fits-all approach. However, based on your experience, what types of activities and functions do you think AHSNs in your region are particularly well suited for and are there any activities which are best left to others?

8) How can information between AHSNs be best shared and their activities coordinated? We are interested in better understanding how AHSNs as a network can enable efficient, effective and inter-connected innovation exchanges?

**MOTIVATIONS AND ACCOUNTABILITIES FOR INNOVATION IN THE HEALTH SYSTEM**

9) Based on your experience, to what extent do those with innovation roles in your region (be they individuals or organisations or networks) really ‘embrace and own’ health innovation agendas and are they accountable for the outputs and impacts of innovation activities in the region?
   - Can you provide any examples of impact?
   - Does the situation differ for activities related to the development of innovations as opposed to activities geared at adoption, diffusion and scale-up (in terms of responsibilities and accountabilities)?
   - How can incentives and accountabilities be enhanced?

10) To what extent is there buy-in in the regions for innovation roles in Trusts and for institutions/organisations engaging with Innovation?

11) We have been told that incentives have to work at the individual level, in addition to organisational and system levels, for buy-in, take-up and spread of innovation. Based on your experience, what types of incentives are important for:
   - you or individuals in your profession and stakeholder group to engage with innovation development and uptake?
   - organisations like yours to engage with innovation development and uptake?
   - Do incentives differ substantially for different stakeholder groups, based on their experience (e.g. Trusts, primary care/GPs, CCGs, private sector, patient voice, other?)

12) Based on your experience and awareness, are there any perverse or unintended disincentives to innovation in the health system? And if so, how might they be mitigated and managed?

**FINANCIAL RESOURCES FOR INNOVATION IN THE HEALTH SYSTEM**

13) What do you think are some of the important factors that would need to be considered in the design and implementation of an innovation funding scheme, in order for it to work well? Some issues for consideration:
Creating and Connecting Receptive Places

• purpose and scope of funding
• thematic approach or open in nature
• management and governance model
• duration of funding
• existing successful and innovative financing mechanisms for innovation in the health system.

PATIENT VOICE
14) How is the patient voice currently reflected in innovation discussions and agendas in the NHS? (Focus primarily on the region, but welcome insights on national situation as well)
15) To the best of your awareness, where do patients tend to go to access information on innovations?
16) What more can be done to give patients a more prominent voice at every stage of the innovation pathway?

PROCUREMENT AND COMMISSIONING
17) Is there a need for innovation in how procurement and commissioning of innovations is done nationally? What aspects need addressing? Do you have any insights on how this might be achieved?

RISK MANAGEMENT OF INNOVATION IN THE HEALTH SYSTEM
18) Based on your experience, to what extent is there a culture of risk avoidance in the NHS and is this a barrier to innovation (especially in terms of the adoption, diffusion and scale-up of innovation)? Related to this, have you come across any successful approaches to risk management of innovation in the NHS?

INSIGHTS INTO IMPACT
19) Are there any examples of innovation activity that has already had high impact in your region – for patients, the NHS, population more largely? (Note: interviewees mainly spoke about innovation taking place, and less so about high impact at this stage)
Appendix D: Examples of innovations in regions we engaged with

The table below captures examples of innovation that were shared and identified by the individuals we spoke to during the workshops and interview process. It is neither an exhaustive list of innovations happening in England or in specific regions, nor intended to provide evaluative judgements on what is or is not an innovation. Rather, it illustrates examples of innovations considered meaningful in some way (i.e. with potential for impact or with already realised impact) by those we spoke to. There are two interesting observations from this table. First, study participants were more readily able to identify examples of service-related innovation (and also to a degree digital innovation) than examples of innovation in med-tech and medicine/biopharma spaces. In light of other evidence shared in this report, this further emphasises the need for greater awareness of innovation opportunities, challenges and pathways to entry into the NHS for medical technology-based innovations. The number of new biopharma products identified was also strikingly low, which – although tentative – may be related to the development pipeline and timelines for biopharma, as well as to commissioning challenges. Finally, the boundaries between some types of innovations are blurred – for example, many digital innovations can also be considered service-related innovations.

Table 16. Examples of what study participants identified as innovations happening in their regions

<table>
<thead>
<tr>
<th>Medicines/biopharma</th>
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<tbody>
<tr>
<td>• Three-day delay for antibiotics prescription (further information unavailable at this point)</td>
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<tr>
<td>• Potential research collaboration with local company to produce dietary supplements to help treat children with genetic disorders</td>
</tr>
<tr>
<td>• Tranexamic acid – helps to reduce excessive bleeding</td>
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<tr>
<td>• New anticoagulant</td>
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<tr>
<td></td>
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<tr>
<td>Diagnostics and medical devices/medtech</td>
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<td></td>
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<tr>
<td>• Instrument for keyhole cardiac surgery</td>
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<td>• Inflatable door for multi-bay wards towards MRSA decontamination</td>
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<tr>
<td>• Standardised practice for DNA extraction across laboratories</td>
</tr>
<tr>
<td>• Radiology department ‘Batphone’ (no further information available at this point)</td>
</tr>
<tr>
<td>• 3D printing of anatomical organ models</td>
</tr>
<tr>
<td>• Eye mask to treat macular degeneration</td>
</tr>
<tr>
<td>• ‘AliveCor’ – portable screen for atrial fibrillation (app)</td>
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<tr>
<td>• Home haemodialysis</td>
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<td>• Episiotomy scissors, which enable the performance of accurate mediolateral episiotomy</td>
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<td>• New tools and sutures for laparoscopic surgery</td>
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<td>• New thermoform fibre products replacing plastic for improved environmental outcomes</td>
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<td>• ‘Patient Pump Bridge’ device for safe patient transportation</td>
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<td>• Kevlar socks for fragile skin</td>
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• Pilot for home sputum testing
• Home dialysis programme for improved patient safety and experience
• ‘Cytosponge’ – device for less invasive tissue collection
• Non-injectable arterial connector to prevent wrong-route drug administration
• Quick and long-lasting glaucoma drainage device
• ‘Light Touch’ – fall prevention sensor
• ‘Little Moments’ – platform that provides a secure video connection to allow new mothers to see their babies in neonatal care

Digital innovations
• Barcodes for wheelchair equipment
• Dementia app
• ‘Patient View’ – enables patients to view their records and manage their own conditions, giving them greater control
• Embedding big data-driven and collaborative working (no further information available at this point)
• Large-scale telehealth services
• App for people with COPD
• ‘Farsite’ – research tool to interrogate GP records in order to identify and recruit eligible patients for clinical trials and research
• Digital system for clinicians to share notes with patients; patients can rate clinicians
• AHSN-supported app for managing patient consent
• Digital, self-service check-in implemented in several Trusts
• Connected Health Cities – collaboration to develop interoperable IT systems to allow GPs and hospitals to share patient data
• Smartphone technology for remote monitoring of patients’ trips and falls, water consumption, surrounding room temperature and other characteristics or conditions
• ‘Datawell’ – AHSN-led health informatics programme to support innovation and service improvement efforts
• App for patient education (no further information provided)
• Tablet-based video-calling to allow patients being treated at a distance to communicate with their families/friends, and with predictive-text style messaging for those patients unable to speak
• ‘Refer to Pharmacy’ – electronic medication information system
• ‘Babylon’ – GP video consultation
• The HANDi Paediatric App, which provides information and advice on managing paediatric conditions to healthcare professionals, caregivers and parents
• GP+ – networking website for GPs that supports professional development
• Hiblio TV channel – YouTube channel for community consultation – developed by someone at a hospital
• Virtual reality package providing training to improve healthcare professionals’ understanding of patient experience
• System to connect innovations to the regional network of Innovation Leads in order to facilitate scale-up across Trusts and reduce duplication of efforts
• 3S Survey System – digital patient and family/friends feedback system for real-time, anonymised feedback to hospital management
• App which provides updated pharmaceutical guidelines from local pharmacies
• Online patient portal for more streamlined and efficient hospital consultations
• System for quality improvement – project portal to help NHS staff plan, manage and record quality improvement projects within hospital settings
Creating and Connecting Receptive Places

- IT/data system to reduce admin time for nurses
- EpSMon – risk assessment app for patients with epilepsy
- ‘Learning Location’ – e-learning portal for targeted learning by dementia carers
- Implementation of electronic health records in Trusts
- PsyMaptic – online prediction tool for healthcare planners and commissioners who require accurate and reliable data on the expected incidence of psychotic disorder
- Software to reduce out-of-hours hospital mortality
- App providing support for mental health
- ‘Silent Secret’ – app that allows young people between 11 and 19 years old to share secrets
- Software to gather MRI imaging data from district general hospitals to facilitate dementia diagnosis and research
- ‘Local Care Records’ – interoperable IT system for sharing patient data between London-based GP practices and hospitals. Currently being extended to enable patient-reported outcomes
- IMPARTS software to collect wider patient data in clinic waiting rooms, for better-informed consultations, diagnosis and outcomes
- Data-driven quality improvement tools for improved care of patients with cardiometabolic diseases within GP practice settings
- ‘Sleepio’ – fully automated digital CBT programme delivered via web and mobile to help treat people with insomnia
- New data-driven tools for improved management of atrial fibrillation
- New devices for faster data linkage in research projects
- Collaboration with private sector on an app to better detect and treat patients developing early-stage kidney failure
- ‘Health Unlocked’ – platform for patient and public engagement

Service model and service innovations
- New model for general practice based on access, long-term conditions, self-care and diagnostics
- Innovative procurement process for cardiac devices
- ‘Are You Clear?’ – provision of sexual health postal screening kits to young people
- Training programme for improved and more consistent patient experience
- Out-of-hospital, home- and outreach centre-based cancer treatment
- Clinical management service performing quality assurance on GP referrals
- ‘Warm Homes’ programme – partnership between CCG, local authority, housing associations and a property developer, helping people living in low-quality housing out of fuel poverty in order to improve their health outcomes
- ‘Innovation Toolkit’ to help R&D managers better engage in innovation activities
- Regular pharmacist reviews of medication given in care homes, with reports/recommendations fed back to GPs for action
- Urgent care centres for minor injuries to reduce pressure on accident and emergency (A&E) services
- Initiative to align GP practices with care homes, in order to strengthen communication and reduce inefficiencies between care homes and GPs
- Collaborative initiative between different health and care actors, focusing on six priority areas for engaging with harder-to-reach communities and promoting preventative care
- ‘Dedicated Ward Pharmacy’ – pharmacists and technicians work alongside each other in a ward, which allows pharmacists to advise on drug choice and dosing
- Cross Trust network to improve transfer of care out of hospital
• Telephone triage implemented in GP practice for improved efficiency
• Acute kidney injury pathway
• New patient pathway for women at risk of stillbirth
• Clinic for claustrophobic patients undergoing MRI
• ‘Citizens’ Juries’ for scaled-up and more diverse patient and public engagement on specific innovation issues
• Training programme to give pharmacists advanced practitioner skills to work in emergency care departments
• AHSN Innovation Nexus
• ‘Advancing Quality’ programme for the adoption of standardised clinical practice across the region
• Development of analytics and benchmarking around population disease burden and spread and healthcare systems capacity
• Real-world, real-time, large-scale clinical trial of a new treatment for COPD
• Mocked-up front-room to demonstrate new health technologies for greater patient and public engagement with innovations
• AHSN-driven atrial fibrillation diagnostics and support for awareness-raising activities at sports events and in collaboration with local football teams
• Practice Quality Scheme introduced to give GPs greater scope to provide more patient-centred, integrated care
• Enhanced primary care – health coaches in GP practices provide coaching to patients to help manage their long-term conditions, and also act as a single point of contact to coordinate the patient’s cross-sector care
• Internal GP practice ‘huddles’ – regular multidisciplinary meetings to discuss the care needs of patients with complex conditions – improves quality of care and reduces pressure on GPs
• Integrated care model for patients with long-term conditions
• Local Ambulance Trust has trained consultant-level paramedics to be able to deliver greater levels of care outside of the hospital
• ‘Pathfinder’ project – voluntary work to offer medical and non-medical support
• ‘Patient-directed clinics’ for reduced number of GP visits but higher levels of patient satisfaction, because patients have greater control over when they go to see their doctor
• Multiservice, integrated ‘rehabilitation centre’ for the homeless
• Older People Assessment and Liaison (OPAL) Unit to make sure that people aged 75+ are seen by specialists in geriatric care if they are admitted to hospital through A&E or the acute medical unit, in order to reduce hospital admissions and length of stay
• Joint Emergency Therapies (JET) team – to ensure that people admitted to emergency care or at risk of admission to emergency care are seen by specialist physios and occupational therapists – in order to reduce hospital admissions and length of stay
• ‘Living Well’ programme in Cornwall – new model of care for older people
• Integrated Care Exeter – project to integrate health and social care and the voluntary sector, particularly for vulnerable populations
• Consultant and clinician phone-ins to local BBC radio for improved public engagement and education
• The ‘Changing Lives’ approach for the integration of health and social care
• The ‘Do Not Rush Your life Away’ campaign to refer middle-aged men at risk of suicide to appropriate helplines
• Integrated urgent care clinical hub for more appropriate 24/7 mental health crisis response
• Over-the-phone counselling service for patients with moderate depression and/or common mental health disorders
• Prisoner Engagement Project to increase patient engagement and improve health and social care delivery among prisoner populations
• Monthly reporting of appointment data at GP practices to better manage patient demand and workforce
Creating and Connecting Receptive Places

- ‘Dementia Care Coach Programme’ to upskill the dementia carer workforce around a new dementia care competency framework
- New ‘primary care home’ model for improved general practice and community healthcare
- Emergency Care Improvement teams in hospitals to identify and improve care for ‘stranded patients’
- New pain service, which is moving the treatment of long-term conditions out into the community
- Service to help innovators develop a business case
- ‘Transforming Cancer Care in the Community’ – collaboration to embed cancer nurses in community care
- ‘The Future is Membership’ campaign for increased youth engagement with local NHS issues
- Use of block-coloured, opaque bags for the collection of incontinence pads on wards, for patient dignity
- Monitoring care home patients’ water consumption, for reduced emergency hospital admissions
- Phone talking therapy
- Real-time’ engagement with appointment data
- Outcome-based commissioning for health and social care services
- Cheaper, easier-access cataract surgery with community optometrists
- Support workers embedded within clinical nurse specialist teams to reduce the administrative burden on nurses
- Essex Dementia Village
- New primary care-based approaches to dementia diagnosis
- New models for coordinated end-of-life care
- Accountable care partnership to integrate health, social and voluntary-sector care
- New ambulatory care pathways for treatment in a day-care setting instead of full admission to a ward
- GP commissioning contract
- Shared contract for cataract care with community optometry
- i-THRIVE (implementation of THRIVE framework, NIA) – support for organisation of mental health services for reduction of waiting times and improvement of experience of care
- London Cancer collaboration on whole-pathway, integrated cancer care
- New triage-based approach to better manage dementia
- Integrated care pathway between community and acute care for COPD patients
- Citizens’ Senate for scaled-up and diversified patient and public engagement
- ‘100 day challenge’ – pilot project to reduce avoidable hospital admissions for frail patients
- New stroke model for improved health outcomes
- Life First Emergency Traffic Control (LiFE) project aims to develop new solutions to reduce ambulance response times for life-threatening cases